

AN INVESTIGATION OF THE RELATIONSHIPS
AMONG AGGRESSIVE BEHAVIOR, READING,
AND DOGMATISM IN DELINQUENT BOYS

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ABSTRACT

AN INVESTIGATION OF THE RELATIONSHIP AMONG AGGRESSIVE BEHAVIOR, READING, AND DOGMATISM IN DELINQUENT BOYS

by

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Purpose of the investigation. The relationship of school linked frustration to aggressive behavior is not well understood at present. Similarly, little is known about the relationship of delinquent aggressive behavior to dogmatism, intelligence, and school attitudes. A frustration-aggression hypothesis such as that formulated by Dollard and Miller, and as amended by later workers, might predict that boys confined in state training schools who had failed to achieve in reading would exhibit more aggressive patterns of delinquent behavior than confined boys who had succeeded in reading.

The present investigation sought to determine correlational relationships among aggressive behavior,

reading, Rokeache's construct dogmatism, school attitudes, and intelligence in two populations of delinquent boys. Demographic factors inherent in the subjects' home environments were also related to aggressive behavior.

Method. Two groups of 48 subjects each were randomly selected from the populations of the Lansing Boys Training School (Michigan) and the Red Wing Boys Training School (Minnesota). Subjects were tested using the following instruments: Wechsler intelligence scales, the reading section of the intermediate level Stanford Achievement Test, the Dogmatism Scale, and the Minnesota Student Attitude Inventory. Three measures of aggressive behavior utilizing data from court reports, training school staff reports, and self reports of aggressive behavior, were employed. Data from caseworker reports provided the demographic information for analysis.

Findings.

1. While significant agreement was not observed between the three measures of aggression, the court report measure was found to correlate beyond .05 with reading in both groups.

2. Dogmatism was not observed to correlate in either group with any of the three measures of aggression.

3. Aggressive behavior was observed to correlate beyond the .025 level (staff report measure) with school attitudes in the Red Wing group, and beyond the .05 level (self report measure) in the Lansing subjects.

4. While aggression did not correlate significantly with IQ in the Red Wing subjects, this variable was observed to correlate beyond .05 for two measures of aggression in the Lansing sample.

5. Reading was found to correlate significantly with both aggression and IQ in both groups. Reading also correlated significantly with school attitudes in the Red Wing subjects.

6. Dogmatism was not significantly correlated with either school attitudes or intelligence in the Red Wing subjects. It was correlated beyond .05 with school attitudes in the Lansing group.

7. School attitudes were correlated with IQ at a highly significant .001 level in the Lansing subjects, but failed to reach significance in the Red Wing Sample.

8. In the chi-square analysis of demographic factors, no relationship between aggressive behavior and the demographic factors was observed.

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Dennis Larry Hogenson

A DISSERTATION

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CHAPTER I

INTRODUCTION

A. Background

The second half of the present century has already witnessed more interest and research into the outcomes of public school education than any other comparable period in history. Much of this interest has focused on attempts to answer the question, to what extent does school experience influence later social behavior?

While teachers, school administrators, and education associations have typically emphasized the positive social value of education, little effort has been expended in searching the curriculum for negative social influences. As McNally (1965) has indicated, such examinations have too often been considered fringe topics by educators.

Juvenile delinquency is a significant social problem that would seem to merit considerable attention from professional educators. However, as Kirk (1963) has indicated, "Controlled research into the educational aspects of delinquency is practically nonexistent." (p. 348).

Retardation in the basic academic skills of juvenile delinquents has been demonstrated in the context

of numerous studies, however, questions dealing with the relationship of failure in school tasks and subsequent patterns of delinquent behavior are not resolved in the literature. Although it would appear that early school failure might be accompanied by considerable frustration for the learner, little has been done to explore the social consequences of school frustration. As Long (1965) has said, "The school is more than a community. It is the child's image of society. To fail in this first society is to start life with a mind set toward failure." (p. 295).

Perhaps the most significant task confronting the child in elementary school is that of learning to read. In discussing student behavior Combs (1959) has said:

Behavior as seen by the behavior is not due to chance, it is a caused and pertinent aspect of the world as he experiences it (p. 13).

Combs further suggests that the child who fails in reading views this experience as a failure of his first and crucial test in school. Such failures could have devastating repercussions for the personality as a whole. Similarly, in discussing children with histories of failure in reading, Rosewell (1964) has suggested that such children have suffered years of despair, discouragement, and frustration. The wider the discrepancy between achievement and ability, the more serious the consequences.

Dollard and Miller (1939) have suggested that overtly aggressive responses to school related frustration are not possible for many children. Parents and the school combine efforts to present a united front against such behavior. Moreover, during the child's early years in school, it is probable that only the parents' solidarity with the schools, and specific legal codes requiring school attendance, are sufficient to keep many children in school.

B. The Problem

The relationship of school linked frustration which might occur early in the child's life as a possible result of underachievement in reading, and later attitudes about school, evidence of a dogmatic cognitive outlook, and aggressive behavior in boys, are not well understood at present. Many writers (Kvaraceus, 1945; Bills, 1950; Gerstern 1951; Peck, 1955; Harris, 1961) have observed reading retardation as a consistent factor in the delinquent populations they were studying. Greenblat (1955) cites studies which show the startling frequency of reading retardation among aggressive and hostile delinquents. Sorenson (1950), in a longitudinal study, observed well adjusted nursery school children deteriorate in their

adjustment as a function of not learning to read effectively in the primary grades. Bettelheim (1956) has said that among children coming to the Orthogenic School, academic failure was the most common presenting symptom, and reading retardation was the most common problem in this category. Similarly, Rabinovitch (1962) has observed that even severe emotional disturbances tend to be found tolerable in the classroom if the child is making adequate academic progress. Gates (1936) has found the incidence of emotional disturbance in groups of deficient readers to be as high as 75 percent. Furthermore, it would appear that school achievement is a matter of considerable sociological importance. Grann et. al. (1956) grouped children in 12 South Carolina schools into socially most accepted and socially most rejected categories using sociometric and social distance scales. School achievement was the determining factor at all grade levels. In describing the problems of the dyslexic child, Saunders (1965) believes that had specific diagnostic and remedial measures been available, there is evidence to suggest that emotional problems and anti-social behavior might have been prevented.

In spite of the above findings, many questions remain unanswered. Why have some delinquent boys achieved relatively well in school? Why might two boys from the same family exhibit opposite patterns of socialization,

and are such differences in behavior related to school success? Why are many delinquent boys not physically aggressive in their behavior? More importantly, on what dimensions do non-aggressive delinquent boys differ from their aggressive peers? To what extent is reading underachievement a factor in the above? As Margolin (1955, p. 26) has said, "There is a good deal of overlap between delinquency and underachievement in reading, with no clear evidence as to which is cart and which is horse."

It was the purpose of this study: (1) to extend the findings of earlier well known research with delinquent children (Glueck and Glueck, 1957; Bandura and Walters, 1959) with respect to the possible relationships between academic frustration stemming from retardation in the acquisition of reading skills, and later patterns of aggressive behavior; (2) to determine the degree of relationship which might exist between reading retardation and specific attitudes about school, as expressed by a population of delinquent boys confined in state training schools in Michigan and Minnesota; (3) to test a frustration-aggression hypothesis (Dollard and Miller, 1939; Miller and Dollard, 1950; Dinwiddie, 1955; Maier, 1956; Gottfried, 1959) which might predict that delinquent boys who had failed to achieve success in a school setting because of retarded reading skills, would exhibit more anti-social types of aggressive behavior than other

delinquent boys showing less reading underachievement; (4) to determine if the cognitive construct dogmatism (Rokeach, 1960) might be associated with reading underachievement, aggressive behavior, school attitudes, intelligence, and other developmental factors in a population of delinquent boys; (5) to determine the degree of relationship which might exist between aggressive behavior and intelligence, birth order, family, social, and other demographic data in the populations described above.

C. Formulation of Hypotheses

The existence of an inverse relationship between criminality and educational achievement has been cited. In our society considerable importance is placed on successful school achievement. School failure is an experience which might be expected to produce frustration for the individual who has failed to perform adequately. However, socially acceptable outlets for aggressive responses which might accompany frustration are often lacking. Wickman (1928) has suggested that teachers have long viewed aggressive displays by their pupils as a behavioral threat to learning, and have sought to extinguish such behavior. Furthermore, parents have not typically permitted the expression of aggressive

behavior in the home, and society has viewed such behavior as a threat to social order.

Dollard and Miller (1939) have discussed the delinquent offender and societies reaction to delinquency by suggesting that social disapproval is the most severe form of punishment for aggressive behavior. These writers have also called attention to the traumatic nature of adolescence by observing that adolescence is known in our society as a period of increased aggressiveness and irritability on the part of youth.

There is general agreement that delinquent boys most frequently come to the courts attention during the ages of 13 and 14 years. If it could be assumed that aggressive response tendencies to frustration were cumulative, and if the school, home, and society combine to limit such responses in young children, then the occurrence of aggressive forms of delinquent acts under the additional stress of adolescence would seem reasonable indeed.

This study has taken the theoretical position that children who fail to achieve in school, in the absence of adequate home and community controls on aggressive behavior, will be observed to become delinquent. The position was also taken that reading under-achievement presents one of the most obvious indications of school failure to the learner. In the absence of adequate

controls on aggressive behavior, children who fail to achieve in reading may exhibit their aggressive behavior in a variety of delinquent forms. It has further been theorized that for students who do not achieve in reading, attitudes about past school experiences will be more negative than for reading achievers. It was also viewed as possible that a more structured, rigid, and guarded cognitive outlook toward new ideas and innovations might result from prolonged frustration occurring early in life. The construct dogmatism which has been described by Rokeach (1960) defines such behavior.

The theoretical position for this study has rested on the observations by numerous writers that delinquent acts of an aggressive type, together with various forms of peer group alienation, have been observed to occur in adolescents whose school experiences have been essentially frustrating. Much existing evidence drawn from the work of others has tended to suggest that failure to develop adequate reading skills may contribute significantly to a generalized feeling of failure and inadequacy in the school setting. Because of additional evidence to suggest that most physical, intellectual, and emotional handicaps do not cause insurmountable educational problems when some tangible evidence of school achievement is forthcoming, the writer has become increasingly of the opinion that acts of aggressive delinquent behavior, directed

outward toward society, may be the product of long years of frustration, which has been either caused or seriously aggravated by school failure.

In order to examine the theoretical position described above, the following research hypotheses were formulated:

1. There would exist a significant correlation between aggressive behavior and reading.
2. There would exist a significant correlation between aggressive behavior and dogmatism.
3. There would exist a significant correlation between aggressive behavior and school attitudes.
4. There would exist a significant correlation between aggressive behavior and intelligence.
5. There would exist a significant correlation between reading and either dogmatism, school attitudes, or intelligence.
6. There would exist a significant correlation between dogmatism and either school attitudes or intelligence.
7. There would exist a significant correlation between school attitudes and intelligence.
8. Aggressive behavior would be related to one or more of the following demographic factors at a significant level: parental income, number or sex of parents present in the home,

place of residence, birth order, race, age at time of first court contact, or highest school grade completed.

D. Definitions

Aggressive behavior. Throughout this investigation the term aggressive behavior was used to refer to acts of verbal or physical hostility directed at the person or property of others by boys confined in the training school populations. Aggressive behavior was differentiated from other forms of delinquent behavior such as stealing, truancy, and the illegal use of tobacco, alcohol, drugs, etc. as examples. It was further limited to acts directed against others, and not to those forms of aggression turned inward upon the self.

Boys training schools. Residential training facilities of an academic and/or industrial nature maintained at public expense for the purpose of correcting the delinquent behavior patterns of juvenile offenders. In this investigation the Lansing Boys Training School (Michigan) and the Red Wing Boys Training School (Minnesota) were specifically implied.

Case history reports. Individual reports or files maintained for the purpose of presenting accurate family, medical, educational, behavioral, and legal information

pertaining to the residents of the boys training schools described above. File rooms were made accessible to the writer and information contained in the subjects' case history reports became an integral segment of this study.

Delinquent juvenile behavior. In this investigation the term delinquent behavior, and juvenile delinquency, referred to illegal acts committed by the training school populations who served as subjects in the investigation.

Dogmatism and open-closed mindedness. For this investigation dogmatism and open-closed mindedness were used in the sense that these terms have been described by Rokeach (1960). The Dogmatism Scale has been demonstrated to measure the individual's ability to synthesize new beliefs into belief systems with high dogmatic individuals being less able to perform this task. Dogmatism is a system variable, a characteristic of the total system. The open-closed concept was developed to bring into relief differences in the individual's behavior with respect to the formation of new systems on a continuum from low to high dogmatism. In a sense, dogmatism is a measure of rigidity or inflexability of thought patterns and beliefs. The Dogmatism Scale was used to measure this variable in the population of this investigation.

Frustration-aggression hypothesis. In this investigation, the hypothesis developed by Dollard and

Miller (1939) and amended by Miller and Dollard (1950), Dinwiddie (1955), Maier (1956), and Gottfried (1959). Behavior which is frustrated in its intent or purpose always tends to be followed by aggressive responses. The frustrated persons behavior is goal-less and task orientation disappears. The possibility that reading underachievement is an intensely frustrating experience, and that aggressive behavior may result, were explored in this investigation.

Reading underachievement. In this investigation reading underachievement was determined by a mental age method for each subject. This method was suggested to the writer by Dr. Guy L. Bond of the University of Minnesota. Grade level reading expectancy was estimated by subtracting 5 from the subjects chronological age and multiplying this difference by the subject's Wechsler intelligence quotient. The resulting product was then divided by the subject's reading score obtained by using the Intermediate Battery, Form K., of the Stanford Achievement Test. The resulting quotient then became the measure of degree of reading underachievement.

School attitude. In this investigation school attitude referred to the opinions, beliefs, and feelings about past and current school experiences as elicited by a 62 question instrument, The Minnesota School Attitude

Inventory, developed by Flanders (1960). Positive school attitudes were expressed by the magnitude of the total school attitude score for each subject.

Self report of aggressive behavior. For this investigation it was deemed necessary to obtain three measures of aggressive behavior for each subject. One measure, the self report, was obtained by individual interviews with each subject responding to structured questioning based on a listing of 13 areas of aggressive behavior, ranging from threats directed toward others, to assault with a deadly weapon. The self reports of aggressive behavior thus obtained were used to assign subjects to groups for statistical analysis.

E. Assumptions

This study has assumed that school experiences of underachievement in reading may be deeply frustrating. It has been assumed that anti-social forms of aggressive behavior may be one form of response to frustration, and that boys confined in state training schools provide an accessible population for the study of anti-social aggressive behavior. It has also been assumed that while the case history reports maintained for each boy at his state training schools may not have represented an inclusive summary of all available data about each

boy, the data there contained were essentially accurate. It has further been assumed that currently existing instruments for the appraisal of reading achievement levels, intelligence, dogmatism, and school attitudes are sufficiently objective, valid, and reliable as to have provided usable information for this research investigation. Lastly, it is assumed that the test data obtained in this study have represented the best efforts for each subject, and that the data have been accurately scored and processed.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written about the incidence and causes of delinquence in the general school aged population. Similarly, much has also been written about personality deviations which often appear in association with academic underachievement, especially in reading. A growing but still relatively small body of knowledge dealing with dogmatism has appeared in the literature. Very little information regarding school attitudes and their relationship to academic achievement has been published. This chapter will attempt to present a relevant abstract of the above questions and to relate this literature to the current investigation.

A. THE LITERATURE ON READING

Achieving and non-achieving readers. Berkowitz and Rothman (1961) believe that a reading disability can cause complete failure in school, and the child who fails academically must suffer emotionally. These writers also believe that regardless of the problems which disturbed children present, the majority of such children suffer from some degree of retardation in reading.

Roswell and Natchez (1964) define a reading disability as a discrepancy between reading achievement and intelligence. The wider the discrepancy between achievement and ability, the more serious will be the effect.

The psychotherapist Haworth (1964) has estimated that more than 10 percent of the children in public schools do not learn to read adequately in the regular classroom situation. She also believes that we have probably tended to underestimate the importance of this problem as a factor in delinquency. Natchez (1959), in a comparison of the behavior of readers and non-readers in fifth and sixth grades of three southern New York schools, noted that the retarded readers responded to school situations with significantly more frustration, aggression, dependency, and withdrawal.

Ort (1962) stressed the fringe existence of non-readers, both during childhood, and even into later adolescence and adulthood. He has observed that non-reading appears to result in social alienation and self estrangement in our culture. Porterfield (1961) found a significant difference between peer prestige status and reading achievement. This relationship held true irrespective of a) the type of peer prestige, or b) the socio-economic level of the school community.

In a similar investigation, Tabarlet (1958) studied a group of retarded readers and a group of controls from the Baton Rouge, Louisiana Schools. On the basis of a Mental Health Analysis, published by the California Test Bureau, the two groups differed at the .05 level on "behavioral immaturity, interpersonal skills, social participation, satisfying work and recreation, and adequate outlook and goals." (p. 524). McMurray (1963), using an N. of 742 Canadian subjects, found non-achievers in reading to display more irresponsibility, shorter attention spans, and to receive generally poorer acceptance by peers. Carter (1964), using an N. of 900 California seventh and eighth graders, found students reading below grade level to be less successful in school, generally less happy, and to display more negative values toward schools. The high overall correlations between success in reading and success in most other academic subjects, at both the elementary and secondary school levels, have been described by several writers (Robinson, 1946; Hinkelman, 1956; Aaron, 1960; and Henderson et. al., 1965).

It would seem apparent that a reading disability may be related to school failure, delinquency, and aggressive behavior. The degree of influence which such disability exerts on behavior may be associated with the discrepancy between intellectual potential

for learning, and actual level of achievement. The frustrating effects of a reading disability may also result in loss of peer prestige, and thus involve social as well as academic consequences. Reading under-achievers have been observed to display immature behavior, and to voice many negative attitudes about school.

From the studies reviewed here, it would seem appropriate to narrow a study of reading disability to a limited number of possible behavioral correlaries of reading under-achievement, one of which might be aggressive behavior.

Causes of reading under-achievement. The determination of why students under-achieve in reading is a complex undertaking. Durrell (1958), in a study of 2000 first graders, cited ineffective reading skills and inadequate word analysis techniques as important factors. He also found no relationship between chronological age and success in reading, and only a low relationship between mental age and reading success. Curray and Hughes (1961) found that "based on IQ predictions, students expected reading achievement and actual reading achievement do not always correlate highly" (p. 91). Ames and Walker (1964) attempted to combine the Rorschach and Wechsler Intelligence Scale for Children to predict reading success. Their r 's were

.53 Rorschach, .57 WISC, and .73 for the combined method. Betts (1956) has strongly refuted the theory that we can predict reading success on the basis of intelligence alone. Shimota (1964) analyzed his data on 360 children ages 13-16 in the Western State Hospital (Washington). Of these disturbed children, 31 percent were disabled readers. The disabled readers did not differ from their peers on the basis of intelligence, E.E.G. reports, neurological reports, type of emotional problem, mixed dominance, or any other physical handicaps. Chiland (1964, p. 26) was able to trace reading and spelling errors to "emotional and family factors." Dentler (1964), however, stated that the causes and methods of preventing dropouts are largely traceable to what happens in the child's learning experiences in the primary grades.

Some writers have attempted to ascribe the causes of reading under-achievement in the elementary school to sociological factors. Chandler (1966) feels there appears to be a rather direct link between reading achievement in the elementary school and 1) father's occupation, 2) number of books in the home, and 3) annual income of parents. Roman, Margolin, and Harrari (1955) see reading under-achievement and delinquency to be related to the clash between some childrens value systems,

and the essentially middle-class value system of the schools. Granzow (1954) found parents of under-achievers to have lower socio-economic status, poorer homes, more indifference to schools and learning, poorer educations, more broken homes, and less peer acceptance. Crescimbeni (1964), investigating the variable of broken homes, found this factor to be more significant than I.Q., age, or grade level in predicting reading under-achievement.

Parental relationship factors have also been cited by some writers as possible reasons for reading under-achievement. Shaw and White (1965), using an adjective check list, found inadequate identification patterns in a population of 114 school under-achievers. Nurberger (1955) cited a rather detailed case history which seems to show how reading under-achievement led to delinquent behavior as a result of the father's reactions to school failures. Coleman, Barnston, and Fox (1958) studied the parental trait complexes of male retarded readers referred to a reading clinic at the University of Southern California. A pattern of "domineering mother who exerted pressure for educational achievement, coupled with an inadequate father figure predominated." (p. 51).

In conclusion, it can be said that current knowledge suggests a multiple causation for reading under-

achievement. Poorly learned basic reading skills, or the absence of such skills, have been shown to be important factors. The use of I.Q. tests has not always proven to be ^{an}adequate method of predicting reading under-achievement in delinquent populations. Emotional stability, together with an adequate identification figure, would seem to facilitate success in reading. Attitudes of parents and other significant adult figures about the seriousness of reading under-achievement may influence later classroom efforts. It seems clear that considerably more research will be needed concerning the causes of reading failures. It also seems likely that no single theory will adequately explain why all children fail to develop successful reading skills. However, this does not limit the feasibility of investigations into the behavioral consequences of reading failures.

Personality factors in under-achieving readers.

The complex relationship between personality development and under-achievement in reading has received considerable attention in the literature, (Keshian, 1962; Healey, 1965; Knafle, 1965). Unfortunately the findings do not always agree, and occasionally distinct contradictions seem to appear. This should perhaps be viewed as a symptom of the complexity of the problem, rather than as a reason to ignore the findings, or to abandon the subject.

As previously cited, the work of Sorenson (1950) would seem to suggest a very intimate link between success in reading, and satisfactory personality growth. Wattenberg and Clifford (1964), using an N. of 185 children in a Detroit study of self-concept, noted that feelings of competence and personal worth were significantly correlated with success in reading. Bruck (1962) reported an r. of .60 between self-concept (based on Machover drawings) and school achievement, using an N. of 60. In his doctoral thesis, Copple (1961) found positive self-concept and success in reading to be significantly related at the .01 level. Sophis (1966) stated that he was able to isolate the variable self-concept as a reader which he said related directly to reading progress.

Unlike writers cited earlier, Berks (1957) was able to associate abnormal E.E.G.'s with perceptual learning difficulties. Tuller and Eames (1966) reported similar success with respect to reading failures and E.E.G. evaluations. They suggest the problem is a lesion located in the parietal post-temporal region of the cortex. While abnormal E.E.G. findings do not always signify a personality or behavioral association, and while many subjects with normal E.E.G.'s behave abnormally, the occurrence of abnormal findings has proven to be a valuable research avenue in numerous psychological studies.

The use of projective techniques has been reported to have been successful in differentiating non-achieving from achieving readers. Abrams (1956) noted more Rorschach C.F. and K. responses in his non-readers, indicating high anxiety levels and less maturity and impulse control. Knoblock (1965), however, did not find high reliability for the Rorschach in differentiating between verbal intelligence and reading, in his population of second graders. Solomon (1953) has reported being able to make such a distinction between achieving and non-achieving readers. Spache (1957, p. 467) used the Rosenzweig P-F instrument to isolate "conflict with authority figures and a tendency toward withdrawal behavior" in his sample of 125 retarded readers. Krippner (1966) successfully measured reading improvements and personality change using the Holtzman inkblot technique.

Miscellaneous factors in the personality of under-achieving readers are mentioned frequently in the literature. Hummell and Sprinthall (1965) cited immaturity of outlook and unwillingness to postpone goal rewards. Brunkan and Shen (1966) found patterns of self-depreciation to relate to both rate and quality of reading; while Edwards (1958) found desire for social acceptance by parents, peers, and teachers to be a crucial variable.

It is difficult to summarize the literature dealing with personality factors common to reading under-achievers. Well controlled longitudinal research (Sorenson, 1950) would seem to point to a rather clear relationship between failure in reading and personality deterioration. Numerous studies have also been cited which correlate negative self-concept with unsuccessful reading skills development. However, E.E.G. studies and projective techniques have not detected specific or predictable neurological or behavior profiles in such individuals. It is probable, again, that the absence of dramatic findings is merely an indication of the complexity and dynamic nature of human personality.

The need for remedial measures. Many writers have stressed the need for remedial reading, and for remediation in combination with therapy, for both delinquent and disturbed children. Rabinovitch (1962) points to the successes of speech remediation, and asks if more cannot be done with reading problems. Balow (1965) has published encouraging data on the long term effects of remedial instruction.

A problem in the assessment of successful remedial programs center on the multiplicity of programs attempted. Staats and Butterfield (1965) have successfully employed reinforcement principles with delinquents.

Bills (1950), Peck et. al. (1955), Roman (1955), and Margolin (1955), have all demonstrated highly significant outcomes using remedial reading and psychotherapy in combination, as opposed to either remediation or therapy alone. It is very interesting to note that their significance levels have held for improved adjustment as well as for improved reading skills. One might seriously ask if additional study should not be given to the question of adding more remedial reading facilities to our psychological clinics when therapy with children is involved?

Most remedial reading approaches have been of the typical variety, and some have been of a rather exotic or imaginative type. Robbins (1966) has reported finding no validity for Delacato's neurological retraining exercises which were earlier reported to influence reading skills. Lay (1965) has reported the successful use of role playing techniques with a delinquent population. This procedure was reported to improve communications skills and self-concept, thus making other therapies more successful. Illovsky (1963) successfully used post-hypnotic suggestion with delinquent boys to produce a remedial reading gain two and one-half times that of his controls. The suggestion "they need not fear reading," and that "they would be successful" (p. 65) was used.

Krippner (1964), working in the reading clinic at Kent University, noted improvements significant at the .01 level on the Mental Health Analysis Inventory, and significant at the .05 level on the Wechsler Intelligence Scale for Children, Verbal Scale, for his population of 30 subjects, following remedial reading instruction. Similarly, reduced anxiety levels and improved self confidence has been reported by Raygor (1959) for a post high school N. of 88, after seven weeks of "intensive" remedial reading.

One may conclude that a number of writers have cited the need for remedial measures with students who have not achieved in reading. While the number of specific remedial reading programs, some of them highly imaginative, are too numerous to analyze in detail, the rather encouraging results reported in most studies suggests that unsuccessful reading skills can be improved. This improvement has often been reported as successful when carried out in a tightly controlled environment, such as that of a psychotherapy group. It is possible that one reason for the encouraging results of remediation in a structured environment might be due to the increased opportunity for administering appropriate support and timely reinforcement.

B. THE LITERATURE ON SCHOOL ATTITUDES

School attitudes. Statistical analysis of the attitudes of delinquents toward the school are not well represented in the literature. Ball (1955), in his doctoral dissertation, has presented one factorial analysis of delinquent attitudes. He notes statistically "significant expressions of negative attitudes toward schools and educational values" (p. 2329). Flanders (1960) utilized a Health, Education, and Welfare Project Grant to develop and standardize a 62 item instrument, The Minnesota School Attitude Inventory, which satisfactorily measures school attitudes. This instrument was employed by the writer in the present investigation.

In their study of delinquent boys, Pearson, Barton, and Hey (1956) found the School Motivation Analysis Test to correlate highly with school reports for their academically achieving delinquent boys. These findings tend to suggest an **association between** academic success and positive school attitudes in populations of delinquents.

In a survey of the attitudes of 1154 public school adolescents, Clard and Wenningen (1964) found a close correlation between negative attitudes toward school and acts of admitted illegal behavior. Roebeck

(1964) studied two groups of public school retarded readers; one group at the primary level, and one group of adolescents. While low self esteem measures were found only in the older group, both groups exhibited negative attitudes toward the school. Wilson and Morrow (1962) found their public school under-achievers expressing significantly more negative school attitudes, and also "seeing the school as less supporting of emotional health and stability" (p. 702). Jackson and Getzels (1959) found sex difference in the attitudes of dissatisfied adolescents, with girls reacting to school dissatisfaction with feelings of personal inadequacy, and boys centered on projective attitudes of conflict with school authorities.

In summary it can be said that few studies of school attitudes have been done with delinquents. The Minnesota School Attitude Inventory promises to successfully measure such attitudes in delinquent boys. The present study, therefore, should add materially to existing knowledge regarding the association of school attitudes and reading achievement; one indicator of school success.

Teacher-student attitudes. It would appear that student attitudes about school are related to school achievement, and to the past social behavior of the learner. There is some evidence to suggest that teachers' attitudes about their students, and about the value of education, may also be significant variables. Davidson and Lang (1960), with an N. of 203 subjects from fourth, fifth, and sixth grades in New York City, demonstrated that "Children's perceptions of their teachers feelings toward them were correlated significantly with school behavior" (p. 116). Baracheni (1962) observed that "Teacher attitudes about academic achievement and student potential influenced social interactions and achievement motivation in the classroom." Weaver (1959) found the semantic difference in attitudes between students and teachers to be as closely correlated with student learning as intelligence test scores.

While the present investigation will not directly examine the relationship of teacher attitudes toward delinquent boys, the knowledge that such attitudes exist and may be related to achievement must be emphasized.

C. THE LITERATURE ON AGGRESSIVE BEHAVIOR

Frustration-aggression theory. According to the theory developed by Dollard and Miller (1939), behavior which becomes frustrated or blocked in its goal direction is always followed by some form of aggressive response. Numerous examples from the behavior of individuals and groups are cited to support their theory. Their theory was amended by Miller and Dollard (1950) when responses to frustration were seen as occurring under the influences of cultural determinants. This helped to explain obvious differences in responses to frustration as functions of specific cultural values governing the behavior of its members. Miller (1941) had previously ascribed the cultural controls of behavior to a 'copying of identification models' within the culture.

Dinwiddie (1955) expanded these theories further, and demonstrated experimentally that:

1. The degree of similarity between the frustrated response and the aggressive expression of this response will vary inversely with the strength of the drive inhibition for that response (i.e. social training).

2. The strength of drive motivating aggressive responses will correlate directly with degree of frustration in the absence of inhibiting drives toward overt aggression (p. 27).

Because a population of confined delinquent boys may probably be assumed to lack aggressive drive inhibitions (inasmuch as adequate drive controls would have functioned to limit the delinquent behavior which resulted in confinement), such boys provide an excellent group of subjects in which to test the above theories. Using a population of delinquent boys, Gottfried (1959) employed Miller's theory to demonstrate (significant at the .05 level) that his sample differed from the non-delinquent controls on the variables goal attainment and aggression. Maier (1956) had previously shown that "the frustrated person's behavior is goalless and task orientation disappears" (p. 2890). He also stated that "prolonged frustration, especially in important personal and social areas, may have a very serious effect."

Frustration-aggression theory might easily be adopted as one possible explanation for aggressive behavior in non-reading adolescents, if it can be demonstrated that failure to learn adequate reading skills is frustrating for the learner. It is also probable that many delinquent boys lack the social training and suitable behavior models which might inhibit overtly aggressive responses to others.

Classroom responses to frustration: As previously cited, numerous studies have shown the relationship of

school experiences of frustration with associated goal-less behavior, and acts of aggressive anti-social behavior by the non-achievers. Quay and Blumen (1963) analyzed the court records of 191 white male delinquents for the presence of 13 delinquent factors. After rotation, four factors emerged; truancy, impulsivity, interpersonal aggression, and impersonal aggression. In a study of the behavioral manifestations of learning and non-learning, Harris (1961) found the non-learners to exhibit greater extremes of behavior, ranging from extreme submissiveness, to aggressive attacks upon other students. Their source of frustration was associated with under-achievement in reading. Magee (1964), and Shaw and Grubb (1958), have separately related school under-achievement to acts of aggressive classroom behavior.

In an interesting study, Wagenheim (1960, p. 192) used "speed of recall" to evaluate memory for mobility and aggression. Subjects verbalizing the greatest numbers of such memories were also the ones showing the greatest spread between reading achievement and expected achievement. Pine (1965) evaluated the vocational aspirations of delinquents and found an inverse relationship between aspiration levels and histories of anti-social aggression. This might relate directly to the goal-less behavior pattern already mentioned in connection with frustration.

The studies cited above show that frustration might result from academic under-achievement. This frustration might be exhibited in behavior which might include truancy, impulsivity, and aggression. The behavior of frustrated students has been characterized as extreme. Delinquent boys have been shown to display anti-social forms of aggression and low vocational aspiration. These findings tend to reinforce the need for additional investigations into the dynamics of aggressive responses to school related frustration.

D. THE LITERATURE ON DELINQUENCY

Some international considerations. The problems of delinquency and its association with school under-achievement are by no means confined to the United States. Critchley (1964), in his book on dyslexia, cites the very high incidence of delinquent behavior in non-achieving readers in England and Scotland. Gregory (1965) used the British Social Adjustment Guide instrument with a population of "village" children in W. Berkshire. He found a significant connection between reading failures and "school restlessness, anxiety, and an inflated need for peer approval at the expense of social conformity and adult restraints" (p. 67).

In a highly relevant study in India, Tutto (1957) studied a sample of 100 maladjusted and delinquent students. He found poor reading achievement to be associated with delinquency, negative attitudes toward the school, and "significant resistance to new opinions, attitudes, and change" (p. 109).

Both Kajimura (1958), and workers at the National Institute for Education Research (1959), in separate controlled research in Japan, found non-achieving students to display significantly more delinquent and anti-social behavior than achieving students. Achievement level was found to correlate with greater significance than the I.Q. for predicting delinquency and conforming behavior.

In summary, it seems evident that delinquent behavior associated with school under-achievement has been observed internationally. It would seem reasonable on an a-priori basis alone to assume that the causes and effects of school related frustration might well transcend geographic and cultural boundaries.

The origins of delinquent personalities. Numerous writers have attempted to treat the question of origin of the delinquent personality. Most workers have approached the problem from the perspective of multiple causation (Mannheim and Wilkins, 1955; Block and Flynn, 1956; Roueck, 1958; Balogh, 1958). However, theories

of rather specific causation have also been presented. Bandura and Walters (1958) developed their classic investigation using the theory that aggressive behavior in boys is the result of forced close dependent involvements, because of unfavorable early socialization, in the absence of a suitable father-identification figure. These boys were controlled by fear of punishment rather than by internal controls. Bernabeau (1958) believes that delinquency results from the inability to give up infantile fantasies of omnipotence. Nye (1958) sees delinquency as caused by a lack of family and social controls, while Mukherjeek and Kundu (1961) have found birth order to be significant. The Glucks, with a sample of 100 delinquents, associated delinquency with body type. Wirt and Briggs (1959), using 2,000 delinquents and 2,000 controls, found a lack of success in school, lower school grades, greater dislike for school, and more aggressive behavior patterns, in their delinquents. In an earlier paper, Backwin (1955) has asked if a major cause of delinquency might not center around the practice of prolonging school experiences for adolescents who have not developed effective reading and other school-oriented study skills.

Although a multiple causation theory for the development of the delinquent personality seems to be the most promising at the moment, it is perhaps only appropriate, in summary, to comment that no consistent theory has yet been developed which includes school related factors in a frustration-aggression type behavioral model.

School achievement and delinquency. The inability to cope with normal school experiences has been described by Brownell (1954) and Dexter (1964) in their discussions of delinquent boys. The Harlem Project Report (1945) stated that in three Harlem schools containing the greatest percentage of delinquent boys in New York City, although the mean I.Q. for these schools was 99, only one-tenth of the boys were reading at grade level. Kvaraceus (1945) reported that his sample of 750 delinquents differed significantly from non-delinquents on grade repetition, with almost every delinquent having repeated at least one grade. He observed unhappiness and frustration to characterize this group.

There is some evidence to suggest that potential delinquents can be rehabilitated through effective remedial teaching and other classroom techniques. Bowman (1959) reported a study in which potential

delinquents were transferred to classrooms described as warm and accepting, where it was possible to provide intensive remedial reading and prevocational work skills experience. This group showed a 33 percent lower rate of subsequent delinquency than a similar group not so programmed. Arbuckle and Litwack (1960) examined the recidivism rates of 500 releasees from a Massachusetts correction school. Among the positive factors in success of parole was school grade completed. Gersten (1951) compared academic gains for two groups of delinquent boys over a twenty week period at the New York Training School for Boys. One group received 20 sessions of psychotherapy (one hour per week), and the other group acted as controls. Pre and post testing revealed a "20 month gain for the experimental group as compared to a three month gain for the controls" (p. 317).

Most studies of delinquent boys have cited school maladjustment as a definitive characteristic of these boys. Such observations are especially common in urban populations. It has also been shown that delinquent boys who were relatively successful in school were less likely to return to the training school a second time. It is likely that future investigations will provide additional data about the relationship of academic achievement and delinquency.

Social Factors in delinquency. It is a common observation that in urban communities the socio-economic status of parents determines to a large extent the location and type of one's residence, the schools available, social and peer group associations, and numerous other related factors. Such social considerations have been examined in detail by a number of workers, including Bandura and Walters (1959), in relation to influences on adolescent delinquent behavior. The significance of economic minority group membership on personality and behavior appears to be dramatic.

Dimitz, Kay, and Reckless (1958), using an N. of 717 sixth graders in Columbus, Ohio, employed three delinquency measures to examine the variables of sex, race, intelligence, neighborhood, school achievement in reading and arithmetic, and teacher nomination. Findings were in the expected direction, with smart white girls from good neighborhoods doing best in school, and showing the smallest incidence of delinquency, and dull Negro boys from poor neighborhoods achieving least well, and showing the highest rate of delinquency. Interestingly enough, the relationship between reading under-achievement and delinquency was not significant in this study.

The high incidence of delinquency in a depressed Negro environment was reported by Segal (1966). He found "71 percent of Negro boys had committed offenses against persons or property, and 63 percent had committed related offenses in violation of social norms" (p. 29).

It is very difficult to isolate specific variables in a causal relationship to delinquency. Havighurst (1959) has traced adolescent patterns of delinquency, in part at least, to the school's failure to meet early readiness and reading problems. Glueck and Glueck (1957) see working mothers as a significant variable. Lively, Dimitz, and Reckless (1962) believe that direction of socialization and inadequate self-concept have been the best predictors of delinquency. Dentley (1961), however, while finding delinquent acts to correlate with age, sex, birth order, and quality of parent-child relationships, did not find either socio-economic status or self-concept to be significant.

In summary, it is probably accurate to say that the influence of socio-economic factors on delinquency and other behavior is extremely significant. Such factors are especially pervasive in urban areas. Minority groups have been shown to be especially vulnerable to economic and social pressures. Additional investigations relating family income, place of residence, race, and other factors to aggressive behavior are badly needed.

Perception and intellectual factors in delinquents. Perceptual abnormalities in delinquents have been reported by two writers. Zollik (1958) administered the Bender Gestalt instrument to 43 adolescent delinquents using Pascal and Suttell's scoring procedure. He found "significant differences on all control group comparisons" (p. 26). Petrie, Asenath, and McCulloch (1962) found a typical size comparisons in delinquents. The factor of perceived sense of social responsibility was related to successful school achievement by Narayana (1964). Johnson and Stanley (1955) compared delinquent and non-delinquent boys, ages 10-12, on their perceived relationship to authority figures. The hypothesis that delinquent boys would exhibit significantly more hostile attitudes was not supported. However, both groups expressed significantly more hostility toward female figures. This might be expressed in the student-teacher relationships.

Intellectual limitations have consistently been associated with delinquent populations. However, Wheway (1958) states that a review of existing studies indicates sheer lack of intelligence

is seldom, if ever, a major factor in causing delinquency. Richardson and Surko (1956) found a mean IQ (WISC) of 88.4 in a population of 105 New Jersey delinquents. Quay (1965) believes that early studies seriously underestimated the intelligence of the delinquent. He believes that the earlier findings of 15-20 points below normal, and retardation rates of five times that of normal, are significant understatements of current findings. Quay has indicated that recent studies find means of minus eight points with consistent patterns of vocabulary lower than performance. Object assembly and picture arrangement are commonly observed to be higher than block design and picture completion. Abrams (1956) has reported similar findings. Coplan (1961) made the interesting observation that while low IQ delinquents show academic under-achievement and aggressive behavior patterns, high IQ delinquents tend to over-achieve in school, and to aggress through sociopathic channels. Shaw and McCuen (1960), and Stone and Rowley (1964), have also reported studies dealing with the relationship of intelligence and abnormal behavior.

While the perceptual skills of delinquents have been found to be atypical by some writers, intelligence has not been related directly to delinquent behavior. It is probable that earlier estimates of the intelligence of delinquent boys have been too conservative. It remains for future research to examine correlations between intelligence, aggressive behavior, and related cognitive factors in populations of delinquent boys.

E. THE LITERATURE ON DOGMATISM

Studies dealing with Rokeach's construct dogmatism (1960), and with its behaviorism correlation open and closed mindedness, while not numerous in the literature, show a definitely increasing interest in this subject by current workers. Since the Dogmatism Scale is a relatively new instrument, some of the current findings should probably be regarded as tentative, pending a more substantial body of literature. Unfortunately most of the existing research has been done with college-aged and adult populations. Little is known about patterns of dogmatic behavior in delinquent boys.

Dogmatism and personality factors. Rokeach and Fruchter (1956, p. 360), in their factorial study, found dogmatism to be "discriminable from authoritarianism, ethnocentrism, and rigidity." They also found that "dogmatism, paranoia, and self rejection are factorially similar." They further demonstrated, with an N. of 207, that dogmatism, paranoia, and self rejection would emerge with anxiety as a single factor. It should be noted that it was the self rejection link to dogmatism in Rokeach's findings that suggested the possibility of employing the Dogmatism Scale in a study of delinquent behavior.

Alson (1959) attempted to correlate dogmatism with "Zajonc's measure of cognitive structure" using a population at the Veterans Administration Center in Bath, New York. He noted correlations of practically zero. Zagona and Zurcher (1965), with an N. of 517, found that it was possible to demonstrate (beyond .001) an inverse relationship between dogmatism and verbal ability. Roberts and Herrmann (1960), and Wrenn (1962), studied questions relating to time perspective, feelings of anomie, and the effect of preparatory involvement on goal valuation in high and low dogmatics. Their results indicate that high dogmatics tend to have

imbalanced rather than future orientated time perspectives, and that this results in greater feelings of anomie, which exercises a disturbing influence on both present and future behavior.

Moore (1962) studied verbal operant conditioning with high anxiety, dogmatic, college students. It was hypothesized that these subjects would condition easier than low anxious, low dogmatic subjects. The opposite findings occurred. With a similar population from the Counseling Center at Michigan State University, Kemp (1961) found that high dogmatic students had significantly greater numbers of personal problems, and that these problems were not resolved in counseling. The tendency of high dogmatic subjects to deny defensive behavior was observed by Byrne, Blaylock, and Goldberg (1966). In a study of college students, Harvey (1963) noted greater tendencies toward conforming behavior in his high dogmatic subjects. In his study of social factors and dogmatism Sticht (1966) noted subjects experiencing high rates of geographic mobility to be significantly more anxious and dogmatic than subjects experiencing low geographic mobility.

The literature on dogmatism can be said, in summary, to indicate a need for additional studies before establishing possible relationships between this variable and others. It would appear that dogmatism is related to self-depreciation and inversely related to verbal skills development. It would also appear that high dogmatic subjects tend to have more personal problems, and that they lack a future time orientation. Because dogmatism has not been correlated with aggressive behavior in delinquent boys, and because the relationship of dogmatism, reading, and school attitudes is not clear, the need for additional investigations in these areas would seem warranted.

Dogmatism and adolescence. Anderson (1962), with an N. of 290 junior high school students in Edmonton, Alberta, observed that "there is a significant decline in dogmatism during adolescent years" (p. 135). He also reported a significant interaction effect between dogmatism, intelligence, and sex. Intelligent females tended to be more dogmatic than intelligent males. He further observed that child rearing practices were the basic determinents of dogmatism, and socio-economic status and dogmatism were inversely related. Bolmeier (1966) compared dogmatism in parents, to the adjustment of their

high school aged children. He found that "In general, parents who were more open in their thinking, according to the Dogmatism Scale, had children who were apt to score favorable on certain measures of adjustment" (p. 5572).

Maier (1960) was unable to establish levels of intensity of opinion, or resistance to acceptance of teen age norms, by using the Dogmatism Scale with a nation wide sample of high school students. He suggests that the whole concept of dogmatism is too loosely defined. He believes additional work should be done to strengthen its nomological net. Miller (1965) established that in his population of adolescence, "high dogmatic subjects under maximum conditions of involvement were most resistant to change" (p. 130). Paues (1963), using an N. of 675 students in Connecticut, studied dogmatism, self-image, and intelligence. She found "the higher the IQ, the more open the mind, and the less favorable the self-image; the more favorable the self-image, the more closed the mind; and, the higher the school achievement level, the more open the mind, and the less favorable the self-image" (p. 114).

Dogmatism and Learning. Virtually all of the available studies of the relationship between dogmatism and learning have involved college populations. Ehrlich (1961), at Ohio State, confirmed the hypothesis that dogmatism implies "closed cognitive structure and so affects the capacity to learn in a negative direction." Rebhan (1966), in a study of three undergraduate college groups, demonstrated significant levels of test anxiety in high dogmatic subjects. However, Christensen (1963), using 166 students in an introductory psychology class, found "no support for the theory that the Dogmatism Scale predicts classroom learning" (p. 76). These findings are modified, however, by his statement that "aptitude and dogmatism are independent."

Adams and Vidulich (1962), using an N. of 36 undergraduates at Louisiana State University, found high dogmatic subjects inferior to low dogmatic subjects in a paired association task. Kaplin and Singer (1963) found a significance level of .05 for the inverse relationship between dogmatism and sensory discrimination tasks. Oldfield (1964) established in her sample of college students that dogmatism does not influence choice of social

preferences, however, "high dogmatic subjects (significant at .005) could most readily be induced by the instructor to change their opinions about least accepted group members" (p. 2979).

Iefcourt (1962) used an N. of 272 drug addicts, divided into neurotic, psychotic, and character disorder groups, to investigate the relationship of dogmatism and readiness for therapy through potential for change. Dogmatism and potential for change in therapy varied inversely.

Because the Dogmatism Scale is clearly being employed in a variety of new settings with divergent types of subjects, there exists a need to conduct investigations which might help to integrate and relate the construct dogmatism to a broader and more usable body of knowledge.

CHAPTER III

METHODOLOGY

A. Restatement of Purposes

The present investigation was conceived as an experimental attempt to apply the frustration-aggression theory of Dollard and Miller (1939) to the behavior of two specific groups of delinquent boys confined in state training schools in Michigan and Minnesota. The investigation was designed with three rather specific purposes in mind. First, an attempt was made to examine the possible relationship of frustration arising from negative school experiences, as evidenced by reading under-achievement, to patterns of aggressive behavior. Secondly, the relationships among reading, intelligence, school attitudes, and dogmatism were studied. Lastly, background data concerning environmental and behaviorism factors in the most aggressive members of each experimental group were compared to similar data for the population groups as a whole.

The above design was adopted with the awareness that the behavior of delinquent boys is very

complex. No single theory has yet been advanced which satisfactorily accounts for all behavioral variables in delinquency. However, there is considerable evidence to indicate that school related variables, especially those associated with frustration for the learner, have been significantly correlated with aggressive forms of delinquency in boys.

B. Subjects

Because delinquent boys who are confined in state training schools provide accessible populations for the investigation of aggressive behavior together with the correlaries of such behavior, and because considerable recorded data are typically available concerning such boys, they present a logical source of subjects for research.

Advantages of sampling two populations. The decision to sample two populations of delinquent boys was made for a number of reasons. It has never been established that two separate populations of delinquent boys confined in unrelated state training schools would exhibit similar characteristics. Furthermore, the behavior patterns of individual

boys within a specific training school are characterized by extreme heterogeneity.

The Lansing (Michigan) and Red Wing (Minnesota) Boys Training Schools are approximately 700 miles apart, and so represent considerable geographic separation. Michigan is a heavily industrial and urban state, while Minnesota is essentially agricultural. The two boys training schools are of approximately the same size and maintain similar administrative^{and} educational practices. Furthermore, the advantage of comparing two population measures of aggressive behavior, reading, school attitudes, dogmatism, and related demographic data seemed considerable.

Figure one summarizes population data for the two institutions. It should be noted that Lansing's population exceeded that of Red Wing by only 10. The white population of Red Wing was considerably greater than that of Lansing and also contained a much higher percentage of Indians. Negroes comprised 49 percent of Lansing's population and only eight percent of Red Wing's. The average length of confinement at Lansing was approximately one-third longer than at Red Wing.

FIGURE I

**TOTAL POPULATION DATA
LANSING AND RED WING BOYS TRAINING SCHOOLS**

Measure	Lansing	Red Wing
Total Population	350	340
Percentage White	50	81
Percentage Negro	49	8
Percentage Other	1*	11*
Mean Length of Confinement	8.4 months	6.2 months
Mean Chronological *	15.7 ($s^2=1.21$)	16.4 ($s^2=1.21$)
Mean Intelligence Quotient **	95 ($s^2=73$)	100 ($s^2=144$)

*For population breakdown by ethnic groups, the one percent figure at Lansing is largely Mexican, and the eleven percent figure at Red Wing is largely Indian.

**The mean difference between populations for C.A. is significant beyond .001, and the mean difference between populations for IQ is significant beyond .025.

The chronological age difference of the older Red Wing population was significant beyond the .001 level. The Red Wing sample was also slightly more intelligent, with mean IQ differences between groups significant beyond .025.

Criteria for selection. The two sample populations used in this investigation were selected at random from the total populations of the Lansing and Red Wing Boys Training Schools. Forty-eight boys were selected from each institution, making a combined N. of 96. This figure represented approximately 15 percent of the total populations of the two training schools and was sufficiently large to permit an assumption of randomness in the distribution of data for statistical analysis.

As has been previously stated, certain subject variables were beyond the scope of this paper. Nine subjects from the Michigan sample, and six from the Minnesota sample, were excluded for one or more of the following reasons: 1) mental retardation, because individuals whose Wechsler IQ's were below 80 might be subject to the complex influences of retardation on personality, attitude formation, school achievement, and ability to

comprehend the instruments employed: 2) absence of both parents in the home, because the influences of foster home placement are not well understood, and show considerable individual variation in their relationship to personality development, and to overt behavior in schools and other social settings; 3) organic brain damage, because neurological influences on behavior vary from subtle to profound extremes, and may be negatively influenced in a testing situation; 4) psychosis, because valid responses to the testing instruments could not be assumed in the presence of inadequate reality testing, or unusual delusional systems. Exclusions for the above reasons were made only after a careful examination of documents contained in each subjects case history file was completed.

Selection procedures. The random selection of subjects for this study was accomplished in the following manner: with eyes closed a table of random numbers (Rand Corporation, 1955) was entered separately for each of the two institutions. A coin was then flipped to determine whether rows or columns should be followed. The first 75 three digit numbers between one and the institutions total N. of boys were recorded. Each training school

registry (files in record room) was then entered, and from an alphabetical listing of all boys in the institution, the names whose location in the listing matched the first 48 random numbers were recorded and thus became the experimental group. The remaining 27 names (from the original 75 random numbers) were used to replace boys who were truant from the school, too ill to be tested, on parole, or who were excluded for reasons described above.

Table one summarizes data pertinent to the composition of the two experimental groups. It should be noted that the Red Wing sample was slightly older and had come to the court's attention at a somewhat later date than had the Lansing subjects. Neither the mean IQ's nor their standard deviations differed dramatically between groups. The distribution of Negro and white subjects within the Lansing sample was approximately equal. Only six Negroes appeared in the Red Wing sample. Indian and Mexican subjects represented only six of the combined N. of 96 subjects.

C. Measures

The selection of instruments for this study reflected the need to accurately obtain measures of

TABLE I

SUMMARY OF SAMPLE POPULATION DATA

Measure	Lansing N=48	Red Wing N=48
<u>Distribution by Race</u>		
White	24	38
Negro	22	6
Indian	0	4
Mexican	2	0
<u>Mean Chronological Age</u>	15.8 (SD=1.1, Range=12.10-17.7)	16.2 (SD=1.0, Range=14.0-18.0)
<u>Mean Intelligence Quotient</u>	95 (SD=8.54 Range=80-111)	100 (SD=12.0 Range=80-123)
<u>Mean Age at First Conviction</u>	12.8 (SD=2.1, Range=7.3-17.1)	13.7 (SD=1.6, Range=9.1-17.6)

intelligence, reading, dogmatism, school attitudes, and amount of aggressive behavior. For reasons of reliability and validity it was most feasible to adopt well known instruments that have been successfully employed by other workers in related research. With the exception of aggressive behavior for which no suitable objective measuring technique is currently available, it was possible to satisfy the above criterion. The aggressive behavior variable was evaluated by three separate measures which will be described below.

The Wechsler Intelligence Scales. The Wechsler Intelligence Scales are perhaps the best known and most widely used instruments for the determination of human intelligence at the present time. Wechsler chose to abandon the mental age concept, as such, in favor of a tabular method for determining intelligence based on standard deviations from the normal curve. His validity and reliability data are fully described (Wechsler, 1958). Verbal, performance, and full scale intelligence quotients are derived from these scales. The WISC (Wechsler Intelligence Scale for Children) is employed with chronological ages up to 15 years 11

months. The WAIS (Wechsler Adult Intelligence Scale) is used with subjects whose chronological ages are 16 years and older. It was necessary to employ both scales in the present study because of the overlapping chronological ages represented in the samples. The reliability and validity of the above instruments presupposed their use by a person with special training, usually a psychometrist or psychologist. This requirement, as will be later described, was met in the current study.

The Stanford Achievement Test. For this study the reading section of the Intermediate Battery, Form K., of the Stanford Achievement Test (Kelley, Madden, Gardner, Terman, and Ruch, 1953) was administered to all subjects. Detailed validity and reliability data for this instrument are provided with each packet of tests, and is also available from the publisher, World Book Company. The reading section of this instrument consists of two sub-tests, one a 48 item test of paragraph meaning, and the other a 48 item test of word meaning. The two sub-tests each contain reading grade level norms to which raw scores are converted. A third score, that of average reading, is obtained by finding the arithmetic mean of the

combined grade level equivalents for the paragraph and word meaning sub-tests. Directions proceed each test and time is not a factor with this instrument. Because this instrument reliably measures reading skills from the primary through the secondary grade levels it was found to be readily usable with a population of delinquent boys.

The Dogmatism Scale. This instrument, which has gone through five editions, and for which validity and reliability data are available for a number of groups (Rokeach, 1960), consists of Forms D. and E. Form D. containing all of the final 66 items of the complete scale was adopted for this study. The Dogmatism Scale and instructions to the subject are found in Appendix B. It should be noted that the subject is required to respond to each of the 66 statement items in one of the following ways: +1: I AGREE A LITTLE; +2: I AGREE ON THE WHOLE; +3: I AGREE VERY MUCH; -1: I DISAGREE A LITTLE; -2: I DISAGREE ON THE WHOLE; -3: I DISAGREE VERY MUCH. Scoring the Dogmatism Scale consists of finding the algebraic sum for all items. Because this is the only instrument which has been demonstrated to measure the dogmatic factor of open-closed mindedness, and because this

instrument has not been used with delinquent boys, its adoption is believed to be justified in the present study.

The Minnesota Student Attitude Inventory.

Numerous instruments for the measurement of opinions, beliefs, and attitudes, have been described in the psychological and sociological literature. However, the selection of a valid and reliably school attitude instrument that would be usable with a population of delinquent boys showing a considerable span in reading and intellectual skills was a difficult task. Such an instrument has been developed by Flanders, while working at the University of Minnesota. Its standardization has been described (Flanders, 1960) in a report of a Cooperative Project Grant from the Department of Health, Education, and Welfare. The Minnesota Student Attitude Inventory consists of 62 statements which are each to be answered in one of the following five ways: SD: STRONGLY DISAGREE; D: DISAGREE; U: UNDECIDED; A: AGREE; SA: STRONGLY AGREE. Scoring is according to a formula provided in the key, and magnitude of the total score reflects the degree of positive school attitude measured. This scale's statements refer to

a specific classroom or school situation. Since the subjects in the current study were assigned to a variety of academic and vocational situations it was necessary to conclude the instrument's printed directions with the following statement:

What I want you to do when marking each statement is to think of the teacher and classroom or shop you have here at _____ training school that is most like your idea of the usual teachers and classes you have had in the past.

Appendix C. consists of the Minnesota Student Inventory and instructions to the student.

Aggressive behavior measurements. Because no satisfactory instrument meeting acceptable standards of validity and reliability has yet been shown to measure aggressive behavior in delinquent boys, three separate measurements were employed in this study. Each measurement received a separate statistical treatment.

Measurement one consisted of a careful analysis of the individual case history reports maintained within the training school at which each boy was confined. Such histories included court reports of previous illegal acts, social case work reports, police statements made by the subjects about their past behavior, and reports from school

and community sources. The reports also contained information about behavior while under confinement at the training school. Through access to the training school file rooms it was possible to tabulate behaviorism information about each subject for later statistical analysis.

Measurement two was derived by providing each training school senior psychologist, director of social services, director of home life (housing etc.) services, and the director of educational services, with an alphabetical listing of all subjects selected from his school. These professional staff members who were all in close contact with the schools total population were then asked to list in rank order as many boys as possible, using the following instructions:

Your cooperation is requested for the successful completion of an experimental research project being conducted at _____ boys training school. It is very important that the experimenter know which of the boys listed below are regarded by you as the most HOSTILE and AGGRESSIVE toward either adults or the other boys. This hostility may be expressed either physically (fighting) or verbally (threats). The experimenter is not interested in non-aggressive delinquent behavior such as unauthorized smoking, truancy, stealing, homosexual acts, etc.

From these rankings it was possible to tabulate behavioral information for the second statistical analysis of aggression.

Measurement three consisted of a self report obtained in individual interviews with each subject. Following the establishment of rapport, which did not prove to be an unmanageable task, responses to the Individual Interview Guide illustrated in Figure II were obtained. By tabulating this interview data it was possible to do a third statistical analysis of aggressive behavior.

D. Procedures

Cooperation with the writer was excellent on the part of the superintendents and staffs of both training schools. No serious problems were encountered in either the securing or housing of subjects for testing. Access to record files and other necessary data was readily extended.

Group procedures. The reading, school attitudes, and dogmatism instruments were administered in small group settings consisting of five subjects per group. Meetings in the group provided the first contact by the subjects with

FIGURE II

VOLUNTARY STATEMENT OF AGGRESSIVE BEHAVIOR

BEHAVIOR*

Threats directed toward peers:

Fighting with peers:

Threats directed toward adults:

Minor malicious property destruction:

School or home incorrigibility:

Aggressive gang or group behavior:

Physical assault on parent or other adult figure:

Attempted rape (not statutory):

Sadistic forms of injury to others:

Arson or major malicious property destruction
(purposeful):

Felonious assault with the intent to do serious
bodily harm:

Rape (not statutory):

Assault with a deadly weapon:

*Note: Illustrations of each type of behavior were provided by the examiner. Subjects were asked only if they had participated in the specific behavior described, and if so the item was checked.

the examiner. All groups were seated at tables located in a quiet room of the main administration building at each school. Precautions in seating were taken to space subjects beyond visual access to answer sheets of other subjects. When the groups had assembled, the examiner introduced himself, and said that he would like to read the following statement:

I have asked you here today to help me with an experiment I am doing for Michigan State University. I want to know more about the attitudes and opinions of boys like yourself to a number of statements about your school experiences, and the world you live in. I have no connection with this school, and no one here at the school will ever know what you have written down or told me. There is no way that this information can influence your personal life in any way. Are there any questions you wish to ask me?

Following questions about the study, its use, the writer's purpose in doing the study, why and how subjects were selected etc., the dogmatism, school attitude, and reading instruments were administered, in that order.

Because reading ability is a significant factor in testing, each statement on the dogmatism and school attitude instruments was read aloud twice by the examiner while the subjects were

reading the same statements at their tables. No new statement was read until the previous statement had been answered by all subjects. Naturally no assistance beyond directions and clarification was given during the reading testing.

Individual procedures. Intelligence testing and the self-reports of aggressive behavior were done on an individual basis. Subjects for these procedures were called to the psychologist's office where adequate interview controls were easily maintained.

All needed intelligence testing was done by the writer who is certified by the State Board of Examiners of Psychologists in Minnesota as both a Practicing and School Psychologist. All subjects who did not have a Wechsler IQ recorded in their school files were tested with that instrument. Subjects whose Wechslers were more than 36 months old were retested. It was necessary to do 19 intelligence tests with the Michigan population, and 31 tests with the Minnesota population.

Before the self-report of aggressive behavior interview began, each subject was carefully reassured that none of the information given would ever be used in any way to his disadvantage. It

was further explained that most boys, including the interviewer when he was a boy, have done many of the things being discussed. It was also made clear that the interviewer did not want to know the names, dates, or specific details of the events being asked. It was only necessary to know if the subject had or had not engaged in the specific behavior being described. All interviews were conducted by the writer and in no case was it not possible to complete the interview form.

Method of analysis. All demographic data were collected by the writer following a careful reading of the case files. Appropriate information for the analysis of demographic factors was immediately transferred to record forms and stored in the possession of the writer until data were available for all subjects. Similarly, all testing was done by the writer. The writer twice repeated each step in the tabulation of demographic data, and in the scoring of test instruments, as a precaution against error factors.

In consultation with educational research specialists at both Michigan State and the University of Minnesota, the appropriate statistics for the analysis of data were determined. It was

decided that the most usable statistic for computing large sample relationships of the subject variables under investigation in this paper would be the Spearman rank order coefficient of correlation, corrected for ties (Edwards, 1960). This statistic which has the following form:

$$r_s = 1 - \left[\frac{6(\sum_i D_i^2)}{N(N^2-1)} \right]$$

provides a convenient means of ranking subjects who display behavior on non-discrete population variables, such as aggressive behavior, and which are not readily available for analysis by other means of either central tendency or of variability. Furthermore, Hays (1965) has described a t-test for significance level determination with two ranked variables. This test has the following form:

$$t = \frac{r_s \sqrt{N-2}}{\sqrt{1-r_s^2}}$$

with N minus two degrees of freedom, and is "satisfactory for N's larger than 10."

The chi-square test for two independent samples (Siegel, 1956) is a well known non-parametric technique for analyzing data for

two independent samples of unequal size. This statistic, which has the following form:

$$\chi^2 = \frac{N(|AD - BC| - \frac{N}{2})^2}{(A+B)(C+D)(A+C)(B+D)}$$

was found to be readily usable for comparing

demographic factors present in the most aggressive 1/3 of each training school sample, with similar factors present in the remaining 2/3's of each sample. The decision to make comparisons on a 1/3 - 2/3 ratio was arrived at because it was feared that the middle one-third of subjects might dilute the results, and because the scores on aggression seemed to break naturally into approximately a 1/3 - 2/3 ratio. Comparisons of demographic factors were made for aggression and the following variables: 1. income source; 2. parents present in the home; 3. place of residence; 4. birth order; 5. race; 6. age at first court contact; and 7. highest school grade completed.

A one tailed test at the five percent level (.05) was used for all determinations of significance.

CHAPTER IV

RESULTS AND DISCUSSION

The present investigation has sought to examine the relationships among aggressive behavior, reading, and dogmatism in two specific groups of delinquent boys. It has further sought to examine certain attitudes about school, and the relationship of certain specific demographic factors which might be associated with aggressive behavior in the above groups.

This investigation has taken the theoretical position that early school experiences of failure, especially in reading, might predispose a child to significant levels of frustration. Such frustration might, in the absence of aggression-inhibiting social controls, be expressed in various forms of anti-social aggressive behavior. It has further been theorized that feelings of failure and frustration might influence attitudes about school, as well as certain personality characteristics described by Rokeach (1960) as dogmatism. Finally, it has been viewed as possible that aggressive behavior might

also relate to certain demographic factors present in the individual's environment.

Delinquent boys confined in two state training schools were selected as subjects to examine the above theoretical positions. The decision to use such boys was based on the probable assumption that they have demonstrated lower than normal levels of inhibitions toward aggressive behavior. The two groups of 48 boys each were randomly selected from state training schools in Michigan and Minnesota.

In order to examine the theoretical position described above, the following research hypotheses were formulated:

1. There would exist a significant correlation between aggressive behavior and reading.
2. There would exist a significant correlation between aggressive behavior and dogmatism.
3. There would exist a significant correlation between aggressive behavior and school attitudes.
4. There would exist a significant correlation between aggressive behavior and intelligence.

5. There would exist a significant correlation between reading and either dogmatism, school attitudes, or intelligence.
6. There would exist a significant correlation between dogmatism and either school attitudes or intelligence.
7. There would exist a significant correlation between school attitudes and intelligence.
8. Aggressive behavior would be related to one or more of the following demographic factors at a significant level: parental income, number or sex of parents present in the home, place of residence, birth order, race, age at time of first court contact, or highest school grade completed.

Hypotheses one through seven were tested using the Spearman Rank Order Correlation (Hays, 1965). Hypothesis eight was tested using the Chi-square test for two independent samples (Siegel, 1956). All significance levels were set at .05 (one tailed).

Three measures of reading achievement were derived by grade level equivalence. The first measure indicated paragraph meaning or reading comprehension. The second measure indicated word meaning or vocabulary development. The third measure was that of average reading, and was derived by obtaining the arithmetic mean of the first two measures. The third or average reading score was used for statistical treatments.

The results of individual intelligence testing were derived in the usual Wechsler style of verbal, performance, and full scale IQ's.

School attitude scores were derived by magnitude of total score, with high scores indicating positive or favorable attitudes about school experiences. The Minnesota Student Attitude Inventory has been included as Appendix C.

Reading achievement ratios were derived by the mental age method previously explained. Since actual grade reading level was divided by expected grade reading level, high ratios indicate greater reading under-achievement.

In summary, it should be noted that a rank of one was assigned for the most reported aggressive

behavior, greatest reading under-achievement, most dogmatism, least favorable school attitudes, and lowest full scale IQ. All subsequent rank order correlation findings were derived from these rankings. Ties in ranking positions were corrected using a method described by Hayes (1965), in which the arithmetic mean of the tied rankings were divided by the number of tied scores, with the quotient so derived becoming the rank order position of all tied scores. The test results and rank order of subjects can be found in Appendix D.

A. RESULTS

Hypothesis 1. There would exist a significant correlation between aggressive behavior and reading.

As was previously indicated, the absence of a suitable objective instrument for measuring aggressive behavior necessitated the employment of three separate measures of this variable in the present investigation. Table two and Appendix E summarize the Spearman rank-order correlations between reading and the three measures of aggressive behavior.

Based upon the statistical analysis, it was found that the court report measure of aggressive behavior correlated significantly with reading in both sample populations. It was thus possible to accept hypothesis number one for the correlations between reading and accounts of aggressive behavior reported in the case folder of each subject.

It was not possible to accept hypothesis number one for the correlations between reading and the self report measure of aggressive behavior. These correlations did not reach significance in either sample population. The correlations between reading and the staff report measure of aggressive behavior reached significance only in the Lansing population. Thus it was not possible to accept hypothesis number one as it applied to staff reported aggressive behavior.

In summary, it was found that significant correlations existed between reading underachievement and acts of aggressive behavior performed by the delinquent boys who constituted the two sample populations. However, these correlations were observed only for the court report measure of aggressive behavior.

TABLE II

CORRELATIONS BETWEEN READING AND AGGRESSIVE
BEHAVIOR BOTH GROUPS*

Measure	r	t-value	p
Lansing court report data	.33	2.38	.025
Lansing self report data	.18	1.24	NS
Lansing staff report data	.35	1.89	.005
Red Wing court report data	.40	2.94	.005
Red Wing self report data	.13	.92	NS
Red Wing staff report data	.02	.08	NS

*A rank order of one was assigned for the greatest reading underachievement and the most aggressive behavior observed.

Hypothesis 2. There would exist a significant correlation between aggressive behavior and dogmatism.

Table three and Appendix E summarize the Spearman rank-order correlations between dogmatism and the three measures of aggressive behavior. Based upon the statistical analysis, it was found that none of the correlations in either group reached significance. It was not possible, therefore, to accept hypothesis number two.

It was observed, however, that the correlation of .25 between dogmatism and the staff reported measure of aggressive behavior in the Lansing subjects did approach significance. No relationship whatever was found in that group between dogmatism and court reported aggressive behavior, and only a very slight relationship was observed for the self report measure. In the Red Wing subjects the correlation between dogmatism and the staff reported measure of aggressive behavior was also the highest of the three measures. In that group, however, none of the correlations approached significance.

It might have been possible to suggest that direct observations of the subjects by their training school supervisors was the better method of

TABLE III

CORREIATIONS BETWEEN DOGMATISM AND AGGRESSIVE
BEHAVIOR BOTH GROUPS*

Measure	r	t-value	p
Lansing court report data	.00	.00	NS
Lansing self report dara	.02	.14	NS
Lansing staff report data	.25	1.31	NS
Red Wing court report data	.04	.27	NS
Red Wing self report data	.11	.76	NS
Red Wing staff report data	.19	.77	NS

*A rank order of one was assigned for the highest dogmatism score and the most aggressive behavior observed.

detecting those aspects of the dogmatic personality that correlate with aggressive behavior. This possibility, however, could not have been confirmed with the current data.

Hypothesis 3. There would exist a significant correlation between aggressive behavior and school attitudes.

The Spearman rank-order correlations between school attitudes and the three measures of aggressive behavior have been summarized in Table four and Appendix E. Following the statistical analysis of data, it was observed that no one specific measure of aggressive behavior had reached significance for both populations. It was not possible, therefore, to accept hypothesis number three.

Unlike the findings for the first two hypotheses, no directional effect was observed with respect to type of aggressive behavior measured across populations. While one of the three measures of aggressive behavior did reach significance in each sample population, the two significant correlations were not for the same specific measure. Furthermore, in the Lansing sample, court reported aggressive behavior approached the level of significance, while in the Red Wing

TABLE IV

CORRELATIONS BETWEEN NEGATIVE SCHOOL ATTITUDES AND
AGGRESSIVE BEHAVIOR BOTH GROUPS*

Measure	r	t-value	p
Lansing court report data	.18	1.24	NS
Lansing self report data	.28	1.97	.05
Lansing staff report data	.10	.69	NS
Red Wing court report data	.07	.48	NS
Red Wing self report data	.14	.99	NS
Red Wing staff report data	.28	1.97	.05

*A rank order of one was assigned for the most negative school attitudes and the most aggressive behavior observed.

population this measure produced the lowest of the three correlations.

It might have been possible to suggest that the heterogeneity of agreement between populations was due to the difficulties encountered in attempting to quantify two variables as intangible as aggressive behavior and school attitudes. It was also very interesting to observe that court reports of aggressive behavior did not correlate significantly with school attitudes for either group, while the correlations for the other two somewhat more subjective measures of aggressive behavior produced mixed findings. The possibility of relating the above findings to factors inherent in the geographic separation of the two schools should also be considered.

Hypothesis 4. There would exist a significant correlation between aggressive behavior and intelligence.

The findings for the statistical analysis of data between the correlations for intelligence and the three measures of aggressive behavior have been summarized in Table five and Appendix E. Because intelligence was not observed to correlate at a

TABLE V

CORRELATIONS BETWEEN INTELLIGENCE AND AGGRESSIVE
BEHAVIOR BOTH GROUPS*

Measure	r	t-value	p
Lansing court report data	.28	1.97	.05
Lansing self report data	.05	.34	NS
Lansing staff report data	.35	2.89	.005
Red Wing court report data	.12	.84	NS
Red Wing self report data	.10	.69	NS
Red Wing staff report data	.11	.76	NS

*A rank order of one was assigned for the lowest full scale intelligence score and the most aggressive behavior observed.

significant level with any of the three measures of aggressive behavior in the Red Wing population, it was not possible to accept hypothesis number four.

The inconsistencies in findings across populations further suggests that the two subject groups were dissimilar. In the Lansing subjects low intelligence would seem to be closely associated with objective accounts of aggressive behavior. However, it was not possible to note this observation in the Red Wing group, for whom none of the correlations even approached significance.

Hypothesis 5. There would exist a significant correlation between reading and either dogmatism, school attitudes, or intelligence.

Table six and Appendix E summarize the Spearman rank-order correlations between reading and the separate variables of dogmatism, school attitudes, and intelligence. Based upon the statistical analysis, it was observed that the correlations between reading and intelligence were highly significant, making possible the acceptance of hypothesis number five for both groups. No other correlations involving reading and the above variables were found to be significant across populations.

TABLE VI

CORRELATIONS BETWEEN READING AND DOGMATISM, READING
AND NEGATIVE SCHOOL ATTITUDES, AND READING AND
INTELLIGENCE BOTH GROUPS*

Measure	r	t-value	p
Lansing reading and dogmatism data	.12	.88	NS
Lansing reading and school attitudes data	.06	.41	NS
Lansing reading and intelligence data	.38	2.78	.005
Red Wing reading and dogmatism	.24	1.67	NS
Red Wing reading and school attitude data	.31	2.21	.025
Red Wing reading and intelligence data	.71	4.95	.001

*A rank order of one was assigned for the greatest reading underachievement, highest dogmatism score, most negative school attitudes, and lowest full scale IQ observed.

The dissimilarity in correlations across sample populations was again observed. Except for the expected relationship between reading and intelligence, no other correlations were significant in the Lansing subjects. However, in the Red Wing subjects both school attitudes and intelligence correlated significantly with reading. In addition, the correlation between dogmatism and reading approached significance.

Hypothesis 6. There would exist a significant correlation between dogmatism and either school attitudes or intelligence.

The Spearman rank-order correlations between dogmatism, school attitudes, and intelligence, have been summarized in Table seven and in Appendix E. Based upon the statistical analysis for the combined populations, it was not possible to accept hypothesis number six.

No correlations among these variables reached significance in the Red Wing subjects. However, the correlation between dogmatism and intelligence approached significance. In the Lansing subjects, the correlation between dogmatism and school attitudes was significant beyond .05. The observation of

dissimilarity between sample groups was again supported.

Hypothesis 7. There would exist a significant correlation between school attitudes and intelligence.

The findings for the statistical analysis of data between school attitudes and intelligence have also been summarized in Table seven and in Appendix E. Because school attitudes were not observed to correlate with intelligence at a significant level across populations, it was not possible to accept hypothesis number seven.

In the Red Wing subjects, the correlation of .15 between school attitudes and intelligence did not approach significance. However, in the Lansing subjects the correlation of .81 for the same variables was the highest noted among any of the variables investigated.

Hypothesis 8. Aggressive behavior would be related to one or more of the following demographic factors at a significant level: parental income, number of parents present in the home, place of residence,

TABLE VII

CORRELATIONS BETWEEN DOGMATISM, NEGATIVE SCHOOL
ATTITUDES, AND INTELLIGENCE BOTH GROUPS*

Measure	r	t-value	p
Lansing dogmatism and school attitudes	.26	1.89	.05
Lansing dogmatism and intelli- gence	.09	.62	NS
Lansing school attitudes and intelligence	.81	8.32	.001
Red Wing dogmatism and school attitudes	.08	.54	NS
Red Wing dogmatism and intelli- gence	.19	1.36	NS
Red Wing school attitudes and intelligence	.15	1.15	NS

*A rank order of one was assigned for the highest dogmatism score, most negative school attitudes, and lowest full scale intelligence score observed.

birth order, race, age at time of first court contact, or highest school grade completed.

The relationship of the above factors to aggressive behavior was tested by the chi-square test for two independent samples (Siegel, 1956). By using the court report measure of aggressive behavior, which was found to be the most stable of the three measures, it was possible to compare the most aggressive one-third of each sample population to the remaining sample for the above demographic factors. The 1/3-2/3 split for comparisons of aggression and the demographic factors was adopted for two reasons. It was feared that the middle one-third of subjects might dilute the results of the comparisons. It was also observed that the ranking of subjects for aggressive behavior seemed to break naturally into approximately a 1/3-2/3 ratio. Tables eight through fourteen present the findings from the analysis of demographic factors. It should be noted that none of the chi-squares reached significance, although non-significant relationships differed somewhat between variables.

TABLE VIII

Aggressive Behavior and Parents Income Source

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
Employed	8	17	25	8	15	23
Others	<u>8</u>	<u>15</u>	<u>23</u>	<u>8</u>	<u>17</u>	<u>25</u>
Total	16	32	48	16	32	48

Analysis of data yielded a chi-square of approximately .001 for the Lansing sample and approximately .190 for the Red Wing sample. Obviously both values were substantially below the 3.84 required for significance (.05 level). The employed parents were found to be working primarily at unskilled and semiskilled occupations. The unemployed parents were receiving various forms of public welfare assistance with A.D.C. funds predominating.

TABLE IX

Aggressive Behavior and Number of Parents in the Home

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
Both Parents	7	12	19	8	15	23
Others	<u>9</u>	<u>20</u>	<u>29</u>	<u>8</u>	<u>17</u>	<u>25</u>
Total	16	32	48	16	32	48

Analysis of data for the relationship between aggression and number of parents in the home also revealed chi-squares which fell far short of significance. The value .011 was observed for both the Lansing and Red Wing samples. It should of course be noted that while number of parents present in the home was not significantly related to aggression, the incidence of broken homes in both the more and less aggressive subjects was very high (see Appendix A-1).

TABLE X

Aggressive Behavior and Place of Residence

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
Detroit or T.C.	10	12	22	12	21	33
Others	<u>6</u>	<u>20</u>	<u>26</u>	<u>4</u>	<u>11</u>	<u>15</u>
Total	16	32	48	16	32	48

While neither chi-square for aggressive behavior and place of residence reached significance, the 1.09 for the Lansing subjects was considerably larger than the .109 value for the Red Wing population. It should also be noted that 55 of the total N of 96 subjects lived in either Detroit or the Twin Cities. This proportion of urban residence is much larger than that observed in the general populations of the two states.

TABLE XI

Aggressive Behavior and Birth Order

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
First or Last	3	11	14	10	14	24
Others	<u>13</u>	<u>21</u>	<u>34</u>	<u>6</u>	<u>18</u>	<u>24</u>
Total	16	32	48	16	32	48

The chi-square of 1.742, although not significant, was much larger for the relationship between aggression and birth order in the Lansing subjects, than was the .844 value observed in the Red Wing population. This finding contributed to the numerous observations of dissimilarity between the two sample populations.

TABLE XII

Aggressive Behavior and Race

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
White	6	18	24	12	27	39
Others	<u>10</u>	<u>14</u>	<u>24</u>	<u>4</u>	<u>5</u>	<u>9</u>
Total	16	32	48	16	32	48

Appendix A-1 summarizes the distribution of both sample populations by race. The percentage of Negro subjects was much higher in the Lansing subjects. However, neither that groups chi-square of .805 or the Red Wing chi-square of .158 even approached significance.

TABLE XIII

Aggressive Behavior and Age at First Court Contact

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
Under Age 12	5	10	15	1	6	7
Others	<u>11</u>	<u>22</u>	<u>33</u>	<u>15</u>	<u>26</u>	<u>41</u>
Total	16	32	48	16	32	48

The chi-square for aggression and age at first court contact was extremely small in the Lansing subjects (.002). The chi-square of .522 observed for this relationship in the Red Wing subjects was larger, but obviously far from significant. The data of first court contact can be found for all subjects in Appendix A-1.

TABLE XIV

Aggressive Behavior and Highest School
Grade Completed

	Lansing			Red Wing		
	Most Agg (1/3)	Others (2/3)	Total	Most Agg (1/3)	Others (2/3)	Total
Through 8th	12	19	31	4	11	15
Others	<u>4</u>	<u>13</u>	<u>17</u>	<u>12</u>	<u>21</u>	<u>33</u>
Total	16	32	48	16	32	48

Thirty-one of the 48 Lansing subjects had formal educations which terminated in the eighth grade or earlier. Fifteen of the Red Wing subjects had reached only this level. However, the chi-square values for the relationship between aggression and school grade completed failed to reach significance. While the chi-square of 2.865 for the Red Wing group approached significance, the .555 figure for the Lansing group indicated a minimal relationship. On these variables also, the groups were dissimilar.

Summary of results. The test performance of the Lansing and Red Wing subjects was found to follow a highly dissimilar or heterogeneous pattern in distribution of correlations among the variables under investigation. This observation also held for the chi-square analysis of demographic factors. In summary, the following results were obtained;

1. While significant agreement between all three measures of aggressive behavior was not obtained for either population, the court report measure of aggressive behavior was found to correlate with reading beyond the .05 level in both groups.
2. Dogmatism was not observed to correlate significantly with any of the three measures of aggressive behavior for either of the two sample populations.
3. The staff report measure of aggressive behavior was observed to correlate beyond the .025 level with school attitudes in the Red Wing group, and beyond the .05 level (self report measure) in the Lansing subjects.

4. While aggressive behavior did not correlate significantly with IQ in the Red Wing subjects, this variable was observed to correlate beyond the .05 level for both the self and staff report measures in the Lansing sample population.
5. Reading was found to correlate significantly with both aggressive behavior and IQ in both groups. Reading also correlated significantly with school attitudes in the Red Wing subjects.
6. Dogmatism was not significantly correlated with either school attitudes or intelligence in the Red Wing subjects. It was correlated beyond .05 with school attitudes in the Lansing group.
7. School attitudes were correlated with IQ at a highly significant level (.001) in the Lansing subjects, but failed to reach significance in the Red Wing sample population.

8. In the chi-square analysis of demographic factors, none of the factors examined reached significance. However, aggressive boys in larger than expected numbers tended to come from urban centers, and in one or the other groups to have had unemployed parents, to have been nonwhite, and to have had meager formal educations.

B. DISCUSSION

Acts of aggressive behavior involving delinquent adolescents are commonly agreed to constitute a significant social problem. Little research into the possible school related factors associated with this behavior has been done. Although many studies have noted academic underachievement, especially in reading, to be a frequent finding among delinquent youth, most writers have viewed this as merely an additional indication of maladjustment and inadequate coping behavior.

The present study has found court report information about aggressive delinquent acts to

correlate significantly with under-achievement in reading. This finding was observed in two sample populations of delinquent boys, widely separated geographically. Although two other measures of aggressive behavior did not produce significant correlations with reading under-achievement across populations, such correlations were observed to reach significance within sample groups. It might therefore be said that students who are experiencing frustration in school because of ineffective reading, especially those from high delinquency urban areas, should be provided with intensive individualized remedial measures while still in the elementary school. It might also be said, based on the literature previously cited in this investigation, that state training schools might profitably devote more attention to remedial reading as an adjunct to their existing programs.

Dissimilarity of the two subject groups. In addition to the significant relationship between reading under-achievement and aggressive behavior, perhaps the most important finding derived from this investigation was that two populations of

delinquent boys separated geographically exhibited very heterogeneous characteristics. Table 15 has compared the test performance of the Lansing and Red Wing subjects for reading, dogmatism, school attitudes, and IQ. The heterogeneous nature of the two sample populations has been dramatically illustrated with t-test differences in each of the four test means significant beyond the .05 level. The Red Wing subjects were better readers, exhibited less dogmatism (.001), and had higher full scale IQ's (.025).

These significant differences in test performances constitute an important variable which was not hypothesized in the design of the present investigation, but which had been suggested to the writer in 1965 by Dr. John L. Johnson, now of Syracuse University. It is difficult to conceptualize how cultural, racial, and socio-economic factors present in the environments of the two sample populations might have been sufficient to produce the heterogeneity observed. One needs to ask why the two sample populations should differ three grade levels on reading, 49 points on dogmatism, 18 points on school attitudes, and five points on IQ. Put

TABLE XV

DISSIMILARITY OF SUBJECT GROUPS

Measure	Lansing Mean	SD	Red Wing Mean	SD	t-Value	p
Reading	5.58	1.63	8.35	2.63	6.19	.001
Dogmatism	46.75	40.66	17.06	30.55	4.69	.001
School Attitudes	188.33	22.72	170.85	23.90	2.58	.01
Intelligence	95.0	8.54	100	12.0	2.35	.025

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Reading scores are in terms of grade level, dogmatism scores are in terms of absolute values derived from the Dogmatism Scale, school attitudes are in terms of absolute values derived from The Minnesota School Attitude Inventory, and intelligence scores are in terms of full scale IQ's.

another way, why should the Red Wing group have read much better, been more open minded, been smarter, and yet exhibited fewer positive school attitudes?

The interrelationship among variables. The present study has sought to investigate correlation levels among a number of variables including aggressive behavior in delinquent boys. The observations of Block and Flynn (1956), Roueck (1958), Nye (1958), and Balogh (1958) that delinquent behavior in boys might stem from multiple causes suggested the need for additional study of such variables. Similarly, the earlier findings of Backwin (1955) and Havinghurst (1959) have suggested school linked factors in association with delinquent behavior. This observation would seem to be supported in the present investigation. The highly significant correlations between reading and aggressive behavior would seem to identify a relationship which should receive further research attention.

The present investigation has viewed aggressive behavior in delinquent boys from a frustration-aggression hypothesis as conceived by Dollard and

Miller (1939, 1950), and as amended by others (Miller, 1941; Dinwiddie, 1955; and Maier, 1956). It is possible that failing to learn to read effectively can be deeply frustrating experience for the child. It is also possible that in the absence of remedial measures, continued frustration can result in aggressive forms of delinquent behavior during adolescence. Numerous studies have been cited to show the intimate relationship between reading failure and aggressive behavior (The Harlem Project, 1945; Natchez, 1959; Quay and Blumen, 1963). It has also been shown that peer group relationships are negatively influenced by reading under-achievement (Porterfield, 1961), and a longitudinal study was cited (Sorenson, 1950) which traced personality deterioration in young children to reading failure. Lastly, a number of studies were cited indicating that delinquent boys who did read satisfactorily were most likely to be rehabilitated (Bills, 1950; Roman, 1955; Margolin, 1955; and Bowman, 1959).

The need to obtain three separate measures of aggressive behavior has been described above. The lack of agreement between the three measures has been summarized in Appendix E for both sample groups.

The court report measure, which might have been considered the most objective of the three measures, was also observed to have been the most stable measure across populations. The staff report measure might have been limited in that only behavior observed at the training school was considered. Obviously many psychological factors operate to limit behavior in such environments. The self report measure might have been limited by either the interview procedures, or by the reluctance of delinquent boys to objectively discuss their past behavior with an unknown adult while they were confined.

Aggressive behavior in the Red Wing subjects reached a significant correlation with only two variables. The relationship with reading has been discussed above. Aggressive behavior was also correlated at .05 with school attitudes. The correlation, however, was observed only for the staff reported measure of aggressive behavior. The Red Wing subjects were notable in their relative absence of significant correlations between aggressive behavior and the other variables investigated.

In the Lansing subjects both reading and intelligence were significantly correlated with two of the three measures of aggressive behavior. Aggressive behavior and school attitudes were also correlated for the self report measure. None of the three measures of aggressive behavior in either group reached a significant correlation with dogmatism.

The expected correlation between reading and intelligence was observed to be highly significant in both populations. Except for the aggressive behavior correlations already described, no other correlations among reading and the other variables were significant across populations. Reading and school attitudes, as indicated above, were correlated beyond .025 in the Red Wing subjects.

Although Rokeach's construct dogmatism was not found to be closely related to the other variables under investigation, it is possible that this construct involves more sensitive qualities than those dealt with in the present investigation. It was interesting to observe that the one significant finding, that of a correlation with school attitudes in the Lansing subjects, involved a

variable that was essentially attitudinal in nature. The earlier findings of Zagona and Zurcher (1965) for an inverse relationship between dogmatism and verbal ability was not supported for the dogmatism-reading correlations in the present investigation. The high dogmatism levels observed in both populations, however, would seem to support the observations of Kemp (1961) that high dogmatics have more personal problems which resist correction. The present investigation has noted the occurrence of relatively high dogmatism levels, especially in the Lansing Population.

The opinion of Wheway (1958) and others, that sheer lack of intelligence is seldom the cause of delinquent behavior, would seem to be supported in the present findings. Mean IQ's of 95 in the Lansing subjects and 100 on the Red Wing subjects are essentially similar to the rate of intellectual development observed for the general population. It is possible that Quay (1965) was correct when he observed that we have paid too much attention to low intelligence as a cause of delinquency, and have seriously underestimated the IQ's of these boys. While the aggressive subjects in the

Lansing population were observed to be less intelligent than their less aggressive peers, this observation was not made in the Red Wing subjects. Similarly, the Lansing subjects who displayed more negative school attitudes were the less intelligent ones. This also was not true in the Red Wing group.

The findings of Ball (1955) and Carter (1964) that delinquents have more negative school values, and of Clard and Wennigen (1964) that there is close correlation between delinquency and school attitudes, would seem to be only partially supported in the present investigation. No experimental variable or specific measure of aggressive behavior was observed to correlate significantly with school attitudes across populations. The Lansing subjects were observed to achieve significant correlations between school attitudes and intelligence, and between school attitudes and the self report measures of aggressive behavior. The Red Wing subjects achieved a significant correlation between school attitudes and reading, and also between school attitudes and the staff report measure of aggressive behavior. These findings

do not seem to support Roebeck's findings (1964) that retarded readers display more negative school values.

An alternative to a frustration-aggression hypothesis for describing the origins of aggressive behavior has been proposed by Bandura and Walters (1958). These writers have suggested that aggressive behavior stems from social and environmental factors including a forced childhood dependency and the absence of a suitable male identification figure in the home. Similarly, Crescimbeni (1964) found broken homes to be a significant factor in the reading under-achievers he studied.

While the present study was not able to objectively assess all of the variables in the parent-child relationships of the subjects, it was possible to investigate a number of demographic factors present in the early home environments of the most aggressive members of each group. Tables eight through fourteen and Appendix E have summarized these data.

Limitations affecting the investigation. The findings derived from this investigation have been

influenced by a number of limitations, some of which were imposed by the researcher, and others of which became apparent only after the results were analyzed. It was believed necessary, therefore, to confine any discussion of the above findings to the following body of limiting factors:

1. The findings in this investigation were limited to the sample which represented a random selection of 96 boys, and constituted 15 percent of the total populations of the two training schools.
2. The study was further limited to the determination of correlations and levels of significance among reading, dogmatism, school attitudes, and aggressive behavior; together with the analysis of certain demographic data such as family background, birth order, intelligence, and place of residence for each subject.
3. Findings were described as inferential since no specific cause and effect relationship could be determined.

4. The variables of mental retardation, organic brain damage, psychotic behavior, and foster home residence were beyond the scope of this investigation. Therefore, subjects with intelligence quotients (Wechsler) below 80, subjects whose case records contained neurological or psychiatric evidence of either brain damage or psychotic symptomatology, and subjects whose home environments did not have at least one parent present were not included in the sample.
5. Because of the necessity of employing three separate measures of aggressive behavior, all correlations involving this variable must be interpreted only with reference to the specific measure involved.
6. Because of the finding of dissimilarity or heterogeneity in the test performances of the two sample populations, findings should not be generalized across groups.
7. Since no research involving dogmatism has been conducted using delinquent boys as subjects, and because of the

possible subtle qualities of this variable, considerable caution should be observed in the analysis of findings involving dogmatism.

8. All findings concerning the demographic data pertaining to subjects studied in this investigation have been viewed with the awareness that such factors have involved a complex relationship of cultural, racial, and socio-economic factors, and as such will not lend themselves to generalizations beyond the context of their individual situations.

CHAPTER V

SUMMARY AND CONCLUSIONS

Despite the acceleration in educational research which has characterized the present era, little effort has been exerted in investigations dealing with the relationship of school experiences and social behavior. Most research has dealt with the positive outcomes of successful school programs, and little attention has been paid to the possible negative and frustrating effects of school underachievement and failure. Writers such as Kirk (1963), McNally (1965), and Long (1965), have indicated that research into the behavioral consequences of school failure are badly needed.

SUMMARY

Using the early frustration-aggression theory developed by Dollard and Miller (1939), and as amended by later workers (Dinwiddie, 1955; Maier, 1956; Gottfried, 1959), it was possible to suggest that failure to acquire effective reading skills might predispose a learner to frustration while in

school, and possibly also to related aggressively delinquent forms of social behavior. Inasmuch as numerous writers have reported observing academic underachievement in their studies of delinquent boys, and because juvenile delinquency is commonly acknowledged to be an important social problem, the search for a relationship between school variables and anti-social behavior was thought to be important.

The present investigation was designed to examine the relationships among reading, dogmatism, school attitudes, intelligence, and aggressive forms of delinquent behavior in two sample populations of training school boys.

Two groups of 48 boys each, housed in Michigan and Minnesota training schools, were randomly selected to become the subjects for the present investigation. Boys coming from homes without at least one parent present, and boys with reported brain damage or psychosis were excluded.

After selection, all subjects were tested using the Wechsler intelligence scales, the reading section of the intermediate level Stanford Achievement Test, the Dogmatism Scale, and the Minnesota Student Attitude Inventory. Demographic data pertaining to each boy were available from records

maintained in the training schools. Three measures of aggressive behavior were also obtained. Court reports of past delinquent behavior, self reports obtained in individual interviews, and staff reports provided by four administrative officers in each training school were employed for the determination of aggressive behavior.

Spearman rank order correlations were computed between each test variable and the measures of aggressive behavior. A t-test suggested by Hays (1965) was used in the determination of significance levels. The chi-square test for two independent samples was used to compare demographic data for the most aggressive members of each group to the data for the remainder of the group.

After the analyses of data were completed, the following findings were noted:

1. A significant correlational relationship between reading underachievement and aggressive behavior was observed in both populations under study.
2. No significant relationship between dogmatism and aggressive behavior was found in either group.

3. A significant relationship between school attitudes and at least one measure of aggressive behavior was observed in both groups.
4. A significant correlation between intelligence and aggressive behavior was found only in the Lansing subjects.
5. Significant correlations between reading and intelligence were observed in both groups. The Red Wing subjects also demonstrated a significant correlation between reading and school attitudes.
6. Dogmatism was not correlated significantly with any of the other variables for the Red Wing subjects. For the Lansing subjects this variable was correlated significantly only with school attitudes.
7. Intelligence and school attitudes were significantly correlated only in the Lansing group.
8. The chi-square analysis of demographic factors related to aggressive behavior did not reach significance in either group for any of the variables investigated.

It was observed that the two sample populations differed significantly in their performance on all four test instruments. It was thus apparent that the two groups could not be viewed as homogeneous. This conclusion was further supported in the heterogeneous correlational findings across sample populations for aggressive behavior measures and the other variables under investigation. These findings were viewed as an indication for caution in generalizing about the behavior of delinquent boys. The Red Wing subjects were older, more intelligent, better readers, and exhibited less dogmatism. The Lansing subjects showed more positive school attitudes.

CONCLUSIONS

Based upon the findings summarized above, a number of conclusions seem to reasonably follow. Naturally generalizations beyond the sample populations described in this report are not intended.

The conclusion that reasonable evidence existed for a relationship between reading and aggression would seem to be important. Although no cause and effect relationship can or should be

implied, such a relationship was predicted using frustration-aggression theory. Considerable evidence was cited from the work of others to support the notion that early reading underachievement is a deeply frustrating experience.

Rokeach's construct dogmatism was not concluded to be useful in association with the variables under study in this investigation. It is possible that dogmatism might be an important variable for future research using delinquent boys as subjects. However, this opinion cannot be either supported or rejected from the present data.

Numerous other writers suggesting that school curriculums need to be examined for factors contributing to negative social behavior have been cited. The possibility that frustrations related to school experiences might influence normal adjustment in an illegal and aggressive direction was explored. A significant correlation was found to exist between aggressive behavior and negative school attitudes as expressed by the delinquent boys who cooperated in this investigation.

Evidence for a significant relationship between intelligence and aggressive behavior was

observed to be inconclusive. Such a relationship was observed in one of the two groups studied, with duller boys tending to be the more aggressive. However, in the second group of subjects this relationship was not found. The commonly held opinion that delinquent boys exhibit borderline intelligence was not supported in either group.

As was expected, reading and intelligence were found to correlate significantly in both groups. However, reading and school attitudes were significantly correlated only in the Red Wing group. It is probable, therefore, that school attitudes are influenced by a number of factors, only one of which might be reading. Furthermore, the relationship between intelligence and school attitudes was not resolved in the present investigation. While a significant correlation between intelligence and school attitudes was found in the Lansing subjects, it was not observed in the slightly more intelligent Red Wing group. Again it is possible that the origins of school attitudes are multiple and complex.

Numerous theories of others regarding the importance of demographic factors in association

with delinquent behavior in boys were cited. From the present investigation it can be concluded that no significant relationship existed between aggressive behavior and the demographic factors examined. A slight and nonsignificant directional association between certain demographic factors and aggressive behavior suggests the need for further study.

It can be concluded that aggressive behavior, school attitudes, dogmatism, and the interaction of demographic factors constituted an extremely complex set of variables for experimental research. The observed heterogeneity of findings across samples might have resulted because it was not possible to further refine the above complex variables. Because of the heterogeneity observed in test results, it should be further concluded that considerable caution must be observed in all generalizations beyond specific populations of delinquent boys.

RECOMMENDATIONS AND THE NEED FOR FURTHER STUDY

A number of areas for further research have been suggested by the present study. Such research might add considerably to the growing, but still

inadequate body of literature dealing with the outcomes of academic under-achievement, frustration-aggression theory, and aggressive behavior in delinquent boys.

Recommendations related to the need for future research. Future studies might examine the type and degree of heterogeneity between populations of confined delinquent boys who are separated geographically. The nature of such variability, and information about its possible origins, should provide valuable data for preventative programs aimed at this social problem.

This study has examined the relationship of aggressive behavior and a number of test and demographic variables. Future studies might examine these relationships in female delinquent subjects. Little is known about sex-linked differences in response to frustration among delinquents.

Future research might also compare the behavior of a population of reading under-achievers in the primary grades who had received remedial instruction to a similar population of controls who did not receive remedial measures. The comparison might be done in a longitudinal design with multiple

comparisons culminating in late adolescence or adulthood. In addition, the post-release behavior of a group of delinquents who had received remedial reading while at their training school might be compared to controls who had not been so instructed.

To gain additional information about behavioral responses to school related frustration, the behavior and adjustment of non-achieving adolescents who had not become delinquent should be evaluated. Other writers might also examine the variables on which non-achieving non-delinquents differ from non-achieving delinquents.

Considerable controversy exists regarding the completeness and objectivity of case study information and court records maintained for individuals confined in boys training schools. Future study might examine the reliability of such information, and perhaps suggest possible improved procedures. It would also be valuable to investigate the feasibility of developing an objective instrument for measuring and quantifying aggressive behavior.

Although the findings in this study regarding the correlational relationships of school attitudes and dogmatism with aggressive behavior were not significant, future studies might relate these variables to the behavior of non-delinquent adolescents.

Other writers have attempted to link delinquent behavior with urban social influences, birth order, race, school achievement, and similar factors. The present study would not seem to add support to many of these hypotheses, however, considerable additional study would seem to be possible, based upon the present findings.

The possibility that potentially aggressive delinquents might be identified in the elementary grades, and be provided with remedial instructions, would seem to offer the incentive for highly significant future research. Many programs aimed at providing services to potential delinquents might be financed by existing federal funds.

Recommendations related to theory. The findings in the present investigation seem to suggest that frustration-aggression theory might offer one extremely useful avenue for additional research

into educational methods and outcomes. The possibility of exploring behavioral residuals of unsuccessful learning seems very promising. A converse theoretical model might also be formulated, perhaps along the lines of a success-adjustment hypotheses.

There appears to be evidence from the present investigation to suggest that we need to take a second look at some of our stereotyped theories about American education. Should we actively be encouraging all students to remain in school until some minimum standard of achievement has been reached? Some studies seem to indicate that delinquent boys commit fewer illegal acts after they drop out of school. Should other mass non-school avenues for successful achievement be developed and financed with public funds? We also need a theoretical approach to questions concerning the effectiveness by which our schools are meeting the problems of an increasingly urban and segregated population.

We need to reflect in our theories relating to reading readiness and instruction, some statement indicating the possible loss in self-esteem

which failure in reading might dispose a child to undergo. Having done this, we might then be better able to launch massive programs of readiness diagnosis, and thus postpone reading in appropriate cases until some later date. We might also plan more substantial remedial measures for those children who have failed in reading, but have not yet become delinquent.

A theoretical framework for defining, measuring, and utilizing information pertaining to student attitudes has not been fully developed. Present theory about school attitudes is badly corroded with metaphores, untested opinions, and a kind of "halo" complex.

Dogmatism presents a very complex theoretical construct. It is possible that a specialized or more refined dogmatism theory might be developed in the form of an instrument which would measure public school related factors not now available for analysis.

Considerable theory is now needed to provide research direction for studies dealing with parental and home influences on juvenile delinquency. It has commonly been found that number and sex of parents present in the home has correlated with the incidence of delinquent acts. However, the specific aspects of such influences are not clearly understood at

present. In addition, we know little about the relationship of demographic factors to specific forms of delinquent behavior such as theft, arson, and physical attacks upon the person of another.

Finally, additional theoretical formulation will be needed to relate the objectives of public school education to the unique problems inherent in the urban residence of minority groups. This and other studies have clearly established that such groups contribute the vast majority of our delinquent youth.

Recommendations related to education. The present investigation has found that a significant correlation exists between reading under-achievement and later patterns of aggressive behavior in delinquent boys. While no causal relationship has either been established or intended, it would seem prudent to recommend that every effort be made to spare young children the experience of failure in their first important attempt at learning. Perhaps in our haste to achieve high motivation for instruction, we may be causing serious harm to those children who are not prepared psychologically to fail. Although much school time is currently being devoted to reading instruction, and in some

schools also to remedial instruction, it is possible that broader measures are needed for the minority who do not achieve.

Perhaps as educators we also need to pay more attention to the attitudes and opinions of our students. This aspect of academic evaluation could provide considerable information for revisions in teaching methods and curriculum content.

It is highly probable that more time should be devoted to well planned remedial and other reading instruction for boys confined in state training schools. It has been the writers observation that very few delinquent boys are presently receiving such instruction.

APPENDIX

APPENDIX A-1

SAMPLE POPULATION DATA LANSING BOYS TRAINING SCHOOL

Training School Number	Age	Race	Earliest Court Record	City of Residence	Last Grade Placement	Parents in Home	Parents Income Source	Number of Siblings	Birth Order
35799	16.7	N	1963	Detroit	Ungraded	Both	Welfare	4	1
35784	16.11	W	1960	Bay City	9th	Both	Machinist	3	2
35729	16.3	N	1963	Detroit	Ungraded	Mother	Welfare	4	3
35925	17.6	N	1961	Detroit	6th	Mother	Welfare	5	3
35596	17.6	N	1963	Detroit	10th	Both	Station At'd	1	1
35776	15.7	W	1965	Mt. Clemens	9th	Both	Electrician	4	1
36096	16.3	W	1966	Detroit	Ungraded	Both	Carpenter	9	4
35844	16.10	N	1963	Detroit	9th	Both	Factory Work	6	5
36014	17.1	N	1963	Detroit	Ungraded	Both	Insurance	3	2
36013	14.9	W	1965	Pontiac	8th	Father	Welfare	5	4
36077	14.9	N	1964	Detroit	6th	Mother	Welfare	5	2
35761	14.7	W	1960	Saginaw	8th	Father	Janitor	6	4
35736	16.3	W	1963	Detroit	10th	Mother	Unknown	7	4
35495	15.10	W	1961	Detroit	Ungraded	Both	Factory Work	6	1
35958	14.6	W	1962	Mattawan	8th	Mother	Unknown	4	4
35117	15.11	N	1961	Detroit	8th	Mother	Welfare	9	3
35960	16.10	W	1965	Lansing	11th	Both	Welfare	10	2
35577	15.10	Mex.	1963	Pontiac	8th	Father	Factory Work	10	7
35977	15.2	W	1963	Grand Haven	9th	Mother	Welfare	3	6
35516	16.7	N	1962	Detroit	9th	Mother	Welfare	3	4
35928	16.4	W	1964	Mt. Clemens	9th	Mother	Welfare	5	1
34988	17.0	N	1963	Detroit	9th	Both	Unknown Janitor	5	3

APPENDIX A-1 (continued)

Training School Number	Age	Race	Earliest Court Record	City of Residence	Last Grade Placement	Parents in Home	Parents Income Source	Number of Siblings	Birth Order
35705	14.5	N	1963	Detroit	8th	Mother	Welfare	9	4
35945	13.2	W	1963	Livonia	7th	Both	Unknown	3	3
35390	13.11	N	1964	Detroit	8th	Both	Factory Work	0	1
35812	15.6	W	1964	Detroit	Ungraded	Mother	Welfare	5	4
34019	16.3	W	1960	Monroe	9th	Both	Factory Work	4	3
34878	15.6	W	1963	Lansing	8th	Mother	Welfare	6	2
36061	14.4	W	1958	Grand Haven	9th	Mother	Unknown	8	9
35743	17.6	N	1964	River Rouge	11th	Both	Factory Work	2	1
36116	14.7	W	1965	Marcellus	7th	Mother	Unknown	4	5
35988	12.10	N	1965	Detroit	6th	Mother	Domestic	8	8
35675	15.5	N	1964	Detroit	Ungraded	Mother	Clerk	4	4
35821	14.1	N	1958	Detroit	6th	Mother	Welfare	6	3
35819	15.3	N	1962	Detroit	8th	Mother	Elev. Oper.	1	2
36017	15.10	W	1964	Kalamazoo	9th	Mother	Welfare	7	6
35943	14.10	W	1964	Saginaw	7th	Both	Unknown	3	3
40007	14.10	N	1963	Flint	8th	Mother	Factory Work	8	4
35169	16.1	W	1962	Flint	8th	Both	Trucker	7	5
34411	17.7	W	1963	Algonic	9th	Both	Unknown	4	2
35779	15.7	W	1957	Kalamazoo	7th	Both	Unknown	5	5
35795	16.3	W	1965	Lansing	10th	Both	Accountant	1	2
40012	13.7	N	1965	Flint	7th	Both	Factory Work	11	5
35762	13.9	N	1965	Battle Cr'k	8th	Mother	Nurses Aid	3	2
35499	16.6	W	1956	Port Huron	7th	Mother	Unknown	5	5
35871	16.3	N	1964	Pontiac	10th	Both	Factory	8	2
36150	14.7	W	1962	Detroit	Ungraded	Mother	Welfare	2	3
35808	14.5	N	1962	Kalamazoo	8th	Both	Unknown	10	3

APPENDIX A-2
SAMPLE POPULATION DATA
RED WING BOYS TRAINING SCHOOL

Training School Number	Age	Race	Earliest Court Record	City of Residence	Last Grade Placement	Parents in Home	Parents Income Source	Number of Siblings	Birth Order
14072A	17.4	W	1965	Minneapolis	9th	Mother	Welfare	3	1
14689A	16.7	W	1962	Virginia	8th	Both	Trucker	4	3
14017A	15.10	W	1965	Kimball	9th	Both	Milkman	7	3
14115A	17.0	W	1965	Minneapolis	10th	Both	Clerk	3	1
14448A	14.4	N	1966	Minneapolis	8th	Mother	Welfare	2	3
12964A	15.7	W	1964	Rochester	9th	Both	Carpenter	4	1
14648A	16.0	N	1965	Minneapolis	10th	Both	Laborer	8	4
14335A	15.7	Ind.	1959	Duluth	9th	Mother	Welfare	4	5
14404A	16.5	W	1964	Minneapolis	10th	Both	Small Business	2	2
12717A	17.10	W	1957	Minneapolis	10th	Both	Mechanic	5	3
11111A	15.11	W	1961	Osseo	8th	Mother	Unknown	7	3
12065A	18.0	W	1963	Chicago City	10th	Both	Machineist	5	4
12156A	17.3	W	1963	Fridley	9th	Father	Railroad	1	2
14167A	15.2	Ind.	1966	Pillager	8th	Mother	Unknown	6	4
14809A	16.1	N	1964	Minneapolis	10th	Mother	Welfare	2	1
14414A	17.1	W	1964	Minneapolis	10th	Mother	Welfare	3	1
12982A	16.8	N	1964	Minneapolis	10th	Mother	Welfare	3	3
14650A	16.9	W	1964	Minneapolis	8th	Father	Clerk	7	3
14629A	17.7	W	1965	Minneapolis	11th	Both	Carpenter	4	3
14790A	14.7	W	1967	Fridley	8th	Mother	Unknown	2	1
12542A	16.7	W	1964	Albert Lea	9th	Mother	Pension	1	1
							Welfare	10	6

APPENDIX A-2 (continued)

Training School Number	Age	Race	Earliest Court Record	City of Residence	Last Grade Placement	Parents in Home	Parents Income Source	Number of Siblings	Birth Order
14777A	16.5	W	1963	Minneapolis	10th	Mother	Unknown	7	4
14229A	18.7	W	1960	St. Paul	9th	Mother	Welfare	1	2
14510A	16.5	W	1959	Minneapolis	9th	Mother	Welfare	1	1
12608A	17.0	W	1964	Robbinsdale	11th	Both	Utility Co.	3	4
12591A	15.10	W	1964	Minneapolis	7th	Mother	Welfare	3	4
10800A	16.3	W	1962	Austin	10th	Mother	Welfare	7	4
12724A	18.0	W	1964	St. Paul	9th	Both	Railroad	1	1
9063A	15.9	W	1960	Slayton	8th	Both	Carpenter	3	1
12574A	16.4	W	1967	Coon Rapids	10th	Both	Laborer	4	1
14646A	16.0	W	1963	Minneapolis	Ungraded	Mother	Welfare	4	3
14071A	16.1	W	1965	Savage	9th	Both	Plumber	6	1
14638A	16.2	W	1965	Minneapolis	9th	Mother	Welfare	3	2
12696A	16.3	W	1963	St. Paul	8th	Mother	Welfare	5	2
14422	16.1	W	1966	Brainerd	9th	Both	Orderly	3	3
11441A	17.9	W	1963	St. Paul	9th	Both	Laborer	2	1
14810A	14.6	W	1961	Minneapolis	8th	Both	Pension	3	1
14586A	16.5	W	1963	Minneapolis	10th	Father	Unknown	3	1
14814A	15.7	N	1966	Minneapolis	10th	Mother	Welfare	7	1
14162A	16.2	N	1959	Minneapolis	8th	Mother	Welfare	3	3
11610A	17.11	W	1963	St. Louis Pk	8th	Both	Chemist	2	2
14741A	14.0	Ind.	1965	Minneapolis	7th	Both	Pension	6	7
12546A	17.7	W	1964	Minneapolis	7th	Mother	Welfare	3	4
14590A	14.11	W	1966	Two Harbors	7th	Both	Unknown	4	2
14125A	16.0	W	1965	St. Paul	7th	Father	Factory Work.	7	4
12922A	15.7	W	1965	Sp. Lake Park	8th	Both	Machine Oper.	3	1
14678A	16.2	W	1966	Palacaid	10th	Both	Farmer	4	1
14159A	17.9	W	1965	Rochester	11th	Both	Farmer	4	2

APPENDIX B.

THE DOGMATISM SCALE, Form D. by Milton Rokeach

Instructions:

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

+1: I AGREE A LITTLE	-1: I DISAGREE A LITTLE
+2: I AGREE ON THE WHOLE	-2: I DISAGREE ON THE WHOLE
+3: I AGREE VERY MUCH	-3: I DISAGREE VERY MUCH

(1) Accentuation of differences between the belief and the disbelief systems

1. The United States and Russia have just about nothing in common.
2. Communism and Catholicism have nothing in common.
3. The principles I have come to believe in are quite different from those believed in by most people.

(2) The perception of irrelevance

4. In a heated discussion people have a way of bringing up irrelevant issues rather than sticking to the main issue.

(3)

5. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
6. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
7. While the use of force is wrong by and large, it is sometimes the only way possible to advance a noble ideal.
8. Even though I have a lot of faith in the intelligence and wisdom of the common man I must say that the masses behave stupidly at times.

(1) Relative amount of knowledge possessed

9. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.

(2) Dedifferentiation within the disbelief system

10. There are certain "isms" which are really the same even though those who believe in these "isms" try to tell you they are different.

(1) 11. Man on his own is a helpless and miserable creature.

12. Fundamentally, the world we live in is a pretty lonesome place.

13. Most people just don't give a "damn" for others.

14. I'd like it if I could find someone who would tell me how to solve my personal problems.

(2) Beliefs regarding the uncertainty of the future

(a) Fear of the future

15. It is only natural for a person to be rather fearful of the future.

(b) A feeling of urgency

16. There is so much to be done and so little time to do it in.

(c) Compulsive repetition of ideas and arguments (self-proselytization)

17. Once I get wound up in a heated discussion I just can't stop.

18. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

19. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.

(3) Beliefs about self-adequacy and inadequacy

(a) Need for martyrdom

21. It is better to be a dead hero than to be a live coward.

(b) Conflict within the self

22. My hardest battles are with myself.

(c) 23. At times I think I am no good at all.

24. I am afraid of people who want to find out what I'm really like for fear they'll be disappointed in me.

(4) Self-aggrandizement as a defense against self-inadequacy

(a) Concern with power and status

25. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

26. The main thing in life is for a person to want to do something important.

27. If given the chance I would do something of great benefit to the world.

28. If I had to choose between happiness and greatness, I'd choose greatness.

(b) Moral self-righteousness

29. It's all too true that people just won't practice what they preach.

(5) Paranoid outlook on life

30. Most people are failures and it is the system which is responsible for this.

31. I have often felt that strangers were looking at me critically.

32. It is only natural for a person to have a guilty conscience.

33. People say insulting and vulgar things about me.

34. I am sure I am being talked about.

(1) Authoritarianism

(a) Beliefs in positive and negative authority

35. In the history of mankind there have probably been just a handful of really great thinkers.

36. There are a number of people I have come to hate because of the things they stand for.

(b) Belief in the cause

37. A man who does not believe in some great cause has not really lived.

38. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

39. Of all the different philosophies which exist in this world there is probably only one which is correct.

40. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.

41. To compromise with out political opponents is dangerous because it usually leads to the betrayal of our own side.

42. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.

43. In times like these, a person must be pretty selfish if he considers primarily his own happiness.

44. To compromise with our political opponents is to be guilty of appeasement.

(2) Intolerance

(a) Toward the renegade (Persons adhering to disbelief subsystems most similar to one's own belief system--factional or renegade systems--are often likely to be perceived as especially threatening to the validity of the belief system. We assume that this will become increasingly the case the more closed the system.)

45. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.

46. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.

47. A group which tolerates too much differences of opinion among its own members cannot exist for long.

(b) Toward the disbeliever

48. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

49. My blood boils whenever a person stubbornly refuses to admit he's wrong.

50. A person who thinks primarily of his own happiness is beneath contempt.

51. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

52. I sometimes have a tendency to be too critical of the ideas of others.

(1) Tendency to make a party-line change (Referring to a change in peripheral beliefs following a change in intermediate beliefs.)

53. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

54. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

(2) Narrowing (Referring to the selective avoidance of contact with facts, events, etc., incongruent with one's belief-disbelief system.)

55. In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.

56. There's no use wasting your money on newspapers which you know in advance are just plain propaganda.

57. Young people should not have too easy access to books which are likely to confuse them.

Attitude toward the past, present, and future

58. The present is all too often full of unhappiness. It is only the future that counts.

59. It is by returning to our glorious and forgotten past that real social progress can be achieved.

60. To achieve the happiness of mankind in the future it is sometimes necessary to put up with injustices in the present.

Knowing the future

61. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."
62. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.
63. Most people just don't know what's good for them.
64. There is nothing new under the sun.
65. To one who really takes the trouble to understand the world he lives in, it's an easy matter to predict future events.

Belief in force as a way to revise the present

66. It is sometimes necessary to resort to force to advance an ideal one strongly believes in.

APPENDIX C.

THE MINNESOTA STUDENT ATTITUDE INVENTORY by Ned A. Flanders

This is not a test because there are no wrong answers. The answer to each question is A MATTER OF OPINION, and your true opinion, whatever it is, IS THE RIGHT ANSWER. You will be asked a lot of questions about how much you like this class, the teacher, and the work you are doing here. All the questions refer to THIS ONE CLASS AND THIS PARTICULAR TEACHER. By giving frank, true answers to show exactly how you feel, you can help us understand the opinions of students.

- Directions:
1. Please do not write your name on the answer sheet.
 2. Do not skip any questions, answer each one carefully.
 3. Make sure the number on your answer sheet matches the question number when you mark your answer. Double check when you are asked.

HERE IS AN EXAMPLE

Q. I think my homework is very hard.

SD-STRONGLY DISAGREE D-DISAGREE U-UNCERTAIN A-AGREE
SA-STRONGLY AGREE

You have five alternatives to choose from. You might STRONGLY DISAGREE with the statement. If so you would put an "X" in the SD box on your answer sheet.

If you felt UNCERTAIN about the statement, you would put an "X" in the U box on your answer sheet.

Or, for example, you might AGREE with the statement, but not STRONGLY. If so, you would put an "X" in the A box.

DO NOT WRITE ON THIS QUESTIONNAIRE BECAUSE OTHER STUDENTS WILL HAVE TO USE IT.

1. This teacher asks our opinion in planning work to be done.
2. This teacher keeps order with a fair and firm hand.
3. I get along well with this teacher.
4. I find it easy to talk to this teacher.
5. This teacher never asks trick questions to show how dumb we are.
6. Most of us get pretty bored in this class.
7. This teacher never slaps us or handles us roughly.
8. No one dares talk back to this teacher.
9. This teacher is one of the best I have ever had.
10. I just don't trust this teacher.
11. It is easy to fool this teacher.
12. This teacher makes sure WE understand our work.
13. This teacher often sends boys and girls out of the room as punishment.
14. This teacher really understands boys and girls my age.

15. Our teacher is very good at explaining things clearly.
16. Frankly, we don't pay attention to this teacher.
17. This teacher has lost the respect of the class.
18. Sometimes things "get out of control" in this class.
19. This teacher certainly knows what he (she) is doing.
20. This teacher often "bawls you out" in front of the class.
21. This teacher makes it fun to study things.
22. This teacher has some special favorites or "teacher's pets."
23. Our teacher never gives us extra assignments as punishment.
24. This teacher wants to check our work to make sure we are on the right track.
25. I really like this class.
26. Sometimes I think this teacher is deaf.

27. This teacher helps us get the most out of each hour.
28. This teacher is cool and calm.
29. In this class we fool around a lot in spite of the teacher.
30. When I'm in trouble I can count on this teacher to help.
31. This teacher becomes confused easily.
32. This teacher will punish the whole class when he (she) can't find out who did something bad.
33. This teacher thinks clearly.
34. Some of the students are smarter than this teacher.
35. This teacher lets us discuss things in class.
36. It is fun to see how much we can whisper before we get caught.
37. This teacher makes everything seem interesting and important.
38. I wish I could get even with this teacher.
39. This teacher knows a lot.

40. This teacher is quick to see a new point.
41. This teacher is too bossy.
42. This teacher never gets angry and shouts at us.
43. We often complain just to get out of work.
44. If I could get away with it, I'd sure like to tell this teacher off!
45. This class is noisy and fools around a lot.
46. This is the best teacher I have ever had.
47. You can't walk around in this class without permission.
48. It seems that somebody is always getting punished in this class.
49. I wish I could have this teacher next year.
50. This teacher has lots of fun with us.
51. Sometimes just thinking about this class makes me sick.
52. This teacher makes very careful plans for each day's work.

53. I have bad dreams about this class.
54. This teacher helps students when they have problems with their work.
55. Frankly, we just don't obey the teacher in this class.
56. There is something about this class that makes me feel very uneasy.
57. This teacher always takes time to find out your side of a difficulty.
58. This teacher never pushes us or shakes us in anger.
59. This teacher punishes me for things I don't do.
60. This teacher likes to hear students' ideas.
61. I think this teacher has a grudge against me.
62. We behave well in this class even when the teacher is out of the room.

APPENDIX D

TEST RESULTS & RANK ORDER OF SUBJECTS FOR ANALYSIS

TEST RESULTS

RED WING BOYS TRAINING SCHOOL

Student Number	Dogmatism*	Reading	V-P-FS IQ	School Atti- tude*	Reading Achieve- ment Ratio*
14072A	-1	5.7-5.9-5.8	99-99-99	190	2.10
14689A	+62	5.7-7.0-6.4	85-78-81	220	1.49
14017A	+6	2.9-6.7-4.8	96-100-98	212	2.06
14115A	+39	7.3-8.5-7.9	97-106-101	196	1.53
14448A	+30	9.7-8.9-9.3	116-125-123	215	1.25
12964A	-11	9.7-11.5-10.6	114-130-122	211	1.23
14648A	+8	5.5-8.0-6.7	99-107-103	154	1.70
14335A	+10	5.3-5.8-5.6	87-81-83	201	1.60
14404A	+6	4.8-4.8-4.8	86-78-81	146	1.93
12717A	+8	5.3-8.3-6.8	94-82-87	165	1.55
11111A	+2	6.8-8.3-7.6	92-100-96	177	1.27
12065A	+46	5.0-9.5-7.3	94-97-103	161	1.82
12156A	+1	7.9-10.3-9.1	92-108-99	150	1.39
14167A	+20	5.3-6.7-6.0	85-94-88	186	1.50
14809A	-4	5.5-6.3-5.9	77-87-80	203	1.51
14414A	+24	9.2-9.5-9.4	95-104-99	179	1.27
12982A	+39	6.6-8.0-7.3	89-102-94	147	1.64
14650A	+39	2.9-3.8-3.4	78-85-81	172	2.82
14679A	+31	10.4-8.3-9.4	106-120-113	199	1.52
14790A	+18	7.3-8.3-7.8	96-99-97	208	1.20
12542A	+47	4.5-4.1-4.3	78-98-86	182	2.33
14777A	+50	6.0-3.0-4.5	83-89-84	175	2.15
14229A	+2	4.2-3.9-4.1	86-92-88	180	2.95
14510A	-26	7.9-8.3-8.1	103-99-102	179	1.44
12608A	-19	3.1-8.9-5.6	110-92-103	134	2.79
12591A	+24	4.3-4.6-4.5	95-113-106	143	2.31
10800A	-32	5.5-4.0-4.8	71-90-80	116	1.89

APPENDIX D (continued)

Student Number	Dogmatism*	Reading	V-P-FS IQ	School Atti- tude*	Reading Achieve- ment Ratio*
12724A	-27	7.3-11.5-9.4	108-123-115	169	1.55
9063A	-35	7.9-8.9-8.4	102-90-97	171	1.32
12574A	+16	10.4-11.5-11.0	100-116-108	193	1.12
14646A	+13	5.0-6.1-5.6	81-108-92	163	1.80
14071A	+9	6.6-9.5-8.1	105-117-111	182	1.52
14638A	+35	6.8-7.5-7.2	104-83-95	169	1.47
12696A	+8	8.2-7.2-7.7	91-106-94	169	1.38
14422A	+46	8.7-11.5-10.1	96-120-107	160	1.16
11441A	+17	6.8-4.0-5.4	95-90-93	173	2.22
14810A	+1	5.1-6.2-5.6	88-98-93	149	1.59
14586A	-4	4.7-7.0-5.9	88-79-83	139	1.60
14814A	+87	4.3-3.3-3.8	81-96-87	146	2.45
14162A	-3	2.9-3.5-3.2	77-92-83	207	2.90
14810A	+1	5.1-6.2-5.6	88-98-93	149	1.59
14586A	-4	4.7-7.0-5.9	88-79-83	139	1.60
14814A	+87	4.3-3.3-3.8	81-96-87	146	2.45
14162A	-3	2.9-3.5-3.2	77-92-83	207	2.90
11610A	+11	10.4-11.5-11.0	106-112-109	175	1.20
14741A	+44	5.3-3.9-4.6	81-86-82	183	1.61
12546A	+20	6.6-7.2-6.9	93-108-97	172	1.89
14590A	+19	7.0-5.2-6.1	102-125-116	150	1.42
14125A	+120	4.0-3.9-4.0	87-91-88	157	2.40
12922A	-30	7.0-11.5-9.3	98-83-91	183	1.04
14678A	+73	6.4-9.5-8.0	97-108-102	188	1.34
14159A	-20	11.8-12.0-11.9	117-109-115	214	1.23
Mean:	17.06	8.35	FS 100	170.85	1.75

*Dogmatism scores are from low to high dogmatism
 School attitude scores are in a positive direction
 High reading achievement ratio's indicate significant
 under-achievement

APPENDIX D (continued)
TEST RESULTS
LANSING BOYS TRAINING SCHOOL

Student Number	Dogmatism*	Reading	V-P-FS IQ	School Atti- tude*	Reading Achieve- ment Ratio*
35799	+16	5.7-7.5-66	98-100-99	184	1.76
35784	+21	8.5-9.2-8.9	107-89-99	149	1.24
35729	+62	3.2-2.9-3.1	80-87-82	185	3.00
35925	+52	3.9-4.2-4.1	88-94-90	212	2.78
35596	+61	3.9-4.6-4.3	86-78-81	191	2.39
35776	-6	8.3-9.2-8.7	92-102-96	192	1.19
36096	+178	6.4-6.6-6.5	94-94-93	156	1.62
35844	+32	3.9-4.9-4.4	91-92-91	175	2.29
36014	+39	3.9-3.0-3.5	81-87-83	202	2.87
36013	+18	5.4-5.9-5.7	91-118-104	136	1.88
36077	0	3.9-3.9-3.9	81-96-87	242	2.26
35761	+112	10.0-8.7-9.3	121-97-111	134	1.16
35736	+19	9.0-7.0-8.0	104-104-104	247	1.47
35495	+56	3.2-3.4-3.3	79-101-88	187	2.69
35958	+83	5.9-6.0-6.0	96-114-105	207	1.66
35117	-9	4.5-3.3-3.9	89-79-83	207	2.17
35960	+11	8.3-6.5-7.4	101-95-99	204	1.49
35577	+24	4.1-4.3-4.2	75-94-83	189	2.00
35977	+40	6.8-7.8-7.3	92-111-101	175	3.00
35516	+52	4.9-4.6-4.8	82-100-90	194	2.18
35928	+51	7.8-7.2-7.5	95-115-105	180	1.60
34988	+48	5.7-6.7-6.2	85-90-86	179	1.66
35705	+98	9.0-8.0-8.5	114-85-100	167	1.12
35945	+103	5.5-5.0-5.3	95-121-108	197	1.62
35390	-38	6.8-7.0-6.9	1.6-111-109	217	1.29
35812	+41	5.2-5.0-5.1	99-95-97	167	2.00
34019	+37	5.7-6.7-6.2	101-100-100	173	1.82
34878	+28	5.7-5.6-5.7	100-106-103	184	1.91
36061	+49	5.7-6.3-6.0	113-86-100	199	1.57
35743	+36	4.2-5.4-4.8	81-115-97	222	2.54
36116	+87	3.4-3.8-3.6	85-92-87	180	2.34

APPENDIX D (continued)

Student Number	Dogmatism*	Reading	V-P-FS IQ	School Atti- tude*	Reading Achieve- ment Ratio*
35988	+117	4.6-3.8-4.4	92-90-91	181	1.29
35675	+58	6.0-6.0-6.0	72-88-80	226	1.40
35821	+48	4.1-3.8-4.0	94-82-87	195	1.98
35819	+79	5.2-3.9-4.6	95-121-108	207	2.41
36017	+82	5.9-5.2-5.6	92-107-99	198	1.97
35943	+60	3.4-3.8-3.6	80-90-83	187	2.39
40007	-2	5.1-5.7-5.4	94-94-93	187	1.58
35169	+50	5.3-7.2-6.3	95-113-104	194	1.85
34411	+96	4.5-5.1-4.8	82-117-99	182	2.63
35779	+8	5.4-6.2-5.8	86-85-84	200	1.56
35795	+65	6.4-7.5-7.0	97-104-101	170	1.63
40012	+52	3.3-4.3-3.8	98-100-99	156	2.28
35762	+50	5.9-6.1-6.0	106-90-99	162	1.47
35499	+12	4.4-4.7-4.6	94-103-98	183	2.46
35871	+18	2.8-3.2-3.0	85-90-86	184	3.70
36150	+21	6.2-6.7-6.5	94-85-88	202	1.31
35808	+26	6.6-6.7-6.8	111-97-105	193	1.48
Mean:	46.75	5.58	FS 95	188.33	1.95

*Dogmatism scores are from low to high dogmatism
 School attitude scores are in a positive direction
 High reading achievement ratio's indicate significant
 under-achievement

APPENDIX D (continued)

RANK ORDER ASSIGNMENTS
RED WING BOYS TRAINING SCHOOL

Student Number	AGGRESSIVE BEHAVIOR			Reading	Dogma- tism	School Attitudes	IQ
	Court Reports	Self Reports	Staff Reports				
14072A	33	03	--	18	38	36	30
14689A	34.5	10	--	23	04	48	04
14017A	16	25	--	11	32.5	45	28
14115A	26	27	--	33	11	38	32
14448A	04	23	--	39.5	16	47	48
12964A	27	47	--	45	42	44	47
14648A	12	33	--	24	30	12	36.5
14335A	44	44	--	15.5	27	40	08
14404A	47	15	--	11	32.5	05.5	04
12717A	34.5	04.5	09	25	30	16	12.5
11111A	30	21	13	30	34.5	26	24
12065A	41	22	--	28.5	07.5	14	36.5
12156A	32	01	--	38	36.5	09.5	30
14167A	21	19	18	21	19.5	34	15
14809A	10	08	--	19.5	40.5	41	01.5
14414A	45	16	--	42	17.5	27.5	30
12982A	42.5	06	05	28.5	11	07	21.5
14650A	14	18	--	02	11	21.5	04
14679A	42.5	12	07	42	15	39	43
14790A	28.5	36	--	32	22	43	26
12542A	15	30	--	06	09	30.5	11
14777A	05	07	--	07.5	05	24.5	10
14229A	08.5	13	--	05	34.5	29	15
14510A	38	41	--	35.5	45	27.5	33.5
12608A	28.5	35	--	15.5	43	02	36.5
12591A	23.5	04.5	02	07.5	17.5	04	36.5
10800A	25	37.5	--	11	48	01	01.5
12724A	36	02	--	42	46	18	45
9063A	31	48	--	37	13.5	20	26
12574A	11	32	01	46.5	24	37	40
14646A	37	14	16	15.5	25	15	18
14071A	07	28	12	35.5	28	30.5	42
14638A	21	34	14	27	13.5	18	23
12696A	39.5	29	--	31	30	18	21.5

APPENDIX D (continued)

Student Number	<u>AGGRESSIVE BEHAVIOR</u>			Reading	Dogma- tism	School Attitudes	IQ
	Court Reports	Self Reports	Staff Reports				
14422A	23.5	24	10	44	07.5	13	39
11441A	07	46	--	13	23	23	19.5
14810A	07	17	08	15.5	36.5	08	19.5
14586A	13	42	04	19.5	40.5	03	08
14814A	02.5	20	15	03	02	05.5	12.5
14162A	17	43	--	01	39	42	08
11610A	19	09	03	46.5	26	24.5	41
14741A	46	11	11	09	06	32.5	06
12546A	21	26	--	26	19.5	21.5	26
14590A	18	39	--	22	21	09.5	46
14125A	01	37.5	06	04	01	11	15
12922A	09	31	17	39.5	47	32.5	17
14678A	39.5	45	--	34	03	35	33.5
14159A	48	40	19	48	44	46	44
N.=	48	48	19	48	48	48	48

APPENDIX D (continued)

RANK ORDER ASSIGNMENTS
LANSING BOYS TRAINING SCHOOL

Student Number	AGGRESSIVE BEHAVIOR			Reading	Dogma- tism	School Attitudes	IQ
	Court Reports	Self Reports	Staff Reports				
35799	26	09	02	27	40	20	29
35784	29.5	39.5	26	45	35.5	03	29
35729	10.5	23.5	01	02.5	12	22	03
35925	22	26	--	05	18.5	43	16.5
35596	39	39.5	--	11.5	13	27	02
35776	48	36	--	46	46	28	22
36096	46	01	--	31.5	01	04.5	20.5
35844	13	11	08	14	31	11.5	18.5
36014	10.5	17	--	04	28	37.5	05.5
36013	06	06	--	24	38.5	02	40
36077	25	38	25	16	44	47	12
35761	19.5	06	22	47	03	01	48
35736	32	45	15	39.5	37	48	40
35495	14	12.5	--	06	16	24	14.5
35958	19.5	37	--	28.5	08	41	43
35117	02	03	11	18	47	41	05.5
35960	44	18	--	37	42	39	29
35577	38	15	17	19.5	34	26	05.5
35977	47	29.5	20	02.5	27	11.5	36.5
35516	03	03	14	17	18.5	30.5	16.5
35928	43	21	23	33	21	14.5	43
34988	12	42	03	28.5	24.5	13	09.5
35705	29.5	06	21	48	05	07.5	34
35945	41.5	27	27	31.5	04	33	45.5
35390	09	09	06	43.5	48	44	47
35812	04.5	15	10	19.5	26	07.5	23.5
34019	34	22	--	26	29	10	34
34878	31	20	--	23	32	20	38
36061	41.5	28	19	35	23	35	34
35743	28	23.5	--	08	30	45	23.5
36116	40	47	--	13	07	14.5	12
35988	04.5	33.5	12	43.5	02	16	18.5
35675	17	32	07	41	15	46	01
35821	23	15	05	21	24.5	32	12

APPENDIX D (continued)

Student Number	AGGRESSIVE BEHAVIOR			Reading	Dogma- tism	School Attitudes	IQ
	Court Reports	Self Reports	Staff Reports				
35819	15	19	--	10	10	41	45.5
36017	33	41	16	22	09	34	29
35943	07.5	09	24	11.5	14	24	05.5
40007	36.5	48	09	34	45	24	20.5
35169	27	33.5	13	25	21	30.5	40
34411	21	25	28	07	06	17	29
35779	24	31	--	36	43	36	08
35795	36.5	45	04	30	11	09	36.5
40012	07.5	35	18	15	17	04.5	29
35762	18	12.5	--	39.5	21	06	29
35499	16	29.5	--	09	41	18	25
35871	01	03	--	01	38.5	20	09.5
36150	35	45	--	42	35.5	37.5	14.5
35808	45	43	--	38	33	29	43
N.=	48	48	28	48	48	48	48

APPENDIX E

CORRELATIONAL RELATIONSHIPS BETWEEN VARIABLES

CORRELATIONS OF AGGRESSIVE BEHAVIOR COURT REPORT DATA BOTH GROUPS

Lansing Subjects N=48				
<u>Aggressive Behavior and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>p</u>
Reading	12440.00	.33	2.38	.025
Dogmatism	18484.00	.00	.00	NS
School Attitude	15233.50	.18	1.24	NS
IQ	13292.00	.28	1.97	.05
Red Wing Subjects N=48				
<u>Aggressive Behavior and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>p</u>
Reading	11072.25	.40	2.94	.005
Dogmatism	17660.25	.04	.27	NS
School Attitude	17139.00	.07	.48	NS
IQ	16348.00	.12	.84	NS

APPENDIX E (continued)

CORRELATIONS OF AGGRESSIVE BEHAVIOR
SELF REPORT DATA
BOTH GROUPS

Lansing Subjects N=48				
<u>Aggressive Behavior and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>p</u>
Reading	15274.25	.18	1.24	NS
Dogmatism	18181.75	.02	.14	NS
School Attitude	13318.25	.28	1.97	.05
IQ	17665.50	.05	.34	NS
Red Wing Subjects N=19				
<u>Aggressive Behavior and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>p</u>
Reading	16203.50	.13	.92	NS
Dogmatism	16419.50	.11	.76	NS
School Attitude	15985.50	.14	.99	NS
IQ	16587.00	.10	.69	NS

APPENDIX E (continued)

CORRELATIONS OF AGGRESSIVE BEHAVIOR
STAFF REPORT DATA
BOTH GROUPS

Lansing Subjects N=28				
<u>Aggressive Behavior and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>p</u>
Reading	3355.25	.09	.46	NS
Dogmatism	4602.00	-.25	1.31	NS
School Attitude	4033.00	-.10	.50	NS
IQ	28030.50	.35	1.89	.05

Red Wing Subjects N=19				
<u>Aggressive Behavior and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>p</u>
Reading	1165.50	-.02	.08	NS
Dogmatism	926.00	.19	.77	NS
School Attitude	712.00	.38	1.68	.05
IQ	1271.00	-.11	.45	NS

APPENDIX E (continued)

READING CORRELATIONS
BOTH GROUPS

Lansing Subjects N=48				
<u>Reading and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
Dogmatism	16233.75	.12	.88	NS
School Attitude	19543.00	-.06	.41	NS
IQ	11527.50	.38	2.77	.005

Red Wing Subjects N=48				
<u>Reading and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
Dogmatism	14040.75	.24	1.67	NS
School Attitude	12880.00	.31	2.21	.025
IQ	5451.00	.71	4.95	.001

APPENDIX E (continued)

IQ CORRELATIONS
BOTH GROUPS

Lansing Subjects N=48				
<u>IQ and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
Reading	11527.50	.38	2.77	.005
Dogmatism	20170.50	-.09	.62	NS
School Attitude	21191.50	.81	8.32	.001

Red Wing Subjects N=48				
<u>IQ and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
Reading	5451.00	.71	4.95	.001
Dogmatism	14880.25	.19	1.36	NS
School Attitude	15705.00	.15	1.15	NS

APPENDIX E (continued)

DOGMATISM AND SCHOOL ATTITUDE CORRELATIONS BOTH GROUPS

Lansing Subjects N=48				
<u>Dogmatism and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
School Attitude	13707.75	.26	1.89	.05
IQ	20170.50	-.09	.62	NS
<u>School Attitude and:</u>				
IQ	21191.50	.81	8.32	.001
Red Wing Subjects N=48				
<u>Dogmatism and:</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
School Attitude	17044.50	.08	.54	NS
IQ	14880.25	.19	1.36	NS
<u>School Attitude and:</u>				
IQ	15705.00	.15	1.15	NS

APPENDIX E (continued)

CORRELATIONS AMONG THE THREE MEASURES OF AGGRESSIVE BEHAVIOR BOTH GROUPS

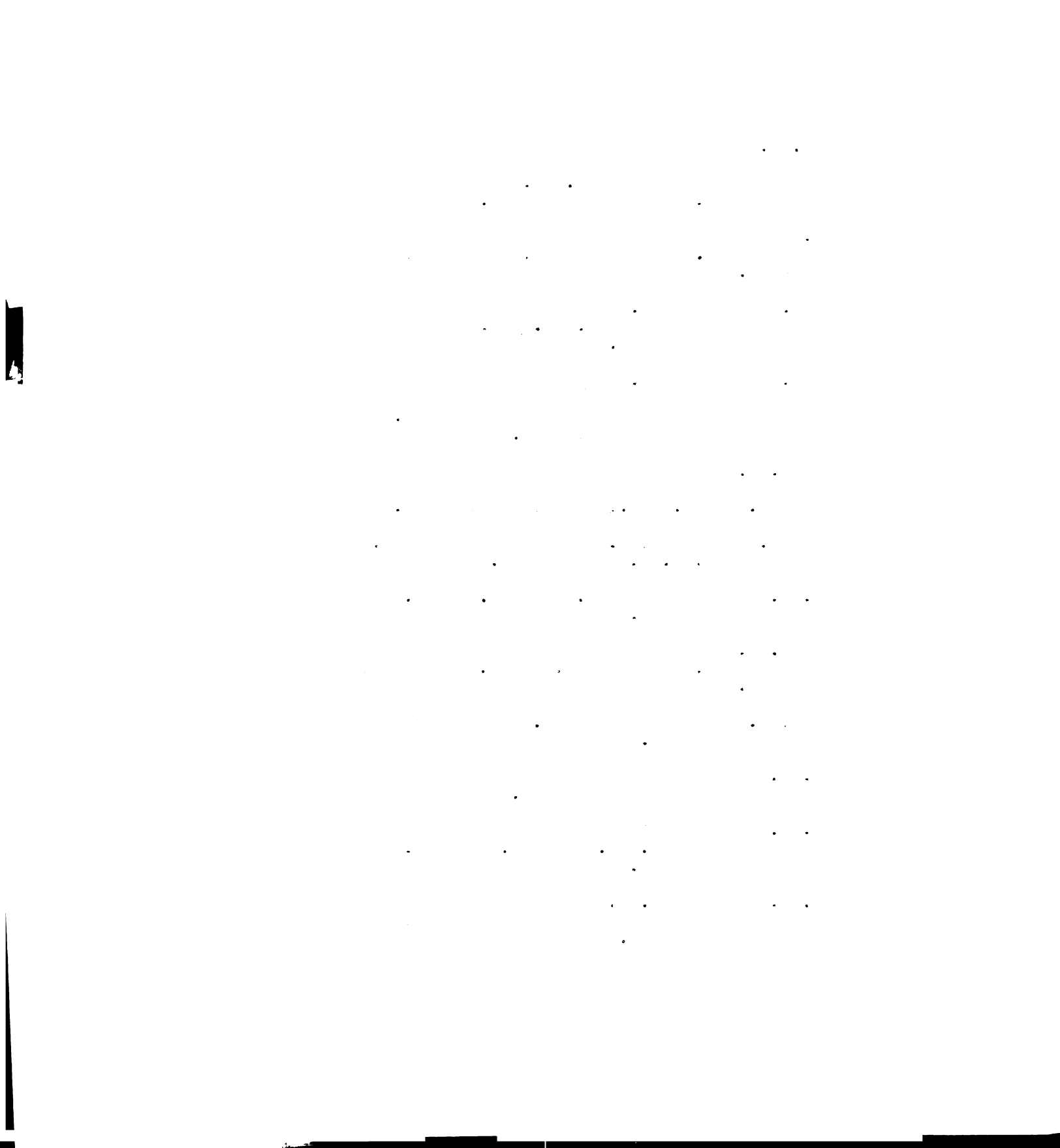
Lansing Subjects					
<u>Measure:</u>	<u>N=</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
Court to Self Reports	48	10531.75	.43	3.23	.005
Court to Staff Reports	28	1278.75	.75	4.75	.001
Self to Staff Reports	28	3605.00	.02	.10	NS

Red Wing Subjects					
<u>Measure:</u>	<u>N=</u>	<u>D²</u>	<u>r.</u>	<u>t-Value</u>	<u>P</u>
Court to Self Reports	48	20529.00	-.11	.76	NS
Court to Staff Reports	19	1080.50	.06	.25	NS
Self to Staff Reports	19	842.50	.26	1.83	.05

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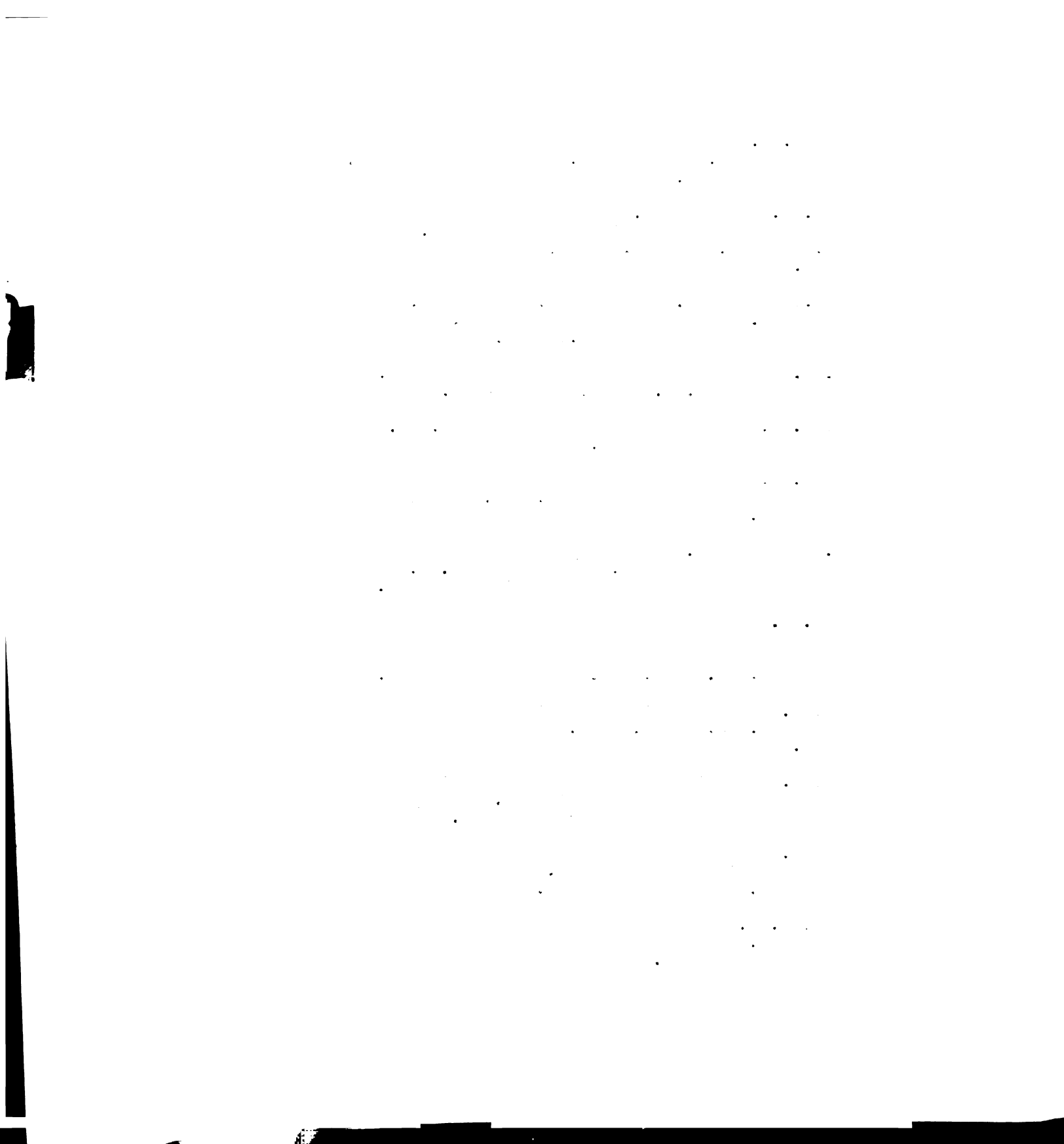
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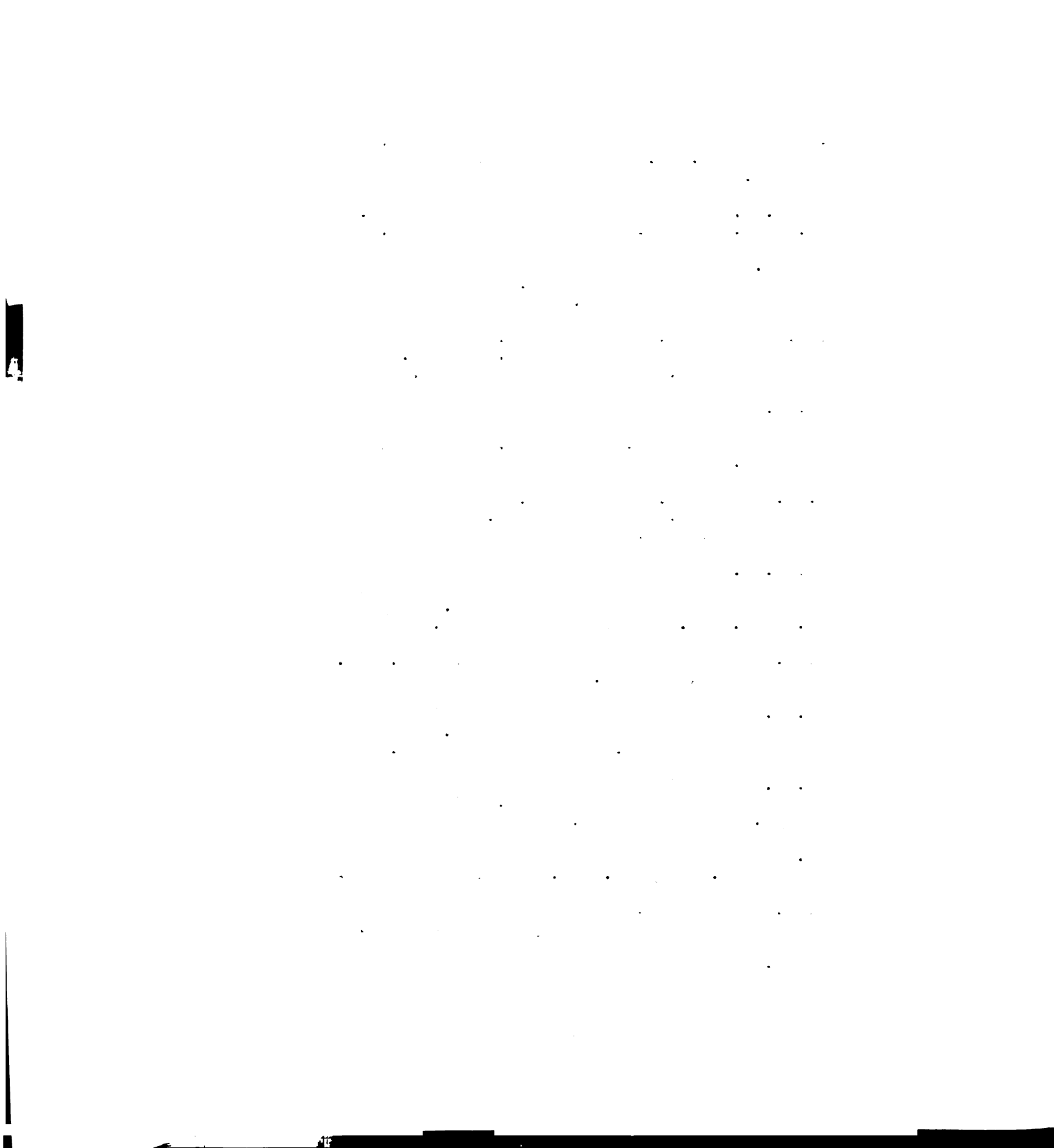
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