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DIFFERENTIAL PERFORMANCES OF
MINIMALLY BRAIN-DAMAGED BOYS AND
OF NON-BRAIN-DAMAGED BOYS ON
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DIFFERENTIAL PERFORMANCES OF MINIMALLY BRAIN-DAMAGED BOYS
AND OF NON-BRAIN-DAMAGED BOYS ON SELECTED TESTS

by

Una A. Lange

A DISSERTATION

Presented to the Faculty of

The Graduate College in the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctor of Education

Department of Educational Psychology and Measurements

Under the Supervision of Professor Marshall S. Hiskey

Lincoln, Nebraska

May, 1969

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U.A.L.

PREVIEW

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PREVIEW

CHAPTER I

INTRODUCTION

In recent years psychologists, psychiatrists, physicians and educators have become interested in a group of children often referred to as minimal brain-damaged. Even though these children have low average, average, or above average intelligence, they do not function as "normal" children. Many of their behavioral characteristics are comparable to those of an emotionally disturbed child. The psychologists and psychiatrists often find it difficult, if not impossible, to differentiate between the two. Other professional people also find this group difficult to diagnose as their symptoms are often suggestive, but not conclusive, of minimal brain-damage.

Birch (1964) stated that the fact of brain damage in children and the concept "the brain-damaged child" are quite different matters. Brain damage as a fact refers to any anatomic or physiologic alteration of a pathologic kind present in the nerve tissues of the brain. The concept "the brain-damaged" is a term that has been used to designate a certain pattern or set of patterns of behavioral disturbance. Many children who have been brought to the attention of educators and other professional people have rather subtle disturbances of the nervous system. Some of the children do not exhibit gross motor disturbances and alterations of normal reflex patterns that have been correlated with damage to the central nervous system. Instead, the children present varied pictures of developmental lag, of behavioral disturbance,

of motor awkwardness, of minor perceptual disturbances, of distractibility, of limitation of attention span, of thought disturbances and of educational difficulties. Birch (1964) stated that there has been a tendency to separate such children from the more classical cases of neurologic injury by a change in nomenclature and to term them "minimally" or "diffusely" brain-damaged. When the terms "brain-injured" or "brain-damaged" are used in this study, they are used in reference to that group of children which this writer has chosen to call minimal brain-damaged.

Cruickshank (1966) stated that over the years there have always been some mentally retarded children who did not seem to fit the pattern of mental retardation, and some emotionally disturbed children who did not respond to the therapies and educational programs to which most emotionally disturbed children responded well. These children have perplexed educators and frustrated parents who were unable to cope with the unusual learning behavior problems which their children demonstrated. It is now known that many of such children are brain-damaged.

Anderson (1963) stated whereas no two people handicapped by brain damage are alike, they all have some impediments to the socialization process and experience, no matter how bright they may be in certain areas. One trite characterization of them is that "they are bright but dumb." When one considers that the very defects which they characteristically have are in the capacities that develop and enhance human relationships, it becomes clear why their handicap, though

unseen, assures that they will be misfits and borderline people, square pegs in round holes and problems to society. Throughout their lives they seem to be less problem to themselves than they are to others.

Minimally brain-damaged children may be strong in one area and very poor in another. Some days they appear to grasp everything that is presented and other days they grasp nothing. There are also the children that teachers and parents often say "could learn if only they would try." Minimally brain-damaged children display many characteristics which affect their lives and create learning problems. The characteristics most often referred to in the literature are hyperactivity, impulsivity, dissociation, figure-background reversals, perseveration, poor motor coordination and poor self orientation.

Cruickshank (1967,b) stated that hyperactivity takes on two related forms. The first form, which is most significant to school achievement, is sensory hyperactivity. Sensory hyperactivity may cause the child to respond to unessential or irrelevant stimuli. This behavior characteristic may be due to cortical brain damage, but it may also be a learned type of behavior, used by the child in an attempt to find somehow a point which will provide him with a cordial relationship with others. A combination of cortical damage and learned behavior may be involved. Sensory hyperactive children, because of some neurological impairment are unable to refrain from reacting to stimuli, irrespective of whether the stimulus is significant or insignificant to their immediate activity. Stimuli can involve any

sense--sight, smell, hearing, taste or touch--and can be either external or internal.

The second form, which often creates management problems in the home and the school, is motor hyperactivity. Such behavior is sometimes referred to as impulsivity. Motor hyperactivity or motor disinhibition is defined as the child's inability to refrain from reacting to stimuli that produce or prompt a motor response. Thus, anything within the child's visual field or arm's reach which can be touched, pulled, twisted, turned, bent or pushed becomes a stimulus to which some brain-damaged children must respond.

Many degrees of hyperactivity exist. Some children are visually or auditorily hyperactive to extraneous stimuli while other children show motor disinhibition to varying degrees. Some hyperactivity is so severe that parents seek medical assistances in hopes that medication will make life more liveable for all members of the family. Hyperactivity in all forms and degrees is one of the most significant hurdles to adjustment in the home and school. It is perhaps the single most debilitating characteristic of brain injury in children.

Dissociation is a very important characteristic of a minimally brain-damaged child. Dissociation is the inability to see things as a whole or as a gestalt. The child sees parts of things but often-time does not comprehend the total mosaic. Dissociation is the inability to conceptualize separate things into a meaningful unit. A child, for example, may be able to conceptualize the three separate lines of an m but be unable to bring them together into a recognizable

concept. Dissociation is a great handicap when a child is trying to learn to read, spell or write.

Another characteristic of brain-injured children is referred to as figure-background reversal. Figure-background reversal is the inability to keep the figure and background in their proper relationship one to the other. The background stimuli take precedence over the figure stimuli for a child who is experiencing figure-background reversals. For instance a child may recognize a word on a flashcard, but be unable to do so in a book because he is unable to discriminate the desired word from the others on the page.

Another characteristic affecting the learning processes of brain-damaged children is referred to as perseveration. Perseveration may be defined as the inability of an individual to shift from one mental activity to another with ease. Cruickshank (1967) stated that with brain-damaged children perseveration appears to be the prolonged after-effect of a stimulus on subsequent activities in which the child may be engaged. In writing a word, suddenly he may write, without any apparent reason, one letter over and over again. In coloring, he often covers the entire page with one color. He may talk about one topic incessantly for a period of months. Perseveration is a serious problem for a child to handle. It is not always obvious to the adult that the child is experiencing perseveration. When it is obvious, it is a difficult psychological manifestation to dispel.

Two aspects of motor development that are typically defective in brain-damaged children are motor incoordination and psychological orientation to body position in space. Minimally brain-damaged children appear clumsy because they are not quite sure of their own bodies in respect to space, and because they are poor judges of size, shape, distance and direction. They, therefore, frequently trip, bump into things and fall out of their chairs. They are slow in mastering running, jumping, skipping, throwing and catching.

The minimally brain-damaged child also has a faulty body image. He cannot integrate the various perceptions of his whole organism concerning his body and its relationship to the world. He may be unable to imitate a simple posture or movement because he is not sure where the various parts of his body are at any given time.

A minimally brain-damaged child may have one or more of the above mentioned characteristics. Seldom, if ever, does a child have all of them. The combination of behavioral characteristics found in minimally brain-damaged children are many and no two brain-damaged children are exactly alike. The term "brain-damaged" sometimes carries the connotation of irreversible injury. The term is not entirely accurate because it is not always possible to demonstrate conclusively the presence of an actual brain lesion or injury. Cruickshank (1967,a) stated that the word "minimal" was used to minimize the problem in the minds of the parents or to place it on a level of less seriousness than it deserved. In reality children with minimal brain damage present very complicated learning and adjustment problems. Any brain dysfunction

should not be considered minimal. If the child has experienced any kind of neurological injury, serious physical manifestations or perceptual and learning problems may result.

Cruickshank (1966) stated that the learning problems presented by minimally brain-damaged children are of great magnitude. If these problems are left unattended, they leave adjustment scars which may have lifetime significance for the individual. Minimally brain-damaged children appear normal but are often the "misfits" in society. Such children often require individual programs which are designed especially for them. Clements and Peters (1962) stated, however, that many minimally brain-damaged children fall victim to the very questionable practice of "social passing" or of placement in a special education class for mentally retarded children. Both practices are harmful for the children frequently become educational, social and emotional casualties.

Purpose of the Study

The interpretations of the results of many psychological tests have been credited with being able to show differences in the performance of brain-damaged and non-brain-damaged children; however, the differences found have not always been significant. The purpose of this study was to determine if the scores derived from a specific battery of tests could serve as a reliable screening device for diagnosing differences between minimally brain-damaged and non-brain-damaged boys. In this study, the subjects were boys, ages 8-12, inclusive.

Definitions

There is much controversy over the term that should be used to describe minimally brain-damaged children. Clements (1966) and others formed a task force to study terminology and criteria used to define the group. Members of the task force found that there were 38 different descriptive terms used in reference to these children. A complete list of terms can be found in Appendix A. This researcher found that, even though other titles were used by various authors, many of the authors used minimally brain-damaged interchangeably with the other terms. The term "minimally brain-damaged," therefore, was chosen to describe one group of boys included in the study.

1. Brain-damaged: a child who before, during, or after birth has received an injury to or suffered an infection of the brain. As a result of such organic impairment, defects of the neuromotor system may be present or absent (Strauss and Lehtinen, 1957).
2. Minimally brain-damaged (Association Deficit Pathology): a child with abnormal behavior which is derived from neurologic defect incurred early in life; and the disturbance is present irrespective of environmental or interpersonal factors (Anderson and Plymate, 1962).
3. Non-brain-damaged: no evidence of syndromes of cerebral damage as judged from information gained from parents and school personnel. (Subjects with doubtful diagnosis were excluded from the group.)

4. Specific battery of psychological tests consisted of the following: The Symbol-Digit Modalities Test, The Revised Visual Retention Test, The Coloured Progressive Matrices, Draw-A-Person, Wide Range Achievement Test, Memory-for-Designs Test, and the Vocabulary of the Wechsler Intelligence Scale for Children.

General Hypotheses to be Tested

1. There is no significant difference between the performances of minimally brain-damaged boys and the performances of non-brain-damaged boys on a specific battery of psychological tests.
2. There is no significant difference between the performance of minimally brain-damaged boys and the performance of non-brain-damaged boys on the various combinations of the different tests used in the specific battery of tests.

Significance of the Study

At present there is no accurate count of the number of children who are minimally brain-damaged; however, Cruickshank (1966) stated that tens of thousands of brain-injured children wait for services which are still many years in the making. These children are in schools and they undoubtedly are to be found in every classroom in the country. Siegel (1965) stated:

There is a large group of handicapped children who desperately need our help. Before we can help them, we must first understand them. Because they are difficult to diagnose, they are frequently misunderstood. Because their defect is not an obvious one, they do not evoke sympathy. Indeed, because of their accompanying behavior disorders, they are often scorned and ridiculed [p.6].

Children with minimal brain-damage need to be diagnosed before they can receive the special treatment that they require. Many psychological tests have been devised for this purpose. Anderson (1963) stated that it is believed there is less need for new tests for determining organicity than for development of new conceptualization in evaluation of the tests now in use. A secondary part of this study was designed to implement Anderson's suggestion by using the Koppitz adaptation (1967) for scoring the Draw-A-Person test and by scoring the Revised Visual Retention test for the three errors only that are considered to be predictors of brain damage.

Grossman (1966) said that one of the major difficulties in the evaluation of children with learning and/or behavior problems is often the lack of communication between the representatives of the various disciplines. The child and his parents are often caught in the middle of professional confusion and occasionally even apathy or rivalry. The support this researcher has received from the various disciplines indicates that stronger lines of communication are being developed.

CHAPTER II

REVIEW OF LITERATURE

Medical science and other professional disciplines have made great advancements in recent years. The advances, however, have created some problems. Today, many children survive who before the time of antibiotic treatment and other lifesaving techniques would have died either at birth or from diseases such as meningitis or encephalitis, but they bear the marks of their ordeals in the form of "brain damage."

Both research and services are becoming increasingly available for children whose brain damage causes cerebral palsy, epilepsy, or mental retardation. There are many children, however, whose brain damage is less readily detected for its manifestations are perceptual and behavioral rather than motor and intellectual. Such children are largely unprovided for in the present educational organization where they are frequently misunderstood and labeled "problem children." Their perplexed parents and teachers are unable to find sources of help. Their organic impairment is compounded by social, emotional, and educational factors; and their diagnosis and treatment extend into the little-known and vaguely defined territory between the biological and social sciences.

Little data regarding the cause of brain damage are available at this time. Neurological injuries can be experienced prenatally, perinatally or postnatally. The last can be the result of many types of accidents or illnesses which children may experience in their early