CAREER AND TECHNICAL EDUCATION'S IMPACT ON THE PREDICTOR RACE FOR AFRICAN AMERICAN PRISONERS IN SOUTH CAROLINA

by

WAYNE ARTHUR WHEELER

(Under the Direction of Jay W. Rojewski)

ABSTRACT

This dissertation investigated the stability of race used as a predictor of recidivism on African American prisoners in South Carolina who received career and technical education while incarcerated. The purpose was to determine whether variables of security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length predicted recidivism for adults incarcerated in South Carolina who completed a career and technical education certificate program while in prison and those who did not completed a correctional education program.

Data from all prisoners released between January 1, 2004 and December 31, 2005 were included. The selected variables were used to create a model to predict recidivism in two samples: prisoners who had completed a career and technical education certificate while incarcerated and prisoners who had not completed an education certificate while incarcerated. This was done to both determine if these variables were statistically significant in predicting recidivism, as well as to determine if the same variables were significant in both populations.

Stepwise logistic regression was conducted on both samples to determine the best model, age at release, number of prior incarcerations, education level at intake, security class and crime

type were found to be significant predictors of recidivism for prisoners who completed a career and technical education certificate. Age at release, number of prior convictions, education level at intake, security class, crime type, race, sex and number of disciplinary reports were significant in the non-completer sample. Both models predicted recidivism more effectively than chance.

INDEX WORDS: Prisons; Correctional Education; Recidivism; Regression; Prediction; Career and Technical Education; CTE; Workforce Education;

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DEDICATION

I would like to dedicate this effort to the three most important women in my life: my late mother, my wife and my daughter. It is impossible to do justice to the contributions you have made, but I will try.

Mom, you believed in me when nobody else did. When I toyed with the idea of going back to college after I had flunked out my freshman year making the claim that I would end up with a PhD one day, you were the only one who believed I could. Thanks for the confidence. I am glad you were here for the first part of my PhD so you could see the start of that bold statement coming true; I wish you could share the finish line with me too.

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Behind every great man there's a great woman…If I become a great man, it will be because of three.

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CHAPTER 1

INTRODUCTION

Background of the Problem

An ongoing problem in South Carolina is the large and expanding prison population. In 1995, the average daily prison population in South Carolina was 17,704. By the year 2008, this figure had expanded to 23,889 (South Carolina Department of Corrections, 2008a), increasing by almost 35%. These numbers have two major implications to citizens of South Carolina. First, it is costly to house prisoners, and as the prison population increases, so do the costs to taxpayers. Second, these numbers represent people that have lost their freedom. Since many of these prisoners are African Americans, some concerns arise about the equitable treatment of marginalized members of our society.

Society tends to view crime as only affecting criminals and their victims, and this view is not complete. The families of criminals are also affected, as well as the families of victims. Although these personal costs are important, the economic costs to our society are also valid. One way that crime affects South Carolina is through the financial burdens caused by housing inmates, which includes the cost of prisons and the lost Gross Domestic Product (GDP) of prisoners. Assuming that prisoners would contribute to the economic development of South Carolina if free, the lost GDP from prisoners in South Carolina was $833,917,212 for the year 2008 (Bureau of Economic Analysis, 2009). In addition to lost productivity, the costs of housing inmates must also be considered. The South Carolina Department of Corrections (2008b) estimated the average cost of housing a prisoner was $14,344 in the year 2008. Using an average

incarceration rate of 23,889 prisoners per year, the annual cost to taxpayers for housing adult prisoners in South Carolina was $342,663,816 in 2008. Thus, the combined costs of housing and losses in annual GDP represented by the 2008 South Carolina active inmate population totaled $1,176,581,028. These numbers are staggering, but they fail to present an accurate picture of the potential growth of this problem. If the growth rate of prisoners over the last 13 years, almost 35%, continues unabated, costs to South Carolina taxpayers in the year 2021 could total over 1.58 billion dollars. Unless a change occurs, the swelling prison population will increasingly make a negative impact on South Carolina's economy.

Impacts on the economy aside, incarceration is a serious problem in South Carolina—affecting all citizens. However, it is even a larger problem for African Americans. African Americans comprise the largest category of prisoners in South Carolina. As of June 30, 2008, 16,141 African American prisoners were incarcerated in South Carolina prisons, comprising 66% of the prison population. According to the U.S. Census Bureau (2009), African Americans comprise 28.5% percent of South Carolina's population. African Americans are incarcerated at a disproportionate rate in South Carolina. Across the nation, African American men are more likely to be incarcerated than any other subgroup. According to Barton and Coley (2006), African American men are seven times more likely to be incarcerated than White men. In addition to the economic issues related to this problem, the disproportionate incarceration rate of African Americans reveals a social issue that should be researched. Pettit and Western (2004) studied the effects of race and education on incarceration rates of men born between the years 1965 and 1969. They found 20% of African American men were incarcerated by their early 30s, compared to only 3% of White men. This rate tripled (60%) for African American men who did not earn a high school diploma. Findings similar to those of Pettit and Western are found in

South Carolina. Although not available by race/ethnicity, 59% of prisoners in South Carolina during 2008 did not earn a high school education (South Carolina Department of Corrections, 2008c).

Most of the money spent to control crime is used on law enforcement activities. Trying to draft policy to control crime from this direction is wrought with problems. The freedoms of the general population are often negatively impacted by policies designed to correct the impact of crime. However, if the focus is placed on reducing recidivism once criminals have been incarcerated, the only people affected would be criminals and taxpayers.

Lowering recidivism rates have proven difficult in South Carolina. Recidivism is the measure of released prisoners returning to prison. In South Carolina, recidivism is measured by someone returning to prison within three years of being released and was used as the operational definition of recidivism in this study. According to the South Carolina Department of Corrections (2006), average recidivism in 2003 was 32%.

One method suggested for lowering recidivism rates is correctional education. Correctional education is academic, character-based, and career and technical education provided to incarcerated people. There have been many studies that show a relationship between participation in correctional education and lower recidivism rates among participants (Batiuk, Lahm, McKeever, Wilcox, & Wilcox, 2005; Bazos & Hausman, 2004; Brewster & Sharp, 2002; Cole, 2002; Davis, Chown, & Oklahoma State Department of Corrections, 1986; Fabelo, 2002; Gordon & Weldon, 2003; Harer, 1994; Harrison & Schehr, 2004; Haulard, 2001; Hrabowski & Robbi, 2002; Jenkins, Steurer, & Pendry, 1995; Jensen & Reed, 2006; MacKenzie, 2006; Nuttall, Hollmen, & Staley, 2003; Piehl, 1995; Ryan & Desuta, 2000; Soferr, 2006; Steurer, Smith, & Correctional Education, 2003; Thomas, 2005; Ubah, 2002; Vacca, 2004; Wilson, 1994; Young &

Mattucci, 2006). Although the literature suggests a relationship between lower recidivism rates and correctional education, there have been no studies exploring what level African Americans participate in correctional education or how participation impacts expected recidivism.

Correctional education is a broad term and needed to be narrowed so results of this study could be interpreted correctly. Correctional education can mean academic education, career and technical education, or character education (Ardovini-Brooker, 2005). Since the term is so broad, the mechanism of effect on the variability of recidivism for correctional education as a whole would be difficult to hypothesize. Therefore, it was necessary to choose a specific type of correctional education to evaluate.

The hypothesized mechanism of effect for correctional education on recidivism is a reduction of strain. One of the major strains in American society is based on one's actual economic position compared to expected economic position. The effect of strain reduction would likely be greater for education designed to teach or reinforce job skills—as this could change economic opportunity. Therefore, this study focused exclusively on career and technical education delivered in correctional settings instead of evaluating academic or character-based education.

Career and technical education is academic and skill-based activities designed to prepare students for work and further education. According to current federal legislation, career and technical education can take several different forms. The first form is organized educational activities that prepare students for "further education and careers in current or emerging professions" (Carl D. Perkins Career and Technical Education Improvement Act of 2006, p. 4). Career and technical education can also be coursework designed to provide "technical skill proficiency, an industry recognized credential, a certificate or associate degree" (Carl D. Perkins

Career and Technical Education Improvement Act of 2006, p. 4). In addition, career and technical education can be "academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of an industry, including entrepreneurship" (Carl D. Perkins Career and Technical Education Improvement Act of 2006, p. 4).

Career and technical education can increase economic opportunity. The purpose of career and technical education is to prepare students for both work and further education (Rojewski, 2002). In addition to being designed to prepare students for work, there is evidence that career and technical education can increase future earnings (Compton, Laanan, & Starobin, 2010). The creation or enhancement of economic opportunity caused by career and technical education may reduce strain, because it prepares participants for both the world of work and further education. Since one of the strains in American society is actual economic position compared to expected economic position, an educational program that increases economic opportunity is likely to reduce strain. This reduction in strain is likely to reduce deviance and recidivism.

Although career and technical education is likely to have the strongest impact on strain, other forms of correctional education could also reduce strain in a similar manner. If all types of correctional education could affect strain to some degree, comparing a group of correctional educational career and technical certificate recipients to another group of correctional education certificate recipients could cause the relationship between the independent variables and the dependent variable to be less noticeable. Therefore, this study will compare the predictability of the variables between two groups – those who have received a career and technical education

certificate while incarcerated and those who have not received any type of correctional education certificate.

Since no research exists on the impact of career and technical correctional education and African American recidivism, this study analyzed the predictive link between career and technical education received in a correctional setting and African American recidivism. This relationship was evaluated by using race and other selected variables as predictor variables on the recidivism rates of prisoners who had either received career and technical education certificates while incarcerated or received no education certificates while incarcerated.

Purpose of Study

The purpose of this causal-comparative study was to determine whether the selected variables of security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length predicted recidivism for adults incarcerated in South Carolina who completed a career and technical education certificate program while in prison and those who did not completed a correctional education program.

Research Questions

1. What are the descriptive characteristics of African Americans incarcerated in the state of South Carolina who complete career and technical education certificates?
2. In which career and technical education certificate programs do African Americans in South Carolina complete?
3. Are African Americans proportionately represented in career and technical education certificates received in South Carolina?

4. Which combination of variables including security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length provide the best model to explain the variability of recidivism for prisoners who completed a career and technical education program and those who did not complete a correctional education program?

Theoretical Framework

General strain theory (Agnew, 1992) and critical race theory (Delgado & Steffancic, 2001) can be used to explain the relationship of selected variables to career-technical education participation and rates of recidivism for incarcerated men examined in this study. The construct *recidivism* refers to the continued deviance of an individual after incarceration as measured by returning to prison within three years of being released from prison. Agnew's (1992) general strain theory provides a framework for explaining this deviance.

General strain theory, as posited by Agnew (1992), suggests that strain can lead to deviance. People under strain attempt to adapt to alleviate the strain they experience. Agnew described three main types of strain, including the failure to achieve positively valued goals, removal or threat of removal of positively valued stimuli, and the presentation or threat of negatively valued stimuli.

Critical race theory (Delgado & Steffancic, 2001) can be used to describe the current experience of African American men concerning both education and crime. Critical race theory describes the structural, ordinary, and subtle racism that creates downward pressure on African American achievement in schools and also contributes to a higher rate of incarceration. Critical race theory suggests that African Americans are generally placed under more strain than similarly situated White people because of subtle, pervasive racism. In addition, critical race

theory suggests a relationship between race, economic inequality and crime. Racism prevents the achievement of goals with emphasis on equity issues, takes away positive stimulus and creates negative relationships with social institutions like school and work. Correctional education, specifically career and technical education, is positioned to help reduce or alleviate these strains.

There is a relationship between education and greater economic opportunity. According to Table 680 of the U.S. Statistical Abstract (U. S. Census Bureau, 2009), as education increases in America so do wages. The median income of persons have not graduated from high school is $21,184, while high school graduates have a median income of $31,009. Individuals with a bachelor degree report a median income of $54,403. As people receive more education, economic opportunity also increases. A report by the South Carolina Department of Corrections (2009b) suggested that correctional education expands economic opportunity providing legitimate means to achieve goals, and that correctional education prolongs employment. The positive experience of a successful education experience and employment would provide positive relationships with employers and education systems, thus helping to further reduce strain. Having access to employment would provide a legitimate means to escape negative stimuli. Therefore, the framework indicates that correctional education should reduce strain in African American inmates and this reduction of strain should lead to less deviance as measured by recidivism.

Importance of the Study

This study will potentially impact four groups, including African American prisoners, prison policymakers, citizens of South Carolina, and correctional education researchers. In 2008, 16,141 African Americans were incarcerated in South Carolina prisons comprising 67% of the

prison population in South Carolina (South Carolina Department of Corrections, 2008c). The economic impact of African American incarceration in South Carolina, both actual cost and lost GDP, is approximately 700 million dollars annually. In addition to economic concerns, the lives of South Carolina prisoners, their families, and their victims are affected by the growing African American prison population.

This study can inform policy addressing these problems. Since the analysis in this study found that race has less predictive value for recidivism for groups that completed a career and technical education certificate, then policies should be put in place by the State of South Carolina to ensure that these services are funded and available. Further, correctional policy can be enacted that could help to ensure that African American prisoners receive opportunities for career preparation prior to release.

Good correctional intervention policy will have a positive impact on three groups of people, including prisoners, policy makers, and citizens of the state. Prisoners will benefit from good correctional intervention policy because they will lead productive lives free from criminal sanctions. Policy makers will benefit from good policy decisions because they will likely keep their positions of leadership. As prisoners become economically productive, they will pay taxes and policy makers will benefit from having more tax dollars available for other programs. Citizens of the state will benefit from these good policy decisions because they will have a society with less criminal activity. The tax burden associated with housing prisoners will decrease as less prisoners return to prison.

In addition to helping prisoners, policy makers and citizens of the states, this study will help inform correctional education researchers. There are many studies in the literature that examine the relationship between correctional education and lower recidivism rates for general

populations of prisons (Batiuk et al., 2005; Bazos & Hausman, 2004; Brewster & Sharp, 2002; Cole, 2002; Davis et al., 1986; Fabelo, 2002; Gordon & Weldon, 2003; Harer, 1994; Harrison & Schehr, 2004; Haulard, 2001; Hrabowski & Robbi, 2002; Jenkins et al., 1995; Jensen & Reed, 2006; MacKenzie, 2006; Nuttall et al., 2003; Piehl, 1995; Ryan & Desuta, 2000; Soferr, 2006; Steurer et al., 2003; Thomas, 2005; Ubah, 2002; Vacca, 2004; Wilson, 1994; Young & Mattucci, 2006). However, there have been no studies that have established the relationship between lower expected recidivism rates and career and technical correctional education for minority populations. This lack of examination of correctional education on minority populations allows for the assumption that correctional education impacts expected recidivism for all prisoners equally. This study has helped to address this gap in the literature, leading to further research in the area of correctional education research, and helps advance the literature concerning the effects of correctional education.

CHAPTER 2

REVIEW OF LITERATURE

The scholarly literature concerning the impact of correctional education on African Americans in the United States will be reviewed. The topics reviewed include the historical foundations of correctional education, theories that explain the relationship between crime, correctional education, and recidivism of African Americans, and an overview of current practice in correctional education programs.

Framework for the Study

Introduction

This study sought to determine the influence of race on the recidivism rates of prisoners who completed career and technical education certificates while incarcerated compared with incarcerated individuals that did not earn certificates. To accomplish this goal, two predictive models were created using stepwise logistic regression. First, I had to determine what variables would be included in the model. To assist in variable selection, a theoretical framework was selected. The theoretical framework explains the expected relationship between variables.

The theoretical framework for this study used a combination of critical race theory and general strain theory (Agnew, 1992) to explain the hypothesized relationship between selected variables. Critical race theory (Delgado & Steffancic, 2001) explained how general strain theory applied to African Americans in particular. General strain theory was used to explain continued deviant behavior as measured by recidivism. In deciding to use this theoretical framework, two other theoretical frameworks were evaluated. The two alternative frameworks were control

balance theory (Tittle, 1995) and structural criminology (Hagan, 1989), both used in conjunction with critical race theory (Delgado & Steffancic, 2001). Although each of these theories could have been used to create an explanation for expected relationship between selected variables, general strain theory used in conjunction with critical race theory was determined to be the best choice for guiding this study.

Critical Race Theory

Critical race theory is a movement that seeks to explain the relationship between racial groups, racism, and the power structure. The movement began in the mid-1970s as a legal theory (Delgado & Stefancic, 2001, p. 139). Although there are some common themes presented by critical race theory writers, the theory is still in its developmental stages and does not claim to explain all social interactions. Instead, the theory is a set of observations that seek to explain the power structure of post-industrial nations and explore the nature of racism in these nations (Gillborn, 2008).

Although critical race theory includes many different ideas, Delgado and Stefancic (2001) identified four basic tenets. The first tenet asserts that racism is normal and is so structured in our society that it is often subtle and undetected. The second tenet is that the dominant group in society, at all class levels, has a vested interest in keeping the power structure intact. The third tenet posits that race is a socially constructed idea and has no biological roots. The last tenet suggests that there is a "unique voice of color" (Delgado & Stefancic, 2001, p. 9).

Critical race theory (Delgado & Steffancic, 2001) has also been used to describe issues within criminal justice settings. Brewer and Heitzeg (2008) noted there are two main points of view concerning race and crime. The first is termed racial realism. Racial realism touts that racism was destroyed by the civil right gains of the 1960s and the high rate of incarcerated

people of color can be explained by the high level of crime participation of people of color. The second view is that provided by critical race theory. Although the mechanisms of racism might be different than they were during other times in history, "The law and its attendant machinery were, and still are, enforcers of both White supremacy and capitalist interests" (Brewer & Heitzeg, 2008, p. 630).

Critical race theory (Delgado & Steffancic, 2001) can be used to describe the current African American experience concerning education. Critical race theory has been used to describe educational issues. The theory was first used in education in the mid-1990s Gillborn (2008) noted that a great deal of established public education policy reinforced existing power structures. The racism of education was described as a "hub-and-spoke conspiracy" (p. 193). These spokes work together, many times without knowing, to reduce the educational achievement of people of color.

Methods used by educational systems to create and reinforce this downward, negative pressure are described by Ladson-Billings and Tate (1995). They identified three ideas that explain how educational systems reinforce racial inequality, including (a) race is a basis of inequity, (b) America is based on property rights, and (c) education inequity can be explained by combining the first two ideas. At its essence, racial inequality leads to property disparity and property disparity leads to an increase in disparity between educational opportunities between White and minority students.

There is also a strong suggestion from the literature that subtle racism exists in education. Picower (2009) found in a qualitative study that White, pre-service teachers' life-experiences influenced their understandings of race and difference. The study also showed how pre-service teachers reacted to the challenges a critical multicultural education course offered. In accordance

with critical race theory beliefs, study participants “gained hegemonic understandings about race and difference” (p. 197). Participants responded to challenges to these understandings by relying on a set of "tools of Whiteness" (p. 197) designed to protect and maintain dominant and stereotypical understandings of race—“tools that were emotional, ideological, and performative” (p. 197). Johnson-Bailey, Valentine, Cervero, and Bowles (2009) discussed the experience of African American graduate students at a southern research university. They found that three dimensions had changed to a level that was statistically significant between students who had graduated before 1986 and students who had graduated 1996 or later. These dimensions were discrimination by White college teachers and underestimation of African American students had decreased, but stereotyping and discrimination by White students increased. Finally, in *Racism and Education,* Gillborn (2008) found “individual experiences, no matter how intimate and apparently random, can rarely be fully understood without reference to wider structures of power and oppression that are historically rooted and racially patterned” (p. 198).

Critical race theory (Delgado & Steffancic, 2001) can be used to describe the current African American experience concerning criminal law. Several studies suggest that African Americans are subjected to subtle forms of racism concerning criminal law. Dixon (2008) found that Los Angeles County adults who were exposed to an overrepresentation of African Americans as criminals in local news programming were positively correlated with perceiving African Americans as violent and expecting unidentified suspects to be African American. Ross (1994) found that the application of the death penalty appeared to be racist, because as of January 1994, 40% of people under the death penalty were African American despite the fact that they comprised only 12% of the population. Dixon and Maddox (2005) found that heavy news viewers were more likely than light news viewers to feel emotional discomfort when

exposed to a dark-skinned African American perpetrator. They also found heavy news viewers had more favorable perceptions of victims when perpetrators were African American. Dixon and Maddox concluded that all participants found perpetrators were more memorable when described as dark-skinned African American men. This subtle racism, when combined with criminological theories, can be used to explain the behavior of this study's variables.

Deviance Theories

General Strain Theory

Anomie, first identified by Merton (1968), was one of the first criminological theories that recognized a social influence to criminal activity (Lilly, Cullen, & Ball, 2002). In contrast to the University of Chicago focus on geographical explanations of crime focusing on the role of the urban ghetto (Curran & Renzetti, 2001), Merton identified a different social force to explain deviance (Lilly et al., 2002). Instead, he theorized that American society was a factor that contributed to deviance. Becoming wealthy is a goal for all classes in America. This goal is reinforced by society, but there are obstacles that prevent some people from accumulating wealth. People who desire to wealth but do not have opportunities to accumulate it experience strain.

People under strain adapt to their situation in attempts to relieve the feelings of strain. Merton (1968) observed five methods of adaptation. The first adaptation is *conformity*. Conformity is marked by individuals still subscribing to the goal of financial success and believing in the social institutions that make them possible. In this case, an individual takes the responsibility for the lack of social ascent. Other methods of adaptation are considered deviations from societal norms.

The second level of adaptation, called *innovation*, is marked by a continued desire for financial success with a determination that legitimate means to success is blocked. Most criminal behavior can be classified as innovation (Lilly et al., 2002). This level of deviant adaptation tends to impact people in lower classes more than others because there are more socially structured obstacles at this end of the social and economic class spectra (Merton, 1968).

The third and fourth adaptations are called *ritualism* and *retreatism*, respectively. Ritualists are conformists on the outside, but have reduced their definitions of success to match their attainment. Retreatism is marked by not accepting normal definitions of success and normal ways of achieving success. Retreatists are often involved in substance abuse. The last identified adaptation is *rebellion*. Rebellion is characterized by people who reject the current system and actively seek to change it.

Cohen's (1955) theory of delinquent subculture expanded strain theory. Cohen criticized Merton's (1968) ideas by pointing out that not all crime could be classified as a means of trying to obtain wealth. Cohen noted that crime could be classified as a means of achieving status within a subculture. By studying gangs, Cohen noted that the strain caused by lower class children being held to middle class cultural standards led to disenchantment with society as a whole. These children then created a subculture that glorified things that went against established middle class values. In reaction, Cohen expanded strain theory so that strain was viewed within the context of social interactions.

Cloward and Ohlin (1961) also expanded strain theory by positing the differential opportunity and delinquent subcultures theory. They criticized Merton's (1968) anomie theory by noting that not all people who are denied legitimate means have access to illegitimate means. They noted that people not only have to be denied legitimate means to reach their goals, but must

also have access to a social structure that provide illegitimate means to reach their goals. Cloward and Ohlin noted that among adolescent boys who were denied legitimate means to reach their goals, the types of deviance the boys engaged in were related to the type of illegitimate opportunities available to them (Akers, 2009).

Agnew's (1992) general strain theory is the most current and broad form of strain theory. At the time of the theory's development, strain theory had fallen out of favor with criminal theorists (Agnew; Akers, 2009). The theory was criticized because it was limited by its singular goal–wealth attainment–and only explained lower socioeconomic status deviance (Akers, 2009). Agnew created the general strain theory to answer these criticisms.

General strain theory (Agnew, 1992) expands the concept of strain to include three main types of strain. The three types of strain identified are the failure to achieve positively values goals, removal or threat of removal of positively valued stimuli, and the presentation or threat of negatively valued stimuli. Agnew's (1992) expanded definition of the construct of strain is better suited to explain deviance at all levels of socioeconomic class (Akers, 2000).

Failure to achieve positively value goals. Agnew (1992) identified three subgroups of strain experienced by peopled when they fail to achieve positive goals. The first subgroup is the previously identified strain caused by the "disjunction between aspirations and actual achievements" (p. 51). This is the classic form of strain developed by Cohen (1955), Cloward and Ohlin (1961), as well as Merton (1968). Agnew expanded the definition for this subgroup by noting that this type of strain can impact people other than the lowest classes because "many middle-class individuals find that they lack the traits or skills necessary to achieve their goals through legitimate channels" (p. 51). The second subgroup of strain is the disjunction between expectations and actual achievements. Agnew hypothesized that this might be a more real form

of strain than blocked aspirations because expectations would be taken more seriously and, if blocked, would lead to resentment and anger. The last subgroup of this strain is the disjunction between a perceived fair or just outcome and actual outcome. This disjunction is caused by individuals feeling that their inputs do not align with their outputs. This inequity can lead to deviance in an attempt to increase outcomes, lower inputs, or decrease other's outputs, or increase other's inputs.

Removal or threat of removal of positively valued stimuli. The second type of strain Agnew (1992) identified in general strain theory is the removal or threat of removal of positively valued stimuli (Akers, 2000). Agnew discussed several examples of this type of stimuli including the death of a loved one, the loss of loved ones through divorce or breaking up, and the loss of a parent though divorce. These events may lead to deviant behavior as the affected person takes action to stop or mitigate the loss, find a replacement for the loss, or take revenge against those who caused the loss.

Presentation of threat of negatively valued stimuli. The third type of strain in general strain theory (Agnew, 1992) is the presentation of negatively viewed stimuli. Examples presented by Agnew (1992) of negative stimuli are child abuse, criminal victimization, negative school experiences, and negative relationships with friends or parents. This type of strain can lead to deviance as individual try to "(1) escape from or avoid the negative stimuli, (2) terminate or alleviate the negative stimuli, (3) seek revenge against the source of the negative stimuli" (p. 58).

Summary. Strain theory (Agnew, 1992) and critical race theory (Delgado & Steffancic, 2001) can be used to explain the relationships of variables in this study. The construct *recidivism* is defined as the continued deviance of an individual after incarceration as measured

by a return to prison within three years of release. Agnew's (1992) general strain theory provides a framework for explaining this deviance. Critical race theory (Delgado & Steffancic, 2001) suggests that African Americans are generally placed under more strain than similarly situated White people because of subtle, pervasive racism. Racism prevents the achievement of goals with emphasis on equity issues, takes away positive stimuli, and creates negative relationships with social institutions like school and work. Correctional career and technical education could help reduce or alleviate these strains. Correctional education expands economic opportunity by providing legitimate means to achieve goals, and prolongs employment (South Carolina Department of Corrections, 2009b). The positive experience of a successful education experience and employment can also provide positive relationships with employers and persons within education systems. This situation may help to further reduce strain. Having access to employment would provide a legitimate means to escape negative stimuli.

Therefore the framework would suggest that the independent variable, *participation in correctional career and technical education*, would reduce strain in African American inmates and this reduction of strain would lead to less continued deviance as measured by recidivism.

Control Balance Theory

Another theoretical framework that can explain the relationship between the variables of this study and recidivism is control balance theory and critical race theory. Control balance theory (Tittle, 1995) explains deviance as a result of control or lack of control. Using control balance theory to explain continued deviance as measured by recidivism and using critical race theory to show how this type of deviance explanation is of particular importance to African Americans, this theoretical framework can be used to explain the expected impact of correctional education on recidivism rates.

Control balance theory (Tittle, 1995) posits that deviance can be attributed to an imbalance of control between the amount exercised by and on an individual. The amount of control impacting an individual can be described by a ratio where the numerator is the amount of control an individual is subjected to by outside forces and the denominator is the amount of control an individual can exercise on outside forces (Curran & Renzetti, 2001). The closer these two numbers are to balance, the less likely an individual will be to engage in deviant behavior. Conversely, the farther apart these numbers are from balancing, the more likely an individual will be to engage in deviant behavior (Akers, 2009). Although this proportion is a predictor of deviant behavior, it operates in the context of other factors like motivation toward deviance, opportunity to commit deviant behavior, and social constraint and therefore is not linear (Tittle, 1995).

An imbalance in an individual's control ratio makes a person more likely to engage in specific types of deviant behavior (Tittle, 1995). An imbalance in the ratio of control can cause either a control deficit or a control surplus. A control deficit occurs when the amount of control one is subjected to is greater than the amount of control one can exert (Curran & Renzetti, 2001). This type of control deficit makes a person more likely to engage in *repressive* forms of deviance to escape control deficits (Tittle, 1995, p. 177). Repressive forms of deviance are predation, defiance, and submission. Predation involves seeking to harm others with physical violence or property crime in an effort to overcome the control deficit (Curran & Renzetti, 2001). Defiance is a deviance against norms that do not cause harm to others. Some examples given by Curran and Renzetti (2001) of this type of deviance are truancy, having sex with multiple partners, and vandalism. Submission is "conforming to routinized patterns of life without contemplating or questioning whether there is an alternative" (Tittle, 1995, p. 140).

A control surplus occurs when the amount of control exercised by individuals exceed the amount of control exercised on them (Curran & Renzetti, 2001). This type of imbalance leads to three types of deviance; exploitation, plunder, and decadence (Tittle, 1995). These types of deviance are known as autonomous deviance (Curran & Renzetti, 2001). Exploitation involve acts of "indirect predation" (Tittle, 1995, p. 138). The exploiter uses structural or organizational power to "coerce, manipulate or extract property from individuals or groups" (Tittle, 1995, p. 138) for the exploiter's benefit. Plunder is the deviant act of individuals or organizations acting in their own interest without a social conscious (Curran & Renzetti, 2001). Decadence acts are a "search for meaning within a jaded life of undisciplined excess" (Tittle, 1995, p. 139). Examples of these acts are torture for pleasure, unusual forms of sex and cruel behavior for pleasure (Tittle, 1995).

Control balance theory was refined by Tittle in 2004 (Tittle, 2004). According to Tittle (2004), the refinements to the original theory occurred because critics had identified a logical flaw and explanations were needed for contradicting empirical evidence. The reevaluation of the theory reduced the rigidity in linking types of deviance to specific types of imbalances of control.

The power distribution described by critical race theory (Delgado & Steffancic, 2001) would lead to deviance and help to explain the disproportionate representation of African Americans in prison. Critical race theory describes a power dynamic that is created, managed, and perpetuated through racism (Delgado & Stefancic, 2001). This power structure creates an imbalance of power, as described by control balance theory (Tittle, 1995), between White people and people of color in America. According to control balance theory, people of color in America experience a control deficit while White people experience a control surplus. This imbalance can lead to deviance.

Since the types of deviance generally associated with control deficits are usually considered to lead to larger criminal threats than deviance associated with control surpluses, control balance theory (Tittle, 1995) combined with critical race theory (Delgado & Steffancic, 2001) explain the higher proportion of African American incarceration. Examples of deviant behavior associated with control surpluses, with the exception of decadence, are often not criminal behavior in America. The system of control described by critical race theory allows for exploitation and plunder. In contrast, many deviant behaviors associated with control deficits are criminal like all predation and some forms of defiance. Since the forms of deviance for control deficits are more criminal in America, control balance theory can be used to explain the higher level of incarceration among African Americans—including continued deviance as measured by recidivism.

Using critical race theory (Delgado & Steffancic, 2001) and control balance theory (Tittle, 1995) to create an expected relationship of the treatment variable, correctional education, to recidivism, I would expect that correctional education would reduce the power deficit of African American inmates thus reducing recidivism. Since correctional education is shown to increase the economic opportunities of released inmates, African American inmates who receive correctional education should have a reduced power deficit relative to both African Americans inmates who did not receive correctional education and the general population. Therefore, the expected relationship between the variables can be expressed as correctional career and technical education results in a reduced control deficit for African American inmates relative to African American's who did not receive correctional education and thusly would recidivate less than these comparison groups.

Structural Criminology

Structural Marxism or structural criminology (Hagan, 1989), as it is now called, used in conjunction with critical race theory can also be used to explain the expected relationship between the study's selected variables. Structural Marxism grew out of criminologists' dissatisfaction with instrumental Marxism (Curran & Renzetti, 2001). Therefore, to understand structural Marxism criminology, it is necessary to review instrumental Marxism.

Quinney's (1977) work describes instrumental Marxist theory, in terms of the current social order reflecting a struggle between the ruling elite and oppressed masses. This order is produced by a capitalist political structure and institutions like the justice system that seek to enforce the structure by "maintaining the needs of the ruling class as expressed in law" (p. 3). Quinney identified two types of crime caused by capitalism, crimes of domination and crimes of accommodation.

Crimes of domination take three forms including crimes of control, crimes of government, and crimes of economic domination. Crimes of control are carried out by police and are a means of repressing the masses. Crimes of government are those crimes carried out by elected officials to maintain a particular administration. Crimes of economic domination are carried out by corporations "ranging from price fixing to pollution. . . in order to protect and further capital accumulation" (Quinney, 1977, p. 51). In all cases, these crimes are used to maintain political order.

Crimes committed by the oppressed masses are referred to as crimes of accommodation and crimes of resistance. Crimes of accommodation can be classified into two types, parasitical and personal. Parasitical crimes are carried out by people of the working class as a means of obtaining production without having to produce, e.g., most property crimes like burglary, theft,

and drug dealing. Personal crimes are crimes committed against the working class by the working class like murder, rape, and assault. These crimes are committed by those who are "already brutalized by capitalism" (Quinney, 1977, p. 54). Crimes of resistance are crimes committed by the working class against the ruling class to affect change (Quinney, 1977).

Structural Criminologists changed the Marxist definition of class to include power. Structural criminology, as defined by Hagan (1989), is a radical criminology that follows the basic tenets of Marxist theory, but defines social structure in less concrete terms of ruling or oppression. Instead of power being defined in the rigid terms of ruling elite or working class, structural criminologists describe social structure as relational power. This relational power can be viewed as instrumental or symbolic. Instrumental power is based on actual power such as rights of ownership, a more traditional Marxist view. Symbolic power relations are based on perceived status such as the "assignment of victim and villain status to users and dealers of drugs" (Hagan, 1989, p. 2). Using the definition of class provided by structural criminologists and critical race theory, the expected relationship of the study variables can be explained.

Using critical race theory as a guide, African Americans would have lower relational power than White people in most situations. Hagan (1989) noted that although race seems to be a deciding factor in prison sentencing, race taken into structural power context may be an even better describer of the inequality. The identified bias toward African Americans in the criminal legal system shown through policing, conviction, and sentencing inequality is often linked to symbolic power representations. Although African Americans will still be subject to these inequalities, any positive changes to their relational power would increase their chance of not recidivating.

Correctional career and technical education would increase the relational power of African American inmates relative to non-receivers. Hagan (1989) identified one marker that influenced relational power was employment. Since several studies show that correctional education receivers are more likely to be employed than non-receivers (Bazos & Hausman, 2004; Hrabowski & Robbi, 2002; Jenkins et al., 1995), African Americans could increase their relational power by receiving correctional education. Therefore, African American prisoners that receive correctional career and technical education should recidivate less than African Americans that do not receive correctional education.

Although all of these frameworks could be used to guide this study, the framework using critical race theory (Delgado & Steffancic, 2001) and general strain theory (Agnew, 1992) was most appropriate. General strain theory is developing considerable support in the literature (Baron, 2008; Botchkovar, Tittle, & Antonaccio, 2009; Froggio, 2007; Langton & Piquero, 2007; Moon, Hays, & Blurton, 2009; Moon, Morash, McCluskey, & Hye-Won, 2009; Preston, 2006). It would be appropriate to use with critical race theory because some of the main policy implications of the theory are restorative justice. Control balance theory has a small amount of research that only provides moderate support (Akers, 2009). An early test of control balance theory has shown that both control surpluses and control deficits lead to predation and defiance (Piquero & Hickman, 1999). This would make the theory incompatible with critical race theory. If control surpluses also lead to predation, then there should be no discrepancy between the proportion of African American and White incarceration. Marxist criminological theory is also not fully compatible with critical race theory. The Left Realist criticism of radical criminological thought is that it is an impractical agent of social change because the only proposed solution is to replace capitalism with socialism (Akers, 2009). Since one of the key

components of critical race theory is to bring about social change, these theories are incompatible. Therefore, the most appropriate framework to guide this study is general strain theory used in conjunction with critical race theory.

Historical Context

To properly understand the current state of correctional education, it is important to review the history of practice. Since government entities set correctional policy, correctional education movements are often political (Davidson, 1997). These shifts in political thought have created periods of prison reform. During many of these reform movements, correctional education was impacted.

Overview of Historical Periods

Gehring's (1995b) overview of the major time periods of correctional education is generally accepted, within a few years, by correctional education researchers.

Table 1 shows the accepted time periods adapted from Gehring (1995b). There are eight distinct time periods. The time periods are aligned to either a major historical figure or a shift in governmental policy. The next section of this review will detail these historical periods.

Correctional education history: 1789-1870. According to Gehring (1995a), the first period of correctional education occurred between the years 1789 and 1875 and is known as the Sabbath School period. The Sabbath School period of correctional education was a time of moral education. Prisoners were given instruction primarily in basic literacy using the Bible. Unpaid religious leaders used education as a method of saving souls for Christ.

During the Sabbath School period, correctional education focused primarily on literacy as a means to understand the Bible. Instruction during this period was given by the prison chaplain, unpaid volunteers, and occasionally other prison staff members. Most instruction dealt with

Table 1

Historical Periods in Correctional Education

Years	Characteristics of Period
1789-1875	This was a period marked by two models of prison discipline, the Pennsylvanian and Auburn models.
1876 - 1900	Brockway began a movement to introduce education into prisons.
1901-1929	Development of prison libraries and democratic prison management and education as envisioned by Thom Osborne
1930-1941	Noted for Austin MacCormick's reform programs and the rebirth of correctional education.
1946-1964	Glenn Kendall continued the work begun by MacCormick.
1965-1980	During this period, the federal government began influencing correctional education policy on a national scale and statewide correctional education school districts began to appear.
1981-1988	Conservative trend in prison policy that reversed some of the correctional education success of the previous period, and the Correctional Education Association became influential.
1989-present	Strong movement toward literacy education and a rise of information technology.

helping prisoners to memorize verses of scripture (Gehring, 1995a). The educational goal of this period was to rehabilitate prisoners by exposing them to Christianity.

There were many challenges to education in the Sabbath School period. One major challenge found in the prisons of this time was in facilities. Most instruction occurred through meal grates in otherwise solid doors. Prisons of this time period did not have adequate light for reading. When space was available for a classroom, conditions were often cramped and

uncomfortable. Educator to student ratios were extremely high. In one case, a chaplain visited 600 students a month (Gehring, 1995a).

During this time period, there were two basic prison models, the Auburn model and Pennsylvanian system (Ardovini-Brooker, 2005; Gehring, 1995a). The Pennsylvanian system originated at the Walnut Street Jail and was a product of the Quaker belief system (Gehring, 1995a). Although Ardovini-Brooker (2005) identified Walnut Street Jail as the site of the first school both he and Gehring (1995a) agreed that very little was taught except basic morals and religion. Under the Pennsylvanian system it was believed that prisoners needed to be completely separated from each other. The Auburn model, especially early on, was less interested in spiritual redemption, which limited correctional education support (Gehring, 1995a).

The Auburn model of prison management was concerned with inmate discipline. Prisoners were allowed to intermingle at times, but were required to remain silent at all times (Osborne, 1925). Inmates were required to work and produce in a factory setting and education was not important (Ardovini-Brooker, 2005). This changed for the Auburn system in the 1830s after it was determined that the Sabbath School provided a certain level of discipline. It was something to keep prisoners occupied when not working and also something that could be taken away (Gehring, 1995a).

Correctional education history: 1876-1900. During that time period, Zebulon Brockway was the warden at Elmira Reformatory in New York and his influence is important to the development of correctional education (Ardovini-Brooker, 2005). Brockway was an innovator when it came to correctional education. In his autobiography, he discussed an early correctional education program in Detroit during the year 1871. He noted that the program was unique and revealed the "indispensableness" of education in prisons (Brockway, 1912, p. 101).

The program was well received by inmates with an average attendance of 291 prisoners out of an average prison population of 385 prisoners. Classes were held two nights a week for a total of 210 instructional hours a year. However, because of short sentence length the average instructional hours were 70. Comparing results to Detroit public school students, the prison program had wonderful success boasting progress of 2.25 times that of a public school student for prisoners (Brockway, 1912).

Brockway (1912) continued his correctional education reform during his tenure at Elmira Reformatory from 1876-1881. In his autobiography, one of the first things he discussed about Elmira was the correctional education program. "The city could and did furnish at allowable expense, excellent lecturers and other instructors for the reformatory's evening school" (p. 161). During this time period, Brockway won reform support through the Indeterminate Sentence Act of 1877. This Act provided an outlay of 1.5 million dollars and 200,000 dollars a year for the creation of a reformatory system that sought as one of its goals to reform prisoners. In addition to funding, the act gave prison officials the right to determine when a prisoner was reformed and ready to re-enter society (Brockway, 1912). For the first time, correctional education and the prison system were seen as a means to rehabilitation and not solely punishment. Elmira Reformatory is viewed as the beginning of true academic and career and technical education even though most instruction was conducted by prisoners (Ardovini-Brooker, 2005).

During this time period, Texas began to lay the foundation for what is now one of the most successful correctional education programs in the United States. Ardovini-Brooker (2005) reported from a thesis written by E. S. Rambo in 1933 that the first law concerning correctional education in Texas was passed in 1895. The law gave prison managers the ability to allow chaplains to teach schoolwork to inmates, but the law was never used to conduct classes.

Correctional education history: 1901-1929. During 1901-1929, correctional education and prisons were reformed by the work of Thomas Osborne. Osborne was a prison reformer who began his interest with democratic prison management and correctional education by serving on the board of the Junior Republic, a private juvenile prison, in New York for 15 years beginning in 1904. At the time, he was the Mayor of Auburn, New York and a prominent figure in the local Democratic party. In 1913, he democratized Sing Sing Prison, in 1915 he became reform warden at Sing Sing Prison, and in 1917 he democratized the Naval Prison at Portsmouth, New Hampshire (Arbenz, 1995).

Correctional education was central to Osborne's (1925) prison philosophy. Osborne believed that prisoners were the same as other people, and if properly trained, would obey the law once released. He wanted to "turn prisons into schools" and allow prisoners to be trained for productive life outside of prisons (Arbenz, 1995, p. 45). Osborne noted that one of the errors of the old penal system used in Auburn was that prisoners were rightly embittered because they felt that "in those institutions they had failed to receive any training which had proved to be of any lasting value" (Osborne, 1925, p. 140).

As a culmination of his philosophy, the Mutual Welfare League was created, which was a committee of prisoners at Auburn prison who were allowed to learn self-control through practical means. The group managed itself and held meetings without guards being present. The largest benefit was that it taught prisoners to "think right" (Osborne, 1925, p. 185).

Due to Osborne's (1925) work, other states began creating correctional education opportunities. In 1911, a law was passed in Texas that allowed for industrial education and mandated literacy training for illiterate prisoners. The Texas Department of Education donated books and educated prisoners began conducting classes under this law. In 1911, 68 students

were taught. Schools were put out of operation and then reinstituted several times over the next few years in Texas because of poor funding (Ardovini-Brooker, 2005).

In the 1920s, several states began correspondence courses with local universities. Columbia University began one of the first programs of this type. In 1924, Rockview Prison began a similar program with college faculty in Pennsylvania. Also in 1924, Ohio began a correspondence course where prisoners were offered a wide range of classes from raising poultry to advertising (Ardovini-Brooker, 2005).

Postsecondary opportunities began to occur in the late 1920s. San Quentin Prison in California reported that 438 inmates were given instruction through the University of California Extension Services in 1928. College courses were also offered at prisons in Illinois, Iowa, Kansas, Massachusetts, Minnesota, New Jersey, New York, Pennsylvanian, and Wisconsin. In New York, inmates were given teacher preparatory courses so they could be certified to teach inmates elementary courses–many were successfully certified by the State Board of Regents. At Elmira Reformatory, an 8th-grade education was required for parole and both academic and career and technical courses were held in 30 classrooms. Bellafonte Prison in Pennsylvania had career and technical courses taught to 50 inmates from local professors (Ardovini-Brooker, 2005).

Correctional education history: 1930-1941. During the 1930s, correctional education made some strong strides due in part to work done by reformer Austin MacCormick. MacCormick was a prison reformer who founded the Correctional Education Association in 1930. MacCormick published the results of a correctional education survey in 1931 that led to some startling revelations. With 60 prisons responding, 13 had no academic programs–including Georgia–and none had career and technical programs (MacCormick, 1931). The publication of

this survey and the further work of MacCormick helped to shed light on the needs of correctional education.

Some of the advancements that MacCormick's work created were seen in the 1930s. The Federal prison system appointed an educational supervisor at each of its institutions. Funds were allocated and used to update libraries, purchase books, and create correspondence courses. By 1933, almost 60% of all federal prisoners were enrolled in an education program (Martin, 1976). This continued in 1933 with the Lewisohn and Englehardt Commission, which was charged with studying the education system in New York prisons (Ardovini-Brooker, 2005). The commission developed a rationale for education that is still in use today. The commission found that correctional education should conform to individual inmate needs (Martin, 1976). The commission also noted that programs should focus on adult basic education, career and technical education, and postsecondary education (Ardovini-Brooker, 2005).

Correctional education history: 1946-1964. Correctional education regained attention after World War II because of an influx of adult education recipients. Due in large part to returning soldiers and the G.I. Bill, adult education was positioned as a normal idea and this mood helped correctional education (Ardovini-Brooker, 2005). In 1945, the Correctional Education Association became an independent organization and the Journal of Correctional Education was founded in 1949 (Stone, 2006).

From 1946-1964 Texas began making improvements to their correctional education program. Funds brought in by the Texas Prison Rodeo were used to develop and expand correctional education programs. Texas began offering General Education Development classes in 1956 and offered career and technical classes in construction, cooking, television repair, brick

laying, welding, auto mechanics, carpentry, commercial sign painting, laundry, and poultry husbandry (Ardovini-Brooker, 2005).

Correctional education history: 1965-1980. From 1965 to 1970, correctional education flourished with the support of many federal programs. In 1965, Title IV of the Higher Education Act was passed by Congress. Pell Grants became available to inmates for postsecondary education (Ardovini-Brooker, 2005). In 1965, the Manpower Development Training Act provided correctional education programs funding for career and technical education (Stone, 2006). An experimental program operating at a total of six institutions called Project Newgate was instituted in 1967. The program was funded by the Office of Educational Opportunity and attempted to determine the impact of postsecondary education on the rehabilitation of inmates through a comprehensive release program (Martin, 1976). A follow-up study on this program showed that it did seem to work, but would be difficult to replicate (Herron & Muir, 1974).

Support for correctional education increased during the 1970s. Ryan (1995) reported that a more complete view of correctional education began to emerge during this time period. The Manpower Development and Training Act was renewed in 1972 to provide funding for correctional career and technical education (Stone, 2006). Ryan identified several federal funding programs for correctional education in the 1970s including Upward Bound, the Adult Basic Education Act, and grants from the U.S. Office of Education (Ryan, 1995). Using South Carolina's correctional education program to describe what was occurring throughout the nation, Ryan reported "by 1973 there were programs offering academic career and technical education programs in all major institutions in the department of corrections" (p. 61). There was adult basic education provided from grades 1-12 with approximate enrollment in these programs at 30% of the prison population. There were six career and technical programs offered in South

Carolina enrolling 400 prisoners. Classes were taught by professional educators and by certified career and technical instructors (Ryan, 1995).

The 1980s ushered in a major change to the philosophy of corrections in general and correctional education indirectly. This change was ushered in by a paper published in 1974 by Robert Martinson, which has been associated with the phrase *nothing works*. Martison's paper brought to the forefront the debate on whether prison rehabilitation worked. The often cited paper was used by conservative prison reformers to reduce rehabilitation programs (Ryan, 1995). Although public support and funding decreased, correctional education made some important advances during the 1980s. The Federal Bureau of Prisons enacted a mandatory basic education rule for prisoners not having a 6th-grade education. Prisoners without a 6th-grade or higher reading level had to be enrolled in 90 hours of basic education. By 1991, this rule had been amended to requiring that prisoners must have a minimum of a high school education or must be enrolled in at least 120 hours of basic education (Ryan, 1995).

The retributive, conservative criminal justice philosophy, established in the 1980s, continued to impact correctional education through the 1990s (Ryan, 1995). This trend was evident in Congress passing the Violent Crime Control and Law Enforcement Act and the Higher Education Reauthorization Act of 1994 (Ubah, 2004). In addition to changes that would increase the prison population like tougher sentencing laws, the Act reduced funding for correctional education, specifically Pell Grants for inmates (Lahm, 2009). The model of corrections had shifted from one of rehabilitation back to one of retribution. MacKenzie (2006) noted this conservative shift in correctional paradigm, “Advocates argued that prisons should not be used to achieve any public end. . . . Punishment should be proportionate to the crime but not designed

to achieve some utilitarian motive such as rehabilitation or crime control" (p. 10). As might be expected, this shift in policy had an impact on correctional education programs (Boulard, 2005).

The conservative shift in philosophy and new legislation that emerged in the 1990s increased the prison population dramatically. As part of the 1994 Violent Crime Control and Law Enforcement Act, the federal government provided grants to build more prisons if states would pass *truth in sentencing* legislation requiring that inmates spend 85% of their sentence in prison (MacKenzie, 2006). From the late 1990s into the 2000s, the increase in prison population caused legislators to provide small grants for rehabilitative services, including correctional education.

During the late 1990s and early 2000s, a shift was observed to provide small grants for correctional education. There were eight federal grants used during the early 2000s to fund correctional education: Adult Basic Education, Vocational Education Cooperative Demonstrations Program, Title I, Even Start, Individuals with Disabilities Education, Life Skills for Prisoners, Functional Literacy for Incarcerated Adults Programs, and Workplace and Community Transition Training for Incarcerated Youth (U.S. Department of Education, 2009).

The Adult Basic Education grant was used for academic education and literacy programs under the Workforce Investment Act of 1998 (U.S. Department of Education, 2009). The Vocational Education Cooperative Demonstrations Program provided financial assistance for project development that demonstrated cooperation between the private sector and public agencies in career and technical education. Title I grants provided supplemental instruction for offenders under the age of 21 without a high school diploma or GED and enrolled in an education program for at least 15 hours per week. The Even Start grant was used for family literacy, working with at-risk children under the age of seven, their caregivers, and their

incarcerated parent to improve literacy skills and decrease the cycle of illiteracy. Supplemental funding for educational materials, supplies, and equipment to meet federal initiatives pursuant to free and proper education for persons with disabilities under the age of 22 was covered under the Individuals with Disabilities Education grant. Life Skills for Prisoners prepared inmates with the skills needed for a successful transition from prison to society. The Functional Literacy for Incarcerated Adult Programs provided grants to establish a functional literacy program for adult prisoners. The Workplace and Community Transition Training for Incarcerated Youth provided grants to help establish postsecondary education for incarcerated youth (U.S. Department of Education, 2009).

Currently, there are two federal grants that are primarily designed to fund correctional education, the Community Transition Training for Incarcerated Individuals grant, and the Second Chance Act. The Community Transition Training for Incarcerated Individuals grant offers money to states for the purpose of providing functional literacy and life skills to incarcerated individuals. The grant provides funds for postsecondary academic or career and technical training. In 2008, there were 50 grants awarded totaling $22,372,208. The Second Chance Act provides funding for states to create transition programs that help to create successful reentry for prisoners into society. The funds can be used by state agencies for a wide variety of programs as long as the program demonstrates the goal to reduce recidivism by 50%. Currently, the award amount for this grant is $750,000 (U.S. Department of Justice, 2009).

Correctional Education Results

The literature suggests there is a large correlation exists between correctional education and reduced recidivism. However, many researchers including MacKenzie (2006), argue that many studies do not control for selection bias. By not controlling for selection bias, these studies

have a serious methodological flaw. Bazos and Hausman (2004) identified three studies that attempted to control for selection bias, Harer (1994), Piehl (1995), and Steurer et al. (2003). In addition to these studies, one meta-analytic study (Jensen & Reed, 2006) was reviewed.

Harer (1994) studied a cohort of all prisoners released from federal prison between January 1 and June 30, 1987. The study included a sample of 619 prisoners from the original 1,205 released during that time period. This sample was chosen because they had a sentence of a year or more. Harer used propensity score matching to control for variables that predicted recidivism and program participation. Harer (1994) found that recidivism, operationalized as re-arrest or parole revocation, was reduced by 15.7% by correctional education.

Piehl (1995) used a large data set, 32,000 prisoners released between January 1, 1980 and June 1, 1990 from Minnesota Department of Corrections. A sample of 1,473 released inmates was studied to determine the impact of Adult Basic Education and High School Education programs on recidivism. Recidivism was operationalized as re-incarceration within 26 months of release. Of the 1,473 inmates studied, 212 were program completers, 662 were eligible for education, and 676 had no high school diploma. Using propensity score matching to control for variables thought to predict recidivism, program completers were around 20% less likely to recidivate than the entire sample, those eligible for education, and those without a high school diploma.

The Correctional Education Association conducted the Three State Recidivism Study in 2001. The states involved in the study were Maryland, Minnesota, and Ohio. The study collected data on 3,170 inmates released from prisons in these states in late 1997 and early 1998. Of the 3,170 inmates in the study, there were 1,373 participants and 1,797 non-participants. The prisoners were followed for three years after release. A large amount of demographic and

motivation variables were collected from these inmates at their release. Although propensity score matching was not done on these variables, the information was used to show that educational participants had just as many factors associated with higher recidivism as non-participants. The inmates were followed for three years to determine recidivism. The three state study found that the recidivism of correctional education participants was reduced 9% using re-arrest, 8% using re-conviction and 10% using re-incarceration data (Steurer et al., 2003).

Jensen and Reed (2006) conducted a meta-analysis of correctional education research. Studies between 1995 and 2003 that analyzed the impact of correctional education on recidivism were included in the analysis. To ensure that methodologically sound studies were selected, they followed principles set out for University of Maryland researchers. Studies were given scores of 1-5, with 5 being the most rigorous and 1 being the least. The authors looked at 6 studies, including two meta-analyses that analyzed academic education on recidivism and five studies including three with the most methodological rigor, showed a statistically significant reduction. Results for career and technical education were less conclusive. The authors looked at three meta-analysis and concluded mixed results. However, studies with higher rigor seemed to show more reduction in recidivism.

Examples of Correctional Education Programs

In preparing for this study, it was important to review current literature concerning correctional education practice. Correctional education has meant many different things over its history (Gehring, 1995b). Current practice in the United States varies from state to state. To give an overview of the different levels of correctional education in the United States, South Carolina, Texas, and Georgia are described. Texas provides an example of a very well-

developed program and Georgia offers an example of a program that needs to develop further, while South Carolina's program is in the middle.

Overview—South Carolina

South Carolina has a large, well-organized correctional education program. The correctional education program is provided by Palmetto Unified School District which was created in 1981 by the South Carolina legislature. The district manages nine high schools, an adult education program, and a career and technical program (South Carolina Department of Corrections, 2009a).

Palmetto Unified School District was created in 1981 by South Carolina Statute Title 24 Chapter 25 (South Carolina Department of Corrections, 2009a). South Carolina statute Title 24 Chapter 25 sections 10 and 20 describe the creation and purpose of the Unified Palmetto School District. According to section 20, the purpose of the school district is to "enhance the quality and scope of education for inmates within the Department of Corrections so that they will be better motivated and better equipped to restore themselves in the community" (South Carolina Code of Laws 24-25-20). All prisoners without a high school diploma have access to education, and career and technical programs are available to limited prisoners that show the "necessary aptitude and desire" (South Carolina Code of Laws 24-25-20). Finally, section 20 states that restrictions to education that the district deems necessary must be documented (South Carolina Code of Laws 24-25-10, 24-25-20).

Palmetto Unified School District must meet the standards established by the South Carolina Department of Education. The State School Superintendent is responsible for implementing standards for both academic and career and technical programs of the school district. The Department of Education is responsible for preparing a report for the Board of

Trustees at least yearly to assess the program's level of compliance (South Carolina Code of Laws 24-25-30).

South Carolina legislation and other sources provide for funding for Palmetto Unified School District. The Palmetto Unified School District is funded according to the number of students served in a manner similar to other school districts in South Carolina. The amount appropriated for the school district is calculated according to the formula set forth by the South Carolina Education Act of 1977. During the 2007-2008 school year, the state provided $3,534,268.96. In addition to these funds, the federal government provided $1,290,015.23. The school district also received $2,903,878.16 from other sources (South Carolina Department of Corrections, 2009b).

Palmetto Unified School District is administrated jointly by the South Carolina Department of Education and the South Carolina Department of Corrections. South Carolina Department of Education sets forth rules and regulations by which the district is held accountable (South Carolina Code of Laws 24-25-30). The Education Division of the South Carolina Department of Corrections is a part of the Division of Programs and Services. The mission of Palmetto Unified School District is to "enhance the quality and scope of educational services for inmates within the South Carolina Department of Corrections. Palmetto Unified School District is charged with the mission of maximizing the academic, career and technical, and life skills of student inmates for their successful return to society" (South Carolina Department of Corrections, 2007, History of Palmetto Unified School District, para. 3).

The Palmetto Unified School District serves inmate students aged 17-21 through nine high schools. The first step to placement is determining whether a student is eligible for special education services as set forth by the Individuals with Disabilities Education Act (2004). All

inmate students between the ages 17-21 are screened during the intake process to determine if they have received special education benefits at a public school before incarceration. If they have, they are assessed and placed in the least restrictive environment that is appropriate considering their security level and Individual Education Plan. Five of the nine high school facilities can provide services to this population (South Carolina Department of Corrections, 2007).

The goal of the nine high schools in the Unified Palmetto School District is to provide students 17-21 an opportunity to work toward receiving credits to graduate from high school or prepare for the General Education Diploma exam. Students under the age of 21 who need enrichment are able to participate in Title I funded remediation labs. Classes at these high schools are taught by full-time, certified teachers employed by the Department of Corrections (South Carolina Department of Corrections, 2007).

Services are also provided for adults seeking the General Education Diploma. At facilities that do not host a high school, adult basic education is provided for through relationships with local school districts. Local school districts provide certified teachers to teach adult basic education inside the prison. Adult basic education is available in every facility in the South Carolina Department of Corrections (South Carolina Department of Corrections, 2008d).

South Carolina Department of Corrections provides a comprehensive career and technical education program for inmates (South Carolina Department of Corrections, 2007). The Unified Palmetto School District provides over 50 career and technical classes. The classes offered are determined by analyzing job projection information from the Department of Commerce. The programs meet standards created by the State Department of Education's Career and Technology Division (South Carolina Department of Education, 2008).

The South Carolina Department of Corrections offers career and technical training in 14 different areas. The Palmetto Unified School District offers a variety of career and technical classes. Auto body classes are offered in two facilities Macdougal and Tyger River. Auto Mechanic classes are offered in three facilities Broad River, McCormick and Tyger River. Barbering classes are offered at Evans Prison. Carpentry classes are offered at 13 facilities: Allendale, Evans, Kershaw, Lee, Lieber, McCormick, Macdougal, Perry, Ridgeland, Trenton, Turbeville, Tyger River, and Walden. Construction classes are offered at Wateree Prison. A horticultural program is offered at Broad River, Leath, and Manning Prisons. Heating and air conditioning classes are offered at Allendale, Ridgeland, and Tyger River Prisons. Small engine repair is offered at Kershaw and Walden Prisons. Upholstery is offered at Kershaw Prison (South Carolina Department of Corrections, 2008d).

Several programs are offered in conjunction with or by technical colleges close to the prison they serve. Inmates can take Cabinetry classes at Turbeville Prison offered through a relationship with Piedmont Technical College. Electrical classes are offered at Leath and Lee prisons through Palmetto Unified School District and at Manning through Midlands Technical College and at Turbeville through Central Carolina Technical College. Masonry classes are offered at Trenton through Piedmont Technical College and at Kershaw, Livesay, Manning, Macdougal, Perry, Trenton, Turbeville, and Tyger River through Palmetto Unified School District. Prisoners can take Office Skills classes at C. Graham Prison offered through Palmetto Unified School District and at Watkins Prison offered through the local school district. Plumbing classes are offered at Lieber and Turbeville Prisons by Palmetto Unified School District and at Manning by Midlands Technical College. Welding is offered at C. Graham Prison by Midlands Technical College, at Palmer by Florence Darlington Technical College and

at Turbeville by Piedmont Technical College (South Carolina Department of Corrections, 2008d).

The South Carolina Department of Corrections assists inmates for work through the Work Keys program (South Carolina Department of Education, 2008). The Work Keys program is a national work ready testing initiative. The National Career Readiness Certificate, offered through the Work Keys program, attempts to gauge a candidate's foundational work skills in reading, math, and locating information. Based on these three tests, candidates are issued a certificate at four levels: Bronze, Silver, Gold, or Platinum. The certificate levels correlate to readiness levels in the WorkKeys database. A candidate has the foundational skills for 35% of the jobs in the WorkKeys database at the Bronze level, 65% at the silver level, 90% at the Gold level, and 99% at the Platinum level (ACT, 2009). The South Carolina Department of Corrections has attempted to incorporate WorkKeys preparation into both career and technical and academic programs (South Carolina Department of Education, 2008).

South Carolina correctional education results. The Palmetto Unified School District has enjoyed consistent success. The district is held accountable by looking at three measures—post-test gains made on the Test of Adult Basic Education, earned General Education Diplomas and number of students completing a career and technical course. The District has scored high enough on these measures to obtain the Palmetto Gold Award for Excellence for six consecutive years (South Carolina Department of Education, 2008).

For the 2008-2009 school year, the Palmetto Unified School District had a total academic enrollment of 11,571 and a total career and technical enrollment of 3,820. The district served 441 students with disabilities. Of the students served, 990 received work-ready certificates, 984 were awarded General Education Diplomas, 1,774 completed a career and technical program,

and 1 student was awarded a high school diploma (South Carolina Department of Education, 2008).

Overview—Texas

Windham School District is responsible for providing correctional education services to inmates in Texas. It was founded in 1969 and is one of the largest and oldest prison school systems in the nation. Title 2 Subtitle C Chapter 19 of the Texas Education Code is the legislation that creates and governs Windham School District.

Sections .002 and .003 provide for the creation of Windham school District and establish the districts goals. Section .002 allows for the creation of Windham School District as an entity "separate and distinct from the Texas Department of Criminal Justice" (Texas Education Code 2C.19.002). The goals of the district as set forth by section 19.003 are to reduce recidivism and cost of confinement, while increasing the opportunity for former inmates to obtain and maintain employment and create an incentive for prisoners to behave during confinement (Texas Education Code 2C.19.003).

Section .0041 provides the manner by which the Windham School District is evaluated. The Legislative Budget Board consults with the district to compile data for each person who receives training through the district. This dataset is analyzed to determine the kind of training provided to the former inmate, the kind of employment obtained after release, whether the employment is related to training, differences between earnings on date of employment and first anniversary of employment and retention factors concerning employment (Texas Education Code 2C.19.0041). This information is reported to the state legislature and governor's office.

Sections .005 through .008 describe how the district is funded and the appropriate uses of those funds. The state pays the normal operating and administrative costs of the school district

for eligible students by using a formula established by the General Appropriations Act (Texas Education Code 2C.19.007). The formula is based on contact hours between educators and eligible students and provides for both administrative costs and educator's costs (Texas Education Code 2C.19.008). Eligible students are prisoners of any age that do not have a high school diploma (Texas Education Code 2C.19.005). In addition to the state formula, the Windham School District provides state funds equal to the product of $2,000 multiplied by all classroom teachers, full-time counselors, and full-time school nurses. The district is also allowed to receive grants from public and private organizations, as well as funds from the federal government (Texas Education Code 2C.19.006).

The Windham School District provides a well-organized, quality educational experience for many Texas inmates. The school district provides a literacy program, life skills program, basic education, career and technical education, and postsecondary education. The mission of the school district is "to provide appropriate educational programming and services to meet the needs of the eligible offender population in the Texas Department of Criminal Justice and to reduce recidivism by assisting offenders in becoming responsible, productive members of their communities" (Texas Department of Criminal Justice, 2009, p. 2). The district operates 90 schools at different facilities throughout Texas.

Students are selected and managed through policies put in place by the Texas Department of Criminal Justice. Program enrollment is determined during intake through the procedures established by the Individual Treatment Process. Programs are selected for students based on their "needs, age, projected release and availability" (Texas Department of Criminal Justice, 2009, p. 1). Inmates under the age of 22 are given the highest priority for academic programs, and inmates under the age of 35 are given the highest priority for career and technical programs.

Students are assessed at entry and ongoing to determine the needs for special education services. Students who are identified as being eligible for these services are provided individual modifications to meet their needs by a certified special education teacher (Texas Department of Criminal Justice, 2009).

The Windham School District provides three levels of literacy programs. The literacy program is a non-graded program designed to assist students with preparation for the General Education Diploma test and for students with a reading level below 6th-grade. Students attend class three hours a day and are on a 12 month school calendar. A program is also designed for English as a second language learners (Texas Department of Criminal Justice, 2009).

The life skills program is designed to assist inmates approaching their release date with reentry skills. The program is 60 days long and involves a wide variety of topics to assist inmates with life outside the institution. Some topics included in the curriculum are "family relationships and parenting, civic and legal responsibilities, victim sensitivity, health maintenance, employability and money management" (Texas Department of Criminal Justice, 2009, p. 5).

The Windham School District offers inmates a strong career and technical education curriculum. In 2007-2008, the district offered varied career and technical education programs in 34 fields. The career fields are determined by demand projections for high-wage high-skill jobs. Classes are structured into two categories with the goal of students receiving a Windham School District completion certificate with an option to get an industry certificate through the appropriate certifying agency. Short courses involve 200 hours of training and are designed to prepare inmates for specific prison jobs and to give basic job skills to prisoners whose release date is approaching. Full courses are 600 hours and prepare students for work in the following

fields: Automotive Collision Repair and Refinishing, Automotive Specialization, Bricklaying/Stone Masonry, Building Trades I, Business Computer Information Systems, Business Image Management and Multimedia, Computer Maintenance Technician, Construction Carpentry, Culinary Arts, Custodial Technician, Diesel Mechanics, Diversified Career Preparation, Electrical Trades, Heating, Ventilation, Air Conditioning and Refrigeration, Horticulture, Introduction to Construction Careers, Landscape Design, Construction and Maintenance, Major Appliance Service Technology, Mill and Cabinetmaking, Painting and Decorating, Personal and Family Development, Piping Trades/Plumbing, Plant Maintenance, Sheet Metal, Small Engine Repair, Technical Introduction to Computer-Aided Drafting, Truck Driving and Welding (Texas Department of Criminal Justice, 2009).

In conjunction with classroom training, Windham School District offers an apprenticeship program for inmate students. The apprenticeship program is registered with the Employment and Training Administration of the United States Department of Labor. The goal of the program is to provide on-the-job training to inmates along with classroom training. Depending on the field, apprenticeships last 1-6 years and provide an opportunity for lower security inmates to learn skills in a practical environment (Texas Department of Criminal Justice, 2009).

The Windham School District also provides postsecondary educational opportunities. Postsecondary opportunities are available for career and technical training and academic work. Courses are offered through postsecondary schools located near the facilities. Students must meet entry requirements of selected schools, in addition to Texas Department of Criminal Justice requirements to be allowed to attend. Students can work toward two-year associate degrees at academic schools and they can work toward career and technical certificates at technical schools.

Students can participate in the State's Reimbursable Costs program to pay for postsecondary education. The state pays all tuition and fees for career and technical work and for the initial academic course each semester. These funds are paid back to the state by the inmate once they are released. If a student is not eligible for this program, they must use personal funds, scholarships, or grants to pay for their education (Texas Department of Criminal Justice, 2009).

Texas correctional education results. The Windham School District served many inmates successfully during the 2008 school year. The district instructed 82,500 students, with 8,200 receiving postsecondary training. Literacy programs served 39,682 inmates and 12,182 participated in career and technical programs. Life skills had the largest number of participation at 51,468. During the 2008 school year there were 5,039 General Education Diplomas awarded, 5,975 career and technical certificates awarded, and 4,011 industry certificates awarded. Approximately 69% of students released during the 2008 year had received some form of correctional education. Of those students released in 2008, 17.5% (12,751) received their General Education Diploma while incarcerated (Texas Department of Criminal Justice, 2009).

According to the Windham School District Evaluation Report (Texas Legislative Budget Board, 2009), required by state mandate, the district had a successful year in 2007. Of prisoners released between April 1, 2006 and March 31, 2007, 62.7% of the prison and jail career and technical completer group were employed compared to 51.4% of non- career and technical participants and 57% of career and technical non-completers. Of prison and jail career and technical completers that were employed, 70% were employed in the fields that they trained. Career and technical completers earned higher wages than non-completers. On the first anniversary of employment, 57% prison and state jail career and technical completers were still

employed, compared to 49% of career and technical non-completers (Texas Legislative Budget Board, 2009).

Overview—Georgia

The state of Georgia Department of Corrections offers correctional education programs in a different manner than the first two examples. Unlike South Carolina and Texas, Georgia's correctional education is not provided by a school district. Legislation provides for the creation of a special district to provide for school-aged offenders, but the responsibility of providing the rest of the programs is given to the Department of Corrections.

The Georgia Department of Correction's education program is governed by Agency rule 125-4-2. Section 01 of this rule provides for the creation of an education program. The rule was put into place in 1985 and allows the Georgia Board of Corrections, with or without assistance of the Department of Education, to create an educational program for inmates. The rule assigns the responsibility of implementing this program to the wardens and superintendents of each facility (Georgia Department of Correction Agency Rule 125-4-2-01). The rule requires that wardens use existing Department of Education or Department of Labor standards as a guide for the creation of their programs. Lastly, the rule suggests that wardens solicit community support and use existing community infrastructure to provide education programs (Georgia Department of Correction Agency Rule 125-4-2-01).

Georgia Department of Correction Agency Rule 125-4-2-02 establishes state funding of correctional education programs. The rule states that each institution shall provide whatever facilities or equipment are available to help with rehabilitative educational efforts. This is in contrast to the other two examples of educational programming which have funding specifically provided by the state.

Institutions are encouraged to create an academic program that will provide for the improvement of the facility's specific inmate population. The language of rule section 125-4-2-04 requires that each institution "should establish as a goal" (Georgia Department of Correction Agency Rule 125-4-2-04) to provide for the educational needs of inmates from illiteracy through high school equivalency. The rule section further suggests that institutions encourage inmates who test below 8th-grade level to attend educational training for a minimum of 10 hours a week.

Institutions in Georgia are required to create a career and technical program if resources are available. Rule section 125-4-2-05 requires that career and technical programs be designed with the goal of providing inmates with marketable skills for private sector employment upon release. New career and technical education programs are created based on potential for employment and inmate interest. To establish potential for employment, code section 125-4-2-05 suggests that the Department of Corrections solicit assistance from the Trades Advisory Councils, Department of Labor, State Area Vocational Technical Schools, and similar organizations. In addition to classroom training, inmates are allowed to participate in on-the-job training through corrections industries and work release programs (Georgia Department of Correction Agency Rule 125-4-2-05). To further this goal, inmates are allowed to work on or repair private property, such as private vehicles, as long as the work furthers the inmate's job skills (Georgia Department of Correction Agency Rule 125-4-2-06).

The Georgia Department of Corrections Rules and Regulations provide accountability requirements for correctional education programs. All training personal must be certified educators through the Georgia Department of Education (Georgia Department of Correction Agency Rule 125-4-2-07) career and technical instructors are required to be certified based on the Department of Education licensing and certification policies (Georgia Department of

Correction Agency Rule 125-4-2-07). Georgia Department of Correction Agency Rule 125-4-2-10 requires for evaluation of all academic and career and technical education programs. Programs will be evaluated "system-wide on an ongoing basis" (Georgia Department of Correction Agency Rule 125-4-2-10).

The Georgia Department of Corrections offer both academic and career and technical correctional education. The academic programs can be classified into Special Education, Literacy/Remedial, Adult Basic Education, and General Education Development. Special Education is a program designed to assist inmates with disabilities in learning basic education. The Literacy/Remedial program is designed to remediate inmates, who are functioning below a fifth grade level, in reading and math. The Adult Basic Education program is designed to further inmate learners in reading and math who are performing at a 5th- to 8th-grade level. The General Education Development program is designed for learners above an 8th-grade level and prepares them for the general education diploma test. Career and technical programs provided by the Department of Corrections can be classified as on-the-job training, classroom instruction or a combination of the two. Although these are the programs offered throughout the system, they are not offered at every facility (Georgia Department of Corrections, 2008).

The facility-level nature of the correctional education mandate in Georgia has created a fragmented system of services. Although most facilities offer some form of education service, the type and number of choices are determined by the size and type of the facility. To understand the system, it is necessary to have a brief introduction to the types of facilities in Georgia.

There are four types of facilities in Georgia's Department of Corrections: (1) state prisons, (2) pre-release centers, (3) transitional centers, and (4) probation detention centers.

State prisons are large, high security institutions that have more educational opportunities than other facilities. State prisons house violent inmates and individuals that have exhausted other forms of punishment. The next type of facility is pre-release centers. Pre-release centers attempt to ease the transition back to freedom and reduce the risk of reoffending. They are primarily house prisoners with less than five years left on their sentence. Transitional centers operate like a halfway house. Inmates go to work in the community and then report back to the center in the evening. Probation detention centers are the last type of facility. They house probationers who have had their probation revoked. Assignment to a probation revocation facility is generally for 90-120 days (Georgia Department of Corrections, 2008).

There are currently 37 state prisons in Georgia. All state prisons have Literacy/Remedial Adult Basic Education, and General Education Development. State prisons offer a variety of career and technical opportunities. All state prisons offer some form of career and technical training. The career and technical classes offered in the state of Georgia prisons can be found in Table 2. The Department of Corrections has worked with the Department of Technical and Adult Education to offer technical certificates to inmates completing a career and technical education program. All prisons offer training in fields necessary for the prison operations such as barbering and food preparation. In general, the larger the facility, the more options there are in workforce preparation. Many state prisons have on the job training programs for lower security inmates (Georgia Department of Corrections, 2008).

There are currently eight pre-release centers operating. They all offer General Education Development and Adult Basic Education and most offer Literacy/Remedial classes. The workforce development opportunities are primarily focused on fields that are necessary for the

Table 2
Career and Technical Classes Offered in State of Georgia Prisons

Career and Technical Courses Offered		
Air Conditioning	Auto Body Repair	Auto Mechanics
Auto Painting	Barbering	Building Maintenance
Computer/Office Technology	Cabinetry/Carpentry	Construction
Cosmetology	Custodial Maintenance	Diesel Mechanics
Drafting	Electrical Wiring	Electronic Technology
Food Preparation/Culinary Arts	Graphic Arts/Printing	Heating/& Air Conditioning
Masonry/Tile Setting	Plumbing	Service Industry
Small Engine Repair	Upholstery	Welding

facility and work details. Transitional centers primarily offer on the job training through employment. There are General Education Development and Adult Basic Education Classes. Probation Detention Centers offer General Education Development, but very little career and technical instruction because of the limited amount of time of the program (Georgia Department of Corrections, 2008).

Georgia correctional education results. In contrast to the other two states, there was little concerning the outcomes of correctional education in Georgia available. The Director of Academic Education, Dr. Norm Felland, and Workforce Development Director, Patricia Lehn were contacted and asked about outcomes. When contacted, Dr. Felland commented that academic education, which is comprised of Literacy/Remediation, Adult Basic Education and General Education Development, has a daily enrollment around 8,000 students. General Education Development students work on self-paced programs using technology. Inmates that complete these courses and score 480 or higher on all General Education Diploma practice tests are allowed to take the General Education Diploma test through a contracted technical college. In 2008, 2,585 inmates took the general education diploma test with 1,853 passes and 732

failures (N. Felland, personal communication, July 7, 2009). Patricia Lehn did not respond to several information requests.

Federal Funding of Correctional Education

All three states described use federal money to provide correctional education services. There are two federal grants that are primarily designed to fund correctional education, including The Community Transition Training for Incarcerated Individuals and The Second Chance Act. The Community Transition Training for Incarcerated Individuals grant offers money to states for the purpose of providing functional literacy and life skills to incarcerated individuals. The grant provides funds for postsecondary academic or career and technical training. In the year 2008 there were 50 grants awarded with a total payout of $22,372,208 (U.S. Department of Education, 2008). The Second Chance Act provides funding for states to create transition programs that help to create successful reentry for prisoners into society. The funds can be used by state agencies for a wide variety of programs as long as the program demonstrates the goal to reduce recidivism by 50%. Currently, the award amount for this grant is $750,000 (U.S. Department of Justice, 2009).

Summary

After reviewing the current correctional education practice, there were six criteria through which the programs could be compared: program organization, funding method from state, total students served, students served by career and technical education program, General Education Diplomas received and career and technical education certificates received. These criteria offered a good point for comparison because they are relevant to program size and quality. Through comparing these criteria, Texas had the largest and most successful program,

South Carolina was in the middle of the three in size and success and Georgia was the lowest in size and success.

Correctional education programs were organized in two ways, as a school district or within the hierarchy of a state Department of Corrections. There were two funding methods, per student mandates from the state and not mandated. Size comparisons are from the year 2007, the most recent data available when this study began. Results of these comparisons can be found in Table 3.

Table 3
Comparison of the Correctional Education Programs of Texas, South Carolina, and Georgia

Criteria	Texas	South Carolina	Georgia
Program organized as an independent school district	Yes	Yes	No
Funding from State	Per student at same level as regular school districts	Per student at same level as regular school districts	No funding specifically offered by state
Total students served	82,500	11,571	8,000
Career and technical education	12,182	3,820	No information
General education diplomas	5,039	984	1,853
Career and technical Fields offered	34	Over 50 classes in 14 areas	24

Summary and Implications

The goals of this literature review were to position this study within the current literature concerning correctional education. Specifically, this review sought to review theories relevant to the relationship between crime, correctional education and recidivism for African Americans in the United States of America, provide a historical foundation of correctional education and review current practice in correctional education programs.

There are several theoretical frameworks that could be used to hypothesize an expected relationship between crime, correctional education and recidivism for African Americans in the United States of America; however, using Agnew's (1992) General Strain Theory combined with Critical Race Theory provides the best theoretical framework for this study. The theoretical framework suggests that structured racism in the United States creates more strain on African Americans than other members of American society—this increased strain leads to increased deviance. Correctional education reduces strain and thereby reduces deviance as measured by recidivism.

Correctional education has had many incarnations over its history. By reviewing and comparing the practices in three states, it can be ensured that South Carolina has an adequate correctional education program to study. One of the main goals for correctional education has been to help prisoners lead productive lives after leaving prison. This goal has been studied, but often using less than optimal methods. In addition to using less than optimal methods, the relationship between correctional education and recidivism for African Americans has not been studied.

By using stronger methods, this study will advance the literature by providing a foundation for further study of the relationship between correctional education and recidivism for

African Americans. There have been studies that have attempted to show a causal relationship between correctional education and recidivism; however, there have been no studies that focus on African Americans. Before seeking to determine whether there is a causal relationship between correctional education and recidivism for African Americans, it is important to establish that there is a relationship between these variables. This study will seek to accomplish this by testing whether race has the same predictive ability for prisoners who have completed a career and technical education program while incarcerated and those who have not completed a correctional education program.

CHAPTER 3

METHOD

Purpose of Study

The purpose of this causal-comparative study was to determine whether the selected variables of security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length predicted recidivism for adults incarcerated in South Carolina who completed a career and technical education certificate program while in prison and those who did not completed a correctional education program.

Research Questions

1. What are the descriptive characteristics of African Americans incarcerated in the state of South Carolina who complete career and technical education certificates?
2. In which career and technical education certificate programs do African Americans in South Carolina complete?
3. Are African Americans proportionately represented in career and technical education certificates received in South Carolina?
4. Which combination of variables including security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length provide the best model to explain the variability of recidivism for prisoners who completed a career and technical

education program and those who did not complete a correctional education program?

Design

This study used a causal-comparative design. The difference between true experimental and causal-comparative designs are that causal-comparative designs do not employ randomization (Creswell, 2009). This is an accepted research design in correctional education research (Steurer et al., 2003). Although a true experiment provides greater internal validity than a causal-comparative design (Dawson, 1997), a true experiment was not an option for this type of research. Randomization into experimental and control groups would raise both ethical and logistical problems. The goals of the South Carolina Department of Corrections also present insurmountable logistical issues to randomization. The primary mission for the Department of Corrections is to provide for the safety of the public and the inmate population under their control. Prisoners are assigned to facilities based on their security class and other risk factors, not because of available programs. Therefore, true randomization was not only not possible, it was not desirable.

After determining that a true experimental design was not an option, a causal-comparative design was adopted. Causal-comparative research designs attempt to identify relationships between independent and dependent variables based on naturally occurring groups (Gall et al., 2007). Causal-comparative designs have more internal validity threats than true experimental designs (Creswell, 2009). Problems with internal validity occur when variables other than the independent variable may impact study results (Gall et al., 2007). There were several threats to internal validity in this study, including history, maturation, and selection bias.

Although the threat of history deserves to be mentioned, it probably did not have substantial impact in this study. History is the threat that an event might occur as time passes during the experiment that might impact results (Creswell, 2009; Gall et al., 2007). An example for this study could be a new law that might impact recidivism rates. An event like this would have changed the overall levels of recidivism, but they would not have affected the level of prediction for the predictor variables. In that regard, it did not impact the internal validity of this study.

Another threat to internal validity that was considered in this study was maturation. Maturation refers to the possibility that participants might change in some manner—age or otherwise—that could skew results (Creswell, 2009; Gall et al., 2007). Since age at release is included in the model, changes that might be attributed to maturation will be part of the model.

Special attention has to be given to selection bias. Selection bias is a threat to internal validity that can occur when participant groups are not selected in a random manner. If the treatment group is not randomly assigned, a factor other than the treatment might be responsible for any differences seen between groups (Creswell, 2009). This threat is a particular problem for the correctional education research because prisoners cannot be randomly assigned to correctional education programs. There are methods used to attempt to control for internal validity issues. Wilson, Gallagher, and MacKenzie (2000) conducted a meta-analysis of correctional education and work programs and discussed results concerning selection bias. Of 33 studies, they found that only three used random selection, nearly half used a post hoc matching of program receivers and control groups, and one statistically controlled for important variables such as prior criminal history.

Since the variable *program completer* was used, it is necessary to discuss how prisoners are selected into programs offered. In South Carolina, prisoners above the age of 21 are given an orientation upon entering prison that explains the different programs that are available. During this orientation, prisoners are encouraged to volunteer for available prison programs. Once prisoners volunteer for a program, they are either placed in the program of choice or put on a waiting list if no slots are available. All assignments from the waiting list are made on a first come-first serve basis. Since prisoners enter programs based on choice and program availability, the selection policy does not create groups that are dissimilar. For instance, if prisoners were given an aptitude test to determine if they were eligible to take career and technical education, this would create differences between career and technical education receivers and non-receivers.

Although there is no policy for placement that would create dissimilar groups, selection bias may still be an issue concerning any causal inferences surrounding the predictor variable correctional education completer. Even by statistically controlling for significant variables, as suggested by Wilson et al. (2000) to strengthen causal relationships, there could be other unmeasured variables that influence results. Therefore, any significant differences in results found concerning the models for prediction should not be interpreted as causal relationships.

In addition to internal validity, the external validity of the study was also considered. According to Creswell (2009), external validity is the degree that a study can be applied to other groups and situations. Further, this concept is broken into two types of validity—population and ecological. Population validity is the degree to which the study can be generalized to a larger, identified population. Ecological validity is the level that the results of the study can be generalized to other contexts (Gall et al., 2007).

The target population of this study, the larger group that results can be applied, was all prisoners in South Carolina prisons. Of the 10 different types of ecological validity issues discussed by Gall et al. (2007), the one that could create an issue with generalizing results is the possible interaction between history and treatment effects. The expected relationship between the variables in this study could change if the cultural and societal underpinnings of the theoretical framework that guided this study change. For instance, as African Americans gain more positional power in American society, the strain of being African American is likely to diminish. If this were to occur over time, the expected relationship between variables would also change. Therefore, caution should be used in generalizing results too far into the future.

Participants

The population of this study included all prisoners released during the 2-year period from January 1, 2004 to December 31, 2005. Prisoners were defined as being under the supervision of the South Carolina Department of Corrections. To obtain access to this population, the proposed study was sent to the South Carolina Department of Corrections Division Director of Resource and Information Management. After approval, see Appendix A, an agency employee was assigned to assist in data collection from existing database records.

The population of prisoners released between the dates January 1, 2004 and December 31, 2005 contained 25,231 participants. Male prisoners comprised 88%, or 22,206 compared to 3,025 women. Prisoners were predominately African American with 16,339 (65%) identified as Black, 8,892 (35%) were races other than African American. The average age of the population was 33.3 years old with a minimum of 16 and maximum of 87. The average sentence length was 2,937 days. The number of disciplinary reports was skewed because of some large outliers so quartiles were reported to offer more balanced information. The population had on average

received 2.81 disciplinary reports, but had quartiles of 0, 0, and 2 with a maximum of 219. The population had an average number of .78 prior incarcerations with a maximum of 9. The average number of years of education at intake for the population was 10.59 years. The security class frequency counts for the population was 2,654 Level 1A (minimum-security, non-violent inmates who were within 48 months of release), 9,886 Level 1B (minimum-security with relatively short sentences or time to serve), 10,879 Level 2 (medium-security) and 1,812 Level 3 (high-security). While incarcerated, 2,800 prisoners completed a career and technical education certificate program and 3,581 prisoners completed an academic education certificate.

Data Set

Data collection was accomplished with the assistance of the South Carolina Department of Corrections. The master database that is used to track state prisoner entry and exit was used. Data of interest were collected by a South Carolina Department of Corrections statistical services employee in accordance with policy ADM-15.07.

South Carolina ADM-15.07 governs the research process for South Carolina's Department of Corrections. After obtaining approval from the dissertation committee to conduct this study, a research proposal was sent to South Carolina Department of Correction's Division Director of Resource and Information Management. This proposal included information about the nature of the research and the assistance needed from the South Carolina Department of Corrections. After consulting with any affected agency personnel, the Division Director of Resource and Information Management approved the research proposal. After receiving approval from the Division Director of Resource and Information Management, the dataset was compiled by an employee of the South Carolina Department of Corrections and delivered for analysis.

Variables requested for this study were security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, sentence length, career and technical education program completer and recidivism date.

Categorical variables were security class, race, sex, crime type, career and technical education program completer, and recidivism. Security class values included Level 1A prisoners, minimum-security, non-violent inmates who were within 48 months of release and may be housed in level 1A facilities which are community-based pre-release/work centers. Level 1B prisoners, minimum-security inmates with relatively short sentences or time to serve. Level 2 prisoners, considered medium-security. Level 3 prisoners, high-security. Prisoners are assigned a security classification during the intake process. This classification is designed to represent the escape threat they pose. The South Carolina Department of Corrections uses the following categories to identify race: Asian, American Indian, Black, Pacific Islander/Hawaiian, White, all others, and unknown. The sample of Asian, American Indian, Pacific Islander/Hawaiian, all others and unknown were very small. Since part of the theoretical framework of this study focuses on the contrast between White and African American prisoners and non-existent vectors can cause statistical complications when using logistic regression (used to answer research question 4) (Pedhazur, 1997), race was narrowed to White and African American by removing cases from the other race classifications. Sex was measured as either being male or female. The variable *crime committed* referred to the criminal act that led to the current incarceration sentence. If there was more than one crime committed, the most serious as judged by sentencing recommendations was listed. There were many different crimes that led to incarceration, so it became necessary to recode the variable crime into crime type. The variable Crime was categorized as violent, non-violent, and drug-related. This was done according to

South Carolina definitions for crime type. Career and technical education program completer measured the successful completion of a certificate-generating career and technical program delivered while incarcerated in South Carolina. Recidivism was a measure of returning to prison and was operationalized as returning to prison within three years after release.

The continuous variables for this study were age at release, number of disciplinary reports, education level at intake, number of prior incarcerations, and sentence length. Number of disciplinary reports was a continuous variable. Disciplinary reports were write-ups prisoners received for violating the rules of the institution. After receiving a disciplinary report, the matter was heard by a disciplinary committee to determine if there was enough evidence for a conviction. A conviction occurred when the committee determined that a prisoner had violated an institutional rule. Only convicted disciplinary reports were included for this variable. Education level at intake measures the highest grade level completed upon intake and was measured as years in school. Number of prior incarcerations measures how many previous South Carolina incarcerations were recorded. Sentence length was measured as the length in days of the current sentence being served by the prisoner. After receiving approval from the Institutional Review Board and South Carolina Department of Corrections, these variables were collected for prisoners who were released between the dates January 1, 2004 and December 31, 2005.

Since the data for this study was collected and compiled by others, potential problems concerning archival data needs to be addressed. There are several concerns in conceptualizing variables when archival data are used. A common problem is relating the construct used to guide the study with the definitions used by the agency collecting the data (Kraska & Lawrence, 2008). A researcher must be diligent to make sure that the variables are presented in the way they were

collected and not changed to suit their research needs. Webb, Cambell, Scwartz, Sechrest Grove. (1981) noted that "if one wishes to use any measure. . . it is necessary to know just what is being measured" (p. 275).

Another validity problem inherent in using archival data is that researchers have no control over how data were collected (Kraska & Lawrence, 2008). The conclusions made in a study are only as good as the data used to arrive at the conclusions. It is important for a researcher using archival data to understand the procedures used to collect the data (Webb et al., 1981).

Another issue concerning the use of archival data is stability. Stability problems arise from changes in the policies for collecting data or the definitions used for measurement. Another issue with using government-collected data is missing or incomplete data. For political or budgetary reasons, some data may have been lost or not collected (Kraska & Lawrence, 2008).

The issue of conflicting definitions between selected theoretical frameworks and archival data was not an issue in this study. The only variables in the dataset that required choices to be made were recidivism and educational program completer. In the case of recidivism, the variable was operationalized as returning to prison within three years of release. Using a three year period is within the range found within the literature (Jensen & Reed, 2006; Wilson et al., 2000). The second choice that had to be made concerning the operationalizing of variables was to only count completers of programs, as opposed to all prisoners who took a specific educational program. This choice was made because there would be no way to determine how much of a program a person had been in and whether they should have been classified as taking that program. A prisoner that was in the program for one day and was then transferred to another prison would be counted in the analysis

The study was not impacted because I had no control over data collection. There is evidence that suggests the data collection and retention methods used by the South Carolina Department of Corrections are adequate for this study. In a recent review conducted by the Legislative Audit Council concerning non-correctional education issues, the Legislative Audit Council had to rely on data collected and maintained by the South Carolina Department of Corrections. They compared the data they used to data collected and maintained by other state agencies and reported "when viewed in relation to other evidence, we believe the data used in this report is reliable" (South Carolina Legislative Audit Council, 2009, p. 2). Further, the Department of Corrections mission, to make sure the public and inmates are safe, requires accurate recordkeeping.

Data Analysis

There were two types of data analysis conducted to answer the research questions in this study. The first type of analysis was used to answer research questions 1 and 2. This analysis described the characteristics of African American prisoners in South Carolina who completed career and technical education programs released between January 1, 2004 and December 31, 2005. The second type of analysis was used to answer research questions 3 and 4. This analysis used logistic regression to explain the odds of African American completion of a career and technical program and create a model to predict recidivism for prisoners who completed career and technical education while incarcerated and those who did not.

To answer research question one, "What are the descriptive characteristics of African Americans incarcerated in the state of South Carolina who complete career and technical education certificates?" descriptive statistics were used. Using SPSS, each participant was grouped based on racial classification and program completed. Participants classified as African

American and those completing a career and technical education program were grouped together. Descriptions for this group of African American, career and technical education completers were calculated for the following variables: age (mean), sex (percentage), security class (percentage), number of disciplinary reports (mean), educational level at intake (mean), number of prior incarcerations (mean), crime type (percentage) and sentence length (mean).

To answer research question two, "In which career and technical education certificate programs do African Americans in South Carolina complete?" participants classified as African American and career and technical education program completer were grouped together. This group was divided again by sex. The percentage of completers in each different program for African American men and African American women was compiled.

To answer research question three, "Are African Americans proportionately represented in career and technical education certificates received in South Carolina?" simple logistic regression was used. Since the regression was conducted on a categorical dependent variable, logistic regression was needed (Pedhazur, 1997).

To answer research question four, "Which combination of the variables security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length provide the best model to explain the variability of recidivism for prisoners who have completed a career and technical education program and those who did not complete a correctional education program?" logistic regression was used. As in research question three, the question and dependent variable determined that logistic regression was used. After the transformation of variables into dummy variables, SPSS was used to conduct a logistic regression.

For both research question three and four, a graph was produced to ensure that the logit had a linear relationship with the independent variables. After determining that the logit did have a linear relationship with the independent variables, the standardized residuals were analyzed to test for outliers that might affect the regression equation. Residuals are the difference between the predicted dependent variable based on the model and the actual dependent variable output. Residuals are standardized by dividing the residual by the standard deviation of the residual – creating a residual with a mean of 0 and a standard deviation of 1 (Pedhazur, 1997).

After conducting the logistic regressions for questions three and four, the results were analyzed by testing the chi-square goodness of fit model to ensure that the model including the independent variables was significantly different from the logistic regression including only the intercept. The effect size was reported as the odds ratio. All analyses were conducted at an alpha level of .05.

Treatment of variables. Once it was determined that logistic regression would be used for questions three and four, it was necessary to determine which variables would be included in the analysis and to code categorical variables. For research questions 3, the included variables were the independent variable race and the dependent variable technical certificate completer. Determining which variables to include in research question four was more involved.

After determining that logistic regression would be used for research question 4, it became necessary to create a list of possible variables to include. This was done by looking at previous research and establishing a theoretical framework. The overview of this theoretical framework was presented in Chapter 1. The following variables were included in the model to

predict recidivism: security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length.

The independent variables included in the predictive model were selected based on the research and theoretical framework of this study. Security class was identified because there is research that suggests that criminal history and history of serious violence are significant predictors of recidivism (Gendreau, Little an Goggin, 1996; Loza, 2003). Two of the major factors that contribute to security class are criminal history and history of serious violence. Number of disciplinary reports was included because research suggested that anti-social behavior is a significant predictor of recidivism (Gendreau et al., 1996; Loza, 2003). Breaking the rules while in prison is a good measure of continued anti-social behavior. Age, sex, number of prior incarcerations, crime type and sentence length were included because the research suggests that these are all significant predictors of recidivism. Younger prisoners tend to recidivate more than older prisoners. Men recidivate more than women prisoners. As criminal history and violence increases, recidivism increases; therefore, it would be expected that as the number of prior incarcerations, sentence length and seriousness of crime increases recidivism would increase (Gendreau et al., 1996; Langan & Levin, 2002; Loza, 2003). Education level at intake was included because Loza (2003) listed that as a significant predictor of recidivism. Race was included because it has often been found to be a significant predictor of recidivism (Gendreau et al., 1996; Jung et al., 2010; Langan & Levin, 2002), and it is a factor in the studies theoretical framework.

Since the dependent variable and several independent variables used in research questions 3 and 4 were categorical, it was necessary to code them in a manner suitable for regression. Dummy coding was the method used to accomplish this. By assigning a binary code

– either “0” or “1” – to the variable, SPSS was able to analyze categorical variables. Sex, race, correctional education program completer, career and technical education completer and recidivism were categorical variables with two categories. One column was used for these variables. Sex was coded with “0” for female and “1” for male. Race was coded as “0” for White and “1” for Black. Correctional education completer, Career and technical education completer and recidivism were coded “0” for no and “1” for yes.

Security class and crime type have multiple levels and also use dummy coding. Security class had four levels—1A, 1B, 2 and 3. To dummy code a variable that has four levels, creating three vector columns is necessary (Pedhazur, 1997). The first vector variable column was named 1A. In this vector, all prisoners that are classified as 1A have a “1” and all other levels have “0.” Similarly, the second and third vector columns were named 1B and 2 and have a “1” assigned to the variable that it is named for and all other levels were coded “0.” Since there are many different crimes that lead to incarceration, the variable Crime was categorized as violent, non-violent and drug related. This was done according to South Carolina definitions for crime type. Since this variable has three levels it was necessary to create two vector columns for it. The vector columns were named violent and non-violent. In both columns, a“1” was assigned to category for which the vector column is named. The other variables in this analysis are continuous and will not need any additional coding before analysis. Table 4 discusses the data analysis.

Summary

The relationship between career and technical correctional education, race and recidivism is complex. As with any attempt to predict human behavior, there are many variables acting together. However, by using logistic regression on two separate groups, prisoners who have

received a career and technical education certificate and prisoners who have not completed any correctional education, the predictive models can be compared to determine if different predictor variables are significant.

Table 4
Data Analysis

Question	Independent variables	Dependent variables	Analysis
What are the descriptive characteristics of African Americans incarcerated in the state of South Carolina who complete career and technical education certificates?	Age at release: continuous Sex: Female-0; Male-1 Security class: 1A-1; 1B-2; 2-3; 3-0 # of disciplinary reports: continuous Education level at intake: continuous # of prior incarcerations: continuous Crime type: Violent-1; Non-violent-2; Drug related-0 Sentence length: continuous		Descriptive statistics (Mean, Percentage, Quartiles)
In which career and technical education certificate programs do African Americans in South Carolina complete?	Certificate types Categorical See Table 6		
Are African Americans proportionately represented in career and technical education certificates received in South Carolina?	Race: Black-1; All others-0	Recidivism: No-0; Yes-1	Logical regression
Which combination of the variables of security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length provide the best model to explain the variability of recidivism for prisoners who have completed a career and technical education program and those who have not completed a correctional education program?	Age at release: continuous Race: Black-1; All others-0 Sex: Female-0; Male-1 Security class: 1A-1; 1B-2; 2-3; 3-0 # of disciplinary reports: continuous Education level at intake: continuous # of prior incarcerations: continuous Crime type: Violent-1; Non-violent-2; Drug related-0 Sentence length: continuous	Recidivism: No-0; Yes-1	Logical regression

CHAPTER 4

RESULTS

The purpose of this study was to determine how well the variables security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length predicted recidivism for released prisoners in South Carolina for individuals who have completed a career and technical education course while in prison and those who had not. By creating two predictive models based on whether a prisoner has completed a career and technical course, information was learned about whether the predictive variables contributed to each model equally. The study used all prisoners from South Carolina released from prison between January 1, 2004 and December 31, 2005 for a total population of 25,231. All participants were tracked for re-incarceration for a 3-year period following their release date.

Analysis of Research Questions

The first step in analyzing data was to determine which method of analysis fit each question and data combination. The first two questions required the use of descriptive statistics. Research questions 3 and 4 required the use of logistic regression. SPSS was used for all analyses.

Analyses for research questions 1 and 2 required the use of basic descriptive statistics. Research question 1 used basic descriptive statistics, including mean, quartiles, and frequency counts. Research question 2 used frequency counts. Logistic regression was used to analyze the data to answer research questions 3 and 4. Research question 3 required analysis of one

independent variable, race, on the dependent variable, career and technical education program completion. Since the dependent variable was binary, logistic regression was required. Logistic regression was also used for research question 4 because the dependent variable, recidivism, was categorical.

Research Question 1

Research question 1 asked, What are the descriptive characteristics of African Americans incarcerated in the state of South Carolina who completed career and technical education certificates? Of the original 25,231 participants, 2800 (11%; 2574 men, 226 women) completed a career and technical certificate. This total group was then divided into groups based on race and statistics were calculated for each of the variables of interest for the subgroup of African American prisoners. Statistics were calculated for age at release (mean), sentence length in days (mean), number of disciplinary reports (mean), education level at intake (mean), number of prior incarcerations (mean), crime type (frequency), security class (frequency) and recidivism (frequency). Results of this analysis can be found in Table 6.

Of the 2,800 career and technical certificate completers, 1,685 (60%) were classified as African American compared to 64.8% of all prisoners in the database. Of the 1,685 African American prisoners that completed career and technical education certificates, 108 (6.4%) were women compared to 9.5% for all the prisoners in the dataset.

The variables sentence length and number of disciplinary reports had outliers that skewed the means. For these variables, quartiles are reported to give an accurate account of the distribution. For African Americans that received a career and technical education certificate, the average sentence length in days was 4,680 with quartiles of 1,440, 1,800 and 3,600 days respectively. For African American men that received a career and technical education

certificate the average sentence length in days was 4,576 with quartiles of 1,440, 1,800 and 3,600 days, respectively. For African American women that received a career and technical education certificate the average sentence length in days was 6,198 with quartiles of 1,440, 2,070 and 3,600 respectively. For African Americans that did not receive a career and technical education certificate, the average sentence length in days was 2,622 with quartiles of 723, 1,531 and 2,880. For African American men that did not receive a career and technical education certificate the average sentence length in days was 2,622 with quartiles of 723, 1,531 and 2,880. For African American women that did not receive a career and technical education certificate, the average sentence length in days was 1,744 with quartiles 360, 1,080 and 1,800.

The total mean number of disciplinary reports for the African American career and technical certificate completers was 4.91 with quartiles of 0, 2 and 6. For African American men the mean number of disciplinary reports was 4.96 with quartiles of 0, 2 and 6. For African American women, the mean number of disciplinary reports was 4.15 with quartiles of 0, 1 and 6. The total mean number of disciplinary reports for the African American non-career and technical certificate completers was 3.04 with quartiles of 0, 0 and 2. For African American men non-career and technical certificate completers the mean number of disciplinary reports was 3.04 with quartiles of 0, 0 and 2. For African American women non-career and technical certificate completers, the mean number of disciplinary reports was 1.44 with quartiles of 0, 0 and 1.

Research Question Two

Research question 2 asked, “In which career and technical education certificate programs did African Americans in South Carolina complete?” To answer this question, frequency counts were taken of the 81 different career and technical education certificates received by African

American prisoners released during the selected time period. Certificates awarded to these prisoners can be found in Table 6.

Table 5

South Carolina African American Prisoner Descriptive Statistics

	Career and technical education certificate program non-completers			Career and technical education certificate program completers		
Variable	Male	Female	Total	Male	Female	Total
Frequency	13,216	1,438	14,654	1,577	108	1,685
Mean age at release	33.16	35.46	33.39	30.6	34.52	30.85
Mean sentence length in days	2,622	1,744	2,536	4,576	6,198	4,680
Mean disciplinary reports received	3.04	1.44	2.88	4.96	4.15	4.91
Mean education level at intake	10.71	11.05	10.74	10.63	11.2	10.66
Mean prior incarcerations	.84	.59	.82	.69	.74	.69
Crime type						
Violent	3,373	213	3,586	530	24	554
Non-violent	5,650	896	6,546	537	54	591
Drug offense	4,193	329	4,522	510	30	540
Security class						
1A	1,584	162	1,746	123	15	138
1B	4,968	911	5,879	415	59	474
2	5,756	276	6,032	992	32	1024
3	908	89	997	47	2	49
Recidivated	4,745	293	5,038	603	32	635

Research Question 3

Research Question 3 asked, "Are African Americans proportionately represented in career and technical education certificates?"

A simple logistic regression was conducted for the independent variable, race, on the dependent variable career and technical education program completion. Race was found to provide a significant explanation for the variability of career and technical education completion. Whether a prisoner was African American had a significant impact on the logit career and technical certificate completion rate. The coefficient for race was -.221(1), $p < .001$. Being African American reduced the log career and technical certificate completion rate by .221 when compared to prisoners of other races. Being African American decreased the odds of completing a career and technical certificate by a factor of .802 when compared to White prisoners – meaning that a African American prisoner is approximately 20% less likely to complete career and technical education certificate program than a White prisoner.

Research Question 4

Research question 4 asked, "What combination of the variables including security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length provided the best model to explain the variability of recidivism for prisoners who completed a career and technical education program and those who did not complete a correctional education program?" After dividing the sample into two groups, those who had completed a career and technical education certificate and those who had not completed an educational program, logistic regression was conducted to find the best model and test the predictive ability of the selected model.

Table 6

Career and Technical Certificates Awarded to African American Prisoners

CERTIFICATE	Frequency	Percent	CERTIFICATE	Frequency	Percent
APPLIANCE REPAIR I	19	1.1	HORTICULTURE II	14	.8
APPLIANCE REPAIR II	6	.4	HORTICULTURE III	17	1.0
APPLIANCE REPAIR III	4	.2	HORTICULTURE, POST SECONDARY	5	.3
AUTO BODY REPAIR I	14	.8	INDUSTRIAL ELECTRONICS II	2	.1
AUTO BODY REPAIR II	5	.3	INDUSTRIAL SEWING I	22	1.3
AUTO BODY REPAIR III	4	.2	INDUSTRIAL SEWING II	2	.1
AUTO MECHANICS I	11	.7	INDUSTRIAL SEWING III	3	.2
AUTO MECHANICS II	4	.2	INTRO TO COMPUTERS COMMUNITY EDUCATION	33	2.0
AUTO MECHANICS III	3	.2	INTRODUCTION TO COMPUTERS	63	3.7
AUTO MECHANICS-COUNTY	1	.1	INTRODUCTION TO HORTICULTURE	18	1.1
BARBERING - I	3	.2	INTRODUCTION TO MASONRY	25	1.5
BLUEPRINT READING I	20	1.2	KEYBOARDING	4	.2
BUILDING SERVICES I	112	6.6	MANUFACTURING TECH I	3	.2
BUILDING SERVICES II	1	.1	MANUFACTURING TECH II	2	.1
BUILDING SERVICES III	3	.2	MANUFACTURING TECH III	4	.2
BUSINESS OCCUPATIONS I	4	.2	MARKETING I	2	.1
BUSINESS OCCUPATIONS III	2	.1	MASONRY I	303	18.0
BUTCHER, MEAT A III	1	.1	MASONRY II	38	2.3
CARPENTRY I	270	16.0	MASONRY III	12	.7
CARPENTRY II	51	3.0	MASONRY IV	4	.2
CARPENTRY III	11	.7	MASONRY, POST SECONDARY	17	1.0
CARPENTRY COMMUNITY EDUCATION	8	.5	OFFICE SKILLS I	24	1.4
CARPENTRY, POST SECONDARY	27	1.6	OFFICE SKILLS I-COUNTY	2	.1
COMMUNICATION ELECTRONICS I	6	.4	OFFICE SKILLS II	4	.2
COMPUTER ASSISTED DRAWING POST SECONDARY	1	.1	OFFICE SKILLS III	4	.2
COMPUTER REPAIR	6	.4	OFFICE SKILLS IV	1	.1
CONSTRUCTION EQUIPMENT OPERATOR I	16	.9	PLUMBING I	94	5.6
CONSTRUCTION EQUIPMENT OPERATOR I	30	1.8	PLUMBING II	9	.5
CONSTRUCTION EQUIPMENT OPERATOR II	1	.1	PLUMBING III	2	.1
COOK - A I	2	.1	SMALL ENGINE REPAIR, POST SECONDARY	6	.4
COOK - A III	1	.1	SMALL ENGINE RP I	9	.5
ELECTRICIAN I	27	1.6	SMALL ENGINE RP II	5	.3
ELECTRICIAN II	6	.4	SMALL ENGINE RP III	6	.4
ELECTRICIAN III	2	.1	TECH ENGLISH POST SECONDARY	2	.1

Table 6 – *continued*

VOCATIONAL CERTIFICATE	Frequency	Percent	VOCATIONAL CERTIFICATE	Frequency	Percent
ELECTRICIAN POST SECONDARY	7	.4	TECH MATH POST SECONDARY	9	.5
ELECTRONIC CABLING I	2	.1	TECH PSYCHOLOGY POST SECONDARY	2	.1
FOOD SERVICES - COUNTY	3	.2	TECH READING,POST SECONDARY	2	.1
HEAT/AIR TECH I	10	.6	WORK CERTIFICATE	16	.9
HEAT/AIR TECH II	3	.2	WELDING I	106	6.3
HEAT/AIR TECH III	2	.1	WELDING II	7	.4
HORTICULTURE I	67	4.0	WELDING III	1	.1
			WELDING, POST SECONDARY	5	.3
			Total	1685	100.0

Results for career and technical education completers. Using stepwise regression with the likelihood ratio as the test, the following variables were used to construct the model: security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length. The model created included the following variables: age at release, security class 2, number of prior incarcerations and non-violent crime. The omnibus test of model coefficients was significant with a chi-square of 136.529(8), $p < .001$, resulting in rejecting the null hypothesis of no difference between the predictive ability of the model with the variables compared to the predictive ability of the model including only the intercept. To add additional evidence that the model fit the data, the Hosmer and Lemeshow test was not significant with a chi-square of 8.038(8), $p = .43$. Based on the chi square goodness of fit test, a non-significant finding allowed me to reject the null hypothesis of no difference between predicted and actual results of the model.

The model created to predict recidivism for prisoners who completed a career and technical education certificate while incarcerated contained the following variables: age at

release, education level at intake, security class, number of prior incarcerations, and crime type. Each additional year of age at release reduced the log recidivism rate by .30 and decreased the odds of recidivating by a factor of .97 or 3% holding all other covariates constant. Each additional prior incarceration increased the log recidivism rate by .209 and increased the odds of recidivating by a factor of 1.232 or about 23% holding all other covariates constant. Each additional year of education at intake decreased the log recidivism rate by .051 and decreased the odds of recidivating by a factor of .951 or about 5% holding all other covariates constant. Having a security class of level 3 significantly influenced the log recidivism rate. In addition, having a security class of 1A was significantly different than a level 3 prisoner in terms of the log recidivism rate. Having a security level of 1A reduced the log recidivism rate by .665 which is significantly different than a level 3 prisoner and reduced the odds of recidivating by a factor of .520 or 48% holding all other covariates constant compared to a level 3 prisoner. Neither a level 1B nor 2 was significantly different than a level 3 prisoner. Having committed a drug offense significantly influenced the log recidivism rate. Committing a non-violent crime was significantly different than committing a drug offense. Committing a non-violent offense increased the log recidivism rate by .578 when compared to committing a drug offense, and increased the odds of recidivating by a factor of 1.782 or 78% when compared to drug offenders.

Using the variables found to be significant, an equation was created to predict the odds of recidivating. To predict the log odds of recidivating, the following equation was used: $Z=\ln(Y)$ = .815 - .030age at release + .209number of prior incarcerations - .051years of education at intake -.655security class 1A + .578non-violent offender. The odds of recidivating can be predicted by the following formula: $Y=e^{Z}$. Using this formula to predict recidivism, the model was correct 63.2% of the time. Defining the chance rate as proportional by chance, by taking the

sum of squares of the proportional percentage, the rate of success is approximately 53%. Therefore, it can be concluded that the model predicts recidivism 10.2% better than chance.

Results for educational non-completion. Using stepwise regression with the likelihood ratio as the test, the following variables were used to construct the best model: security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length. The created model had the following variables included race, sex, age at release, number of disciplinary reports, number of prior incarcerations, education level at intake, crime type and security class. The omnibus test of model coefficients was significant with a chi-square of 1104.834(11), thus rejecting the null hypothesis of no difference between the predictive ability of the model with the variables compared to the predictive ability of the model including only the intercept. To add additional evidence that the model fits the data, the Hosmer and Lemeshow test was not significant with a chi-square of 11.980(8).

The model created to predict the recidivism of prisoners who did not complete a correctional education certificate included the following variables: race, sex, age at release, number of disciplinary reports, number of prior incarcerations, education level at intake, crime type and security class. Being African American increased the log recidivism rate by .170 and increased the odds of recidivating by a factor of 1.186 or 18% holding all other covariates constant. Being male increased the log recidivism rate by .368 and increased the odds of recidivating by a factor of 1.446 or almost 45% holding all other covariates constant. Each additional year of age at release reduces the log recidivism rate by .045 and decreased the odds of recidivating by a factor of .956 or almost 5% holding all other covariates constant. Each additional disciplinary report conviction increased the log recidivism rate by .010 and increased

the odds of recidivating by a factor of 1.010 or 1% holding all other covariates constant. Each additional prior incarceration increased the log recidivism rate by .259 and increased the odds of recidivating by a factor of 1.296 or almost 30% holding all other covariates constant. Each additional year of education decreased the log recidivism rate by .025 and decreased the odds of recidivating by a factor of .975 or 2.5% holding all other covariates constant. Having a security class of level 3 significantly influenced the log recidivism rate. In addition, having a security class of 1A or 1B was significantly different than a level 3 prisoner in terms of the log recidivism rate. Having a security level of 1A reduced the log recidivism rate by .233 and reduced the odds of recidivating by a factor of .792 or almost 21% holding all other covariates constant. Having a security level of 1B reduced the log recidivism rate by .266 and reduced the odds of recidivating by a factor of .766 or almost 24% holding all other covariates constant. Having committed a drug offense significantly influenced the log recidivism rate. In addition, committing a non-violent crime or a violent crime was significantly different than committing a drug offense. Committing a non-violent offense increased the log recidivism rate by .329 and increased the odds of recidivating by a factor of 1.389. Committing a violent offense increased the log recidivism rate by .197 and increased the odds of recidivating by a factor of 1.217 or almost 22% holding all other covariates constant.

Using the variables found to be significant, an equation can be created to predict the odds of recidivating. To predict the log odds of recidivating, the following equation was used: $Z=\ln(Y) = .280 + .170\text{black} + .368\text{male} - .045\text{age at release} + .010\text{number of disciplinary reports} + .259\text{number of prior incarcerations} - .025\text{years of education at intake} -.233\text{security class 1A} - .266\text{security class 1B} + .197\text{violent offender} + .329\text{non-violent offender}$. The odds of recidivating can be predicted by the following formula: $Y=e^{Z}$. The success rate of this model in

predicting recidivism for this sample is 68.5%. The proportional by chance rate of this sample is 56.6%. Therefore, it can be concluded that this model predicts recidivism 11.9% better than chance.

Summary

The variables security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length were used to create a model to predict recidivism in two samples: prisoners who had completed a career and technical education certificate while incarcerated and prisoners who had not completed an education certificate while incarcerated. This was done to both determine if these variables were statistically significant in predicting recidivism, as well as to determine if the same variables were significant in both populations.

Stepwise logistic regression was used to determine the best model finding that, age at release, number of prior incarcerations, education level at intake, security class and crime type were significant predictors of recidivism for both samples. In addition, race, sex and number of disciplinary reports were significant in the non-completer sample. Both models predicted recidivism more effectively than chance.

Table 7

Summary of Logistic Regression Analysis for Variables Predicting Recidivism for African Americans Who Completed a Career and Technical Education Certificate while Incarcerated (n =2,771) and African Americans Who Did Not Complete Any Correctional Education Certificate (n = 18,558)

	Completers				Non-completers			
Predictor	*p*	B	SE B	e^B	*p*	B	SE B	e^B
Age at release	0.000	-0.3	0.005	0.97	0.000	-0.045	0.002	0.956
Number of prior incarcerations	0.000	0.209	0.04	1.232	0.000	0.259	0.014	1.296
Education level at intake	0.041	-0.051	0.025	0.951	0.008	-0.025	0.009	0.975
Security class 1A	0.012	-0.655	0.261	0.52	0.000	-0.233	0.106	0.792
Security class 1B	0.056	-0.426*	0.223*	0.653*	0.000	-0.266	0.097	0.766
Security class 2	0.386	-0.186*	0.215*	0.83*	0.588	-0.052*	0.096*	0.949*
Security class 3	0.003				0.000			
Non-violent crime	0.554	0.578**	0.104**	1.172**	0.000	0.329	0.042	1.389
Violent crime	0.000	0.067		1.069	0.000	0.197	0.049	1.217
Drug-related crime	0.000				0.000			
Sex		Not in Model			0.000	0.368	0.057	1.446
Number of disciplinary reports		Not in Model			0.000	0.01	0.002	1.01
Race		Not in Model			0.000	0.17	0.037	1.186

Note: *These levels of the categorical variable Security Class are not significantly different from Security Class 3.
**This level of the categorical variable Crime Type is not significantly different from Drug-Related.

CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter provides a summary of the study, reviews findings, and discusses conclusions drawn from findings. Recommendations for the use of findings and conclusions are also presented.

Summary

A problem affecting America is the large and expanding prison population. This problem affects society in two ways. First, there are large costs associated with housing prisoners. The second way this problem affects society is by reducing the freedom of the members of society. Innocent people are forced to live without spouses and parents because of incarceration.

Although this is a problem for all members of society, this problem disproportionately affects African Americans. In South Carolina as of June 30, 2008, 16,141 African American prisoners were incarcerated, comprising 66% of the prison population. When compared to the population at large in South Carolina, 28.5% (U.S. Census Bureau, 2009), this is clearly a problem that disproportionately affects African Americans.

One way to explain the disproportionate incarceration of African Americans is using a framework comprised of Agnew's (1992) general strain theory and critical race theory (Delgado & Steffancic, 2001). Strain theory suggests that strain can lead to deviance. Specifically, there are three types of strain: (a) failure to achieve positively valued goals; (b) the removal or threat of removal of positively valued stimuli; and (c) the presentation or threat of negatively valued

stimuli (Agnew, 1992). This theory helps to explain how strain can lead to deviance, but the work of the critical race theorists help to explain why African Americans are under more strain than White people.

Critical race theory explains the increased strain that African Americans are under in America when compared to similarly situated white people. Critical race theory points to the structural, often subtle racism that creates downward pressure on African American achievement, both academically and economically. This racism contributes to a higher level of strain for African American people, which leads to a higher rate of deviance. This higher rate of deviance leads to a higher rate of incarceration.

One method that might alleviate strain for all prisoners is correctional education. In fact, there is a strong body of literature suggesting that correctional education in its various forms contribute to lowering recidivism rates (Batiuk, et al., 2005; Bazos & Hausman, 2004; Brewster & Sharp, 2002; Cole, 2002; Davis et al., 1986; Fabelo, 2002; Gordon & Weldon, 2003; Harer, 1994; Harrison & Schehr, 2004; Haulard, 2001; Hrabowski & Robbi, 2002; Jenkins et al., 1995; Jensen & Reed, 2006; MacKenzie, 2006; Nuttall et al., 2003; Piehl, 1995; Ryan & Desuta, 2000; Soferr, 2006; Steurer et al., 2003; Thomas, 2005; Ubah, 2002; Vacca, 2004; Wilson, 1994; Young & Mattucci, 2006). Logically, if the mechanism for this reduction in recidivism is a reduction in strain, this could have positive implications for the African American community. Since the theoretical framework used in this study suggests that deviance is a function of strain and strain is higher for African Americans, correctional education could lead to lower recidivism rates for African Americans.

Race is a good predictor of recidivism (Gendreau et al., 1996; Jung et al., 2010; Langan & Levin, 2002). Specifically, being African American leads to greater odds of recidivism.

However, my study sought to determine if the predictive value of race continued after participation in career and technical education.

Purpose of the Study

The purpose of this causal-comparative study was to determine how well the variables of security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length predicted recidivism for African American adults incarcerated in South Carolina for both prisoners who had completed a career and technical education course while in prison and those who had not completed a correctional education program.

Research Questions

1. What are the descriptive characteristics of African Americans incarcerated in the state of South Carolina who complete career and technical education certificates?
2. In which career and technical education certificate programs do African Americans in South Carolina complete?
3. Are African Americans proportionately represented in career and technical education certificates received in South Carolina?
4. Which combination of variables including security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex, and sentence length provide the best model to explain the variability of recidivism for prisoners who completed a career and technical education program and those who did not complete a correctional education program?

Research Procedures

The population of this study included all prisoners released during the two-year period, January 1, 2004 to December 31, 2005. Prisoner included only individuals in custody and under the supervision of the South Carolina Department of Corrections. The master database used to track inmate entry and exit for South Carolina Department of Corrections was used for all data. Variables of interest for this study were collected by a South Carolina Department of Corrections statistical services employee in accordance with Policy ADM-15.07. The protection of individual rights to privacy and information were maintained throughout the data collection and analysis process. IRB procedures were followed and the anonymity of individual inmate data was ensured at all times throughout each phase of data analysis.

The variables requested for this study were security class, number of disciplinary reports, age at release, education level at intake, crime type, number of prior incarcerations, race, sex and sentence length, education program completer, career and technical education completer and recidivism date. Once data were received, analysis was conducted.

Analysis of Data

The data were analyzed using two methods. Descriptive statistics were used to address the first two questions, while logistic regression was used to answer the third and fourth questions.

For research questions one and two descriptive statistics were used. Using SPSS, each participant was grouped based on racial classification and program received. Participants classified as African American and having completed a career and technical education program were grouped together. Descriptions for the African American-career and technical education completers group were calculated for the following variables: age (mean); sex (percentage);

security class (percentage); number of disciplinary reports (mean); highest grade level achieved (mean); number of prior incarcerations (mean); crime type (percentage); and sentence length (mean). Next, participants classified as African American and not completing a career and technical education program were grouped together. The percentage of completers in each different program for African American men and African American women was compiled.

To answer research questions three and four, logistic regression was used. Since the dependent variable was binary, the distribution of responses was not linear. To be able to analyze binary data with regression, logistic regression must be used. In the case of question three, simple logistic regression was used with the independent variable being race and the dependent variable being career and technical program completer. For the fourth research question, the population was divided into two groups—one that had completed a career and technical program and those who had not participated in a correctional education program of any kind. Using stepwise logistic regression with the likelihood ratio as the criteria, predictive models were created for both groups.

Findings

Research Question One

Of the 2,800 career and technical certificate completers in the dataset, 1,685 (60%) were classified as African American compared to 64.8% of all prisoners in the dataset. Of the 1,685 African American prisoners that completed career and technical education certificates, 108 (6.4%) were women compared to 9.5% for all the prisoners in the dataset. The average education level of prisoners at intake was ten years of education. The average age at release was early 30s for the African American prisoners released during this time. Table 5 summarizes the

rest of the variables for both African Americans who completed a career and technical certificate while incarcerated and those who did not.

Research Question Two

Between the dates January 1, 2004 and December 31, 2005, there were 81 different types of certificates awarded to African American prisoners for career and technical education programs in South Carolina. Construction and related fields were the largest areas of certificate completion. Masonry I had the largest representation with 303 prisoners receiving a certificate. This was followed by prisoners receiving a Carpentry I certificate – 270. Building Services I was third with 112 prisoners receiving a certificate. Welding I and Plumbing I also had high levels of completion with 106 and 94 respectively. The highest level of completion in a technology related area was Introduction to Computers with 63. Although some programs did not have African American representation at a specific level – for example there were certificate completers in Cook I and Cook III, but not Cook II, there was only one program, Dental Lab Technician, that did not have an African American student. A complete list of the certificates received by African American inmates is listed in Table 6.

Research Question Three

Results of the logistic regression found that race/ethnicity provided significant contribution to the variability of career and technical education completion. Being African American reduced the log career and technical certificate completion rate by .221(1), $p < .001$, when compared to White prisoners. Being African American decreased the odds of completing a career and technical certificate by almost 20% when compared to White prisoners.

Research Question Four

For prisoners who completed a career and technical education program, the following variables were statistically significant in explaining the variability of recidivism: Age at release, crime type, number of prior incarcerations, and security class. The omnibus test of model coefficients was significant with a chi-square value of 136.529(8), $p < .001$. This outcome resulted in the rejection of the null hypothesis that no difference existed between the predictive ability of the model with the variables compared to the model with only the intercept.

For prisoners who had not completed any educational program, the following variables were statistically significant in explaining the variability of recidivism: Race/ethnicity, sex, age at release, number of disciplinary reports, number of prior incarcerations, education level at intake, crime type and security class. The omnibus test of model coefficients was significant with a chi-square of 1104.834 (11), $p < .001$, thus resulting in rejection of the null hypothesis of no difference between the predictive ability of the model with the variables compared to the predictive ability of the model that included only the intercept.

Conclusions

Several conclusions can be drawn from the results of this study. African American prisoners were as a whole slightly underrepresented in career and technical education certificate program completion. African American men comprised almost 65% of the general prison population, but only 60% of male prisoners who completed a career and technical education course were African American men. A similar underrepresentation can be found among African American women. African American women comprised 9.5% of the total prison population, but only comprised 6.4% of individuals receiving a career and technical education certificate. By conducting a simple logistic regression on race/ethnicity and completion of a career and

technical certificate, being African American was statistically significant. Being African American in this data set led to a reduction of the odds of receiving a career and technical certificate by a factor of .802 or approximately 20% less likely. It is not clear from these data whether the difference is from a lack of participation or a lack of completion. However, it is clear that African Americans are not represented in career and technical certificate completers as they are in the total prison population.

African Americans are adequately represented in the different career and technical education programs offered in South Carolina's prisons. African Americans received career and technical certificates in 81 different programs. Of all programs offering certificates, there were only seven programs that did not have an African American certificate completer. Of these seven programs, there was only one that did not have an African American certificate completer at a different level of the same program type. Therefore, African American prisoners seem to have adequate access to all the different programs offered and are not being steered toward specific subjects.

There were differences between variables that predicted recidivism for prisoners that completed a career and technical education certificate program and those who did not complete an education program. Specifically, race, sex, number of disciplinary reports and education level at intake were statistically significant for prisoners that had not completed any educational program, while these variables were not significant for individuals that had completed a career and technical certificate program. These differences can be explained in the context of the theoretical framework guiding this study.

The theoretical framework for this study hypothesizes that African Americans are under more strain, as described by Agnew's general strain theory (Agnew, 1992), than White people in

America because of the pervasive racism described by critical race theory (Delgado & Steffancic, 2001). Some of this strain can be reduced by career and technical education and this will lead to lower deviance—measured by recidivism. The results of this study support this hypothesis.

One type of strain identified by Agnew (1992) that would likely be reduced by career and technical education is failure to achieve positively valued goals. An example of failing to achieve positively valued goals is the "disjunction between aspirations and actual achievements" (p. 51) found in the financial opportunity of African Americans subjected to the subtle racism described by Critical race theory. Career and technical education leads to higher earnings (NAVE Independent Advisory Panel, 2004; Jacobsen & Mokher, 2009;). These additional earning opportunities will help close the gap between the financial opportunity and financial expectations of African Americans leaving prison with a career and technical education certificate.

Another type of strain identified by Agnew (1992) that would be reduced by career and technical education is the presentation of negatively viewed stimuli. One example of negative stimuli are negative school experiences which might lead to deviance by seeking "revenge against the source of the negative stimuli" (p. 58). The central authority figures outside the home in young lives are schools and teachers. Negative experiences in schools, especially those described by critical race theory, lead to a mistrust of authority and the system that establishes that authority. This negative experience places African Americans in the margins of society. This marginalization results in strain and subsequent deviance that seeks to lash out against a system that does not seem to work for them. Although one course and certificate cannot undo a lifetime of negative experiences, it can begin the reestablishment of trust between citizen and

system. A positive experience interacting with authority would reduce the source of the negative stimuli and reduce ongoing deviance.

All of the variables that were not significant for prisoners who had received career and technical education can be explained by looking at the two types of strain discussed previously in this section. The reason race was not a significant predictor of recidivism for prisoners who had completed a career and technical education program is through a reduction of those specific strains. Both forms of strain mentioned in this section would be reduced through career and technical education. If African Americans who completed a career and technical education certificate experienced a reduction in strain compared to prisoners that had not completed any educational program while in prison, it would reduce the predictive value of race for the prisoners that had completed a career and technical education certificate.

Education level at intake was not a significant predictor of recidivism for prisoners who had received a career and technical education certificate because they were no longer bound by their initial education level. Since this variable was collected at intake, prisoners who had taken advantage of the educational opportunities available to them in prison were no longer at the same level when leaving the system, as when they entered. Whether the strain associated with this was failure to achieve positively valued goals, the presentation of negatively valued stimuli or more likely a combination of the two, career and technical education while in prison helps to alleviate it. Therefore, the variable did not predict recidivism for prisoners who had completed a career and technical education program.

The lack of predictive value of the variable Number of Disciplinary Reports can also be explained by the relationship hypothesized in the theoretical framework guiding this study. If number of disciplinary reports can be assumed to be a measure of continued deviance, then it

stands to reason that the more deviance while in prison, the more likely a prisoner is under strain. Some of this strain can be attributed to being incarcerated and situations arising from being incarcerated, but some of it is likely caused by ongoing negative relationships with authority. This is an example of negatively valued stimuli. Through a career and technical education program, the individual received a positive experience with authority. This will result in lower strain and a reduction of deviance once released.

The predictive value of sex is different for prisoners with or without a career and technical education certificate. Strain theory (Agnew, 1992) suggests that the strain level for men and women prisoners who had completed a career and technical education certificate were similar when compared to prisoners that had not completed any education. Since women without a career and technical education program were less likely to recidivate than men, analysis suggested that either male prisoners had reduced their strain relative to female prisoners by completing a career and technical certificate or that female prisoner's strain had increased relative to male prisoner's through the completion of a career and technical certificate. Most likely, women who are in prison are under different forms of strain that are less influenced by career and technical education.

Use of Study Results by Correctional Policy Makers

African Americans were not proportionately represented in career and technical certificate completers. Although my results did not indicate the reasons for this result, it is still important for policy makers to increase enrollments for this group of prisoners. If career and technical education reduces recidivism for African American prisoners, then policy makers could use results of research question 2 to help them draft policy changes intended to increase the proportionate level of African American career and technical certificate completers. One policy

initiative that might address this issue is to offer more programs in areas that African American prisoners had high level of completion. I found that African Americans completed certificates in the area of construction at a high level. Using this information, policy makers could make sure that all facilities offered programs in this area so there were plenty of seats available for any prisoners that were interested.

Results of this study indicated that race/ethnicity was not an accurate predictor of recidivism after the completion of a career and technical education program. By understanding that the predictability of race does not remain constant when prisoners complete a career and technical education, policy makers can help insure that prisoners who are at a high risk of recidivism are accurately identified. This information can be used by parole boards, probation officers and other managed release groups to focus resources on the most at risk released prisoners.

The results of this study present more support that correctional education as a whole has an impact on recidivism. Therefore, policy makers should use the results of this study, and the proposed relationship established by the theoretical framework concerning recidivism and correctional career and technical education, as support for further funding of correctional education programs.

Recommendations for Further Research

Based on the findings and conclusions of this study, the following recommendations for additional study are presented. Since I looked exclusively at career and technical education, further research into the use of race as a predictor of recidivism should be conducted to determine whether other forms of correctional education like academic or character-based education reduce the value of race as a predictor. The theoretical framework for this study could be applied to other forms of correctional education as long as a link can be established between

the form of education being delivered and a reduction in strain. Since one component of the proposed link between correctional education and strain reduction is having a positive interaction with authority, it seems that other forms of correctional education could impact the predictability of race. An established link between various forms of correctional education and the predictability of race on recidivism would advance our understanding of the benefits of correctional education and also provide information for policy makers when making decisions regarding future program funding.

Results indicated that race/ethnicity did not have predictive value in determining recidivism for prisoners who completed career and technical programs. Although I did not try to establish a causal link between career and technical correctional education and lower recidivism rates for African Americans, the hypothesized relationship between these variables and the lack of a significant relationship suggest the need for further research to determine whether causality can be determined or other factors play a role in determining recidivism for African American men.

A qualitative or mixed methods study would provide information about the reasons African American inmates choose particular career and technical education programs while in prison. The present study did not examine this issue. Information about this aspect of vocational preparation of incarcerated individuals would provide a better understanding of how to include more African American prisoners in the correctional career and technical education process.

In addition to correctional education programs, there are other interventions offered in prison that attempt to lower recidivism. Studies should be conducted that test race/ethnicity as a predictor variable for recidivism after interventions other than correctional education have been conducted.

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APPENDIX A

MARK SANFORD, Governor
JON OZMINT, Director

March 24, 2010

Mr. Wayne Wheeler
2185 B. Wilson Road
Commerce, GA 30529

Dear Mr. Wheeler:

Please accept this letter as conditional approval of your research proposal to study "Vocational Education's Impact on African American Recidivism in South Carolina."

As described in SCDC Policy ADM 15.07, "Research Conducted within the SCDC," a signed "Research Agreement" is required before any research project may begin. Once we receive this signed form we will be able to provide you with a dataset containing the variables you specified in your research proposal and recent correspondence.

Should you have any questions, please contact Mr. Trevis Shealy, Division Director of Resource and Information Management, for further assistance. He can be reached at 803-896-8526 or by e-mail at Shealy.Trevis@doc.state.sc.us.

I thank you for your interest in the South Carolina Department of Corrections and wish you success in your endeavor.

Sincerely,

Jon Ozmint

JO:ef

cc: Mr. Trevis Shealy, Division Director, Resource & Information Management
Dr. John P. Solomon, Ph.D., MBA, Director, Medical and Mental Health Services
Associate Warden Jeanne McKay, Kershaw Correctional Institution

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