

A COMPARISON OF COGNITIVE LEARNING GROWTH IN  
OCCUPATIONAL ACHIEVEMENT IN MINIMUM/MEDIUM  
SECURITY INMATES ENROLLED IN VO-TECH  
SKILLS CENTERS AND POSTSECONDARY  
STUDENTS ENROLLED IN AREA  
VOCATIONAL-TECHNICAL  
SCHOOLS IN  
OKLAHOMA

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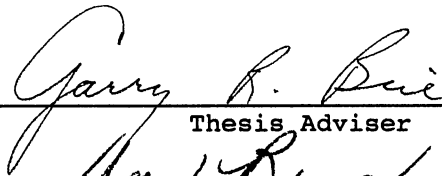
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Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF EDUCATION  
December, 1991

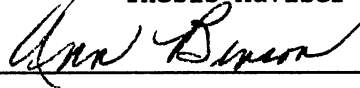
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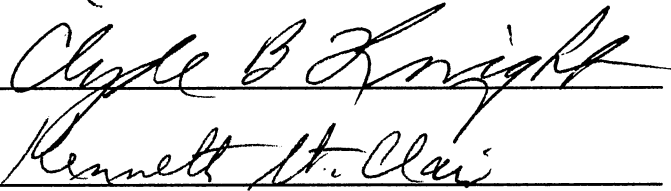
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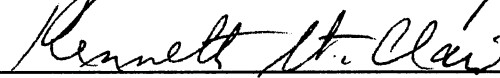
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## ACKNOWLEDGEMENTS

With deep appreciation I acknowledge the encouragement, support and assistance of my doctoral committee chairman and dissertation advisor, Dr. Garry Bice who shared so much of his time and expertise at nearly any time and at any place. Thanks is also extended to Dr. Juanita Bice who often served as an informal advisor and chief cheerleader as I progressed through the entire doctoral program. I would also like to express appreciation to committee members Dr. Ann Benson, Dr. Clyde Knight and Dr. Ken St. Clair who also shared valuable expertise during the completion of this study.

Additionally, a genuine sense of appreciation and thanks is expressed to my fellow staff members in the Oklahoma Department of Vocational and Technical Education, especially Dr. Ross Atkinson, Ms. Barbara Clerc, Dr. Richard Makin and Ms. Kimberly Sadler for the personal interest they took in this study and for the time and expertise they provided. Acknowledgment must also be given to faculty and staff of the six vo-tech skills centers and seven area vo-tech schools who participated in the study. Without their assistance, the compilation of data for this research would not have been possible.

Most of all, I would like to extend appreciation to a wonderful family who really made this whole effort possible. First, to my parents, Adolph and Florence who instilled in me, at a very early

age, the importance of education. Then to my son and daughter, Jim and Kari who must wonder if Dad will ever finish college. And finally, to my wife Jo Shelley, who is also my best friend. Her support, encouragement and love carried me through the difficult times and made the completion of this entire project possible.

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## CHAPTER I

### RESEARCH PROBLEM

#### Introduction

Crime is one of society's most frustrating dilemmas. The chance of any American or a member of his/her family being affected by a violent crime is greater than being in a car accident (Henry, 1989). According to the U. S. Bureau of Justice Statistics (1988), the number of inmates in state and federal prisons nationwide, increased by 115.3 percent between 1980 and 1989. Since 1980, the Oklahoma Department of Corrections has grown from an agency having a system count of 4,250 offenders, a FTE count of 2,348 employees and an operating budget of 50.8 million dollars, to a system count exceeding 11,000 offenders, a FTE employee count exceeding 4,000 and an operating budget of almost 160 million dollars (Maynard, 1989). And while this growth rate is alarming there continues to be a general lack of advocacy for prison programs designed to reintegrate offenders into society (Werner, 1990). Many people are hesitant to support the use of public funds for educating the rejects of society (Reffett, 1983), but evidently fail to realize that 98 percent of this country's prison population will return to the local communities very angry and even more committed to criminal activity if nothing is done to improve their ability to earn an honest living following

their release from prison (Bell, 1990). The result is a revolving door effect between the real world and prison for a majority of America's offenders. The economic costs alone, are astonishing. It is estimated that 225 billion dollars are lost each year to the economy because of uncollected tax revenues and related welfare and crime expenditures (Steurer, 1990). Additionally, there are 182 new prisons currently under construction in the United States designed to house 67,000 new beds at a total cost of 2.8 billion dollars (Littlefield, 1990). Corrections is truly a growth industry.

In developing a strategy to address this tremendous social and economic cost, it would appear that a logical first step would be to allocate more resources to habilitative programs that would reduce an ex-offender's predisposition to return to a life of crime following his/her return to society. A lack of a supportive constituency however, has made such a proposition difficult to sell to the taxpayer. In the mean time, incarceration rates have continued to increase each year (U. S. Bureau of Justice Statistics 1989), while recidivism has maintained a steady range of 60 to 75 percent across the country (Werner, 1990). Both of those factors have resulted in overcrowded prisons throughout the United States which have brought about the inevitable question of how much longer our society can afford to invest in prisons that only temporarily take offenders off its streets? More importantly, how much longer can America afford to waste the precious human resources that are lying dormant and unproductive in its correctional facilities? A recent Department of Labor projection indicated there will be 5.5 million fewer 18-24

year olds by the year 2000 than in 1990 (Jacques, 1991). That would appear to suggest that the country can no longer afford to waste human potential because employers will no longer be able to "cherry-pick" employees from a relatively large pool of applicants. Chief Justice Warren Burger (1984) provided a logical, but very powerful analysis of the current situation:

It is predictable that a person confined in a penal institution for two, five or ten years, and then released, yet still unable to read, write, spell or do simple arithmetic and not trained in any marketable vocational skill, will be vulnerable to returning to a life of crime. And very often the return to crime begins within weeks after release. What job opportunities are there for an unskilled, functional illiterate who has a criminal record? We do not need the help of behavioral scientists to understand that human beings who are taught to produce useful goods for the marketplace, and to be productive, are more likely to develop the self-esteem essential to a normal, integrated personality. This kind of program would provide training in skills and work habits, and replace the sense of hopelessness that is the common lot of prison inmates. The choice is ours, and the cost of doing something new will be less than the cost of continuing the old patterns (pp. 77-78).

#### Statement of the Problem

Vocational education for incarcerated populations in Oklahoma began in 1971 with the establishment of the Ouachita Vo-Tech Skills Center located near Hodgen. Since then, training and services have been expanded to include 52 programs in 13 different correctional facilities. Even with that growth, it was estimated that current efforts have reached only seven percent of the prison population (Cokeley, 1990). An inherent problem associated with correctional education was a lack of advocacy for funding programs for offenders. A second problem developed when attempting to place program

completers in the work place. Employers had shown a great deal of reluctance to hire ex-offenders for fear they were "faulty products" who had received outdated training on obsolete equipment from an unqualified faculty (Jacques, 1988). Because skills centers located in correctional facilities were preparing students for the same jobs as area vocational-technical schools, there was always a question as to whether or not the training received by the inmates would measure up to the same standards as the area vo-tech schools. Achieving that level of quality training was felt to be critical if equal consideration was to be given toward their employment.

The success of Oklahoma's area vocational-technical school system has been well documented (Peters, R., 1986; Peters, T., 1987; Perry, 1989; Dauffenbach & Polonchek, 1990; Sellers & Michels, 1990; Cetron, 1991). Those schools have always had a great deal of credibility with many key publics including the legislature (those who appropriate state dollars), the local constituency (those who approve local taxes) and with industry (the consumers of their product). If research could document that the training provided in skills centers was equivalent to that which was provided by the area vo-tech school district, then a positive step would have been taken toward increasing the level of advocacy for adequate funding of vocational education in correctional institutions. According to Reffett (1983), such gap bridging efforts are necessary to provide credibility for correctional school systems.

The problem this study addressed is the lack of advocacy for quality vocational education programs for incarcerated populations.

If information can be obtained that will provide a basis for advocating quality vocational education programs for inmates, society as a whole, and individuals in particular, will benefit through reduced social costs and improved utilization of human resources.

#### Purpose of the Study

The purpose of this study was to determine if significant differences exist between the occupational competency achievement growth of postsecondary students enrolled in area vocational-technical schools and minimum/medium security inmates enrolled in skills centers in similar programs. Data provided by this study may be used to determine the effectiveness of vocational education programs offered to incarcerated populations.

#### Research Questions

The major questions developed to provide guidance to the study were:

1. Do inmates who participate in vocational education programs while incarcerated achieve the same occupational competency achievement growth as postsecondary students enrolled in similar programs in area vo-tech schools?
2. Are there identifiable factors that affect the difference in occupational competency achievement growth between inmates and postsecondary students enrolled in area vo-tech schools?

### Variables

In this study, the independent variable was incarceration. The dependent variable was the occupational competency achievement growth that took place as a result of the instruction and training that occurred during the time between the pretest and posttest. Other independent variables that were considered as to their impact on learning growth were age, gender, previous academic preparation, and the length of time in the program.

### Limitations

This study has the following limitations:

1. The study is limited to those students enrolled in full-time programs in Oklahoma area vocational-technical schools and vo-tech skills centers during the period beginning in September, 1990, and ending in July, 1991.
2. The results of this study are specific to Oklahoma area vo-tech schools and vo-tech skills centers. Generalizations about similar types of institutions in other states should be made with caution.
3. The researcher was not able to control the instructional techniques of the teachers.
4. The analysis of the student's cognitive areas of performance was limited to the occupational areas of horticulture, word processing, auto mechanics-transmission repair, auto mechanics-suspension & steering, and auto mechanics-engine performance.

### Assumptions

This study was conducted with the following assumptions:

1. The differences in instructors's teaching style had an essentially random effect over the large sample.
2. All students were exposed to the subject matter of each participating program.
3. All participating programs contained a mix of student learning styles.

### Definitions

The following definitions are given in order to provide an understanding of concepts basic to the study.

Adult: In criminal justice usage, a person who is within the original jurisdiction of a criminal, rather than a juvenile based on his/her age. The FBI classifies anyone 18 years of age or older as an adult (Dictionary of Criminal Justice Data Terminology, 1981, p. 14).

Adult Learning Barriers: Obstacles that deter adults from participating in learning activities (Cross, 1983, p. 98).

Area Vocational-Technical School District: For purposes of this study, an area vocational-technical school district is a public school district created for the sole purpose of providing vocational and technical education programs and services to patrons residing in comprehensive school districts who have voted to band together, and whose combined geographical boundaries represent the territory that is taxed and served for that purpose. Area Vocational-Technical

School Districts, Vo-Tech Schools, Area School Districts and AVTS are all used interchangeably.

Bed Space: For purposes of this study, bed space refers to the housing capacity of a prison. A bed must be provided for every individual confined to a correctional facility. Bed space and beds are used interchangeably.

Community Treatment Center: A correctional facility where inmates participate in daily work-release programs in which they work at outside jobs during the day and return to the centers at night (Ford, 1990, p. 9).

Correctional Educator: For purposes of this study, a correctional educator is an individual who is engaged in providing educational programs and services to incarcerated populations.

Crime: An act committed or omitted in violation of a law forbidding or commanding it for which there are penalties (Dictionary of Criminal Justice Data Terminology, 1981, pp. 60-62).

Criminologist: An individual who is engaged in the scientific study of crime as a social phenomenon, of criminals, and of penal treatment (Webster's Third New International Dictionary, 1981).

Ex-Offender: For purposes of this study, an ex-offender is a person who has been released from a correctional facility following the completion of his/her sentence. Ex-offender, ex-prisoner and ex-convicts are all used interchangeably.

FTE: For purposes of this study, FTE is an acronym for full time equivalency.

Good Time: For purposes of this study, good time refers to the amount of time deducted from time to be served in prison on a given



sentence at some point after a prisoner's admission to prison, contingent upon good behavior and/or participation in a treatment program.

Habilitation: For purposes of this study, habilitation refers to the development of a new capacity.

Juvenile: A person subject to juvenile court proceeding because of his/her age. The generally applicable age limit within a given state is most often the 18th birthday (Dictionary of Criminal Justice Data Terminology, 1981, p. 118).

Learning Disability: A genetic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities (Arthur, 1988, p. 4).

Maximum Security Facility: A correctional facility with a secure external perimeter which is either walled or double fenced. The perimeter is observed 24 hours per day by armed tower officers. Any person entering the perimeter is subject to a strip search. Inmate counts are conducted every four to five hours (Oklahoma Department of Corrections Policy and Operations Manual, 1990, pp. 1 & 3).

Medium Security Facility: A correctional facility with a secure external perimeter which is either walled or double fenced. The perimeter is observed 24 hours per day by armed tower officers. (Oklahoma Department of Corrections Policy and Operations Manual, 1990, p. 2).

Minimum Security Facility: A correctional facility with a clearly defined perimeter but with no tower or fences. An external patrol is used to observe the perimeter on an intermittent basis. (Oklahoma Department of Corrections Policy and Operations Manual, 1990, p. 2).

Occupational Competency Achievement Growth: For purposes of this study, occupational competency achievement growth refers to the learning growth that is measured by examining the differences in test scores from identical occupational competency tests taken first, as a pretest, then later as a posttest.

Occupational Test: Criterion referenced and performance based tests developed by the Oklahoma Department of Vocational and Technical Education, with items specifically related to industry validated occupational duty/tasks lists (Oklahoma Department of Vocational and Technical Education Orientation Paper on the Occupational Testing Series, 1990).

Parole: The status of an offender conditionally released from a prison by discretion of a paroling authority prior to expiration of a sentence (Dictionary of Criminal Justice Data Terminology, 1981, p. 144).

Postsecondary Student: For purposes of this study, a postsecondary student is an individual who is enrolled in a vocational education program at the area vo-tech school, is not pursuing a high school diploma and is 18 years of age or older.

Prison: For purposes of this study, a prison is a facility designed to house individuals who have been convicted of a criminal

offense. Prison, Penal Institution and Correctional Facility are used interchangeably.

Prisoner: For purposes of this study, prisoner means a person kept under involuntary restraint, confinement or custody as a result of having been convicted of a criminal offense. Prisoners, Inmates, Offenders, Criminals, and Incarcerated Populations are all used interchangeably.

Recidivism: The repetition of criminal behavior. The Bureau of Justice Statistics (April, 1989, p. 2) lists three measures of recidivism; rearrest, reconviction and reincarceration. Of the three, the Bureau concludes that rearrest is the most reliably reported measure of recidivism because, while some rearrested individuals may be innocent of the crime charged, using only reported convictions would understate the true recidivism rates due to the fact that not all offenders are prosecuted or go to trial.

Rehabilitation: For purposes of this study, rehabilitation refers to the restoration of a former capacity.

Reintegration: For purposes of this study, reintegration refers to the ability of a prisoner to return to the community as a functioning, responsible and productive member of society.

Sentence: The penalty imposed by a court upon a person convicted of a crime (Dictionary of Criminal Justice Data Terminology, 1981, p. 189).

Treatment Programs: For purposes of this study, treatment programs are organized activities designed to be an integral part of the prisoner's habilitation or rehabilitation.

Vo-Tech Skills Centers: For purposes of this study, vo-tech skills centers are schools operated by the Oklahoma Department of Vocational and Technical Education that are designed to serve the vocational education needs of incarcerated populations. Vo-Tech Skills Centers, Skills Centers, and VTSC are used interchangeably.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### History of Correctional Education

Correctional education as a separate professional discipline is a relatively new concept with origins tracing back to the late 1800's. The original and primary function of providing education to prisoners was for salvation and moral regeneration as evidenced in the early part of the 18th century when the Pennsylvania Quakers centered their prison system around the goal of reconstructing the criminal through penitence (Seashore, 1976). As a result, early correctional education focused primarily on Bible study and reflection in solitude.

In the last half of the 19th century that philosophy evolved toward a more complex view of what caused crime. The concept of the offender as an immoral sinner who was simply in need of religious instruction, expanded to take on a more complex view. The cause for his/her criminal activity was thought to have been due possibly to intellectual, psychological or vocational deficiencies. Seashore (1976) felt the new penal philosophy had an impact on the function of the educational enterprise to the extent that education and vocational training programs became formalized. New York led the way when, in 1847, it passed a state law requiring two instructors for each state prison (Werner, 1990).

In 1867, Wines and Dwight undertook the first systematic look at the country's prison reform movement by surveying nearly all the prisons then existing and issued their landmark Report on the Prisons and Reformatories of the United States and Canada (Werner, 1990). That report cited the Detroit House of Correction as the model prison in the United States. The superintendent of that prison was Zebulon Brockway who would become one of the great innovators in early correctional education. In 1876, Brockway became the warden of New York's newly opened prison in Elmira and immediately developed instructional programs in vocational education and academic education for prisoners that Werner (1990) pointed out would endure "40 years before another prison education program could boast the same" (p. 37). In addition to being an innovative prison educator, Brockway was the first to make education a requirement for parole.

Austin MacCormick arrived afterward and became the next major reformer of prison education. MacCormick considered Brockway his mentor and built upon much of what Brockway had done at Elmira which led to what Gehring and Eggleston (1991) called the "golden age" of correctional education. Early in his career MacCormick demonstrated his commitment to the reform movement by actually having himself committed to the Maine State Prison in an attempt to discover what the system was really like (Werner, 1990). Later, in 1927 and 1928, he conducted a study of America's prisons and reported that there were virtually no well-rounded educational programs in any of America's prisons (Seashore, 1976). In his report, MacCormick (1931) also proposed that a quality education for the uneducated had value

in itself, independent of its effect on recidivism. He wrote:

If we believe in the beneficial effect of education on man in general we must believe in it for this particular group, which differs less than the layman thinks from the ordinary run of humanity. If on no other grounds than a general resolve to offer educational opportunities to undereducated persons wherever they may be found, we recognize that our penal population constitutes a proper field for educational effort. In brief, we are not ready to make its efficacy in turning men from crime the only criterion in judging the value of education for prisoners (p. 3).

From that point on, correctional education expanded rapidly and by 1948, MacCormick commented that the situation had drastically improved since his 1927-28 study.

In 1949, The Correctional Education Association was organized for professionals employed in providing education and related services to incarcerated populations and began publishing The Journal of Correctional Education. That provided the finishing touches on the establishment of a professional identity for correctional educators and served as a national voice and advocacy for the estimated 23,000 people who are involved nation-wide in correctional education today (Werner, 1990).

#### The Rehabilitation Debate

The debate relative to punishment vis-a-vis rehabilitation has occupied the minds of criminologists since the early efforts of Brockway in the late 1800's. Hamm (1987) distinguished between the two by stating that advocates of punishment generally saw themselves as staunch supporters of criminal justice policies that were designed to deal directly with the human temptations to commit crime, while advocates of rehabilitation, generally perceived themselves as doing

what was best for society by developing the reintegration potential in the offender. Hamm (1987, p. 8) suggested that the rehabilitative ideal had diminished since the mid-1970's and credited much of that movement to the publication of Robert Martinson's work in 1974 which eventually "led a legion of analysts from all political persuasions to accept that nothing works in corrections." Martinson (1974) and his colleagues were hired in 1966 by the New York State Governor's Special Committee on Criminal Offenders and asked to conduct a comprehensive survey of what was known about rehabilitation. The Committee was organized by the Governor because of his concern that the prisons in his state were not making a serious effort at rehabilitation. After examining 231 studies focusing on rehabilitation attempts from 1945 through 1967, Martinson (1974, p. 25) concluded the following: "With few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism." Martinson's findings served as a catalyst for dialogue and debate among criminologists and correctional educators and was probably one of the most recognized works regarding that subject.

One caveat supported by some was Martinson's sole reliance on recidivism as a measure of success. MacCormick (1931) cautioned against the use of recidivism as the only criterion for judging the value of education for prisoners. Sandel (1990, p. 11) stated similarly, "I do not think it is reasonable in many cases to use recidivism as a measure of success or failure of adult correctional programs." Shover (1979) felt that recidivism was not the only



measure of effectiveness and suggested other measures might include changes in attitudes, values, career aspirations, work habits, personality characteristics, disciplinary record, abstinence from substance abuse and size of earnings after release from imprisonment. Martinson (1974) even admitted to other such measurements of success in his report but selected only recidivism as his yardstick because he felt it reflected most directly how well treatment programs were performing the task of rehabilitation. In addition to the controversy surrounding recidivism, the epistemology regarding rehabilitation was reevaluated as it related to Martinson's findings. Werner (1990) indicated that, while the Martinson study was seen as an official turning point in correctional theory it did not create philosophy as much as it expressed it. He went on to write:

Martinson did not tell anybody anything about rehabilitation that he or she did not already feel instinctively to be the case. If anything, the unquestioning verve with which people accepted Martinson's conclusions shows the extent to which correctional agents and the public were ready for a change (p. 59).

There were others who were quick to point out that while nothing appeared to work relative to rehabilitation it was probably due to a number of other variables that had not been addressed by the treatment program. Werner (1990) suggested that the term rehabilitation was a misnomer in that someone who had not been rehabilitated to begin with could not be rehabilitated. Samenow (1984, p. 23) concurred and felt treatment programs, to be successful in many cases, had to focus on establishing patterns of thinking that were totally foreign to the offender. Both authors felt the moral change was a critical ingredient of the rehabilitative

and/or habilitative process and the Martinson study appeared to point treatment programs in that direction. Palmer (1975, p. 133) warned about using the Martinson study as the "death knell" for the field of correctional intervention. He felt the pessimism expressed by many criminologists at the time was unwarranted based on Martinson's findings. Palmer (1975) went on to submit that Martinson's often quoted concluding remarks were focused on the question of whether any methods of treatment were of value for nearly all offenders thereby concluding that there were no sure ways of reducing recidivism for offenders as a whole. In supporting his case, Palmer (1975) cited numerous situations in the Martinson study where successes were found, but because Martinson applied the criterion of inconsistency in a rigorous manner to each case study, few were seen as being successful, even though the treatment may have been shown to be effective for some offenders.

As a result, Palmer (1975) proposed what he felt might have been a more appropriate conclusion to the Martinson study:

Rather than ask, what works for offenders as whole, we must increasingly ask which methods work best for which types of offenders, and under what conditions or in what types of setting (p. 150).

Samenow (1984, p. 194) offered a similar view by acknowledging, that while no one knows for sure what the percentage might be, there are those who "given the right kind of assistance and treatment, will never commit another crime."

Gendreau and Ross (1980) provided a more scientific counter to

those who were quick to accept Martinson's findings as absolute truth:

The eagerness with which researchers have accepted the null hypothesis that correctional treatment has no beneficial effect goes against the grain of all we have learned about research methodology. The study of human behavior and the modification of that behavior is barely in its infancy. It is perhaps the least advanced and the most imprecise of the sciences and yet we talk with such certainty. It is a puzzle to us to understand how social scientists think they have obtained a completely satisfactory and final answer to an extremely complex question (p. 5).

Keve (1981) indicated similar feelings and viewed the Martinson study more as a mandate for better research in correctional treatment.

Martinson's (1974) study appeared to raise more questions than it answered. But while the controversy surrounding his findings still continue, many correctional educators and criminologists gave him credit for heightening the awareness for problems associated with past rehabilitation/habilitation efforts. That in turn, led to more discussion and research related to the proper posturing of treatment programs in correctional institutions.

#### Education As An Effective Treatment

Martinson's (1974) study had a significant impact on the field of correctional education as a form of treatment. If nothing worked then Department of Corrections officials were faced with the probability that they must reprioritize their efforts and/or redefine their mission. The debate over the role and purpose of corrections resulted in education programs being relegated to prison "baby-sitting" to assist in combating inmate idleness rather than for postrelease success (Coffey, p. 2). Coffey (1986, p. 4), another

critic of the Martinson findings, felt the "nothing works" conclusion was misquoted and that many of the research reports studied by Martinson in the education-training area were not scientifically valid which made them virtually meaningless.

Holloway and Moke (1987) noted that the Martinson study found four possible reasons why academic attainment had no effect on recidivism:

First, that educational programs were irrelevant to life outside prison; secondly, that most such programs used obsolete equipment and techniques; thirdly, that such programs could not reverse the adverse impact of incarceration; and finally, that educational attainment was often completely irrelevant to the reasons for an offender's criminal lifestyle (p. 42).

Those observations were supported more heartily by correctional educators and of the four, the second reason was cited by many as being the most frequent cause for failure in treatment programs involving vocational education (Stirling, 1974; Braithwaite, 1980; Keve, 1981; Graham, 1982). Braithwaite (1980, p. 54) went on to note that "vocational programs can have an effect on recidivism, but often they do not" and suggested that a fifth reason might be job placement programs that were unable to place ex-prisoners in training-related employment because employers sneered at qualifications gained in prison.

McMurlyn (1987) found that participation in vocational training programs in South Dakota prisons had no positive influence on the variables of recidivism, employment status, and work characteristics and recommended that corrections officials should either abolish the existing vo-tech programs or conduct a major curriculum evaluation in

an effort to make those programs more effective.

Similar studies in the States of Maryland, Illinois, and Oklahoma, however, produced findings that indicated at least a moderate positive relationship existed between completion of a vocational education program and recidivism and employment rates (Jenkins & Mumford, 1989; Schumacker, Anderson & Anderson, 1990; Oklahoma Department of Vocational & Technical Education, 1990). The Schumacker study was particularly helpful to the vo-tech cause. That study categorized releasees into one of four groups: (1) vocational students; (2) vocational/academic students; (3) academic students; and (4) the control group. Using a proportional random sampling procedure to select and equate inmate groups, releasees were selected during a three month period and then tracked the following 12 months. After the 12 month tracking period, the vocational and vocational/academic groups had the highest employment rates, lowest combined unemployment rate, and lower criminal activity rates. The academic group had the lowest employment rate, highest unemployment, and second highest criminal activity rate.

It would appear that education suffered from many of the same misfortunes as the other treatment programs. Effectiveness has been very difficult to determine. While some programs boasted success, others experienced only marginal results or failure. The literature suggested that more and better research was needed to provide clarity relative to the viability of educational programs in correctional settings.

### The Correctional Education Environment

The setting for correctional education has always been a unique educational challenge because of the unconventional environment in which it operated on a daily basis. A. S. Baxendale, Director of Prison Education for England and Wales, in a 1985 interview with Gehring and Eggleston (1989, p. 167), stated that "correctional education is the struggle to provide educational services in coercive institutions." Stirling (1974, p. 142) expounded that "philosophically, education and the penal system make peculiar bed-fellows." Duguid (1990, p. 113) described the marriage of education with incarceration as "fraught with both conflict and potential" where liberation and empowerment opportunities inevitably clash with restrictive and dependency-producing forces.

Maley (1985) found in surveying the chief administrators of state correctional systems in all 50 states that 95 percent reported they would offer more rehabilitation programs if their budgets allowed. However, only 64 percent of the respondents believed rehabilitation programs enhanced an ex-offender's chances of staying out of prison. Maley (1985) also found that 75 percent of those responding were not satisfied with the quality or quantity of those programs. Those paradoxical findings prompted Maley (1985, p. 137) to ask why "so many state penal institutions offered academic and vocational programs when 36 percent of the respondents were not convinced such programs worked." O'Neil (1990) provided a possible answer when she suggested that the goals of corrections and education were in conflict. The former focused on custody and control while

the latter centered on freedom, growth, and self-actualization. Roush (1983) and Corcoran (1985) both cited internal as well as external problems associated with this dilemma. Internal factors included prison officials who viewed education as another form of control, opposition from guards who resented inmates for receiving costly education, and inmates who were using education programs as a way to beat the system with no real desire to habilitate. External factors included politicians who were inclined to support such programs but were reluctant to do so for fear of appearing to be soft on hardened criminals by their constituents. In addition, Maley (1985) found that while a significant majority (75 percent) of the country's chief penal administrators viewed themselves as being rehabilitation-oriented, they thought the people in their states were punishment-oriented. O'Neil (1990) suggested all of these factors served to polarize the two administrative fields and prevented the advancement of educational goals in a prison environment.

Stirling (1974) argued that prison officials did not truly support educational programs because they had more important priorities:

Education obviously does not rank high in the priorities of the Department, and one might well feel moved to ask why it should. The *raison d'etre* of the penal system is, by definition, punitive, deterrent and custodial. It must be more concerned with protecting the public from its menaces than in educating them, especially as its 'clients' are already failures of the educative system. A little bit more of what you do not fancy is not likely to do you good (p. 143).

But Coffey (1986, p. 2) noted that such an attitude, which had resulted in the closing of educational programs in two states, found

both programs later reinstated by the courts within two years. Unfortunately, in both situations, prison officials viewed the programs more as a way to combat idleness rather than produce postrelease success which relegated the classes to a "kind of occupational therapy, even baby sitting." Coffey (1986) suggested the subsequent effect on staff morale was devastating and underlined the reason why it was very difficult to hire good academic and vocational education teachers in correctional classrooms and shops. Related to this problem, Rothman (1980) felt that a school must become a school and it was not a school when it became an institution, because institutions did not make student learning a priority. When student learning was not a priority because of security, industrial production or some other noneducational reason, it was reduced to an accidental byproduct. To address the byproduct syndrome, Gehring (1989) proposed a principle with six corollaries:

- Principle: Schools must be places where student learning is the priority, and educators must make student learning the focus of their professional lives.
- Corollary 1: Correctional education is the struggle to provide educational services in coercive institutions.
- Corollary 2: In correctional education, "good old boys" are correctional educators who do not prioritize student learning.
- Corollary 3: Educators should make educational decisions.
- Corollary 4: In correctional education, the traditional "knowledge, skills and attitudes" priority formula should be reversed -- "attitudes, skills, and knowledge."
- Corollary 5: Prison reformers and correctional educators share a common goal -- to transform prisons into schools.



Corollary 6: Correctional educators help to develop better citizens, instead of better inmates (p. 168).

Another obstacle that prohibited quality correctional education was a negative attitude by the general public. Reffett (1983) explained that a lack of public support translated into a lack of adequate funding for prison schools. Reffett (1983) rationalized why there was a noticeable absence of advocacy for prison education:

Unlike the public schools, the prison school is a program without a clarified, supportive constituency. There are no citizen support groups, no parent committees, no school board, no alumni association, and no Parent-Teacher Associations to provide the much needed impetus for correctional education (p. 41).

Reffett (1983) went on to emphasize that it was most difficult for the public to be sensitive to the needs of corrections because they were reluctant to look at it. Due to a growing fear of crime, the average citizen avoided any association by knowledge of the criminal and criminality by assuming an "out-of-sight, out-of-mind" mentality. The problem had been compounded further because state legislatures, reflecting the attitude of their constituents, had historically been hesitant to support the funding of prison education programs (Hamilton, 1991).

The correctional education environment would appear to face many obstacles that would be foreign to most educators. In general terms, these obstacles included inadequate funding, lack of public support and the misfortune of operating within an institution where education was a low priority.

### The Offender as a Student

Coffey (1986) gave a general profile of the typical offender and his or her need for educational programs.

The typical male or female inmate, is poor, unskilled, undereducated, and unemployed or underemployed. Only 40 percent (as compared to 85 percent of the U.S. population as a whole) have completed high school. Most function on the fifth-grade level in reading and spelling and somewhat lower in math. Forty percent were reported unemployed at the time of arrest; an additional 12 percent had only part-time employment. The average inmate, in terms of annual income, operated at poverty level before being jailed. Estimates indicate that about 25 percent of the prison population suffers from some form of learning disability or other handicapping condition. One-third has a record of severe alcohol abuse, and one-third has a record of drug abuse (p. 3).

Werner (1990) had a similar description but added that the prisoner was a member of a minority group, between the ages of 21 and 33, was from a single or divorced-parent household, probably had another member of the family who had also been incarcerated, knew other people who had been in prison, was a victim of child abuse and had an early history of trouble with the law. Others argued that offenders were essentially undeveloped human beings who had not acquired the discipline, education and training to be able to function in society (Shover & Einstadter, 1979). Fox (1977) noted that offenders and ex-offenders were never known for good work habits and most had never been on a schedule.

In stressing the importance of education as a deterrent to criminal activity Hodgkinson (1990) pointed out that the correlation between high school dropout and prisoner incarceration rates was slightly higher than the correlation between smoking and lung cancer.

By and large, states that had the best rate of high school graduation had the lowest rates of prisoners per 1,000 population. Praeger (1990) indicated that one of the greatest obstacles to addressing the educational needs of the offender was dispelling the myth that there was a genetic predisposition to do poorly in school, both academically and behaviorally. Janowitz (1971, p. 648) said that "no matter how anti-social an inmate's behavior had been, it was chiefly a product of social and psychological factors and not merely a personal malevolence and deviltry." Samenow (1984) expounded a much different view and declared that criminals simply thought differently than responsible people. He contended that sociological explanations for crime, plausible as they might seem, were too simplistic for criminologists to automatically focus a habilitation strategy around the notion that all that had to be done was simply give the offender a chance because he/she was basically a good person. Samenow (1984) believed that criminals were not good people and were motivated for different reasons than responsible individuals which in turn presented some unique barriers for correctional educators. Werner (1990) took the position that the argument was not necessarily whether or not the offender was at fault for his/her prison experience, but rather he/she had a better opportunity than many for getting there because of his/her demographic background.

Cross (1983) presented a discussion on barriers to adult learning that centered on a 1974 national survey conducted for the Commission on Non-traditional Study. Obstacles to learning for typical adults were categorized by situational, institutional and

dispositional barriers. Of the three, dispositional barriers presented the greatest challenge for correctional educators. Soothill (1974) gave an account of an inmate featured in a national newspaper who had become so accustomed to prison life that he felt deeply insecure away from it. Frightened to have even the simplest interactions with the public, he began to commit petty crimes with the conscious aim of getting back to prison. Another dispositional barrier was the fear for personal safety. One inmate told of living in constant fear for his life when all he really wanted to do was to serve his time in peace and go straight when he was released (Remick, 1975). Even following release, Graham (1982, pp. 125-126) noted that the fear continued, but it took a slightly different slant. He recalled trying to adjust to the "other world" and wondered how long a five time loser could last in such a strange environment. There was a constant fear of being framed for any crime that happened near his geographical area. That fear caused him to request signatures from waitresses, store clerks, and service station attendants on receipts to document his whereabouts at all times. Many times he wondered if going straight was worth the effort. A study conducted by the Oklahoma Department of Vocational and Technical Education (1990) found that offenders enrolled in vo-tech skills centers viewed their classrooms and shops as refuges from the hostile prison environment:

One inmate stated that 'he gets so involved when studying the material that he forgot he was in prison.' Another said 'It is kind of a haven for me. I am very protective of vo-tech, and try to stop anything that might hurt it.' Additional comments centered around the feeling that while in the skills center they were treated as students rather

than prisoners and instructed by people who demonstrated a genuine concern for them as opposed to the impersonal treatment received by corrections personnel (pp. 6-13).

The literature supported the premise that the offender, as a student, provided many unique challenges to the educator. Dispositional barriers that were common to many adults were compounded by the coercive nature of the prison environment. Additionally, because inmates had developed a way of thinking that was foreign to the outside world, it was recommended that more emphasis should be placed on Gehring's (1989) fourth corollary which emphasized attitudinal development over the attainment of skills and knowledge. To do otherwise would, as Gehring (1989, p. 169) put it, merely produce "criminals with job skills," who may be inclined to use those skills to become more proficient in illegal activities.

#### Cognitive Development and Measurement

Duguid (1990) listed the following as the most prominent examples of cognitive abilities:

Problem solving, linking cause with effect, making analogies between two or more objects or events, considering future consequences in making judgments, appreciating the complex nature of phenomena, being reflective rather than impulsive, and being able to employ empathy in social situations (p. 122).

Of all those areas of cognitive development, he cited empathy, as the most important and the most difficult to attain for the offender.

The difficulty comes from the fact that "criminals are outlaws who spent a significant portion of their social lives outside the world of formally sanctioned structures, making isolation from the other world a very real way of life (Duguid, 1990). Samenow (1986) noted

that the criminal felt no need to defend his behavior and considered himself the hub of the wheel and never the spoke. That type of mentality served as a significant barrier to the acquisition of empathy as a part of the inmate's cognitive development. Irwin (1970, p. 83) used the term "convict identity" to describe the inmate lifestyle which held to an "obligation to tolerate the behavior of others unless it was directly affecting your physical self or possessions." When the behavior of another inmate surpassed those limits, the problem was solved by the person himself rather than by calling for help from prison officials. That was called "doing your own time" and served as a significant block to the inmate's ability to understand empathy. Hoffman (1977) emphasized the role of empathy in morality and viewed the arousal of empathy as a key component in cognitive development. Rest (1986, pp. 98-99) used a multiple choice test that was based on Kohlberg's six stages of moral development and found that of all the demographic variables examined, "formal education (number of years in school) was the most powerful and the most consistent correlate of moral judgment." The three groups that received the highest moral development scores in Rest's study were (1) Moral philosophy and political science doctoral students, average score = 65.2; (2) Seminarians in a liberal Protestant seminary, average score = 59.8; and (3) Advanced law students, average score = 52.2. The three groups that received the lowest scores were (1) Institutionalized delinquent boys, average score = 18.9; (2) Average junior high students, average score = 21.9; and Prison inmates, average score = 23.5. Diguid (1987) reported

that the prison education program held on the campus of Simon Fraser University in British Columbia helped to break down the social isolation of prisoners and served as a catalyst for acceptance of a student identity rather than a prisoner identity for offenders who were able to participate in the program:

Unlike so many of their peers who find themselves alone or in bad company after release, these students leave prison with an echo of support behind them and a potential network of support in front of them. These are all 'unintended outcomes' of the University Program in British Columbia. The men who emerge from this program, whether after one course or thirty courses, are without a doubt better positioned to attempt a change of career, reintegrate with family and community, and decide on an appropriate set of values that are most of their peers, whether in prison or out. It is in this sense that the University Program in British Columbia combines Academic Knowledge with Living Skills (p. 27).

McMurlyn (1987) surveyed employers of South Dakota ex-prisoners who had participated in a vocational education program while incarcerated and asked for an evaluation on their technical knowledge, work attitude, work quality, ability to work with other employees, human relations, interest in the job, knowledge of tools/equipment being used, initiative, supervisory skills, dependability, and willingness to assume responsibility. His conclusion was that a person leaving prison and seeking employment success was just as well off with one contact hour of participation in vocational education as another individual with 200 contact hours of participation.

Fear, which was alluded to earlier by Graham (1982) and Remick (1975) as being a very real part of the prison and post prison experience, was discussed by Hammerton and Tichner (1968) who

observed that while it was a widely held belief that performance declined under fear or stress, there were few real-life data to support such a notion.

Boshier (1973) concluded in his study of noncredit courses in continuing education, that both dropout and nonparticipation could be understood to occur as a function of the magnitude of the discrepancy between the participant's self-concept and the people in charge of the educational environment. Such incongruencies were additive and the greater their sum, the greater the likelihood of nonparticipation or dropout. Boshier (1973) listed one of those incongruencies as the discrepancy between self and the teacher. Werner (1990) provided support for that premise and stated that because the typical prisoner-student had a strict adherence to immediate gratification and was preoccupied with economic success, he was perplexed when confronted by people who had chosen to pursue other goals. He could not understand why his teacher had chosen a career based on self-fulfillment rather than financial gain and why so much time and money would be spent (i.e., a college degree) in seeking that endeavor. Another incongruency reported by Boshier (1973) was the discrepancy between self and other students. That line of thought provided a possible explanation for the findings of Moon (1989) who concluded that postsecondary students enrolled in business and office programs in Oklahoma area vocational-technical schools achieved greater cognitive learning growth when placed in all-adult classes compared to those who were enrolled with secondary students.



Tough, Abbey, and Orton (1979) asked learners to assign weights to their reasons for learning. Their findings led to the development of a five stage motivational model which was called the Anticipated Benefits Theory. Continuance in the learning endeavor was more likely to take place if the student could anticipate benefits as he/she moved through each stage. Specifically, these were (1) engaging in the learning activity, (2) retaining the knowledge or skill, (3) applying the knowledge, (4) gaining a material reward and (5) gaining a symbolic reward. Tough and his colleagues found the most important stage to be the application of the newly learned knowledge or skill. The findings of the Oklahoma Department of Vocational and Technical Education (1990) pointed out that the anticipated benefits of prisoner-students might sometimes be different than those of students in the real world. When asked a similar question by the interviewer, the largest number of offenders stated that they had hoped to gain an education to learn a trade which would enable them to be successful when they were released. The second largest number indicated a desire to sharpen an existing skill. The third highest category was shared equally by those who said they had a personal interest in the area of study and by those who either said they were looking for a way to fill in time or saw the vocational program as the quickest way (i.e., good time) to get out of prison. Greenwood and Bell (1987) investigated cognitive, social and educational variables as they impacted upon the reading achievement of incarcerated adults. The subjects were 606 men and women inmates in Louisiana, Pennsylvania and Washington who

took the Tests of Adult Basic Education (TABE) and the Wechsler Adult Intelligence Scale-Revised (WAIS-R). Significant differences were noted between able and disabled readers in all of the WAIS-R subtests. The disparity in individual subtests was evident in Verbal, Performance, and Full Scale IQ scores. Group differences were noted in ethnic background, highest grade completed in school and gender. Greenwood and Bell (1987, p. 75) also raised the possibility that a "lengthy incarceration may have a further compounding influence on academic performance as measured by standardized tests." Brey (1987) found that prisoner-students in Wisconsin earned significantly higher final grades in science classes that were taught utilizing applied instructional techniques, than those inmates who took the same course titles using a more traditional form of delivery. Rose and Williams (1987) reported a 10.93 percent average gain from 886 pre/post tests of inmate learners in Ohio's prisons from 1985 to 1987. Prisoners were assigned to computer labs where they received computer assisted instruction in occupational knowledge, consumer economics, community resources, health, government and law. It was suggested by the researchers that the gain scores were due in large part to amount of individual attention that was afforded by the computer-assisted instruction delivery as opposed to the traditional classroom:

The experiences of many inmates in the traditional classroom have left them alienated from the learning process. One needs to see a hostile inmate turn cooperative, an alienated learner become enthusiastic, or a defeated learner gain confidence in order to appreciate the value of computer-assisted instruction (p. 84).

In summary, it was noted that inmate learners had additional barriers to learning cognitive skills than typical adult students in the real world. One particularly difficult barrier was the apparent failure on the part of the offender to understand the concept of empathy. This obstacle was compounded by what Irwin (1970) called the "convict identity" which sought isolation as a way to cope with prison life. While the barriers were viewed as an ever-present nature of the correctional environment, successful programs were found. The common denominator of that success appeared to be a break from the traditional forms of educational delivery. Such narrowly focused methods had yielded only failure and unpleasant experiences for the offender in the past. In situations where there was a suitable match between the way the prisoner student preferred to learn and the instructional delivery, significant progress was reported in cognitive learning.

#### Summary

Chapter II provided a review of the literature and research relative to the history and development of correctional education, its role in rehabilitation, its effectiveness, the environment surrounding it, its students, and its ability to develop cognitive skills. While a considerable amount of investigation was found in each of these areas, there was a conspicuous absence of research relating to the impact incarceration had on learning. Literature that focused on the offender, the prison environment and measures of rehabilitative success, compared inmate groups only to other inmate

groups, ignoring the possibility that incarceration itself, could have had a potential affect on an individual's propensity to acquire cognitive growth. Similarly, nothing was found that compared learning growth between student groups in a very structured setting (e.g., correctional institutions) and relatively unstructured environments (e.g., public schools).

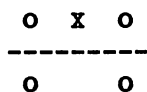
Chapter III described a research design that focused on the incarceration experience as it related to cognitive growth in three vocational education programs. By comparing inmate performance and growth to that of regular postsecondary students enrolled in public vo-tech schools, it was hoped that more could be learned about correctional education and its potential for developing a dormant and unused human resource, the criminal offender.

### CHAPTER III

#### RESEARCH DESIGN AND PROCEDURES

In investigating past research studies involving inmate cognitive growth, nothing was found that compared inmate groups to normal groups in the real world. That is particularly significant in vocational education because completers of inmate programs must compete for the same jobs as completers of programs offered by public and private vocational schools. Employment of ex-offenders is often a hard sell and many times former prisoners with marketable skills must be content with employment in low wage, service occupations where they can establish a productive work record, before they can find a job in the occupational area in which they were trained (Henry & Odiorne, 1989; Ross, 1991).

This quasi-experimental study used the nonequivalent control group design to investigate the comparison of cognitive learning growth in occupational achievement between minimum/medium security inmates enrolled in vo-tech skills centers and postsecondary students enrolled in area vocational-technical schools. Campbell and Stanley (1963) diagram the study design as follows:



The null hypothesis tested was,  $H_0$ : there is no difference in the cognitive learning growth in occupational achievement in minimum/medium security inmates enrolled in vo-tech skills centers and postsecondary students enrolled in similar programs in area vocational-technical schools. Subjects in the study were administered an occupational achievement test (pretest) at the beginning of the investigation period and then an identical posttest at the conclusion of the period. Gain scores were analyzed to determine the effect the independent variable (incarceration) had on the dependent variable (cognitive growth). Selection of the design was based, in part, on Campbell and Stanley's (1963) suggestion that it was well suited for the field of education where naturally assembled collectives were a characteristic of the research subjects.

This chapter is divided into four main sections:

1. Selection of the Subjects
2. Instrumentation
3. Collection of Data
4. Analysis of Data

#### Selection of the Subjects

The population for the study included all postsecondary students enrolled in Oklahoma area vocational-technical schools and all minimum and medium security inmates enrolled in vo-tech skills centers from October of 1990 through July of 1991. The total number of enrollees was approximately 13,131 postsecondary students and 2,028 minimum/medium security inmates. Population data were provided

by the information services division and the skills center division of the Oklahoma Department of Vocational and Technical Education in Stillwater, Oklahoma. A purposive sample was used based on Kerlinger's (1973) rationale that such a technique was appropriate when presumable typical groups were desired for the study. The total sample size was 165 which included 75 postsecondary students from area vocational-technical schools and 90 minimum and medium security inmates enrolled in vo-tech skills centers. The selection of area vocational-technical schools and vo-tech skills centers was based on a three step process that included: (1) a match of the available validated occupational achievement tests from the Oklahoma Department of Vocational-Technical Education with similar vocational education programs offered in vo-tech skills centers; (2) a match of the instructional programs selected by the first step with similar programs in area vocational-technical schools where there was sufficient enrollment of postsecondary students; and (3) selecting, where possible, a mix of rural and urban area vocational-technical schools. That process provided for the selection of five achievement tests in three general occupational areas; horticulture, auto mechanics, and business and office education. Area vocational-technical schools and instructional programs that were selected for the project included the following:

1. Caddo-Kiowa AVTS, Ft. Cobb - Auto Mechanics, Horticulture, Business and Office
2. Great Plains AVTS, Lawton - Auto Mechanics
3. Mid-America AVTS, Wayne - Horticulture

4. Moore-Norman AVTS, Norman - Business and Office
5. Northeast AVTS, Pryor - Business and Office
6. Tulsa County AVTS, Tulsa (Lemley Campus) - Horticulture
7. Tulsa County AVTS, Tulsa (Southeast Campus) - Auto Mechanics

Vo-Tech Skills Centers and instructional programs selected were as follows:

1. Bill Willis VTSC, Tahlequah - Auto Mechanics
2. Helena VTSC, James Crabtree Correctional Center -

Horticulture

3. Mabel Bassett VTSC, Mabel Bassett Correctional Center -

Horticulture, Business and Office

4. Ouachita VTSC, Ouachita Correctional Center - Auto Mechanics

5. Taft VTSC (South Campus), Jess Dunn Correctional Center -

Business and Office

6. Taft VTSC (North Campus), Eddie Warrior Correctional

Center - Horticulture, Business and Office

Of the six vo-tech skills centers selected for the study, only the Bill Willis VTSC was not located on the premises of a correctional facility. Inmate students who were enrolled in auto mechanics at Bill Willis, were housed at the Jess Dunn Correctional Center and transported to and from the school on a daily basis.

#### Instrumentation

The instruments used in measuring the cognitive growth for occupational achievement were developed by the Testing Division of the Oklahoma Department of Vocational and Technical Education.



The tests were based on duty/task lists recommended by committees of industry representatives, teachers, supervisors, and testing specialists. Content validity was found to be valid with a minimum .60 confidence level. The alpha reliability index consistently met a .80 and above for all tests (Oklahoma Department of Vocational and Technical Education Orientation paper on the Occupational Testing Series, 1990). Each test was designed to predict occupational readiness, document program excellence, establish curriculum alignment, and verify student achievement (CIMC Catalog, 1990). Five tests were used from three occupational areas. The tests were cognitive in nature and ranged from 36 to 62 questions. A cover sheet (Appendix A) was attached to each pretest asking for the participant's age, sex, highest grade completed in school, last four digits of his/her social security account number and any previous vocational courses that were completed. A cover sheet (Appendix B) was also attached to the posttest requesting the number of days the student participated in the program. Occupational tests (Appendix C) used in the study included the following:

Horticulture - Greenhouse Worker, Test #OT9049, 62 questions

Business and Office - Word Processing Operator I, Test #OT9044,  
36 questions

Auto Mechanics - Automatic Transmission/Transaxle Specialist  
Test #OT9101, 50 questions

Auto Mechanics - Suspension & Steering Specialist, Test  
#OT9103, 53 questions

Auto Mechanics - Engine Performance Specialist, Test #OT9107, 56  
questions

Achievement gains were determined by the pretest-posttest difference of each student involved in the study. The pretest was administered in October of 1990 for a majority of the subjects. Pretests were also given throughout the year to new students as they entered the program. Posttests were administered to students as they exited the program through July of 1991.

#### Collection of Data

The process of obtaining data from the 13 schools involved in the study began in the fall of 1990. The superintendent of each area vocational-technical school and director of each skills center was contacted individually about the study and given an orientation regarding its scope, rationale and procedure. A contact person was then assigned to represent the school relative to the study. A similar, but more detailed, orientation was given to the contact person and instructors directly involved in the study.

In late September and early October, pretests and posttests were either personally delivered or mailed to each site with an accompanying correspondence (Appendix D) explaining the procedure to be used in administering the tests. October was selected as a start-up month because fall enrollments had typically stabilized in area vo-tech schools. The area schools division of the Oklahoma Department of Vocational and Technical Education uses the October 1 enrollment count in determining each schools' full time student population for formula funding which provided credence to the decision to start in October (Bostian, 1991). Contact was made occasionally with instructors throughout the year by either telephone

or personal visit to remind instructors that new students should be pretested immediately, early exits should be posttested before leaving, additional test materials were available as current supplies depleted and to answer any questions that had occurred since the initial visit. In December, a second correspondence (Appendix E) was mailed that provided clarity to some problem areas that had been detected as a result of those occasional contacts. The most common problem areas were failure to posttest early exits and neglecting to record all the necessary information on the answer sheet. In March, a final correspondence (Appendix F) was mailed indicating April as the cut-off date for the final posttesting of all subjects in the study, but was later extended to July to accommodate year-end activities and to allow students in some schools to complete their program of instruction. Pretests and posttests were either mailed or delivered personally to the researcher at the Oklahoma Department of Vocational and Technical Education.

A total of 317 pretests were administered in the study which included 164 to postsecondary students in area vocational-technical schools and 153 to minimum/medium security inmates in vo-tech skills centers. A total of 165 posttests were returned with 75 coming from area vocational-technical schools and 90 from vo-tech skills centers. Tables I and II show the distribution of those instruments.

Of the 164 subjects given pretests in the area vocational-technical schools (control group), 75 were administered posttests for a percentage of 45.7. This compared to 153 and 90 respectively, for the vo-tech skills centers (experimental group)

TABLE I  
 DISTRIBUTION OF PRETESTS AND POSTTESTS BY AVTS AND  
 OCCUPATIONAL CATEGORY

AVTS	Occupational Area	Pretests In	Posttests In
Caddo-Kiowa AVTS	Word Processing Operator I	37	10
	Greenhouse Worker	8	3
	Suspension & Steering Specialists	6	3
Great Plains AVTS	Suspension & Steering Specialists	15	10
Tulsa County AVTS	Suspension & Steering Specialists	6	4
	Automatic Transmission Transaxle Specialists	7	4
	Engine Performance Specialists	7	6
	Greenhouse Worker	2	2
Mid-America AVTS	Greenhouse Worker	12	5
Moore-Norman AVTS	Word Processing Operator I	35	12
Northeast AVTS	Word Processing Operator I	<u>29</u>	<u>16</u>
Total		164	75

TABLE II  
 DISTRIBUTION OF PRETESTS AND POSTTESTS BY VTSC AND  
 OCCUPATIONAL CATEGORY

VTSC	Occupational Area	Pretests In	Posttests In
Ouachita VTSC	Suspension & Steering Specialists	12	7
	Automatic Transmission Transaxle Specialists	13	6
	Engine Performance Specialists	16	11
Bill Willis VTSC	Suspension & Steering Specialists	10	5
Mabel Bassett VTSC	Word Processing Operator I	30	14
	Greenhouse Worker	3	3
Taft VTSC	Word Processing Operator I	28	18
	Greenhouse Worker	17	12
Helena VTSC	Greenhouse Worker	<u>24</u>	<u>14</u>
		153	90
Total			

TABLE III  
SUMMARY OF AVTS POSTTESTS RECOVERY RATES BY  
OCCUPATIONAL CATEGORY

Occupational Area	Pretests	Posttests	Percentage
Business & Office (Word Processing Operator I)	101	38	37.6
Auto Mechanics (Automatic Transmission/Transaxle) (Suspension & Steering) (Engine Performance)	41	27	65.9
Horticulture (Greenhouse Worker)	22	10	45.5
Total	164	75	45.7

TABLE IV  
SUMMARY OF VTSC POSTTESTS RECOVERY RATE BY OCCUPATIONAL CATEGORY

Occupational Area	Pretests	Posttest	Percentage
Business & Office (Word Processing Operator I)	58	32	55.2
Auto Mechanics (Automatic Transmission/Transaxle) (Suspension & Steering) (Engine Performance)	51	29	56.9
Horticulture (Greenhouse Worker)	44	29	65.9
Total	153	90	58.8

which resulted in a recovery rate of 58.8 percent. Tables III and IV show the recovery rate by occupational categories.

#### Analysis of Data

The data were coded and entered into the computerized data file. The statistical program SYSTAT: The System for Statistics (1987) was used to provide descriptive statistics and to perform statistical analysis t-tests and analysis of covariance (ANCOVA).

Descriptive data to describe the population included gender, age and educational level attainment. The number of days each subject spent in the program between the pretest and posttest was also requested but was not recorded accurately on a majority of the answer sheets. Test scores were shown as percentage of correct answers with corresponding gain scores computed for each subject taking both a pretest and posttest.

The t-test analysis was used on posttest scores for the following groups: (1) Word Processing Operator I, (2) Horticulture - Greenhouse Worker, (3) All Three Automotive Tests and (4) All Five Occupational Tests Combined.

An analysis of covariance (ANCOVA) was computed for the same groupings using the pretest as a covariate. An alpha level of .05 was selected to determine statistical significance.

## CHAPTER IV

### FINDINGS

#### Introduction

This chapter presents the analysis of the data from the study investigating the effect incarceration (independent variable) has on cognitive learning growth in occupational achievement (dependent variable). Seven Oklahoma area vocational-technical schools and six Oklahoma vo-tech skills centers participated in the study.

Cognitive learning growth was determined by gain score percentages taken from pretests-posttest differences using five occupational tests developed by the Oklahoma Department of Vocational and Technical Education.

In this chapter, a description of the sample, the statistical analyses and findings are presented.

#### Description of the Sample

A purposive sample of 75 postsecondary students enrolled in area vocational-technical schools and 90 minimum/medium security inmates enrolled in vo-tech skills centers comprised the 165 subjects for the study. As indicated by Table V, it can be observed that mean ages for both groups were very similar (30.3 years for AVTS students and 31.6 years for VTSC students). It can also be observed that



TABLE V  
AGE, SEX, AND EDUCATION LEVEL OF PARTICIPANTS  
BY OCCUPATIONAL AREA

Occupational Area	AVTS				VTSC			
	Age	M	F	Ed Level	Age	M	F	Ed Level
Word Processing Operator I	29.3	4	34	12.2	33.6	4	28	11.6
Horticulture - Greenhouse Worker	34.8	3	10	11.3	32.6	14	15	11.1
Automotive - Automatic Trans- mission/Transaxle	31.5	4	0	11.5	32.8	6	0	10.2
Automotive - Suspension & Steering	32.1	16	1	12.1	24.8	12	0	11.1
Automotive - Engine Performance	23.3	5	1	11.7	30.0	11	0	10.7
Total	30.3	32	43	12.0	31.6	46	44	11.2

educational levels were very close (12th grade level for AVTS students and 11.2 grade level for VTSC students). The gender mix provided more of a contrast with a nearly equal distribution for the skills centers (46 males and 44 females) compared to 32 males and 43 females in the area vocational-technical schools. The only other noticeable dissimilarity between the groups was the substantial age differences that existed in the automotive occupational area. Area vo-tech school subjects taking the Suspension and Steering occupational test were older than their skills center counterparts by 7.3 years. But in the Engine Performance category, the reverse was found with skills center subjects being the older group by 6.7 years.

#### Statistical Analysis

Table VI shows the pretest, posttest and gain scores for each occupational test that was used in the study. It can be noted that in three of the five test areas (Word Processing Operator I, Automotive - Automatic Transmission/Transaxle, and Automotive - Suspension & Steering) AVTS subjects had higher pretest and posttest scores. In contrast, VTSC subjects had higher gain scores in three of five test areas (Word Processing Operator I, Horticulture Greenhouse Worker, and Automotive - Suspension & Steering). With the scores of all tests combined, AVTS subjects had the higher pretest/posttest scores (53.8/60.8 compared to 47.8/58.1) while VTSC subjects had the higher gain scores (10.3 compared to 7.0).

As previously mentioned, the alpha level of .05 was selected to determine statistical significance. The probability levels are

TABLE VI

COMPARISON OF PRETEST AND POSTTEST COGNITIVE TEST MEAN SCORES  
OF AVTS AND VTSC PARTICIPANTS BY OCCUPATIONAL TEST

Occupational Test	AVTS	VTSC
<u>Word Processing Operator I</u>		
N	38	32
Pretest Mean Score	62.6	42.8
Posttest Mean Score	71.5	60.2
Gain Score	8.9	17.4
<u>Horticulture-Greenhouse Worker</u>		
N	10	29
Pretest Mean Score	38.4	53.2
Posttest Mean Score	40.3	59.0
Gain Score	1.9	5.8
<u>Automotive</u>		
<u>Automatic Transmission/Transaxle</u>		
N	4	6
Pretest Mean Score	61.0	59.3
Posttest Mean Score	82.5	71.0
Gain Score	21.5	11.7
<u>Suspension &amp; Steering</u>		
N	17	12
Pretest Mean Score	50.0	39.3
Posttest Mean Score	50.8	49.7
Gain Score	.8	10.4
<u>Engine Performance</u>		
N	6	11
Pretest Mean Score	37.5	50.8
Posttest Mean Score	41.4	51.6
Gain Score	3.9	.8
<u>Automotive - Combined</u>		
N	27	29
Pretest Mean Score	46.9	47.8
Posttest Mean Score	53.4	54.8
Gain Score	6.5	7.0
<u>Total</u>		
N	75	90
Pretest Mean Score	53.8	47.8
Posttest Mean Score	60.8	58.1
Gain Score	7.0	10.3

precise and are not table values. Table VII contains the pooled variance t-test analysis on the posttest scores for the area vo-tech school and skills center participants. As noted earlier in Table V, AVTS subjects had higher overall posttest mean scores than their counterparts in the skills centers. Inspection of Table VII however, shows a probability of .340 which would indicate that the difference is not statistically significant. In contrast, the information provided in Table VIII revealed differences in the posttest means of participants in two of the occupational tests (Word Processing and Horticulture) were statistically significant.

Tables IX and X depict the differences in gain scores by gender for both the AVTS and VTSC subjects. While the information in both tables revealed some differences in the gain scores of male and female subjects in both the area schools and skills centers, only one occupational area (Word Processing), was shown to be statistically significant. Female inmates demonstrated a much greater gain in cognitive skills between pre- and post- testing in the Word Processing Operator I occupational test than did their male counterparts.

Table XI contains the Analysis of Covariance (ANCOVA) of the posttest scores of the two groups using the pretest as a covariate. ANCOVAs were used in each occupational area to isolate the effect, if any, the treatment variable (incarceration) had on the dependent variable (posttest scores). It was noted earlier (Table VI) that the VTSC subjects achieved the highest overall gain score. But in only one testing area, (Horticulture) was it found to be statistically

TABLE VII

POOLED VARIANCE T-TEST FOR POSTTEST SCORE DIFFERENCES BETWEEN  
AVTS AND VTSC PARTICIPANTS

	AVTS	VTSC
N	75	90
Variance	379.5	302.9
Mean	60.8	58.1
Standard Deviation	19.5	17.4
Significance Level		.340

TABLE VIII

POOLED VARIANCE T-TEST FOR POSTTEST SCORE DIFFERENCES BETWEEN  
AVTS AND VTSC PARTICIPANTS BY OCCUPATIONAL AREA

Occupational Test	AVTS	VTSC	
<u>Word Processing</u>			
N	38	32	
Posttest Mean	71.5	60.2	
Significance Level			.013*
<u>Horticulture</u>			
N	10	29	
Posttest Mean	40.3	59.0	
Significance Level			.001*
<u>Automotive - Combined</u>			
N	27	29	
Posttest Mean	53.4	54.8	
Significance Level			.753
<u>Total</u>			
N	75	90	
Posttest Mean	60.8	58.1	
Significance Level			.340

\* = Statistically Significant

TABLE IX  
 POOLED VARIANCE T-TEST ANALYSIS OF GAIN SCORES FOR  
 AVTS PARTICIPANTS BY GENDER

Occupational Area	M	F	
<u>Word Processing</u>			
N	4	34	
Posttest Percentage Gain	6.9	10.8	
Significance Level			.716
<u>Horticulture</u>			
N	3	7	
Posttest Percentage Gain	1.6	2.1	
Significance Level			.923
<u>Automotive - Combined</u>			
N	25	2	
Posttest Percentage Gain	6.8	2.1	
Significance Level			.608

TABLE X

POOLED VARIANCE T-TEST ANALYSIS OF GAIN SCORES FOR  
VTSC PARTICIPANTS BY GENDER

Occupational Area	M	F	
<u>Word Processing</u>			
N	4	28	
Posttest Percentage Gain	(4.2)	20.5	
Significance Level			.049*
<u>Horticulture</u>			
N	14	15	
Posttest Percentage Gain	4.6	6.9	
Significance Level			.612

\* = Statistically Significant



TABLE XI  
ANALYSIS OF COVARIANCE OF POSTTEST SCORES USING  
THE PRETEST SCORE AS A COVARIATE

Occupational Area	AVTS	VTSC	
<u>Word Processing</u>			
N	38	32	
Posttest Mean	71.5	60.2	
Variance	178.4	526.9	
Standard Deviation	13.4	23.0	
Significance Level			.906
<u>Horticulture</u>			
N	10	29	
Posttest Mean	40.3	59.0	
Variance	256.6	151.9	
Standard Deviation	16.0	12.3	
Significance Level			.021*
<u>Automotive</u>			
N	27	29	
Posttest Mean	53.4	54.8	
Variance	352.4	210.4	
Standard Deviation	18.8	14.5	
Significance Level			.841
<u>Total</u>			
N	75	90	
Posttest Mean	60.8	58.1	
Variance	379.5	302.9	
Standard Deviation	19.5	17.4	
Significance Level			.493

\* = Statistically Significant

significant (.021). The other occupational testing areas revealed no statistical significance indicating that differences between the experimental group (VTSC subjects) and the control group (AVTS subjects) could have been due to factors other than the treatment variable (incarceration).

The data presented in the study revealed that minimum/medium security inmates enrolled in vo-tech skills centers scored 6.0 percentage points lower (Table VI) on the pretest than regular adult students enrolled in similar programs in area vo-tech schools. Similarly, the posttest scores of the VTSC subjects were lower, but it is important to note that the inmates achieved higher gains than the AVTS subjects and were within 2.7 percentage points of equaling the AVTS posttest mean score. Such gains could have been due to the effect of statistical regression.

Posttest scores for the pooled groups were analyzed using the t-test. It was discovered that the combined posttest mean scores of the AVTS subjects were greater than that of the inmates, but the difference was not statistically significant (Table VII). However, when the posttest means were separated by occupational area, it was noted that the AVTS subjects had higher scores in Word Processing while the VTSC subjects had the higher scores in Horticulture and both differences were statistically significant (Table VIII).

T-tests were also used to analyze any gain score differences that may have occurred between the male and female subjects. It was determined that with the notable exception of inmate participants involved with the Word Processing Operator I occupational test (Table

X), the differences in gain scores in both the area vo-tech schools and skills centers were not statistically significant. In the Word Processing occupational area, female offenders achieved significant gains (20.5 percent) compared to the male prisoners (-4.2 percent). However, because of the small number of males completing both the pretest and posttest, caution must be exercised in making any conclusions that gender may have influenced cognitive gain scores.

An analysis of covariance (ANCOVA) was used to provide information that addressed the higher overall gain scores achieved by the VTSC subjects. Using the pretest as the covariate to isolate the effect of the treatment variable (incarceration), it was observed that the difference in overall gain scores was not statistically significant (Table VIII). However, when analyzed individually, one occupational test (Horticulture Greenhouse Worker) did show statistical significance. In attempting to understand why this one particular learner group showed a significant difference while the others did not, it was observed that (1) the AVTS Horticulture students were slightly older (Table V) than their counterparts in the skills centers, (2) there was a greater percentage of females in the AVTS group than in the VTSC group and (3) the previous educational achievement of the AVTS Horticulture students was the lowest among the area vo-tech school subjects. The researcher also analyzed the number of instructional hours the AVTS subjects spent in the program compared to the VTSC subjects and found that the AVTS subjects had less seat time (603 hours) compared to 762 hours for the VTSC group. However, caution must be taken in considering this variable as a

factor because the researcher observed numerous errors by subjects in the recording of this information and therefore chose not to make it a part of the data bank for this study. It should not be overlooked that something happened in Horticulture that did not take place in the Automotive and Word Processing classrooms which had a significant impact on the results of this study. Speculation as to why this anomaly surfaced during the research might begin with a closer examination of the variables that were noted above in an effort to discover why inmates experienced greater success in Horticulture than regular adults enrolled in area vo-tech schools.

#### Examination of the Null Hypothesis

The data presented in this study revealed statistical significance in the difference of cognitive posttest mean scores between inmates and regular adult students in only one (Horticulture Greenhouse Worker) of the five occupational tests used in the research. As was seen in Table VI, minimum/medium security inmates enrolled in Horticulture not only had higher pretest and posttest scores than the AVTS subjects, but also achieved a greater gain between the pretest and posttest. Using the pretest scores as a covariate, that difference in the mean pretest and posttest scores was calculated to be at a .979 level of confidence. While inmates also experience greater gains in Word Processing and the combined Automotive tests (Table VI), the differences were not found to be statistically significant. Finally, when all five occupational tests were combined, no statistical significance could be shown as well.

The null hypothesis tested was  $H_0$ : there is no difference in the cognitive learning growth in occupational achievement in minimum/medium security inmates enrolled in vo-tech skills centers and postsecondary students enrolled in similar programs in area vocational-technical schools. Based on the analysis of the data compiled in this study, the researcher failed to reject the null hypothesis relative to the occupational achievement growth of the student groups who served as subjects.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study was conducted to determine if there were differences between the cognitive learning growth in occupational achievement between minimum/medium security inmates enrolled in vo-tech skills centers and postsecondary students enrolled in similar programs in area vocational-technical schools in Oklahoma. A review of the literature was conducted and it was discovered that very little research had been done that related to the impact of incarceration on learning. Nothing could be found that compared learning growth between student groups in a very structured setting (e.g., correctional institutions) and relatively unstructured environments (e.g., public schools). Consequently, very little could be said about the quality of instruction in correctional institutions or the quality of the end product (i.e., ex-offender students) who ultimately had to compete with regular students trained in public or private vocational-technical schools. This study then, provides a unique approach in that it seeks to compare the cognitive learning growth of incarcerated populations to a typical population found in the real world.

Two major research questions guided the study:

1. Do inmates who participate in vocational education programs while incarcerated achieve the same occupational competency

achievement growth as postsecondary students enrolled in similar programs in area vo-tech schools?

2. Are there identifiable factors that affect the difference in occupational competency achievement growth between inmates and postsecondary students enrolled in area vo-tech schools?

Data for the study were collected using five industry-validated occupational tests that had been developed by the Oklahoma Department of Vocational and Technical Education. Those tests included:

(1) Word Processing Operator I, (2) Horticulture - Greenhouse Worker, (3) Automotive - Automatic Transmission/Transaxle, (4) Automotive - Suspension and Steering, and (5) Automotive - Engine Performance.

Those tests were used for both the pretest and posttest. The purposive sample for the study consisted of 90 minimum/medium security inmates enrolled in six vo-tech skills centers and 75 postsecondary students enrolled in seven area vocational-technical schools. The pretests were distributed to instructors in the five areas in October of 1990. Pretests were administered to all students enrolled at the time, and to new students as they entered throughout the year. Posttests were administered before the students exited the program and at the end of the school year which ranged from May to July, 1991. Test sheet recovery rates for pretested students who were also posttested were 45.7 percent for area vo-tech schools and 58.8 percent for vo-tech skills centers.

### Results of the Study

The results of the study are summarized in the following five findings:

1. postsecondary students enrolled in area vo-tech schools achieved higher posttest scores in the occupational test, Word Processing Operator I, than did minimum/medium security inmates in vo-tech skills centers.
2. Minimum/medium security inmates enrolled in vo-tech skills centers achieved higher posttest scores in the occupational test, Horticulture Greenhouse Worker, than did postsecondary students enrolled in area vo-tech schools.
3. There is no significant difference in the posttest scores of AVTS postsecondary students and VTSC minimum/medium security inmates in the combined Automotive Cluster of Automatic Transmission/Transaxle, Suspension and Steering, and Engine Performance occupational tests.
4. Minimum/medium security inmates enrolled in vo-tech skills centers had significantly higher gains in cognitive achievement than postsecondary students in area vo-tech schools in the occupational test, Horticulture Greenhouse Worker.
5. There was no significant difference in cognitive achievement gains made by postsecondary AVTS students and minimum/medium security inmates in the occupational tests of Word Processing Operator I and the combined Automotive cluster of Automatic Transmission/Transaxle, Suspension and Steering, and Engine Performance.



6. Gender has no affect on cognitive achievement gains made by postsecondary AVTS students in the occupational tests of Word Processing Operator I, Horticulture Greenhouse Worker and the combined Automotive cluster of Automatic Transmission/Transaxle, Suspension and Steering, and Engine Performance.

7. Gender has no affect on cognitive achievement gains made by minimum/medium security inmates enrolled in vo-tech skills centers in the Horticulture Greenhouse Worker occupational test.

8. Female inmates enrolled in vo-tech skills centers recorded greater gains in cognitive achievement in the Word Processing Operator I test than male inmates.

#### Conclusions

Although the results of this study identified statistical differences in the learner groups in some areas, they also identified additional questions which prohibit sound conclusions about the effect of incarceration on learning in five selected occupational test areas. The following conclusions should be interpreted with caution until additional research is conducted that will provide a thorough investigation targeted at those questions. Based on the findings, the researcher derived the following conclusions:

1. Depending upon the instructional area, it can be concluded that minimum/medium security inmates can achieve gains in occupational achievement at a level equal to or greater than postsecondary students enrolled in similar programs in area vo-tech schools.

2. It can be concluded that gender has no affect on the cognitive achievement of AVTS postsecondary students in the occupational test areas of Word Processing Operator I, Horticulture Greenhouse Worker, and the combined Automotive tests of Automatic Transmission/Transaxle, Suspension and Steering, and Engine Performance.

3. Depending upon the instructional area, it can be concluded that gender does have an affect on gains in occupational achievement for minimum/medium security inmates enrolled in vo-tech skills centers.

#### Recommendations

The Oklahoma Department of Vocational and Technical Education operates 52 occupational programs on the grounds of 13 correctional facilities. That effort is continually challenged by various publics as to its viability in producing a product that is competent and capable of serving the work place as well as those students trained in area vo-tech schools. This study has some implications for the continuation of this effort as well as for additional related research.

First, it is recommended that additional vocational education programs be developed for incarcerated populations. Since the data in this study support the notion that vocational education can be effectively taught to this special population, and because recidivism studies in Maryland, Illinois and Oklahoma have shown that a positive relationship exists between an inmate's participation in vocational

education and his/her probability of remaining out of prison; it would seem that any reduction in support for such programs would be imprudent and potentially have dubious societal and economic consequences.

Second, it is recommended that additional programs be developed for female incarcerated populations. In selecting the sample for this study, the researcher noted that there were only four vocational education programs available for female populations compared to 48 programs for male offenders. This disparity is alarming and is not consistent with the educational equity gains that have been made in the public school systems. Of the four programs offered in the vo-tech skills centers, all are in the traditionally female oriented occupations of Business and Office and Horticulture. A greater effort needs to be made in making non-traditional occupational programs available to female offenders.

Third, additional funding should be appropriated to the existing vo-tech skills centers for the upgrading of equipment and facilities. Because this study provided evidence that inmates can achieve cognitive levels in occupational competency that are comparable to adults enrolled in area vo-tech schools, it would appear that equitable funding for capital expenditures and operations is certainly justified. Unlike area vo-tech schools in Oklahoma which can vote additional tax levies to support those types of expenditures, vo-tech skills centers have no local taxing base and are solely dependent upon state and federal resources. To be able to maintain and improve the standard of quality, a budget appropriation

from the State should be included annually for the necessary upgrading of equipment and facilities.

Fourth, the Oklahoma Department of Vocational and Technical Education should annually pretest/posttest VTSC students to assure that occupational competencies are being achieved at a level that is consistent with the employability demands of the job market. The Carl Perkins Vocational and Applied Technology Education Act (1990) mandates that all students enrolled in vocational education programs will be pretested and posttested to measure competency achievement. While incarcerated populations have not been specifically addressed by this requirement, it would only seem logical and prudent that vo-tech skills centers submit their instructional efforts to the same scrutiny as the public school systems.

#### Recommendations for Further Research

The findings of this study revealed several topic areas where research could assist in providing additional information to be used in advancing the efforts of vocational education in correctional institutions. The merits of this study would be greatly enhanced if further research would be done in the following areas:

1. The findings of this study noted that in one particular occupational area (Horticulture), inmates experienced higher overall test scores as well as higher gain scores than AVTS postsecondary students when measured by pretest and posttest differences. This finding begs the question of why this occurred in only one of five

occupational tests. Further research is needed to determine what other factors may have influenced the tests scores in this particular occupational area. Factors that could be studied may include the ability levels of students recruited for this occupational area, instructional delivery systems, the effect of mixing secondary students with adults in area vo-tech schools, teacher training differences, number of hours spent in the program between the pretest and the posttest and quality of equipment and facilities.

2. Further research is recommended that would measure the effect attitudinal factors have on an inmate's ability to make the transition into society. A review of the literature revealed that moral development was a key obstacle for inmates as they attempted to reenter society. It would appear that skills training, regardless of how effective it was, might not be enough to keep an ex-offender from returning to prison. The fear would be that such a narrowly focused approach to habilitation might only result in a criminal with occupational competency, but with no real chance of using those skills because of his/her lack of moral development.

3. Additional research on successful approaches toward reducing recidivism should be conducted. The review of literature revealed conflicting reports as to the effectiveness educational programs had on inmate return rates. Although the study did not look at cognitive development as it impacts recidivism, if additional research concludes that recidivism is related to educational attainment, then research needs to be done to address what kinds of programs would be most successful, how long they should be offered and; at what point during the sentence, inmates should be allowed to participate.

4. Further research should be done to address the optimum amount of instructional time that is required to prepare postsecondary or incarcerated students adequately for the work place. It was noted in Chapter IV that flawed data prevented the researcher from making any time-on-task analysis relative to the posttest mean score differences that occurred between the AVTS and VTSC subjects. This information would have been extremely helpful in making sound conclusions that related to the research questions. These questions could be answered more thoroughly if additional research was conducted to address time factors.

5. Further research should be done to explore the impact of literacy programs on inmate habilitation. The review of literature revealed that low reading levels served as a key ingredient to an individual's propensity to engage in criminal activity. Significant numbers of inmates have failed in traditional classrooms because instruction was targeted at ways to learn that were not compatible with his/her learning style. Skills training, to be a successful habilitation tool, must be combined with literacy programs designed to teach the way inmates learn.

6. Further research is needed to compare the different approaches to providing vocational education in correctional settings. The Oklahoma model which provides for a separation of responsibilities by the Department of Corrections (DOC) and the Department of Vocational and Technical Education is in marked contrast to other states where correctional vocational education is either (1) the sole responsibility of DOC, (2) contracted by a public

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school system, or (3) a separate state agency. Each of these delivery systems has advantages and disadvantages but little is known as to which system best meets the needs of incarcerated populations.

It is the opinion of the researcher that the findings from the above recommendations would serve to provide vital information for use in developing successful strategies that would assist correctional educators in meeting the reintegration challenges facing ex-offenders. Vocational education is but only one essential ingredient to a formula that must be developed to reduce the number of repeat offenders, and in turn, lower the tremendous economic and social costs that result each year by continuing to allow an untapped human resource from ever realizing its fullest potential. Learning more about the role vocational education can play in this effort was paramount to the purpose of this study. It is hoped that its findings will serve as a catalyst for further research in the above areas in an effort to address the societal problems associated with growing prison populations.

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**APPENDIX A**

**PRETEST COVER SHEET FOR EACH**

**OCCUPATIONAL TEST**

**PRE-TEST INSTRUCTIONS**

**You have been selected to participate in a statewide study of students enrolled in selected vocational-technical education programs. Information gathered as a result of your participation will not be used to evaluate your teacher or his/her program, but instead be applied toward measures that will assist in making vocational education a more effective instructional tool for teaching the necessary skills that will be needed in the 1990's and beyond. Before taking this test, please complete the following:**

**Age:** \_\_\_\_\_ **Highest Grade Completed in School:** \_\_\_\_\_

**Sex:** \_\_\_\_\_ **Last 4 digits of Social Security Number:** \_\_\_\_\_

**Program you are enrolled in now:** \_\_\_\_\_

**List any previous vo-tech courses you have completed:** \_\_\_\_\_



**APPENDIX B**

**POSTTEST COVER SHEET FOR EACH**

**OCCUPATIONAL TEST**

**POST-TEST INSTRUCTIONS**

**Before taking this test, please complete the following:**

**Last 4 digits of Social Security Number:** \_\_\_\_\_

**Number of days student participated in the program:** \_\_\_\_\_

**Training Program:** \_\_\_\_\_

**APPENDIX C**

**SAMPLE QUESTIONS FROM EACH OF THE FIVE  
INSTRUMENTS USED IN THE STUDY**

AUTOMATIC TRANSMISSION SPECIALIST  
COGNITIVE TEST

```
*****
*
* INSTRUCTIONS:
*
* Each of the items provided on this test is followed by four
* possible responses. Choose the one which best answers the
* question or completes the statement. WITH PENCIL ONLY, mark
* your selection on your answer sheet. DO NOT WRITE IN THIS
* TEST BOOKLET. An example of proper marking is provided on
* your answer sheet.
*
*****
```

1. All of the following can cause an automatic transmission to slip EXCEPT:
  - A. faulty one-way clutch
  - B. hardened seals in servos
  - C. plugged sump filter
  - D. worn planetary gears
  
2. An automatic transmission does not work right. To find the cause, which of these should the mechanic do first:
  - A. adjust the bands
  - B. check engine vacuum
  - C. check the transmission fluid
  - D. take a pressure test
  
3. What is the first indication of a damaged clutch piston seal:
  - A. burned clutch plates and discs
  - B. clutch slipping during acceleration
  - C. loss of automatic transmission fluid
  - D. loss of automatic transmission pressure
  
4. Mechanic A says transmission up shifts depend on car speed and throttle position. Mechanic B says transmission up shifts depend on car speed and engine speed. Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A nor B

AUTOMATIC TRANSMISSION SPECIALIST  
COGNITIVE TEST

5. Because the transmission weight causes the engine to become unbalanced, a mechanic should make sure the pull point will NOT:
  - A. break
  - B. kink
  - C. slide
  - D. stretch
  
6. Automatic transmission fluid that is burned and discolored indicates failure of the:
  - A. band or clutch
  - B. governor
  - C. servo
  - D. torque converter
  
7. Mechanic A says that if the fluid is black and had sediment or dirt in it, most manufacturers recommend that the torque converter be discarded. Mechanic B says you can flush out the converter and use it again. Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A nor B
  
8. Mechanic A says governor pressure increases with road speed. Mechanic B says if governor pressure is low the car will shift sooner. Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A nor B
  
9. Mechanic A says that high altitude has no effect on oil pressure readings when checking an automatic transmission. Mechanic B says that high altitude could affect the vacuum modulator operation. Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A nor B
  
10. A stall test can be used to check:
  - A. clutches and bands
  - B. erratic shifting
  - C. governor pressure
  - D. planetary gear noise

ENGINE PERFORMANCE SPECIALIST  
COGNITIVE TEST

```
*****
*
* INSTRUCTIONS:
*
* Each of the items provided on this test is followed by four
* possible responses. Choose the one which best answers the
* question or completes the statement. WITH PENCIL ONLY, mark
* your selection on your answer sheet. DO NOT WRITE IN THIS
* TEST BOOKLET. An example of proper marking is provided on
* your answer sheet.
*
*****
```

1. The customer says her car has a steady, even miss when going up a hill. Which of these could cause this problem:
  - A. shorted condenser
  - B. weak point spring tension
  - C. worn cam lobe
  - D. none of these
  
2. A diesel injection pump sends fuel to each cylinder under high pressure. Mechanic A says that "timing of fuel delivery is similar to the timing of spark ignition in a gasoline engine." Mechanic B says "the fuel is injected all during the compression stroke." Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A and B

**ENGINE PERFORMANCE SPECIALIST  
COGNITIVE TEST**

Allowable Minimum Compression Tester Readings

Maximum Pressure Pounds/Sq. Inch	Minimum Pressure Pounds/Sq. Inch	Maximum Pressure Pounds/Sq. Inch	Minimum Pressure Pounds/Sq. Inch	Maximum Pressure Pounds/Sq. Inch	Minimum Pressure Pounds/Sq. Inch	Maximum Pressure Pounds/Sq. Inch	Minimum Pressure Pounds/Sq. Inch
134	101	162	121	188	141	214	160
136	102	164	123	190	142	216	162
138	104	166	124	192	144	218	163
140	105	168	126	194	145	220	165
142	107	170	127	196	147	222	166
144	108	172	129	198	148	224	168
146	110	174	131	200	150	226	169
148	111	176	132	202	151	228	171
150	113	178	133	204	153	230	172
152	114	180	135	206	154	232	174
154	115	182	136	208	156	234	175
156	117	184	138	210	157	236	177
158	118	186	140	212	158	238	178
160	120						



Cylinder A 186psi



Cylinder B 165psi



Cylinder C 123psi



Cylinder D 180psi

3. Which of the compression tester readings, illustrated above, indicates that the cylinder failed the compression test:

- A. 123 PSI
- B. 165 PSI
- C. 180 PSI
- D. 186 PSI

ENGINE PERFORMANCE SPECIALIST  
COGNITIVE TEST

4. Which activity is NOT one of the pretest preparations for a cylinder leakage test:
  - A. block open the carburetor
  - B. bring engine to operating temperature
  - C. disable the fuel system
  - D. disable the ignition system
  
5. What indicates a faulty distributor point condition on the oscilloscope:
  - A. faulty dwell section
  - B. humped dwell section
  - C. lack of oscillations
  - D. slanted spark lines
  
6. What emission control affects all operations:
  - A. exhaust gas recirculation
  - B. ignition timing
  - C. positive crankcase ventilation
  - D. transmission controlled spark
  
7. Which of the following can be noted on the scope primary pattern:  
(A) dwell variation; (B) coil primary resistance:
  - A. A only
  - B. B only
  - C. Both A and B
  - D. Neither A nor B
  
8. What should you look for when one spike is much higher than the other spike:
  - A. burned breaker points
  - B. faulty capacitor
  - C. high resistance spark plug cable
  - D. spark plug gap too small
  
9. In the combustion process, oxygen and nitrogen in the air combine with hydrogen and carbon in the gasoline. Emissions coming from the engine include the following four gases. Indicate which one is NOT a controlled emission pollutant:
  - A. HC-hydrocarbon
  - B. CO-carbon monoxide
  - C. CO<sub>2</sub>-carbon dioxide
  - D. NO<sub>x</sub>-oxides of nitrogen



SUSPENSION AND STEERING SPECIALIST  
COGNITIVE TEST

\*\*\*\*\*  
\*  
\* INSTRUCTIONS: \*  
\* \*  
\* Each of the items provided on this test is followed by four \*  
\* possible responses. Choose the one which best answers the \*  
\* question or completes the statement. WITH PENCIL ONLY, mark \*  
\* your selection on your answer sheet. DO NOT WRITE IN THIS \*  
\* TEST BOOKLET. An example of proper marking is provided on \*  
\* your answer sheet. \*  
\* \*  
\*\*\*\*\*

1. A torsion bar in a power steering gear:
  - A. absorbs road shock
  - B. acts as a reactor device
  - C. limits the turning force that can be applied
  - D. provides driver feel
  
2. If all adjustments are made and no wear to external steering is evident, what procedure is used to detect worn parts in the steering gear:
  - A. remove, disassemble, and inspect the gear
  - B. remove pitman arm and inspect
  - C. remove steering shaft and inspect
  - D. remove top cover and inspect
  
3. A customer complains of excessive play in the steering wheel. Mechanic A says this could be caused by a loose gear box adjustment. Mechanic B says this could be caused by a loose pitman arm. Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A nor B
  
4. What will cause loss of power steering only when parking:
  - A. a loose pump belt
  - B. damaged reaction springs
  - C. high pump pressure
  - D. the valve body is out of adjustment

SUSPENSION AND STEERING SPECIALIST  
COGNITIVE TEST

5. During rack and pinion service, Mechanic A says that inner tie rod ends can only be serviced once. Mechanic B says that oil in the bellows boot could be an indication of a leaking rack seal. Who is correct:
  - A. mechanic A only
  - B. mechanic B only
  - C. both A and B
  - D. neither A nor B
6. Most modern standard steering gears are:
  - A. ball nut and sector
  - B. rack and pinion
  - C. worm and roller
  - D. worm and sector
7. What should be done to steering columns that have been only slightly collapsed:
  - A. continue in service if it isn't too bad
  - B. remove for repair
  - C. repair in the vehicle
  - D. replace
8. When adjusting the cross shaft, the steering gear should be:
  - A. moved right and left to check for binding
  - B. set straight ahead
  - C. turned either right or left
  - D. under a turning load
9. What is/are the result(s) of an overtight sector center adjustment. (A) The steering wheel is difficult to turn to the steering top, and/or (B) The steering wheel always tries to move off center:
  - A. A only
  - B. B only
  - C. both A and B
  - D. neither A nor B
10. On many Ford Motor Company rack and pinion steering systems, yoke to rack is adjusted by:
  - A. changing shim sizes
  - B. changing size of yoke cover
  - C. installing larger yoke
  - D. putting more torque on yoke spring

WORD PROCESSING SERIES  
WORD PROCESSING OPERATOR I  
COGNITIVE TEST

\*\*\*\*\*  
\*  
\* INSTRUCTIONS: \*  
\* \*  
\* Each of the items provided on this test is followed by four possible \*  
\* responses. CIRCLE the letter to the left of the response you feel \*  
\* best answers the question or completes the statement. \*  
\* \*  
\*\*\*\*\*

1. Automated equipment and the role of word processing have brought significant changes in the modern office by:
  - A. decreasing the need for proofreading because of built-in dictionaries in word processing programs
  - B. decreasing the number of secretaries and office workers needed in businesses
  - C. eliminating the need for any paperwork since everything is stored in computers
  - D. increasing productivity of secretaries and opening the doors to new career opportunities
  
2. What is a collection of stored backup disks (diskettes) or media that is NOT used often:
  - A. archive
  - B. documentation
  - C. emulation
  - D. network
  
3. What process causes an entire word to be placed on the next line automatically if the available character spaces will not accommodate the entire word:
  - A. automatic hyphenation
  - B. automatic margin settings
  - C. indent tab
  - D. word wraparound

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## WORD PROCESSING OPERATOR I

4. The basic command/function used when the same text is to appear in two places in a document is:
  - A. copy
  - B. insert
  - C. move
  - D. paginate
5. Information stored on a magnetic medium or on a CRT screen is called a:
  - A. carbon copy
  - B. hard copy
  - C. screen copy
  - D. soft copy
6. When handling disks or diskettes, care should be taken to:
  - A. clean them thoroughly each time they are used
  - B. delete all files or documents that are not needed immediately
  - C. keep them away from magnets or magnetic fields
  - D. store them horizontally in a plastic case
7. When writing on labels which are attached to floppy disks or diskettes, use a:
  - A. ball point pen
  - B. felt-tip marker
  - C. jet-ink printer
  - D. lead pencil
8. After storing a document, a printer is used to obtain a printout called a:
  - A. hard copy
  - B. magnetic media
  - C. microfiche
  - D. soft copy
9. A television screen that displays information is called a/an:
  - A. CRT or monitor
  - B. display tube
  - C. illuminated screen
  - D. information display
10. Programs that cause the hardware to function are called:
  - A. CPU
  - B. disks
  - C. OCL
  - D. software

09/20/90

GREENHOUSE WORKER  
COGNITIVE TEST A9049

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*****
*
*  INSTRUCTIONS:
*
*  Each of the items provided on this test is followed by four
*  possible responses. Choose the one which best answers the
*  question or completes the statement. WITH PENCIL ONLY, mark
*  your selection on your answer sheet. DO NOT WRITE IN THIS
*  TEST BOOKLET. An example of proper marking is provided on
*  your answer sheet.
*
*****
```

1. When spreading and leveling topsoil over large areas, what is an excellent tool to make the job easier and faster:
  - A. box blade
  - B. hand drag
  - C. hand rake
  - D. shovel
  
2. What effect is produced when organic matter is added to subsoil:
  - A. diminishes plant diseases
  - B. makes a heavy soil more crumbly
  - C. protects crops from insect attacks
  - D. reduces weed infestation
  
3. Soluble salt tests should be taken:
  - A. weekly
  - B. monthly
  - C. when an excess of salts is suspected
  - D. none of the above
  
4. The most common nutrient testing tool has been the:
  - A. plant analysis
  - B. root test
  - C. soil test
  - D. tissue test

09/20/90

GREENHOUSE WORKER  
COGNITIVE TEST A9049

5. Most ornamental plants grow best in a soil with a pH that is:
  - A. neutral
  - B. slightly acid
  - C. slightly alkaline
  - D. very acid
  
6. Plant pests which can be killed by soil sterilization are:
  - A. disease organisms
  - B. insects
  - C. nematodes
  - D. all of the above
  
7. Soil pH is a measure of acidity or alkalinity measured on a sliding scale from:
  - A. 0 to 14, with 7.0 being neutral
  - B. 0 to 14, with 14 being neutral
  - C. 1 to 14, with 7.0 being neutral
  - D. 1 to 14, with no neutral
  
8. Of the following, the medium which would NOT be a good three-component potting medium is:
  - A. native peat, bark, builder's sand
  - B. native peat, compost, composted cow manure
  - C. native peat, perlite, builder's sand
  - D. native peat, shavings, builder's sand
  
9. Uneven distribution of fertilizer materials in the media due to poor mixing practices will show up in the crop as:
  - A. irregular plant growth
  - B. reduction of quality plants
  - C. variable nutrient holding capacities
  - D. all of the above
  
10. What could result from too much rooting hormone applied to the cutting:
  - A. form callous tissue rather than roots
  - B. not be affected
  - C. root quicker
  - D. rot

**APPENDIX D**

**LETTER OF GENERAL INSTRUCTIONS TO  
AVTS/VTSC INSTRUCTORS**



September 25, 1990

Instructor  
AVTS/VTSC

Dear Instructor:

Enclosed is a supply of occupational tests to be administered by you to each of your students. Please note that they have been divided into pre-tests and post-tests. Even though both sets of tests are identical, different instruction sheets have been attached requesting slightly different information. I would encourage you to assist the student in correctly completing the instruction sheet for both the pre- and post-test. The following procedure should be followed in completing the testing process:

1. Give the pre-test to each student now enrolled in the program making sure he/she has followed the instructions correctly.
2. When new students are admitted into the program, give them the pre-test as well.
3. Upon learning of a student's planned exit from the program, make plans to give him/her the post-test before the student leaves.
4. All completed pairs of tests (pre- and post-test) should be mailed to my office at the end of each month. May 1, 1991, will be the cut-off date for this project. We would like you to administer the post-test to all remaining students in your class sometime during the last week in April regardless of how long they have been enrolled in your program.
5. Please do not inform the students that the post-test is identical to the pre-test.
6. Please make sure that the General Purpose Answer Sheet is completed correctly for each test (pre-test and post-test).

We appreciate your willingness to participate in this project. We feel it will provide valuable information that will be instrumental in maintaining the high standards that have always been associated with vocational education in Oklahoma.

Sincerely,

Tom Friedemann  
Assistant State Director

---

1500 West Seventh Avenue  
Stillwater, OK 74074-4364  
(405) 377-2000



**APPENDIX E**

**UPDATE MEMORANDUM TO AVTS/VTSC INSTRUCTORS**



December 5, 1990

**MEMORANDUM**

**TO:** Instructors AVTS/VTSC  
**FROM:** Tom Friedemann  
**SUBJECT:** Occupational Pre-Test, Post-Test Update

We have been extremely pleased with the occupational pre-tests that have been coming in. For those of you who have not sent in any pre-tests, I would ask that you try to do so before the Christmas break. Post-tests are also starting to come in from some schools.

We have noticed some inconsistencies among the schools in completing the answer sheet and cover sheet. Please make note of the following recommendations we would have in completing future pre-tests and post-tests:

1. Please make sure students do not complete the test code and PID sections of the answer sheet. We have our own numbering system that will be entered in these sections at a later date.
2. Please make sure that the Social Security Number is entered on both the cover sheet and the answer sheet.
3. When completing the cover sheet for post-tests, please compute the number of days the student attended the class from the time he/she took the pre-test until they completed the post-test. We do not want the total number of days they were in the program, just the number of days they attended between the pre-test and the post-test. Our earlier instructions were not clear on this and we apologize for any inconvenience it may have caused.

Once again, thank you for your diligent efforts in helping us make sure this study will provide the accurate data we need to successfully complete the project.

0293

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1500 West Seventh Avenue  
Stillwater, OK 74074-4364  
(405) 377-2000

APPENDIX F

FINAL MEMORANDUM TO AVTS/VTSC INSTRUCTORS



March 22, 1991

**MEMORANDUM**

**TO:** Instructors AVTS/VTSC

**FROM:** Tom Friedemann

**SUBJECT:** Occupational Pre-Test, Post-Test Rescheduled Completion Date

Because the returns of pre- and post-tests have been so good, we will be able to complete our study sooner than the May 1, 1991, deadline listed in our previous instructions. We are now asking that all your students be post tested by Friday, April 12th. As a result, all your tests (pre and post) should be returned to our office the following week.

Please remember that the cover sheets need to be filled out completely and attached to the answer sheets. We have received a few answer sheets without the number of days the student was in the program. This information is critical in completing our study.

Thank you for your diligence and dedication in helping us complete a project that will benefit vocational-technical education in Oklahoma.

0312

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1500 West Seventh Avenue  
Stillwater, OK 74074-4364  
(405) 377-2000

2  
VITA

Thomas William Friedemann

Candidate for the Degree of

Doctor of Education

**Thesis:** A COMPARISON OF COGNITIVE LEARNING GROWTH IN OCCUPATIONAL ACHIEVEMENT IN MINIMUM/MEDIUM SECURITY INMATES ENROLLED IN VO-TECH SKILLS CENTERS AND POSTSECONDARY STUDENTS ENROLLED IN AREA VOCATIONAL-TECHNICAL SCHOOLS IN OKLAHOMA

**Major Field:** Occupational and Adult Education

**Biographical:**

**Personal Data:** Born in Stillwater, Oklahoma, on May 4, 1948, the son of Adolph T. and Florence E. Friedemann.

**Education:** Graduated from Stillwater High School, Stillwater, Oklahoma, in May, 1965; received Bachelor of Science degree from Oklahoma State University in May, 1970; received Master of Education degree from Central State University in July, 1974; received Professional Certificate in School Administration from the University of Oklahoma in 1983; completed requirements for the Doctor of Education degree at Oklahoma State University in December, 1991.

**Professional Experience: Marketing Education**

Teacher-Coordinator, Putnam City West High School, 1970-74; Curriculum Specialist, Oklahoma Department of Vocational and Technical Education, 1974; Assistant State Supervisor for Marketing Education, Oklahoma Department of Vocational and Technical Education, 1974-78; Director of Student Services, Great Plains Area Vocational-Technical School, 1978-80; Assistant Superintendent, Great Plains Area Vocational-Technical School, 1980-81; Assistant State Coordinator for Area Vo-Tech Schools, Oklahoma Department of Vocational and Technical Education, 1981-82; State Coordinator for Area Vo-Tech Schools, Oklahoma Department of Vocational and Technical Education, 1982-85; Assistant State Director, Oklahoma Department of Vocational and Technical Education, 1986 - present.