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## **Factors Associated with the Relationship between Juvenile Delinquency and Adult Criminality: A Sample of State Training School Residents in Iowa**

Kristin Renae Baughman

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FACTORS ASSOCIATED WITH THE RELATIONSHIP BETWEEN JUVENILE  
DELINQUENCY AND ADULT CRIMINALITY: A SAMPLE OF STATE  
TRAINING SCHOOL RESIDENTS IN IOWA

An Abstract of a Thesis  
Submitted  
In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

Kristin Renae Baughman  
University of Northern Iowa  
December 1988

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It is unclear what the relationship is between juvenile delinquency and adult criminality. Many people assume that an individual who commits several crimes as a juvenile will also commit crimes as an adult, yet most juvenile offenders do not become adult offenders. It is also unclear what role institutionalization of juvenile delinquents plays in arresting or intensifying criminal careers. Some reappear in the adult correctional system while others become lawful citizens.

The current study looks at one set of the most serious juvenile delinquents, those placed in a state training school in Iowa. In order to determine the relationship between juvenile delinquency and adult criminality, two matched groups of males were compared. The first group of males continued their criminal activities into adulthood and were placed in the men's reformatory in 1981. The second group apparently stopped their criminal activities since they had not been sentenced to the reformatory. The records of these males from the state training school were used to look for factors associated with being convicted of a crime as an adult.

The results indicate that boys of parents with low levels of education were more likely to become adult criminals. The marital status of the boy's parents had no effect on his future criminality. Boys who were not placed

in the academic classes while at the state training school were also more likely to be in the men's reformatory as adults. In addition, boys who were at the state training school because of a serious offense (e.g. burglary) were more likely to become adult criminals than were boys who committed less serious crimes (e.g. operating a motor vehicle without the owner's consent). Lastly, the longer the boy was institutionalized and the more severe his punishment, the more likely he was to continue his criminal behavior.

However, since the most serious delinquents received the most severe sanctions and spent the most time at the training school, it may be that they were already on their way to becoming adult criminals. The training school may have had little, if any, effect on these boys. There were also factors not included in the present study that may be important. For example, no data existed on the peer relationships, quality of family life, or what happened to the boy after release from the training school. Nonetheless, the findings do contribute to our understanding of the relationship between juvenile delinquency and adult criminality.

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## CHAPTER ONE

## Problem Statement

Juveniles commit a large proportion of the crime in the United States. The Federal Bureau of Investigation reported that in 1986, approximately 33.5% of the arrests for property crimes and 15.4% of the arrests for violent crimes were by juveniles (1987, 168). Juvenile justice practitioners and academics who have striven to discover and implement ways of stopping these youth from committing additional crimes, have long been concerned with the causes of delinquent behavior. Some youth may end their delinquent activities after committing just one crime while others may still be committing crimes into their adult years.

The general public assumes that many juveniles who have been involved in delinquent behavior grow up to be adult criminals. However, it is difficult to determine how many juveniles have continued their criminal behavior into adulthood because adult courts are not allowed to examine the juvenile offender's record. Langan and Farrington (1983) refer to the criminal justice system as a "two-track" system. Each person has two entirely separate criminal lives, one as a juvenile and one as an adult.

Criminal justice practitioners have not been the only ones to treat criminals as if they had two separate lives. Criminologists have as well. Many studies have been done to

find the causes of juvenile delinquency but few have followed these youth into their adulthood. Hence, it has been difficult to determine whether adult criminality is in any way related to juvenile delinquency.

Among the few longitudinal studies that have tried to find a link between juvenile and adult criminal activities are Chaitin and Dunham's (1966) study of Detroit, Michigan youth, Stott and Wilson's (1977) study of Scottish youth, Shannon's (1982) study of Racine, Wisconsin youth, and a study of Philadelphia, Pennsylvania youth (Wolfgang et al., 1987). Studies by these criminologists have shown that those who are involved with the police as juveniles are more likely to have a criminal record as an adult. In Stott and Wilson's study, 38.2% of the juvenile delinquents had one or more convictions after the age of eighteen, whereas only 4.5% of the nondelinquent youth had a conviction after their juvenile years (1977, 52). However, Shannon (1982, 12) warns that:

At this point we can only say that it is one thing to describe delinquency and crime as they are distributed in an urban/industrial community and changes in rates during different stages in the life cycle, historical changes, changes by sex, changes in spatial distribution, particularly for more serious types of delinquent and criminal behavior, but it is quite another to predict from juvenile police contact records and experiences with the juvenile justice system who will have numerous contacts or contacts for serious violations of the law as adults. Indeed, the greatest error that has been made by sociologists and others with an interest in the relationship of early misbehavior to later misbehavior is the assumption that statistically significant relationships and reasonably high correlations translate into the ability to predict

continuity in behavior. There are many fraudulent claims in the literature stemming from a lack of statistical sophistication.

Several studies have identified high risk groups in which the juveniles are more likely to continue their delinquent activities. For example, in a longitudinal study of Philadelphia boys (Wolfgang et al., 1972), those boys who were nonwhite, from a lower socioeconomic group, had experienced a greater number of school and residential moves, had the lowest grade completed in school, and the lowest achievement level were the most likely to become recidivists. This group of variables was referred to as the "disadvantaged" position. Yet, on an individual basis one cannot predict who out of this high risk group will continue to be delinquent.

The present study will compare two groups of male juvenile delinquents, both of which were institutionalized at the State Training School in Eldora, Iowa at one or more times during their teenage years. However, only one group continued their criminal activities into adulthood. They were eventually convicted of a crime and sentenced to the Iowa Men's Reformatory at Anamosa, Iowa. This group shall be referred to as the reformatory group. The second group of boys discontinued their delinquent behavior before becoming adults as suggested by an absence of an adult record. This group shall be referred to as the comparison group.

This study is similar to other longitudinal studies on delinquent behavior in that it will be looking for possible factors associated with recidivism. Most delinquency is limited to one or two isolated criminal acts. For example, in the study of Philadelphia boys (Wolfgang et al., 1972, 254), 46% of the boys stopped after their first offense. An additional 35% stopped after their second offense. Yet, there was a group of recidivists who continued their illegal activities through their youth and possibly into their adult lives. Longitudinal studies on juvenile delinquency have generally selected a city and recorded the delinquent activities of each boy in a chosen birth cohort (Shannon, 1982; Hamparian et al., 1978; Wolfgang et al., 1972). The present study is unique in that it examines the lives of only the most serious juvenile cases in the state, those committed to the training school. The training school is the last stop in a long line of contacts with the juvenile justice system for many of these boys. They have had long histories of misbehavior. This study will look only at this hard-core group to see which boys had no further contact with the justice system. Social factors in the boy's family background and school life will be examined as well as variables describing his criminal activities, and his life at the training school.

Another aim of the study is to determine what effect, if any, the boys's training school experiences had on him.

There is a great deal of dissent among practitioners and academics as to how institutionalization affects a juvenile. Both Shannon (1982) and Hamparian et al. (1978) maintain that institutionalization has a negative, if any, impact. Shannon recommends nonintervention by the justice system for most juvenile cases.

Proponents of the utilitarian punishment philosophy such as Van den Haag (1975), on the other hand, contend that only when the justice system makes the cost of youth crime more severe will juveniles be deterred from future crime. Van den Haag argues that youths are rational people who will continue to break the law as long as the benefits outweigh the costs. Rehabilitation has not worked in the past because the juvenile institutions, including the training schools, have been too permissive. The purpose of training schools should be to punish, rather than rehabilitate juveniles. The present study will examine these issues to see why some boys are differentially affected than others by institutionalization.

The present study offers a greater understanding of how different programs at the training school affect a boy's future behavior and how other social and psychological factors may influence this process. In the past it has been the goal of the state training school and other similar training schools to reform and help these youth fit into society. However, they have often been criticized for

merely keeping the youth off the streets for a short time while failing at their goal of reform. If the schools are to do more than fulfill a function of temporary social control in society, it is important to know what happens to the youths after they are released from the school. This study examines one possible consequence of institutionalizing youth. The possibility that a youth is convicted of a crime later as an adult and incarcerated will be examined in light of the youth's previous experiences as a juvenile delinquent.

## CHAPTER TWO

### Review of the Literature and Hypotheses

#### History of American Training Schools

The first institution designed to house and reform delinquent youth was the New York House of Refuge opened in 1825. Philadelphia and Boston soon followed suit and opened their own houses of refuge. People at this time were quite concerned with keeping the social order of their communities since urbanization had lead to greater disorder.

Delinquency was blamed on not enough discipline in the family. As the cities grew, there were more opportunities for vice and it was assumed that only those youth from families with strong discipline were able to resist this temptation. Hence, the public was eager to remove juveniles who posed a threat to the community and to house them in an environment where strict discipline could be enforced.

According to Rothman these houses of refuge took in several types of children, "the juvenile offender, convicted by a court for a petty crime, the wandering street arab, picked up by a town constable, and the willfully disobedient child, turned over by distraught parents" (1971, 208-209). The institutions had high ambitions of reforming the youth because they assumed that the minds of the youth were pliant and could be molded into law-abiding citizens. Even though the Christian family was the model the officials sought to



imitate, the reformatories were run in a military style. Discipline was enforced through capital punishment and other forms of strict and certain punishment. It was thought that this tight control would eventually lead to friendship and admiration of the authority figures.

The houses of refuge were not able to reform the juveniles as they had hoped. Citizens became more concerned about the harshness of the punishment used. There was a belief that "the longer he is in the Asylum, the less likely he is to do well in outside life" (Rothman, 1971, 259). Nonetheless, the houses of refuge were more popular than penitentiaries because they were more likely to reform a juvenile. The institution served more than a custodial role in most cases.

The public was also concerned about how the juveniles were housed. The institutions consisted of huge buildings with large dormitory rooms, or of wings with a separate cell for each inmate. In the 1850's a movement to break away from the congregate placement of children in large institutions took place. Cottage reform schools took the place of the old institutions. Each cottage was to resemble a family and to give a sense of home feeling and attachment to the whole family.

### Studies on Rehabilitation

Few studies have been conducted to test whether the juvenile justice system has been able to actually rehabilitate youth. Longitudinal studies are needed in order to follow the youth's behavior from the time of arrest until, preferably, the adult years. Unfortunately, these studies are costly and time-consuming. One of the earliest studies of this type was by Dunham and Knauer (1954) who selected five random samples of juvenile first-time offenders in Detroit, Michigan from the years 1920, 1925, 1930, 1935, and 1940. They obtained the juveniles' police records and determined which ones were later registered with the police as adults. They found that the proportion of juvenile delinquents who became adult criminals remained relatively constant over the years studied. The proportion who were registered with the police as adults ranged from 24% to 37%. Because the percentage of juveniles who became adult offenders did not decrease, they concluded that the new expanded services conducted by the juvenile court were not having a positive effect on the boys' future behavior. The researchers also found that juvenile recidivists were most likely to become adult offenders. Only 24% of the single-offenders were registered with the police as adults compared to 46% of the recidivists.

In 1966 the Detroit study was replicated (Chaitin & Dunham, 1966). This time six samples of juvenile offenders

were selected from the years 1941, 1944, 1946, 1948, 1950, and 1952 from Detroit police records. Again the rate of juveniles who became adult offenders remained constant over the time period studied. However, the proportions ranged from 37% to 47%, an increase over those from 1920 to 1940. They concluded that there was little evidence that the court was stopping the youth from committing further crimes. In fact, the percentages indicated that the court may have lost ground. As in the first study, juvenile recidivists were most likely to become adult offenders. The proportions of both single-offenders and recidivists who became adult offenders had risen slightly but the difference between the two groups remained the same. The researchers concluded that these findings supported the differential association theory of crime. Juvenile delinquency was seen as a training ground for adult crime.

The two Detroit studies established a link between juvenile and adult crime but did not go so far as to explain why some youths continue their criminal activities while others stop. Three major longitudinal studies have been conducted since then to explore the nature of juvenile delinquency (Wolfgang et al., 1972, 1987; Hamparian et al., 1978; Shannon, 1982).

The Philadelphia cohort study (Wolfgang et al., 1972) looked at the school records and police records of all Philadelphia males born in 1945. Of the delinquent group,

46% stopped their official delinquency after committing their first offense (1972). An additional 35% stopped after their second offense (1972, 254). This left a small group of delinquents (19%) who continued their criminal activities. These recidivists were most likely to have been nonwhite, from lower socioeconomic (SES) groups and completed fewer grades in school. In addition, they were more likely to have had a greater number of school and residential moves and lower achievement levels (1972). This set of characteristics was referred to as the "disadvantaged" position by the researchers.

In a follow-up study of a sample of these boys, Wolfgang et al. (1987) found that nonwhites and juveniles from lower socioeconomic backgrounds were most likely to have committed crimes both as juveniles and as adults. In addition, those individuals with long and serious juvenile criminal careers were more likely to have long and serious adult careers. Those who continued their criminal behavior were referred to as persistent offenders. Even though this group continued, the most harmful offenses were committed by individuals who only committed crimes as adults. The persistent offenders committed crimes more harmful than the group who committed crimes only as juveniles, but less harmful than the group who committed crimes only as adults.

As juveniles, the boys who committed five or more offenses were responsible for over half of the total number

of offenses committed by the delinquent group (Wolfgang et al., 1972, 105). The authors concluded that if the boys could be stopped before committing their fifth offense, 50% of the juvenile crime would stop. However, it must be noted that punishment had not deterred these boys in the past. Those receiving punitive treatment were more likely to continue to violate the law by committing more serious crimes in more rapid succession than those not receiving punishment.

Wolfgang et al. (1972) noted a decline in the number of offenses after the age of 16: "the proportion of boys violating the law, increases steadily from age 10 to just under age 16. From that point to age 18 the proportions decrease" (1972, 251). The follow-up study confirmed this finding (1987). Sixteen was the modal age of both onset of criminal behavior and of the number of offenses committed. There was an increase in the number of offenders at age sixteen.

One possible explanation for this decrease after age sixteen is given by Glassner et al. (1983). They questioned youths in a medium size city in New York state about their perceptions of juvenile and adult jurisdiction. The informants saw ages thirteen to fifteen as a time to experiment with crime. This was their "rowdy days" in which "goody goodies" were ridiculed. However, at age 16 they expected to terminate their criminal activity because of the

criminal justice system's more strict treatment of adults. They were afraid of going to jail.

A second major cohort study, similar to the Philadelphia study, took place in Columbus, Ohio (Hamparian et al., 1978). It differs from the Philadelphia study in that the focus was on violent offenders. Police records were examined of those youths who were born in the years 1956 through 1960 and had been arrested for a violent offense. Being arrested for a violent crime at a young age did not mean that the child would commit several more violent crimes. Nearly 60% of the total cohort who were arrested for a violent act at an early age were not arrested again for a violent crime (1978, 102). There was no progress toward ever more violent crime. Close to 46% of the violent cohort were only arrested once or twice (1978, 129). For the multiple offenders there was a tendency for the violence to occur in the first one-third of their delinquent careers (1978, 129). These recidivists were more likely to be males and from low income census tracts. Race was not related to recidivism unlike the findings in the Philadelphia study. The Columbus authors concluded that juvenile delinquents were not specialists but rather they tended to "drift from one kind of offense to another" (1978, 130). The study also concluded that institutionalization did not deter the youths from committing more crimes. The

length of time between being released and arrested again decreased after each commitment to an institution.

The third major cohort study was conducted by Shannon (1982) in Racine, Wisconsin. This study, like the Philadelphia study (Wolfgang et al., 1987), provides a clearer picture of the percentage of juvenile delinquents who discontinued their criminal activities since it followed them into their adult years. The Columbus study had records of the youth only until the age of eighteen. Shannon studied the police records of three birth cohorts of 6,127 persons born in 1942, 1949, and 1955 in Racine and interviewed people from two of these cohorts. A large proportion (90%) of the males reported that they had engaged in youthful misbehavior (1982, vi). Yet, the most prevalent pattern was "one of declining seriousness and discontinuation after the teenage period" (1982, 4). Only 20% of each cohort was responsible for 80% of the police contacts. This high risk group was composed of mostly males who were socialized in the inner city. Other risk factors related to the seriousness of future police contacts were being employed during high school, having access to an automobile, having negative attitudes toward the police, having friends in trouble with the police, and failing to graduate from high school. However, these risk factors were not related strongly enough to future misbehavior in order to predict which youth would continue their criminal

activities. As in the other cohort studies, intervention was concluded not to decrease the likelihood of future police contacts. The administering of sanctions was interpreted as leading to an increase in frequency and seriousness of misbehavior.

A study (Stott & Wilson, 1977) which followed Glasgow, Scotland youths into their adulthood found that personal instability was a factor in the continuation of delinquent behavior into adulthood. An instrument measuring personal and emotional maladjustment was given to 700 juvenile delinquents. The mean score for those juveniles who were not convicted of crimes as adults was significantly different ( $t = 4.96, p < .01$ ) than the mean score for the juvenile delinquents who had been convicted of a crime after age eighteen (1977, 53). Those who became adult criminals scored higher in personal instability. Subsequently, the authors concluded personal instability was the critical factor in determining continuation of crime.

A study of Georgia youths (Scanlon & Webb, 1981) found a high risk group which included blacks, urban residents, those from single parent families, those who were property offenders as juveniles, and those who had spent over three years in the juvenile correctional system. These former juvenile delinquents were more likely to receive prison sentences as adults. However, the authors stress that care should be taken to avoid stereotyping. Even among the group



with one of the highest rates of recidivism, urban blacks who had been property offenders, 62% did not become adult criminals. The results of this study simply point to a variety of factors which may influence a youth's future behavior.

The present study is similar to the study of Georgia youth. The records of male juveniles in Iowa committed to a state training school are examined in order to determine whether or not each juvenile was later committed to the state adult reformatory. Other than geography and any associated cultural variables, the major differences from the Georgia study are that the present study is retrospective and it focuses on the most serious types of delinquents. The Georgia study selected a birth cohort of juvenile delinquents and followed them for five years after their eighteenth birthdays. In the present study, on the other hand, a cohort of adult inmates who were previously juvenile delinquents are compared to a matched group of former juvenile delinquents who were not convicted of crimes as adults. However, the purpose is the same, to see what factors are related to recidivism. Based on the findings of the Georgia study and the other longitudinal studies on recidivism several hypotheses can be generated. These are discussed in the next section.

### Hypotheses

Several hypotheses relating recidivism to demographic characteristics of the boys can be tested:

1. The juvenile delinquent from a heavily populated area is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

2. The juvenile delinquent who is nonwhite is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

3. The marital status of the juvenile's parents has no effect on the boy's continuation of criminal activities into adulthood.

4. The juvenile delinquent whose parents have completed fewer years of education is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

5. The juvenile delinquent who has dropped out of school or has been expelled is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

Hypothesis 1 is based on the Racine, Wisconsin study (Shannon, 1982) and the Georgia study (Scanlon & Webb, 1981). The Racine study found that youths socialized in the inner city and its interstitial areas were more likely to continue their criminal activities. Likewise, the Georgia youths from urban counties were more likely to be convicted of crimes as adults than were their rural counterparts.

Hypothesis 2 is based on the Georgia study (Scanlon & Webb, 1981) and the Philadelphia study (Wolfgang et al., 1972). Both studies found that blacks were more likely to continue their criminal activities. However, the findings of the Columbus study (Hamparian et al., 1978) refute this. The authors of the Columbus study found that within each socioeconomic level, the percentages of blacks and whites who became recidivists were the same.

Whether or not the marital status of the boy's parents is a factor is also unclear. Hypothesis 3 is based on the Racine study (Shannon, 1982) which found no link between the parent's marital status and adult criminality in the former juvenile delinquent. However, researchers in the Georgia study (Scanlon & Webb, 1981) report that boys from single-parent families are more likely to be sentenced to an adult reformatory.

Both the Philadelphia (Wolfgang et al., 1972) and Columbus (Hamparian et al., 1978) studies stated the importance of the parent's socioeconomic status (SES) in predicting recidivism. Youths from lower SES census tracts were more likely to be chronic offenders. The present study is not able to determine the census tract of the boy's family or the occupation and income of the boy's parents. However, the level of education that each parent had achieved is not known. Hypothesis 4 uses education as an

indicator of SES status in order to test the results found in the Philadelphia and Columbus studies.

Hypothesis 5 is based on the Philadelphia study (Wolfgang et al., 1972) and the Racine study (Shannon, 1982). The former found that boys who had completed fewer grades in school were more likely to become chronic offenders and the latter found that failure to graduate from high school was a factor in adult criminality.

Other hypotheses can be generated based on the boy's criminal activities as a youth:

6. The age of the boy at the time he is first arrested has no effect on the continuation of crime into adulthood.

7. The juvenile offender who is convicted of a property crime as a juvenile is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

8. The juvenile offender who has had several contacts with the juvenile court is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

Contradictory findings have been reported about the relationship between age of first arrest and recidivism. Hypothesis 6 is based on the Columbus study (Hamparian et al., 1978). The researchers found that in a majority of the cases the age at first arrest had no effect on future criminal activity. However, there as a small group of the youth (7% of the cohort of violent offenders) who had

achieved chronic status by the age of 14 (1978, 128). Out of this group very few discontinued their criminal activities before the age of eighteen. The present study is not able to establish the age of the boy when he reached chronic status.

The Georgia study (Scanlon & Webb, 1981) found that boys convicted of property crimes were more likely to be in reformatories as adults. This included both burglary and auto theft. Hypothesis 7 is based on these findings.

Hypothesis 8 is based strictly on those studies which followed the youth into adulthood. The two early studies on Detroit youth (Dunham & Knauer, 1954; Chaitin & Dunham, 1966) found that juvenile delinquents who were recidivists were most likely to be convicted of crimes as adults. Wolfgang et al. (1987) found that those juveniles with long and serious juvenile careers were most likely to have long and serious adult criminal careers.

Lastly, several of the studies dealt with how the youth's interaction with the criminal justice system affected his continuation of criminal activities. The following hypotheses were developed based on these findings:

9. The juvenile delinquent who receives more punitive sanctions is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

10. The juvenile delinquent who is institutionalized a greater number of times and/or for longer periods of time is

more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

11. The juvenile delinquent who scores high on tests of emotional maladjustment given by the juvenile justice system is more likely to commit a crime as an adult and hence be sentenced to an adult reformatory.

Hypothesis 9 is based on the findings of the Philadelphia (Wolfgang et al., 1972) and Racine (Shannon, 1982) studies. In the Philadelphia study, those boys who received more punitive treatment committed more serious crimes with greater rapidity. The Racine study found an increase in frequency and seriousness of misbehavior in periods following those in which sanctions were administered.

Likewise, institutionalization was not the answer. Both the Columbus (Hamparian et al., 1978) and Georgia (Scanlon & Webb, 1981) studies discovered negative effects of institutionalizing youth. The Columbus study reported that the length of time between release from an institution and arrest decreased each time the boy was committed. In Georgia the boys who were in the training school for longer than three years were most likely to be in the adult reformatory after reaching adulthood. Hypothesis 10 is based on these findings.

The last hypothesis (Hypothesis 11) is based on the findings of the Glasgow study (Stott & Wilson, 1977). The

juvenile delinquents who scored high on tests of personal and emotional maladjustment were more likely to have contacts with the police as adults.

In summary, researchers have had little success in explaining why some juvenile delinquents can be rehabilitated, while others eventually become adult offenders. The studies have identified several risk factors in the child's personal, family, and educational background but have not been able to pinpoint which juveniles out of this high risk group will continue their misbehavior. Likewise, the studies have identified a high risk group whose members have had several contacts with the juvenile court, received the most severe sanctions such as institutionalization in a training school, and have been most likely to become adult offenders. Yet, the studies have failed to explain why some chronic offenders discontinued their delinquent activities. The present study will look at these factors in the boys' backgrounds to see how they are related to adult criminality.

## CHAPTER THREE

### Design and Procedures

#### Overview of the Research Design

The present study was initiated by the State Training School (STS) staff at Eldora, Iowa which houses delinquent boys who have been committed by a juvenile court. The school had acquired a list of previous training school residents who had been convicted of crimes as adults and sentenced to the Iowa Men's Reformatory (IMR) in Anamosa, Iowa during the year 1981. IMR provides correctional and treatment services for adult males under the age of 31 who are first-time felony offenders. Whenever IMR received an inmate who had been at STS as a juvenile, they would request information about the inmate's previous record.

Realizing that they had some valuable information, the STS staff decided to conduct a study comparing the boys who were later committed to the reformatory with those who were not. The staff wished to learn more about those variables in the boy's past which were important in shaping his adult behavior. Going back to the boy's STS file they would be able to look at the demographic characteristics of each boy, the boy's criminal activities and involvement with the juvenile court before admission to STS, the boy's activities and program-involvement while at STS, and lastly, where the boy was placed upon release. These pieces of information



would serve as the possible causes of adult criminality. Adult criminality was measured by whether the boy was committed to IMR after becoming an adult.

However, after collecting the data, the staff decided that they did not have the staff hours or the computer facilities to give the project the attention it deserved. They requested that the present author along with others at the University of Northern Iowa complete the study. This chapter will first give a general description of the training school in Iowa and then, give a more detailed explanation of how the samples of boys were chosen for the study. Another section will discuss the research techniques used and the types of data these techniques yielded. Finally, the various types of statistical techniques used to test the hypotheses will be described.

#### Description of the State Training School

The State Training School was founded in 1868 out of a growing concern about the youth then being sent to the adult state penitentiary. It was felt that a special facility was needed for the state's youth separate from any adult facility. Under the jurisdiction of the Iowa Department of Human Services, the training school houses approximately 200 males under the age of eighteen. The boys are committed to the school by a juvenile court with an average length of the placement of six months.

The living quarters include three specialized living units and six regular cottages. Stewart Hall, one of the specialized units, provides personalized residential treatment for up to twenty aggressive, chronic runaway, emotionally disturbed students. The students' daily activities are highly structured. Another specialized living unit is the detention center. This unit serves a disciplinary role. It is a maximum security unit which houses a boy for five days at a maximum. At the time of the data collection, the third specialized unit, Cooper Residential, provided treatment for the severely socially maladjusted and emotionally disturbed students who were not violent. This unit has since been disbanded and its students integrated into regular cottages. Here emphasis was put on learning basic social skills.

Each specialized unit or regular cottage has a staff team which develops individual programs for the boys in their living quarters. Other departments include education, psychology, medicine, and religion which are drawn upon to support each boy's program.

The education department is composed of two branches, an academic and vocational branch. The academic branch offers both self-contained classrooms and departmentalized classes depending on the boy's needs. The objective is to prepare the boy for re-entry to the public school system. Seventeen vocational programs are offered through the

vocational branch. The programs are designed to teach marketable skills in a trade area.

Medical and dental services are provided through Cooper Infirmary. A dentist visits the training school two days a week and a physician visits daily. Four beds are available for patients in the ward area which has nurses on duty from 6:00 a.m. to 9:00 p.m. daily. The psychology department screens and evaluates each new admission obtaining information about the boy's personality and behavioral characteristics. This information is used in the planning of the boy's individual program while at the training school. The religion department conducts church services, teaches religious classes and provides counseling for both the students and their parents. Overall, the entire facility tends to function very smoothly.

#### Population Sample

The population that was studied consisted of 288 delinquent boys who had been residents of the state training school at sometime between the years of 1965 and 1981. Two groups were selected for comparison. The first group consisted of all previous STS residents who were admitted to the Iowa Men's Reformatory during the year of 1981. The STS staff had received requests for information on 144 previous residents who were committed to IMR during 1981. Each one

was included in the first group which shall be referred to as the reformatory group.

In order to select a comparable group of previous residents who had not been committed to IMR, STS student identification numbers were used. As each boy is admitted to the school, he receives an identification number which is in sequential order according to his admission date with the other students at the school. For every boy in the reformatory group the next highest student identification number was selected. This matching process insured a second group of control subjects who were at STS during a comparable time frame. Minor difficulty occurred in achieving matched pairs so the final sample consisted of only 140 delinquents who did not reappear at IMR as compared with the 148 in the reformatory group. The group who were not committed to IMR shall be referred to as the comparison group.

There are some problems with using incarceration at IMR as an indicator of adult criminality and as a means of selecting the two groups. The study assumes that the boys in the comparison group did not continue their criminal activities into adulthood. As mentioned earlier, IMR provides correctional and treatment services for adult males under the age of 31 who are first-time felony offenders in the state of Iowa. It is possible that some of the males from the comparison group left Iowa after being released

from STS. In this case, there would be no way of knowing whether they were convicted of a crime. In addition, a more obvious problem is that someone from the comparison group may have been involved in criminal activities but had not been apprehended or convicted by the justice system as of 1981. Therefore, incarceration at IMR is taken as a rough measure recognizing that some members of the comparison group may actually have continued their criminal activities. Future studies are needed with more valid indicators of adult criminality.

### Research Techniques

The present study was designed as a comparative, longitudinal analysis of the relationship between juvenile and adult crime. It may be referred to as a cohort study. Wolfgang et al. (1972, 7) explain in their discussion of cohort studies how it need not be based on the subject's birth date. The term cohort:

may be defined as an aggregate of individuals (within some population definition) who experienced the same event within the same time interval. In almost all cohort research to date the defining event has been birth, but... the approach can be generalized beyond the birth cohort to cohorts identified by common time of occurrence of any significant and enduring account in life history. Cohorts may be defined in terms of the year in which they completed their schooling, the year in which they married, the year in which they migrated to the city, or the year in which they entered the labor force full time.

The present study uses the event of being committed to IMR during the year of 1981 to select the cohort of juvenile delinquents who became adult criminals. The cohort is then compared to the matched group of juvenile delinquents who were not committed to IMR as of 1981.

The data were collected from the juveniles' past files at STS. These files were full of information which is here classified according to one of four major categories. The first category includes demographic information such as the boy's race, his religion, where he lived, his school progress, and his family background. The second category consists of records of the boy's activities immediately preceding admission to STS. These variables included the boy's age at first arrest, who had custody of the boy, what crimes he committed, the number of months on probation, and the number of placements previous to STS. The third category consists of some of the most interesting information. It describes the boy's activities while at STS. The boy's educational program, length of placement, age at admission, misbehavior, and type of housing assigned to him were just a few of these variables. Lastly, the fourth category contains information as to where the boy was placed after being released from the school.

These variables allow one to test the eleven hypotheses described in Chapter Two. Table 1 indicates which variables were used to test each hypothesis.

Table 1

## Variables Included in the Study

Hypotheses	Variable(s)
1. The juvenile delinquent from a heavily populated area is more likely to commit a crime as an adult than is a delinquent from a less-populated area.	URBAN/RURAL county of commitment  COUNTY POPULATION county of commitment  CITY POPULATION city boy was released to
2. The juvenile delinquent who is nonwhite is more likely to commit a crime as an adult than is a white delinquent.	RACE juvenile's race
3. The marital status of the juvenile's parents has no effect on the boy's continuation of criminal activities into adulthood.	MARITAL STATUS of boy's natural parents  NUMBER OF MARRIAGES of boy's custodial parents  CUSTODY person with custody of boy before STS admission
4. The juvenile delinquent whose parents have completed few years of education is more likely to commit a crime as an adult than is a delinquent with higher-educated parents.	FATHER'S EDUCATION  MOTHER'S EDUCATION
5. The juvenile delinquent who has dropped out of school or has been expelled is more likely to commit a crime as an adult than is a delinquent who graduated from high school.	SCHOOL STATUS of boy at STS admission  EDUCATIONAL PROGRAM while at STS

Table 1 (continued)

Hypotheses	Variable(s)
6. The age of the boy at the time he is first arrested has no effect on the continuation of crime into adulthood.	AGE AT FIRST ARREST AGE AT ADMISSION to STS
7. The juvenile delinquent who is convicted of a property crime as a juvenile is more likely to commit a crime as an adult than is a delinquent who did not commit a property crime.	JUVENILE OFFENSE
8. The juvenile delinquent who has had several contacts with the juvenile court is more likely to commit a crime than is a delinquent who has had fewer court contacts.	PREVIOUS PLACEMENTS number of prior to admission MONTHS ON PROBATION prior to admission
9. The juvenile delinquent who receives more punitive sanctions is more likely to commit a crime as an adult than is a delinquent who was not treated as harshly.	DETENTION number of times in detention STEWART lived in Stewart Hall while at STS COOPER lived in Cooper Hall while at STS
10. The juvenile delinquent who is institutionalized a greater number of times and/or for longer periods of time is more likely to commit a crime as an adult than is a delinquent who has been institutionalized less.	NUMBER OF STS PLACEMENTS TOTAL TIME AT STS LENGTH OF LAST STS PLACEMENT
11. The juvenile delinquent who scores high on tests of emotional maladjustment is more likely to commit a crime than is a delinquent who scores low.	PSYCHIATRIC DIAGNOSIS while at STS



### Statistical Analysis

The data were analyzed in two parts. First, tests of association and group differences were used in a bivariate analysis. Relationships between adult criminality and the variables describing the boy's past were examined. Secondly, a multivariate analysis using the SPSS "Discriminant" procedure (Klecka, 1975) was done. This established which group of variables best discriminated between the reformatory and comparison groups.

Two procedures were used in the bivariate analysis. For each interval-level variable, a t-test of the difference between two means was conducted. Differences between the reformatory and comparison groups were analyzed. For each nominal and ordinal-level variable in the data, chi-square was calculated to see whether the variable was related to the dependent variable, adult criminality.

In the second part of the analysis, the multivariate, interval-level variables were used to discriminate between the reformatory and comparison groups. Many of the nominal-level, dichotomous variables were also included in this analysis after being recoded as dummy variables. In addition, some of the multiple response nominal and ordinal-level variables were recoded as dichotomies in order that they, too, were could be included in the analysis. Table 2 lists these recoded variables included in the multivariate analysis.

Table 2

## Variables Recoded for Use in Multivariate Analysis

Recoded Variable	Original values	Frequency	Value
Juvenile's race	1 white	255	1
	2 Native American	6	0
	3 black	26	0
	4 1/2 white & 1/2 Native Am.	1	0
Marital status of juvenile's natural parents	1 married	84	1
	2 divorced	154	0
	3 widowed	26	0
	4 separated	12	0
	5 dead	3	0
Juvenile's school status upon admission to STS	6 unmarried	3	0
	1 attending	128	1
	2 expelled	18	0
	3 dropped out	121	0
	4 GED	15	1
Custody of juvenile upon admission to STS	5 graduated	2	1
	1 mother	159	0
	2 father	44	0
	3 both parents	69	1
	4 grandparents	6	0
	5 adoptive parents	1	0
	6 aunt/uncle	2	0
7 Dept. of Social Services	3	0	
Last placement site of juvenile upon release from STS	1 parents	185	0
	2 other	24	0
	3 adult conviction	2	1
	4 group home	50	1
	5 independent	18	0
	6 foster home	4	1
	7 Mental Health Institute	2	1
	8 friends	2	0

Race was recoded into a dichotomy comparing whites to nonwhites. Marital status was grouped to distinguish between those boys whose parents were still married and those whose parents were not living together. School status was slightly more difficult to conceptualize into two groups. Whether the boy was attending or had graduated was given a value of "1," while the other values were changed to "0." Custody upon admission was treated similar to marital status. If both the mother and father had custody the variable was coded "1." Finally, last placement site was coded according to whether the boy was placed in a state institution. Such institutions included prison, group homes, foster homes, and the Mental Health Institute.

These variables were all used in the discriminant analysis to see how well each would differentiate between the reformatory and comparison groups. The variables were entered into the analysis in four stages. During the first stage only demographic variables were included. Variables describing the boy's involvement with the criminal justice system before admission to STS were added to the analysis in the second stage. Next, variables describing the boy's activities while at the training school were included. The last stage included post-STs variables. Within each stage a stepwise procedure was used to select the variables which contributed the greatest increase in Rao's V. Each variable

which significantly added to the value of Rao's V was included in the final discriminant function (Klecka, 1975).

## CHAPTER FOUR

### Findings

As indicated in Chapter Three, the data were analyzed in two parts. First, tests of association and group differences were used in a bivariate analysis. Relationships between becoming an adult criminal and variables in the boy's past were examined. Secondly, a multivariate analysis was utilized to see which group of variables best discriminated between the reformatory and comparison groups.

#### Bivariate Analysis

The variables were divided into four groups: demographic variables, variables before admission to STS, variables while at STS, and variables following release from STS. For each interval level variable a t-test was used to compare the comparison and reformatory groups' mean values. Tests of association using chi-square were employed for testing the hypotheses involving nominal level variables. For each group of variables, a table was constructed summarizing the results of these tests. In order that the reader may easily refer to the tabular results of each variable's relationship to adult criminality, the variable names have been placed in all capital letters in the following text.

### Demographic Variables

Table 3 summarizes the results of the bivariate analysis of the demographic variables. It was hypothesized that boys from urban areas would be more likely to become adult criminals (Hypothesis 1). This was not the case. There was no significant difference ( $t = 1.33, p > .05$ ) in the mean COUNTY POPULATION between the comparison and reformatory groups. In addition, the variable URBAN/RURAL showed no significant relationship with continued criminal activities ( $\chi^2 = 1.95, p > .05$ ). Even though there was no significant relationship, it is interesting to note that, contrary to what was predicted, a greater proportion of the comparison group (79.1%) was committed from an urban county than was the reformatory group (72.6%).

As was predicted in Hypothesis 2, the comparison group had a higher proportion of whites (91.4%) than did the reformatory group (86.2%). However, the difference was not significant ( $p > .05$ ). In addition, the findings may be limited due to a small proportion (11.4%) of nonwhites in the total sample.

The third hypothesis stated that the marital status of the boy's parents would have no significant effect on his future behavior. This was confirmed. There was no significant relationship between MARITAL STATUS and adult criminality ( $\chi^2 = 0.89, p > .05$ ). In addition, there was no significant difference ( $t = -0.69, p > .05$ ) in the mean

Table 3

## Bivariate Analysis of Demographic Variables

Variable description	Scale	Mean score/percentage for group	
		Comparison	Reformatory
COUNTY POPULATION county of commitment	ratio	112,199.8	127,658.8
URBAN/RURAL county of commitment	1 = urban 0 = rural	79.1 (percentage urban)	72.6
RACE juvenile's race	1 = white 0 = nonwhite	91.4 (percentage white)	86.2
MARITAL STATUS of natural parents	1 = married 0 = other	27.6 (percentage married)	32.2
NUMBER OF MARRIAGES of custodial parents	ratio	1.6	1.5
FATHER'S EDUCATION	ratio	10.7 (years completed)	9.9 **
MOTHER'S EDUCATION	ratio	11.3 (years completed)	10.7 **
SCHOOL STATUS at admission time	1 = attending or graduated 0 = expelled or dropped out	48.2 (Percentage attending or graduated)	53.8

\*\* T-test significant at .05 level.

number of times that the boy's custodial parent(s) had been married (NUMBER OF MARRIAGES) between the comparison and reformatory groups. Even though this difference was not significant, the direction of the difference was opposite of

popular belief. A greater proportion of the boys' parents in the reformatory group (32.2%) were still married as compared to the parents in the comparison group (27.6%). In addition, the mean number of marriages was lower for the parents of the reformatory group.

The parents' education (FATHER'S EDUCATION and MOTHER'S EDUCATION) was used as an indicator of socioeconomic status (SES). As was predicted in the fourth hypothesis, the parents of the reformatory group had completed less years of school than the comparison group's parents. The differences were significant ( $p < .05$ ) for both fathers' ( $t = -2.40$ ) and mothers' ( $t = -2.29$ ) educational levels. These findings indicate that the boys in the reformatory group may have been from lower SES families. However, care must be taken in this assumption since there are no data on the parental income or occupation. Furthermore, a rather large proportion of cases had missing data on the parental education level variables, 33.0% of the cases for FATHER'S EDUCATION and 26.0% of the cases for MOTHER'S EDUCATION.

Lastly, no association was found between SCHOOL STATUS and adult criminality ( $\chi^2 = 0.89$ ,  $p > .05$ ). The boys in the reformatory group were just as likely to be attending or have graduated from high school as were the boys in the comparison group. In fact, they were more likely still to be in school or have graduated. Nearly 54% of the reformatory group was attending or had graduated compared to



48% of the comparison group. Yet, the difference was not significant so Hypothesis 5 stating that the juveniles who became adult criminals were more likely to have dropped out of school or to have been expelled was rejected.

Overall, the only demographic variables related to adult criminality were FATHER'S EDUCATION and MOTHER'S EDUCATION. As was hypothesized, the parents of the reformatory group had fewer years of education. The other demographic variables showed no significant relationship to adult criminality.

#### Variables Before Admission to STS

Table 4 describes the results of the tests of association and t-tests using variables describing the boy's activities previous to being admitted to STS.

The first variable, CUSTODY, was not related to recidivism ( $\chi^2 = 0.08$ ,  $p > .05$ ). Almost as many juveniles in the reformatory group (23.8%) were in the custody of both parents at the time of admission as were the juveniles in the comparison group (25.2%). These findings add additional support to Hypotheses 3 stating that the marital status of the juvenile's parents has no effect on the boy's continuation of criminal activities into adulthood.

Hypothesis 6 which negates the relationship of age at first arrest and recidivism was also supported. The mean AGE AT FIRST ARREST in months was similar for both the

Table 4

## Variables Before Admission to STS

Variable description	Scale	Mean score/percentage for group Comparison Reformatory	
CUSTODY person with custody of boy before admission	1 = both parents 0 = other	25.2 (percentage with both parents)	23.8
AGE AT FIRST ARREST	ratio	184.6 in months	184.4
JUVENILE OFFENSE			
OMVWOC operating a motor vehicle without the owner's consent	1 = yes 0 = no	33.1 (percentage convicted of OMVWOC)	21.9 *
BURGLARY	1 = yes 0 = no	32.4 (percentage convicted of burglary)	46.6 *
ROBBERY	1 = yes 0 = no	5.0 (percentage convicted of robbery)	4.8
ASSAULT	1 = yes 0 = no	4.3 (percentage convicted of assault)	6.2
THEFT	1 = yes 0 = no	13.7 (percentage convicted of theft)	8.9
FUPI false use of a financial instrument	1 = yes 0 = no	2.2 (percentage convicted of FUPI)	5.5
PREVIOUS PLACEMENTS prior to STS	ratio	2.8	3.7 **
MONTHS ON PROBATION prior to STS	ratio	10.3	10.8

\* Chi-square significant at .05 level

\*\* T-test significant at .05 level

comparison and reformatory group (183.9 and 185.2, respectively). There was no significant difference ( $t = -0.07$ ,  $p > .05$ ). The juveniles in the comparison group had started their criminal activities just as early as had the juveniles in the reformatory group.

Differences did appear between the comparison and reformatory groups when looking at the JUVENILE OFFENSE. Table 4 shows these differences. It was predicted (Hypothesis 7) that juveniles convicted of property crimes would be more likely to become adult criminals. The juveniles in the reformatory group were more likely to be convicted of burglary than were the comparison group juveniles. The association was significant ( $\chi^2 = 6.00$ ,  $p < .05$ ). However, other property crimes, such as ROBBERY, THEFT, and FUPI, showed no significant association with adult criminality. The issue seems to be the seriousness of the crime as opposed to whether it was a property crime. A greater proportion of the comparison group (33.1%) was convicted of operating a motor vehicle without the owner's consent (OMVWOC) than was the reformatory group (21.9%). The juveniles in the reformatory group were more likely to be convicted of burglary, a serious crime, whereas, the comparison group juveniles were more likely to be convicted of OMVWOC, a less serious crime.

Hypothesis 8 states that the more contacts the boy has with the juvenile justice system, the more likely he is to

become an adult criminal. As Table 4 shows, the reformatory group juveniles had a significantly higher ( $t = 2.33$ ,  $p < .05$ ) mean number of PREVIOUS PLACEMENTS which can be seen as an indicator of the number of contacts with the system. This would support Hypothesis 8. The relationship between PREVIOUS PLACEMENTS and adult criminality ( $r = 0.1364$ ,  $p < .05$ ) becomes slightly stronger when controlling for age at admission to STS ( $r = 0.1410$ ,  $p < .05$ ). The boys who were younger had less years in which they could have caused trouble and consequently received fewer placements by the juvenile court. Another possible indicator of contacts with the system, the mean number of MONTHS ON PROBATION previous to STS admission, was not significantly different ( $t = 0.32$ ,  $p > .05$ ) for the two groups. Each group had a mean of nearly 10.5 months on probation. Again, age at admission needed to be controlled. However, with age controlled the relationship was still not significant ( $r = 0.0091$ ,  $p > .05$ ).

The number of months on probation may not be a valid indicator of contacts with the juvenile justice system. MONTHS ON PROBATION is not related to the number of placements the boy receives ( $r = -0.0402$ ,  $p > .05$ ). A boy may be placed by the juvenile court only once and yet receive several months of probation. The number of placements by the court seems to be a more valid indicator of contacts with the juvenile justice system which, as

pointed out before, is related to adult criminality as stated in Hypothesis 8.

### Variables While at STS

Table 5 summarizes the results of the analysis using variables related to the boys' activities while at STS.

The table indicates that no significant difference ( $t = 0.23$ ,  $p > .05$ ) exists in the mean AGE AT ADMISSION for the comparison and reformatory groups. This finding would seem to lend additional support for Hypothesis 6 which states the age at first arrest is not related to recidivism since the age at admission is related to the age at first arrest. However, when looking at the bivariate distribution of AGE AT ADMISSION by adult criminality, one finds a pattern which is not reflected in the group means.

Table 6 shows that the juveniles who were admitted to STS at either a very young age or late age were most likely to be convicted of a crime as an adult. The association was significant ( $\chi^2 = 8.15$ ,  $p < .05$ ). It may not matter how young or old the boy is when he is first arrested, as Hypothesis 6 stated, but the age at which the boy is institutionalized does have an effect on adult criminality.

Hypothesis 9 stated that the juvenile who receives more punitive sanctions is more likely to become an adult criminal. One form of punitive treatment at STS is being placed in the detention unit. The mean number of times in

Table 5

## Variables While at STS

Variable description	Scale	Mean score/percentage for group Comparison Reformatory	
AGE AT ADMISSION	ratio	194.9	195.2
		in months	
DETENTION number of times spent in detention	ratio	4.4	6.8 **
SPECIALIZED LIVING UNITS			
STEWART HALL	1 = yes 0 = no	7.9	17.8 *
		(percentage who lived in Stewart Hall)	
COOPER HALL	1 = yes 0 = no	3.6	5.5
		(percentage who lived in Cooper Hall)	
EDUCATIONAL PROGRAM	1 = academic 0 = vocational	32.1	17.8
		(percentage in academic program)	
NUMBER OF STS PLACEMENTS	ratio	1.8	2.1 **
TOTAL TIME AT STS	ratio	8.8	10.5 **
		in months	
LENGTH OF LAST STS PLACEMENT	ratio	5.2	5.6
		in months	
PSYCHIATRIC DIAGNOSIS	1 = socialized conduct disorder 0 = other	34.0	27.6
		(percentage socialized conduct disorder)	

\* Chi-square significant at .05 level

\*\* T-test significant at .05 level

Table 6

## Adult Criminality by Age at Admission (Percentages)

Convicted as an adult	Age at admission			
	11 TO 14	15	16	17
NO	36.7	58.8	53.3	39.5
YES	63.3	41.2	46.7	60.5
	100.0 (30)	100.0 (68)	100.0 (107)	100.0 (81)

DETENTION was significantly higher ( $t = 2.67, p < .05$ ) for the reformatory group (6.6) than it was for the comparison group (4.6). However, the original modest relationship between the number of times in detention and adult criminality ( $r = 0.1549, p < .05$ ) becomes even weaker when controlling for the number of months that the boy was at STS ( $r = 0.1008, p < .05$ ). The boys who had been at STS many months were more likely to become adult criminals as well as spend more time in detention. Therefore, the number of months at STS explains part of the relationship between times in detention and adult criminality.

Related to the punitiveness of treatment is the level of specialized treatment. Both Cooper and Stewart Hall offer specialized treatment. Being placed in STEWART HALL was significantly associated with becoming an adult criminal ( $\chi^2 = 6.28, p < .05$ ). The boys in the reformatory group

were much more likely to have spent time in Stewart Hall in which their activities were more highly structured than were the juveniles in the comparison group. The highly structured atmosphere of Stewart Hall may be considered by some to be a type of punitive treatment when compared to the less structured atmosphere in the regular cottages. It must be noted, however, that the boys who were placed in Stewart Hall may have already been prone to become adult criminals. One cannot be sure whether the previous behavior of the youth or the placement in Stewart Hall caused the boys to be more likely to become adult criminals. Living in COOPER HALL was not related to adult criminality ( $\chi^2 = 0.60, p > .05$ ). Almost as many juveniles in the comparison group (3.6%) had lived there as had juveniles in the reformatory group (5.5%). This may be because the specialized treatment offered by Cooper Hall is not fairly characterized as being punitive as can be offered by Stewart Hall or the detention unit. Rather it is more "protective." Overall, Hypothesis 9 was supported.

The variable EDUCATIONAL PROGRAM may be seen as another indicator of the boy's progress in school. Hypothesis 5 stated that the juvenile who has either dropped out of school or been expelled is more likely to become an adult criminal. As stated in the demographic section of this chapter, no relationship was found between finishing high school and adult criminality. However, there was a



relationship between the type of EDUCATIONAL PROGRAM the juvenile participates in while at the STS and his future criminal activities ( $x^2 = 7.87, p < .05$ ). The boys in the comparison group were more likely to be in an academic program as opposed to a vocational program. Only 17.8% of the reformatory group were in an academic program as compared to 32.1% of the comparison group. The reformatory group boys may have finished high school just as often as the comparison group boys but they were more likely to be involved in vocational programs than were the boys in the comparison group and hence spend less time, if any, in academic classes.

Hypothesis 10 stated that those juveniles who are institutionalized a greater number of times and/or for longer periods of time are more likely to become adult criminals. Three variables were used to test this hypothesis: NUMBER OF STS PLACEMENTS, TOTAL TIME AT STS, and LENGTH OF LAST STS PLACEMENT. As was hypothesized, those in the reformatory group had been placed at STS a greater mean number of times (2.1 as compared to 1.8 mean times for the comparison group). The difference was significant ( $t = 2.50, p < .05$ ). There was also a significant difference ( $t = 2.20, p < .05$ ) in the mean number of total months at STS (TOTAL TIME AT STS). The reformatory group had spent a mean of 10.3 months at STS as compared to the 9.2 mean months the comparison group had

been there. In contrast, there was no significant difference ( $t = 0.73$ ,  $p > .05$ ) in the mean LENGTH OF LAST STS PLACEMENT for each group. Overall, the hypothesis was supported.

The age of the boy at the time of admission had an effect on each of these three variables' relationship with adult criminality. Table 7 shows the original relationships compared and the second-order relationships, controlling for age. In each case the relationships became stronger when age was controlled. It should be noted, though, that the length of the last placement at STS is still not significantly related to adult criminality.

Table 7

Comparison of Original Relationships with Adult Criminality and Partial Relationships with Adult Criminality while Controlling for Age

Variable	Original relationship	Partial relationship
NUMBER OF STS PLACEMENTS	$r = 0.1454$ $p < .05$	$r = 0.1670$ $p < .05$
TOTAL TIME AT STS	$r = 0.1290$ $p < .05$	$r = 0.1675$ $p < .05$
LENGTH OF LAST STS PLACEMENT	$r = 0.0431$ $p > .05$	$r = 0.0481$ $p > .05$

It was predicted in Hypothesis 11 that the juvenile who scores high on psychiatric tests of emotional maladjustment is more likely to become an adult criminal. The youths at STS were diagnosed as either having an undersocialized conduct disorder or as having a socialized conduct disorder. Jenkins et al. (1985) describe the undersocialized youth as one who has not been taught to respect the rights of others. The youth is not able to feel empathy, compassion, or love. In this sense, the youth is emotionally maladjusted. The youth diagnosed as having a socialized conduct disorder, on the other hand, has been taught to respect the rights of others. However, this youth is often involved with a delinquent peer group in which his loyalty to the group leads to ignoring the rights of people outside the peer group. No significant relationship was found between PSYCHIATRIC DIAGNOSIS and adult criminality ( $\chi^2 = 3.27, p > .05$ ). Those boys being diagnosed as having a socialized conduct disorder were as likely to become adult criminals as those having an undersocialized conduct disorder. However, a large proportion of the data were missing for this variable (29.9%), so the results may be of limited generalizability.

#### Variables Following Release from STS

As Table 8 shows, only 2 variables describing the boy's activities after release were available: the LAST PLACEMENT

Table 8

## Variables Following Release from STS

Variable description	Scale	Mean score/percentage for group Comparison    Reformatory	
LAST PLACEMENT SITE following release	1 = state institution 0 = other	19.4	20.5
		(percentage placed in a state institution)	
CITY POPULATION of city in which boy was released	ratio	60,886.0	73,514.4

SITE and the CITY POPULATION of the city in which the boy was released.

LAST PLACEMENT SITE was conceptualized as either being placed in another state institution or being released to a non-state setting. The greater the number of placements, both PREVIOUS PLACEMENTS and STS PLACEMENTS, the more likely the boy was to become an adult criminal. However, being placed in another state institution after release from STS (LAST PLACEMENT SITE) was not related to adult criminality ( $x^2 = 0.06$ ,  $p > .05$ ). Almost as many boys in the comparison group (19.4%) were placed in state institutions as were boys in the reformatory group (20.5%). Thus, Hypothesis 8 which states that the more contacts the boy has with the juvenile justice system the more likely he is to become an adult offender, is not entirely upheld by the analysis. The

number of contacts before STS admission seem to have a greater effect than do an additional contact after STS release.

The mean CITY POPULATION of the city the boy was released to was not significantly different ( $t = 1.56, p > .05$ ) for the comparison and reformatory groups. The city is most often the same one the boy lived in before being admitted to STS. Since both COUNTY POPULATION and URBAN/RURAL were not related to adult criminality, it was doubtful that CITY POPULATION would have been. The findings added further reason to reject Hypothesis 1 which stated boys from urban areas are more likely to become adult criminals. It does not matter whether a boy lived in an urban area before admission, after release, or both; it was not related to adult criminality.

Overall, most of the hypotheses, except those dealing with demographic variables, were supported by the bivariate analysis. Contrary to what was predicted by the demographic hypotheses, the population of the boy's home, the boy's race, and the boy's status in school did not affect whether the boy was later convicted of a crime as an adult. However, it should be noted that the boys who were involved in vocational programs at STS and hence spent less time in academic classes were more likely to become adult criminals. Two demographic hypotheses were supported. The parents' education was related to adult criminality but no

relationship was found between the parents' marital status and the boy's continuation of criminal activities.

The hypotheses describing a boy's involvement with the justice system were generally supported. The more contacts the boy had with the system, the more severe the sanctions he received, and the longer he was institutionalized, the more likely he was to become an adult offender. However the boy's emotional adjustment was not related to adult criminality as had been predicted. The type of juvenile offense was related to adult criminality but not exactly as was predicted in the hypothesis. Those convicted of burglary were most likely to continue while those out for a "joy ride" (convicted of OMVWOC) were least likely. Lastly, age at first arrest did not have an effect as was predicted but age at admission to STS did. The youngest and oldest were most likely to continue.

#### Discriminant Analysis

The SPSS "Discriminant" procedure (Klecka, 1975) was used to determine how well the variables would differentiate between the reformatory group and the comparison group in a multivariate context. This provides a more realistic analysis of the complex web of interactions between the selected variables than does the simple bivariate analysis above. The variables were entered into the analysis in four stages. Within each stage a stepwise procedure was used to

select the variable(s) which contributed the greatest increase in Rao's V. Each variable which significantly added to Rao's V was included in the final discriminant function. Not all of the variables in the study were used in the discriminant analysis. The boy's mother's education, his father's education, and his psychiatric diagnosis all had too many missing value cases. Hence, these variables were left out of this analysis.

During the first stage, only the demographic variables were included in the analysis. (Table 3 lists these variables and shows how the dichotomous variables were coded.) Of these variables only COUNTY POPULATION significantly discriminated between the reformatory and comparison groups. The greater the population of the county from which the boy was committed to the training school, the more likely the boy as to go on to the reformatory as an adult. In most cases the county of commitment was the county where the boy lived. This finding conflicts with the previous analysis which found no relationship between county population and adult criminality.

Table 9 shows the results of the first stage of the discriminant analysis. The variable which entered the analysis is listed along with its standardized discriminant function coefficient. This value indicates the relative importance of the variable in the equation. Since only one variable was entered in the equation, county population's

Table 9

## Discriminant Analysis--First Stage

Variables in the model	Coeffi- cients*	Classification table	
		Actual group	Predicted group
COUNTY POP.	1.00	Comparison	Compar. Reform.
			53 87
		37.9% 62.1%	
		Reformatory	
		53 93	
		36.3% 63.7%	
Eigenvalue:	.015		
Canonical corr.:	.121	% correctly classified:	51.05

\* Discriminant function standardized coefficients

discriminant function coefficient is equal to one. The eigenvalue and the canonical correlation are measures of the relative importance of the function. By squaring the canonical correlation, one can determine the proportion of variance in the discriminant function explained by the two groups. In this case only 1% of the variance is explained. Lastly, a classification table compares how the cases were actually classified with their predicted classification by the discriminant analysis. Fifty-one per cent of the cases were correctly classified during the first stage of analysis using only county population as a criterion.

In the second stage, variables describing the boy's involvement with the criminal justice system before admission to the training school were added to the analysis.



(Table 4 lists these variables.) Two variables significantly increased Rao's V. if a boy was convicted of operating a motor vehicle without the owner's consent (OMVWOC), he was less likely to become an adult criminal. However, it should be noted that the variable OMVWOC did not significantly increase Rao's V at the .05 level. The other variable, PREVIOUS PLACEMENTS, was positively associated with going on to prison. The greater the number of placements prior to admission to the training school, the more likely the boy was to go to the reformatory. Being convicted of burglary as a juvenile was related to adult criminality as was discussed in the bivariate analysis section, however, it did not significantly increase Rao's V in the multivariate analysis.

The results of the second stage are in Table 10. The county population variable remained in the equation from the first stage. Its effect continued to be statistically significant indicating the population of the county of commitment is independent of and additive to the effect of the variables entered in the second stage. The percentage of cases correctly classified rose to 58% in the second stage.

Variables describing the boy's activities while at the training school were included in the third stage of the analysis. (Table 5 lists these variables.) Placement in STEWART HALL was the first variable to enter the equation.

Table 10

## Discriminant Analysis--Second Stage

Variables in the model	Coeffi- cients*	Classification table		
		Actual group	Predicted group	
COUNTY POP.	.46417	Comparison	Compar.	Reform.
OMVWOC	-.61202		55	84
PREVIOUS PLACEMENTS	.61060	Reformatory	37.9%	60.4%
			35	111
			24.0%	76.0%
Eigenvalue:	.044	% correctly classified:		58.25
Canonical corr.:	.206			

\* Discriminant function standardized coefficients

The boys who lived in Stewart Hall while at the training school were more likely to become adult criminals than the boys who did not live in Stewart Hall. The only other variable to enter was EDUCATIONAL PROGRAM. If the boy was in an academic program as opposed to a vocational program, he was less likely to become an adult prisoner. Three variables, NUMBER OF STS PLACEMENTS, DETENTION, and TOTAL TIME AT STS, which had previously been shown to be related to adult criminality did not enter the discriminant equation.

As shown in Table 11, the variables which entered the equation in previous stages continued to have significant effects. The variables dealing with Stewart Hall residency and educational programs increased the discriminatory power

of the model but did not overshadow the effects of the other variables. Sixty-one percent of the cases were now correctly classified.

The post-STS variables were entered in the analysis in the fourth stage. (Table 8 lists these variables.) Neither the last placement site nor the population of the city that the boy was released into had a significant effect in the discriminant model. Table 11 gives the final results. No variables dealing with the boy's experiences after release entered the equation so the percentage of correctly classified cases stayed at 61%. By chance alone, 50% of the cases would have been correctly classified. Thus, the variables here increase our predictive accuracy by 11%. While not insignificant, this is not overwhelming either.

In several areas the results of the discriminant analysis do not match the results of the bivariate analysis. The population of the county from which the boy was committed is now seen as important in determining which boys become adult criminals. As Hypothesis 1 predicted, boys from urban areas are more likely to be convicted of a crime as an adult. The age of the boy at the time of admission to STS is no longer significant. This lends additional support to Hypothesis 6 which claimed age is not a factor. Burglary is no longer a factor in predicting adult criminality. Hypothesis 7 asserting that property offenders are more likely to become adult criminals can be rejected. The

Table 11

## Discriminant Analysis--Third &amp; Fourth Stages

Variables in the model	Coeffi- cients*	Classification table		
		Actual group	Predicted group	
COUNTY POP.	.21188	Comparison	Compar.	Reform.
OMVWOC	-.45047		66	73
PREVIOUS PLACEMENTS	.38093		47.5%	52.5%
STEWART HALL	.48501	Reformatory	38	108
EDUC. PROGRAM	-.59541		26.0%	74.0%
Eigenvalue:	.112			
Canonical corr.:	.318	% correctly classified:		61.05

\* Discriminant function standardized coefficients

support for Hypothesis 9, which stresses the importance of severe sanctions, is somewhat lessened. Being placed in a structured environment (as indicated by the variable STEWART HALL) is still a factor, but being placed in detention is no longer a significant indicator of adult criminality.

Hypothesis 10 which described the importance of institutionalization can be rejected according to the results of the discriminant analysis. The number of placements at STS and the length of time there no longer make a significant contribution in predicting adult criminality.

Other results of the discriminant analysis do coincide with those of the bivariate analysis. Race is still not a factor and the parents' marital status still does not play a

role in adult criminal behavior. The boy's school status influenced his future behavior in that those boys who were in vocational programs at STS and subsequently spent less time in academic programs were most likely to become adult criminals. This added some support to Hypothesis 5, although finishing high school was still not a factor in adult criminality. Lastly, further support was found for Hypothesis 8. Those boys who received more placements previous to STS admission were most likely to be convicted as an adult.

The multivariate analysis is a more accurate indicator of the relationships since the effect of each independent variable on adult criminality is simultaneously considered. The bivariate analysis did not take into consideration the effect of possible antecedent or intervening variables. The discriminant analysis procedure selected the smallest group of variables with the most power to predict which juvenile offenders would become adult offenders. From the analysis one knows what proportion of the variance in adult criminality can be explained by this group of independent variables. The results are more believable because of this knowledge. Yet, the results of the multivariate analysis are limited because not all of the variables could be used. In addition, there may be several other factors which this study did not have available data on. Overall, though, it

gives a more complete picture of what may cause juvenile offenders to become adult offenders.

## CHAPTER FIVE

## Discussion and Conclusions

Qualified support was found for all but two of the hypotheses. The two hypotheses for which no support was generated were Hypothesis 2, stating nonwhite delinquents were most likely to become adult criminals, and Hypothesis 11, stating that emotionally maladjusted delinquents were most likely to become adult criminals. In the case of Hypothesis 2, there may have been too few nonwhite cases to obtain reliable results. Iowa has so few nonwhites overall that when looking at a subgroup of Iowans (training school students in this case) there is likely to be very few. In addition, the experience of blacks in Iowa differs from the experience of blacks in large urban settings. The social and economic experiences of blacks in Georgia (Scanlon & Webb, 1981) and in Philadelphia (Wolfgang et al., 1972) are much more often characterized by deprivation, social disorder, and violence than are the experiences of Iowa blacks.

When testing Hypothesis 11, questions of reliability also arose. Here, many of the cases had missing values. Nevertheless, no relationship was found between psychiatric diagnosis and adult criminality. Those diagnosed as having a socialized conduct disorder were as likely to become adult offenders as were the other juveniles.

Some support was found during the multivariate analysis for Hypothesis 1. The population of the county from which the boy was committed to STS significantly discriminated between the reformatory and comparison groups. As other studies on recidivism have found, boys from urban areas are more likely to become recidivists. However, the discriminating power is very minimal for this factor. For this sample of Iowa males, living in an urban area has little effect on future adult criminality. Again, this may be because Iowa differs from other states with larger, more densely populated urban areas.

Hypothesis 3 predicted there would be no relationship between the parents' marital status and the juvenile's recidivism. Indeed, there was no relationship. Using variables which described the marital status of the boy's natural parents, the number of marriages by the boy's custodial parent(s), and the person(s) who had custody of the boy at the time of STS admission, no relationships with adult criminality were discovered. Single parent families were as supportive, destructive, or irrelevant as were two-parent families. Hence, family structure was not a factor in predicting adult criminality.

As predicted in Hypothesis 4, the educational levels were lower for parents of juvenile delinquents who eventually became adult criminals. This finding indicates that the boys in the reformatory group are most likely from



lower SES families as has been demonstrated in previous research (Wolfgang et al., 1972; Hamparian et al., 1978). However, one cannot be sure since the data did not indicate the occupation or income of the parents.

Conflicting results were found in testing Hypothesis 5, dealing with the juvenile's school status. Whether the boy was in the process of finishing high school, had finished high school, had been expelled from school, or had dropped out of school was not associated with his adult behavior. However, if the boy was involved in a vocational program while at STS and therefore spending less time in academic classes, he was more likely to be convicted of a crime as an adult. Being placed in either an academic or vocational program at STS may be a possible measure of ability to do well in school. The STS staff assign the boys to an academic program when they feel the boy has potential to do well. The boy is then not allowed to participate in a vocational program. His school status previous to STS admission does not necessarily measure the ability of the student to do well in school.

These findings lend support to Hirschi's Control Theory (1984), although it was not being tested explicitly in this study. Hirschi maintains that delinquent activities occur when an individual's bonds to society are weak. Juveniles who are prepared to re-enter the public school system after release from STS are therein given the opportunity to form a

bond with society. By attending school the juvenile learns the belief system and norms of society, thereby enhancing his commitment to this institution and his continued involvement with it. Further, he has less time to engage in delinquent activities. Hence, his commitment to conventional rules and activities may be increased, generally.

Hypothesis 6 stated that the age of the juvenile when first coming into contact with the juvenile justice system has no effect on his future behavior as an adult. This was, for the most part, supported. Age at first arrest was not related to adult criminality. However, the bivariate analysis indicated a weak curvilinear relationship between age at admission to STS and adult criminality. The youngest cases and the oldest cases were most likely to become adult convicts. Previous studies have shown that juveniles who become chronic offenders by the age of 14 are not likely to discontinue their criminal activities before the age of 18 (Hamparian et al., 1978). Although it is not known how many crimes the juveniles in this study have committed, the juveniles sentenced to STS represent the most serious cases of delinquency in the state. Studies such as the Philadelphia study (Wolfgang et al., 1972) found that most juveniles end their delinquent careers by the age of sixteen. The present sample of juveniles, however, is not comparable to those samples used in the Philadelphia study.

The present sample consists of the most serious juvenile cases including boys who are still committing crimes after the age of sixteen and being committed to STS. This group of older juveniles who had not stopped their delinquent acts around the age of sixteen and the group of very young juveniles who were already being placed in a training school were the most likely to become adult criminals.

The type of offense committed as a juvenile is associated with adult criminality. Hypothesis 7 predicted that property offenders could be most likely to become adult criminals. The bivariate analysis supported this somewhat in that those convicted of burglary were most likely to become recidivists while those convicted of OMVWOC (operating a motor vehicle without the owner's consent) were least likely to continue their misbehavior. However, the support weakened in the multivariate analysis. Burglary was no longer a significant factor in predicting adult criminality. Yet, those who had been out for a "joy ride" (i.e. convicted of OMVWOC) were still least likely to become adult offenders. The type of offense does have some bearing on future behavior, but it may be the seriousness of the offense, not its relationship to property, which matters.

Hypotheses 8, 9, and 10 all dealt with the juvenile's contact with the justice system and the resulting sanctions. All three were supported by the analyses. Although both the number of and length of placements at STS were related to

adult behavior, the number of placements by the juvenile court previous to placement at STS had the greatest association. It was able to significantly discriminate between the comparison and reformatory groups. In addition, the severity of the sanctions while at STS was related to the boy's adult behavior. Being placed in Stewart Hall, a highly structured environment, had a negative relationship with the boy's future. Being placed in detention did also but it was not significant in discriminating between the reformatory and comparison groups. In sum, the more contacts the boy had with the system and the more severe the sanctions he received, the more likely he was to become an adult offender.

At the same time, these relationships with adult criminality might merely be a reflection of the type of boy the juvenile justice system has to work with. Those boys who have committed a greater number of and more serious crimes are most likely to have a greater number of previous placements and eventually be placed at STS. The boys may have already been on their way toward a life of crime in which the justice system was simply responding to the juvenile's incorrigibility. Likewise, the training school staff do not randomly assign students to specialized units such as Stewart Hall and the detention center. Those students who have continually displayed anti-social and sometimes aggressive behavior are placed in the specialized

units. It can not be clear from the data whether being placed in these units contributes to adult criminal behavior or whether the personality and traits associated with aggressive behavior which caused the staff members to place the boy in the unit contributed to the adult criminal behavior. Both may contribute and, of course, some reciprocal causality is also possible.

This study was limited in that the variables describing the boy's life before, during, and after STS residency were selected from the boy's official STS records. The staff who constructed these records during the boy's residency at STS were fulfilling administrative objectives, not trying to record information that might be useful in a study explaining recidivism. Therefore, the data for this study provide only part of the total picture. Nothing is known about the quality of the boy's family life, the activities and programs he was involved with at school, and peer influence. Furthermore, the variables describing the boy's activities while at STS do not reveal the nature of his relationships with the staff and other students. It would be extremely useful to know more about what the boy experienced after release from STS. Did he return to school or find employment? Did he feel ostracized from his friends and others in the community for being institutionalized? What life events did he face? What resources could he

command to control his own future? These aspects of the boy's life would be important to explore in future studies.

Another limitation of the present study is its measurement of adult criminality. IMR official records provide only the names of offenders who have been sentenced to the reformatory. They do indicate who committed crimes but were not apprehended and/or convicted, or who committed crimes outside of the state. It also does not reveal the extent to which these former delinquents are involved in criminal activities.

Despite these limitations, several variables have been identified which are to a certain degree related to adult criminality. Together these variables do not explain the total variance in adult criminality but they do contribute to the understanding of the nature of juvenile and adult criminal activities. The juvenile's family, his delinquent activities as a youth, and his contacts with the juvenile justice system are all related to his future behavior. In order to evaluate the role that the training school has played in the juvenile's path to rehabilitation or recidivism, the students need to be compared to juveniles who have not been institutionalized. The greater the number of placements at STS and the longer the time the boy is at STS, the more likely he is to become an adult offender. Yet, this information is not enough to conclude that the training school has a negative effect on juveniles. Other

programs or nonintervention may have worse results in rehabilitating youth who share the same characteristics as those in the reformatory group in this study. This study has simply identified a few characteristics of training school residents who are likely to continue their criminal activities into adulthood. Criminologists are a long way from predicting which juveniles will become adult offenders.

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