

A REVISED GOODENOUGH DRAW - A - MAN TEST  
AS A MEASURE OF SCHOOL READINESS

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## TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM AND DEFINITIONS OF TERMS USED.....	1
The Problem.....	2
Statement of the problem.....	2
Importance of the study.....	2
Definitions of Terms Used.....	3
Readiness.....	3
Early developer.....	4
Late developer.....	4
II. REVIEW OF THE LITERATURE.....	5
Literature Concerning School Readiness.....	5
Anton Brenner Gestalt Test.....	14
History of Children's Drawings.....	17
Goodenough Draw - a - Man Test.....	20
Harris' Revision of Goodenough Draw - a - Man...	23
Age of School Entrance.....	25
III. THE MATERIALS AND GROUPS USED.....	31
Population Source.....	31
The Materials Used.....	31
Revised Goodenough Draw - a - Man.....	31
Goodenough Draw - a - Man.....	32
Anton Brenner Gestalt Test.....	32
Sample.....	33

CHAPTER	PAGE
IV. TECHNIQUE AND RESULTS OF THE EXPERIMENT.....	34
Coefficient of Correlation.....	34
Test of Significance.....	34
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	36
BIBLIOGRAPHY.....	38

LIST OF TABLES

TABLE	PAGE
I. Criteria for Scoring Writer's Revision of G.D.A.M.	32

## CHAPTER I

### THE PROBLEM AND DEFINITIONS OF TERMS USED

It is assumed that by the age of admittance to kindergarten each child is sufficiently developed in all capacities necessary for adjustment to school. This is not the case, however, since some children are ready for kindergarten in advance of the statutory age of entrance, whereas others may not be ready for almost another full year. If properly screened, the early developer can be located and placed in school on the basis of his ability and not on the basis of his age. The late developer could be denied entrance to school until he had developed sufficiently to adjust successfully to the school situation thereby reducing the adverse effect of school.

The ill prepared child might find entrance into school a trying experience leading to feelings of inferiority and failure. In reference to school entrance, Adler stated that:

A new situation is a test of a child's preparedness. If a child is well prepared he meets new situations with confidence. If he lacks preparedness, a new situation brings a tension which leads to a feeling of incapacity. The feeling of incapacity distorts judgement, and the reaction is untrue--that is to say, it does not correspond to the demands of the situation because it is not based on social feeling. In other words, a child's failure in school must be attributed not only to the inefficiency of the school system, but to the primary deficiency of the child.<sup>1</sup>

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<sup>1</sup>A. Adler, The Education of Children (New York: Greenburg, 1937), p. 155.

The intention of this experimenter was to construct a simple, easily administered, and easily scored revision of the Goodenough Draw-a-Man, henceforth referred to as G.D.A.M., to aid in determining a child's level of readiness for school admittance through comparison with the Anton Brenner Gestalt Test, hereafter referred to as the A.B.G.T.

### I. THE PROBLEM

Statement of the problem. The purpose of this study was to determine the relationship between the experimenter's twenty selected G.D.A.M. criteria, and the A.B.G.T.

Importance of the study. Children are admitted to kindergarten in accordance with the laws of the state in which they reside. These laws determine the minimum age of entrance into the school system. With the exception of gross physical handicaps, intellectual deficiencies or social maladjustments, the majority of children in the United States enter school because they have reached the age where they are permitted to do so.

There is a great deal of controversy concerning the age of school entrance. The mere attainment of the necessary chronological age for entrance is not a sufficient criterion for determining readiness for school. A change in environment can demonstrate numerous meaningful aspects of an individual's personality.

The transition from home to the school environment can provide the educator with clues to the child's mental, physical and social development.

Adler stated that:

In the case of children we get perhaps the best insights into their character at those moments of transition, when they pass from home to school, or when their home conditions are suddenly changed. It is then that the limitations in the child's character come out as clearly as an image on a photographic plate when it is put in a developing solution.<sup>2</sup>

Adler stated further that:

When an individual passes into a new situation, his hidden character traits come out. If we could directly experiment with individuals, we could find out their state of development by putting them through new and unexpected situations. Their conduct in such situations must be consistent with their past character in a way that ordinary situations do not.<sup>3</sup>

## II. DEFINITIONS OF TERMS USED

Readiness. Readiness, as used in this study, is defined as functional potentiality; that is, readiness to perform a task. Readiness is the result of personal, specifically perceptual and conceptual development in relation to the demands of school.<sup>4</sup>

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<sup>2</sup>Ibid., p. 150.

<sup>3</sup>Ibid.

<sup>4</sup>A. Brenner, The Brenner Gestalt Test for School Readiness (test manual) Merrill-Palmer Institute, 1963, p. 2.

Early Developer. Development of certain characteristics such as intelligence, independence in the physical skills, ability to accept differences in the ways of doing things and an interest and pleasure in the company of an increasing number of people at an earlier chronological age than that required for entrance into school. Intellectual curiosity and the ability to persevere in the face of difficulty must be sufficiently developed for a full and satisfying life in school.<sup>5</sup>

Late Developer. A child who is chronologically old enough to enter school on the basis of the early developer sufficiently to be able to master and adjust to the school environment.<sup>6</sup>

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<sup>5</sup>M. Cooper, "When is the Child Ready to Begin School?" The London Times Educational Supplement, June 10, 1966.

<sup>6</sup>Ibid.

## CHAPTER II

### REVIEW OF THE LITERATURE

In order to ascertain the criteria which are essential for school readiness, it was necessary to review the literature concerned with the definition of school readiness. A review of the material concerning the A.B.G.T., as well as the G.D.A.M., was necessary in order to determine if these tests could be employed as an accurate and valid measure of school readiness. The following is a summary of concepts and criteria concerning school readiness which was reviewed.

#### I. LITERATURE CONCERNING SCHOOL READINESS

When a child enters school it is hoped that he is ready to meet the challenges of his new environment. It is assumed that by the time the statutory age of entrance is reached he will have developed to such an extent as to be able to adjust successfully to school.

If a child's birthday is January 1, and the schools cut-off date for September entry into kindergarten or first grade is December 31, he will have to wait a year to begin school. Thousands of parents who felt sure their child was ready to go to school have had this frustrating experience because of a birth date that was to "late." Parents who think their child is smarter and faster than one permitted to enter could be absolutely right. Although some schools cling tenaciously to chronological age as the single standard of school entry, this is not an effective way to determine readiness for school.<sup>7</sup>

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<sup>7</sup>W. Abraham, A Time for Teaching, (New York; Harper & Row, 1964), p. 331.

The problem of age of entrance is not confined solely to the United States but has been considered in other countries such as England. Cooper stated in her article, "When is the Child Ready to Begin School?" the following:

What is this maturity which can be so easily observed? Should not such an important developmental feature be taken into account when children are required to attend school? In maintaining the lawful requirements of full attendance at school from five years, are we overlooking research findings based on detailed observations of children which question chronological age as the most useful criterion for the assessment of readiness for school attendance? There is plenty of evidence including utter misery, unhappiness, avoidance behavior, bad habit formation and poor attitudes among school attenders that the concept of "readiness for school" should be fully explored.<sup>8</sup>

Some adjustment problems could be avoided if we had determined what characteristics are prerequisites for school entrance and what makes a child ready. If this task could be accomplished then it would become possible to test these qualities beforehand and successfully avoid the premature placement of an ill-prepared child in a classroom.

Brenner stated that "there is no doubt...readiness for school is the basis for happiness in school and for good performance."<sup>9</sup> Both happiness and achievement can be seriously threatened if the child is not ready for school.

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<sup>8</sup>M. Cooper, op. cit.

<sup>9</sup>A. Brenner, "Nature and Meaning of Readiness for School," Merrill-Palmer Quarterly, (Spring, 1957), p.114.

This statement is amplified by the findings of Johnston, Chief of the Department of Pediatrics at the Henry Ford Hospital, Detroit. Johnston<sup>10</sup> found that many disturbances and frustrations of his young patients, especially the adolescents, could be traced to the time of school entrance.

Thompson has provided us with clues to a possible cause for the difficulties when he stated:

Introducing a child to a new learning experience before he is capable of making progress sufficient to satisfy him may result in such serious frustrations that motivation and interest are permanently depressed.<sup>11</sup>

The disinterest of certain children toward reading, arithmetic, and other subjects was often traced directly to early frustrating experiences with these subjects.

Brenner attempted to define the concept of readiness. He began by listing seven pre-scientific single trait ideas about readiness for school:

1. Physical size
2. Counting ability
3. Reading and writing one's name
4. Verbal facility
5. Intelligence
6. Sociability
7. Chronological age<sup>12</sup>

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<sup>10</sup>A. Brenner, p. 115.

<sup>11</sup>Ibid.

<sup>12</sup>Ibid., p. 116.

Brenner<sup>13</sup> was not of the opinion that all of the pre-scientific concepts were entirely incorrect, but he felt that readiness could not be assessed in these terms.

"Fred is so big. He can read and write his name and he can count to one hundred." Brenner<sup>14</sup> described this form of criteria as a plural trait concept. He felt that it comes closer to an acceptable concept of readiness for school than a single trait concept.

The Holistic concept of readiness considered the complete child rather than any one of his attributes. The child was conceived of as an organism, a unity of body and mind, a physical, mental, emotional, and social development. School readiness is the result of the interaction of these areas. Brenner<sup>15</sup> did not feel that the child's readiness could be based solely upon hereditary or environmental criteria but that readiness is the result of growth due to hereditary and environmental interactions.

Utilizing Brenner's concept of readiness, chronological age becomes a period of time in a developmental continuum which is necessary for the interaction of various processes

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<sup>13</sup>Ibid., p. 117.

<sup>14</sup>Ibid.

<sup>15</sup>Ibid., p. 120.

that unfold--bringing the child to a state of readiness. As the child will be called upon to react to a variety of new and different situations, it is necessary for him to have developed in a multitude of ways, not solely to have reached his fifth birthday. Just as not all five year olds are of equal deight, they are also not equally ready to begin school.

When the problem of readiness was viewed through the concepts of field theory, consideration of the view that an individual is influenced by and goes into action in a variable system of special places which put particular premium on certain behavior attributes was emphasized.<sup>16</sup> Various changes in the subfields occurred constantly for the child, but basically it was usually the whole child that was operating and operated upon. In essence, the concept of readiness was viewed as a constant interaction between a child and the field of forces in which he lived.

Personal growth throughout the years was characterized by a decrease in outer motivation and an increase in self-motivation. One of the functions of outer motivation was to develop readiness as opposed to urging the performance of tasks. Readiness is developed through proper utilization.

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<sup>16</sup>Brenner, op. cit., p. 120.

of outer motivation and through the gradual translation of it to inner motivation. The maximum potential power is reached when an individual's psychogenic action pattern enables him to meet the most difficult tasks.

The states of readiness vary in accordance with the potential power and with the task at hand. Brenner stated that:

Readiness is at a maximum operational level (operates easiest) when a maximum of functional potentiality meets a minimum of task difficulty.

Readiness is at a minimum operational level (operates under greatest difficulties) when low potentiality meets maximum task difficulty.<sup>17</sup>

Brenner<sup>18</sup> derived two concepts of readiness from this which he felt needed to be stated explicitly. Readiness may be viewed as a biopsychic ability to function that permits for the execution of a task--for example, the fixation of an object with the eyes, being able to speak for the first time, thinking on a highly complex level, or coordinating thinking and manual action successfully. The child is functionally ready for one task but may not be ready for another. Requiring an action before the ability to perform that action is present, may result in the child's failure to perform and may even hamper his healthy development. In essence,

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<sup>17</sup>Ibid., p. 124.

<sup>18</sup>Ibid., p. 125.

individuals tend to differ in their rate of maturation and in their level of maturity.

Readiness may also be viewed as a willingness to function or as Brenner labeled it "a state of mind preceded by inner or outer motivation."<sup>19</sup> The decision to act or react is derived from a state of awareness as well as from a state of psychic preparedness which in turn leads to an evaluation of the situation. In most instances, transitions in readiness are gradual, smooth and almost imperceptible. In some others, readiness becomes "a break with the past as clean as amputation."<sup>20</sup> Although this break with the past occurs in the final decision making point and from then on, it rarely occurs in the sequence of preparation and the gradually evolving process of readiness.

The Brenner article also consistently stressed the individual developmental differences among children. He was in favor of a determining criteria for readiness in order to facilitate school entrance. Brenner's opinions were such that he felt there was a need to accept children on the basis of their age.

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<sup>19</sup>Ibid.

<sup>20</sup>Ibid.

In his second article Brenner hypothesized that:

The more developmentally advanced the person is the more he is able to act effectively in pursuing and controlling his developmental tasks. Translated into readiness for school this means that the more a child is able to perceive, to incorporate experience into developing behavior and finally to analyze and to synthesize, the more is he ready for school. Readiness then can be considered a continuing function of perceptual and personal development.<sup>21</sup>

Brenner defined perception as:

...sensory awareness to be interpretively transformed into conceptions which will serve as new bases for more objective and more discriminating perceptions and concepts, thereby increasingly sharpening and empowering perception and conception in the on-going process of development, learning, and personality maturation.<sup>22</sup>

Brenner viewed the developmental perception of the child as a constant interaction between organism and environment, between inner and outer world. During the first year of life, the child and the world are almost a unity. Early in life the child's world and behavior undergo a marked change. There is a gradual onset of distinguishable behaviors which include motor activities, sensation, perception, thinking and insight. Brenner stressed that there are changes in the child's internal and external life which begins between the ages of two and five and are completed between the ages of six and twelve. These changes are important steps towards

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<sup>21</sup>Anton Brenner, "Reality Perception, Perceptual Differentiation and Readiness for School," Merrill-Palmer Quarterly, (Summer, 1958), p. 196.

<sup>22</sup>Ibid., p. 198.

increasing differentiation and objectivity in the perception reality and in the child's maturation process. This developmental stage is the preparatory stage for a child's beginning readiness for school. The child becomes increasingly more able to pay attention to: (a) size, form and color of objects, (b) differentiation within a field or object, and (c) proportion and frequency relations.<sup>23</sup>

In reference to the above, Brenner stated:

The degree to which a child possesses qualities derived from these categories of developing experience and the extent to which he uses them at a given level in his transactions with reality, is indicative of development and, as we claim, of his readiness for school.<sup>24</sup>

In the autumn of 1959, Brenner published an article in which he presented a test for measuring readiness for school. Brenner<sup>25</sup> considered perceptual-conceptual development a principle factor in personality development, learning, and readiness for school. In essence, constant interaction between an individual and his environment is necessary for growth, development, and learning. This leads to accumulation and differentiation with the person which increases his ability to perceive, to analyze, and to synthesize experiences

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<sup>23</sup>Ibid., p. 205.

<sup>24</sup>Ibid., p. 209.

<sup>25</sup>Anton Brenner, "A New Gestalt Test for Measuring Readiness for School." Merrill-Palmer Quarterly, (Fall, 1959), p. 27.

both from within and from beyond himself. Brenner<sup>26</sup> was of the opinion that these were the processes which led to readiness. From this statement, Brenner formulated a hypothesis:

The more a child is able to perceive, to incorporate experience into developing behavior and to analyze and synthesize into increased degrees of differentiation and specification, the more he is ready for school.<sup>27</sup>

## II. ANTON BRENNER GESTALT TEST

Brenner then proceeded to outline the five tasks that are involved in his Gestalt readiness test:

- Task 1. Copying of Ten Dots
- Task 2. Copying of Sentence.
- Task 3. Draw a Man.
- Task 4. Number Producing Activity.
- Task 5. Number Recognition Activity.<sup>28</sup>

Brenner considered that one advantage of his test was the fact that it was non-verbal. The components, however, are composed of factors which are related to language development and intellectual thinking. Brenner believed that there is a functional relationship existing between what the Gestalt test measures and what is required in school subjects such as reading, writing, number work, and art work. The

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<sup>26</sup>Ibid., p. 27.

<sup>27</sup>Ibid.

<sup>28</sup>Ibid., p. 29-30.

Gestalt test also appears to be a measure of task orientation and attitudes toward reality. The most appropriate age level for giving this test is Kindergarten and the early grade. When administered at the nursery level, it is possible to discover an advanced child, while if administered in the late first grade, poor performance may be indicative of rather slow development, mental retardation, serious emotional, or visual disturbances in the child. The age at which the test seems to lose its discriminating power is around seven or eight.

In accordance with the necessity that a child must be ready for the tasks required of him at school, Bigge amplified Brenner's position by stating:

A young person is ready to learn something when he has achieved sufficient physiological maturation and experiential background that he not only can but also wants to learn it. For example, it is physiologically impossible for a child of three months to learn to walk. Furthermore, for all except an occasional prodigy, it appears impossible for a child of two to learn to read; not only is his neuromuscular system insufficiently developed, but he doesn't want to read. A youth of 12 normally is not ready to study subjects such as calculus, advanced economic theory, or Shakespeare. His lack of readiness probably is more attributable to absence of suitable experiential background than to inadequate development of physiological structures. However, until a person is fully matured physically it is usually difficult to say to what extent incomplete development of physical structure is a hampering agent, particularly in the case of primarily "intellectual" learning tasks.<sup>29</sup>

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<sup>29</sup>Morris L. Bigge, Learning Theories for Teachers, (New York: Harper & Row, 1964), p. 294.

As Brenner's test was based on the same principle of perceiving, analyzing and synthesizing forms as Kern's Fundamental Test, Brenner felt that these principles were indirect examples of empirical evidence of the validity of his test. Kern's test employs principles of development and Gestalt psychology and is widely used in Germany and in Austria as a rough estimate for school readiness. It has been given to thousands of pupils.<sup>30</sup>

A second source of evidence was the results of testing more than 700 children in Detroit, Dearborn, Greenfield Village, and Albion schools. In many instances the teacher's judgment of the child's ability, achievement, and overall ability was recorded. Comparisons were made on this basis and although they have not yet been subjected to rigorous examination, Brenner stated, "...they seem to bear out the diagnostic and predictive value of the Gestalt test."<sup>31</sup>

Brenner attempted to undertake a more precise study. It was his intention to establish a rank order based on his Gestalt test (G.T.) for a group of twenty Kindergarten children. Brenner compared the rank order obtained from the G.T. with standardized tests such as the Sangren Information Test (Sa.), Pinter-Cunningham Primary Mental Abilities Test (P.C.),

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<sup>30</sup>Brenner, op. cit., p. 40.

<sup>31</sup>Ibid.

the Metropolitan Readiness Test (M.R.), and the G.D.A.M. He also attempted to compare the results with the Teacher's Rating (T.R.) of the pupils in terms of functioning in Kindergarten and readiness for first grade. The Teacher's rating of the pupils was taken as the validating criterion.

Brenner obtained the following results:

Compared with the Sa, the G.T. is closer to T.R. in 11 cases, equally close in 2.

Compared with the P.C., the G.T. is closer to T.R. in 12 cases, equally close in 4.

Compared with the M.R., the G.T. is closer to T.R. in 7 cases, equally close in 4.

Compared with the D.M., the G.T. is closer to T.R. in 14 cases, equally close in 3.<sup>32</sup>

The Gestalt Test has a correlation with Teacher's Ratings of .81. For the other tests, the correlations are in descending order: .82 for the Sa, .72 for the M.R., .52 for the P.C., and .40 for the G.D.A.M. It should be noted that in two other studies Brenner found correlations of .69 and .77 for the G.D.A.M.<sup>33</sup>

### III. HISTORY OF CHILDREN'S DRAWINGS

The first standardized test employing the drawings of children was the Goodenough Draw-a-Man developed by Florence

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<sup>32</sup>Ibid., p. 41.

<sup>33</sup>Ibid., p. 41.

Goodenough. The test is characterized as follows: it utilizes only the drawing of a man, is non-verbal, takes ten minutes to administer, is useful from ages four through ten, has a reliability index between .80 and .90 for a single, unselected age group, and correlates with the Stanford-Binet at .76.<sup>34</sup>

There was an increase in the scientific interest of children's drawings which reached its peak between 1900 and 1915. In 1907, Claparede<sup>35</sup> outlined a plan for the study of children's drawings. He proposed a careful study of the developmental stages of drawing with the intention of ascertaining if any relationship existed between artistic aptitude and general intellectual ability as evidenced by schoolwork. This plan was adopted by Ivanoff<sup>36</sup> in a study of drawings of four groups of Swiss children. Ivanoff developed a six point scale which took into consideration proportion, imaginative conception, technical and esthetic value. Equal weight was awarded to each category. Teacher's ratings of general ability and the standing of each child in school subjects as well as certain moral and social traits were compared with the test results. Ivanoff found positive correlations in nearly all cases.

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<sup>34</sup>F. Goodenough, Measurement of Intelligence by Drawings (New York: World Book Co., 1926), p. x.

<sup>35</sup>Ibid, p. 2.

<sup>36</sup>Ibid.

Schutzer and Lobseins<sup>37</sup> performed a comparative study involving the drawings of imbeciles and normals with the results that age for age, the sense of proportion displayed by imbeciles was markedly below that of normal children.

Kerschenstumer,<sup>38</sup> 1903-1905, made a study employing almost 100,000 drawings. The drawings were classified into three categories: purely schematic, drawing according to visual appearance, and stage at which the child attempts to give an impression of three dimensional space. The drawings of feeble-minded children differed quantitatively as well as qualitatively from those of normal children. There appeared to be a lack of coherence as well as primitive organization in the drawings of the feeble-minded.

Rouma performed a study of the development of drawings. She felt that there was a preliminary stage involving these four phases:

1. adaption of hand to instrument
2. child gives a definite name to the incoherent lines which he traces
3. child announces in advance that which he intends to represent
4. the child sees a resemblance between the lines attained by chance and certain objects<sup>39</sup>

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<sup>37</sup>Ibid., p. 4.

<sup>38</sup>Ibid.

<sup>39</sup>Goodenough, op. cit. p. 5.

Rouma<sup>40</sup> stated that on the whole, the drawings of subnormal children resemble those of younger, normal children with certain differences. Spontaneous drawings of subnormal children show marked tendencies to automatism. There was also a slowness in evolution from stage to stage. There were frequent regressions to an inferior stage as well as manifestations of flights of ideas. On occasion their drawings covered a sheet of paper and were usually not finished; they dealt with different subjects. Their anxiety forced them to represent an idea in its totality or reproduce all the details in a given situation. They preferred drawings in which the same movements frequently occurred and did meticulous work.

Luquet<sup>41</sup> found that children's drawings fluctuated daily. New features did not always appear if once shown and a period of time usually elapsed before the new characteristic became fixed in a drawing.

#### IV. GOODENOUGH DRAW-A-MAN TEST

Goodenough<sup>42</sup> concluded that in a young child, the first relationship is apparent between development as shown in drawings and general intelligence. Drawing, to the child, is

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<sup>40</sup>Ibid., p. 7.

<sup>41</sup>Ibid., p. 8.

<sup>42</sup>Ibid., p. 12.

primarily a language, a form of expression rather than a means of creating beauty.

Goodenough summarized the material concerning drawings in the following twelve points.

1. In young children a close relationship is apparent between concept development as shown in drawing and general intelligence.

2. Drawing, to the child, is primarily a language, a form of expression, rather than a means of creating beauty.

3. In the beginning, the child draws what he knows rather than what he sees (Verworn's "ideoplastic stage"). Later on he reaches a stage in which he attempts to draw objects as he sees them. The transition from the first state to the second one is a gradual and continuous process.

4. The ideoplastic basis of children's drawings is shown most conspicuously in the relative proportions given to the separate parts. The child exaggerates the size of items which seem interesting or important; other parts are minimized or omitted.

5. The order of development in drawing is remarkably constant, even among children of different social antecedents. The report of investigators the world over show very close agreement both as regards the method of indicating the separate items in the drawing and the order in which these items tend to appear. This is especially true as regards the human figure, probably because of its universal familiarity.

6. The earliest drawing made by children consists almost entirely of what may be described as graphic enumeration of items. Ideas of number of the relative proportion of parts and of spatial relations are much later in developing.

7. In drawing objects placed before them, young children pay little or no attention to the model. Their drawings from the objects are not likely to differ in any important respect from their memory drawings...

8. Drawings made by subnormal children resemble those of younger normal children in their lack of detail and in

their defective sense of proportion. They often show qualitative differences, however, especially as regards the relationship of separate parts to each other. Not infrequently the same normals in drawing will be found to combine very primitive with rather mature characteristics.

9. Children of inferior mental ability sometimes copy well, but they rarely do good original work in drawing. Conversely, the child who shows real creative ability in art is likely to rank high in general mental ability.

10. There is much disagreement among investigators regarding the relationship between children's drawings and those made by primitive or prehistoric races. Until more careful study has been made of the many factors involved in such comparison, the legitimacy of drawing conclusions appears to be very doubtful.

11. Marked sex differences, usually in favor of the boys, are reported by several investigators, especially by Ivanoff and Kerschensteiner.

12. Up to about the age of ten years, children draw the human figure in preference to any other subject.<sup>43</sup>

According to Goodenough,<sup>44</sup> there were two classes of drawings: Class A - Preliminary stage in which the drawing cannot be recognized. The lines are somewhat controlled, approaching crude geometric forms. Class B - Drawings which could not be recognized as the human figure. The G.D.A.M. contains fifty-one scorable points. Although most children have experience with pencils, practice time should be provided for those who do not.<sup>45</sup>

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<sup>43</sup>F. Goodenough, op. cit., p. 12-13.

<sup>44</sup>Ibid., p. 21.

<sup>45</sup>Ibid., p. 56.

## V. HARRIS' REVISION OF GOODENOUGH DRAW-A-MAN

Harris<sup>46</sup> revised Goodenough's scale. According to Harris, the ability tapped by the drawing test was intellectual maturity, more specifically conceptual maturity. This was a change from the notion of unitary intelligence and permitted consideration of children's concepts of the human figure as an index or sample of their concepts generally. Intellectual maturity was equated with the ability to form concepts of an increasingly abstract character. Intellectual activity required the ability to perceive, to discriminate likeness and difference. It also required the ability to abstract, to classify objects according to such likenesses and differences, and to generalize. These are the three processes of concept formation.

Harris hypothesized the following:

Child's drawing of any object will reveal the discrimination he has made about that object as belonging to a class, i.e. as a concept. In particular, it is hypothesized that his concept of a frequently experienced object such as a human being, becomes a useful index to the growing complexity of his concepts generally.<sup>47</sup>

An analysis and description was made by Burt in 1921 based on his own observations. He concluded that drawing was a mode of self-revelation particularly useful when speech and

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<sup>46</sup>D. Harris, Children's Drawings as Measures of Intellectual Maturity, (New York: Harcourt, Brace & World, Inc., 1963), p. 5.

<sup>47</sup>Ibid., p. 7.

writing are inadequate. He considered drawings neither linguistic nor arithmetical. Instead they gave valuable access to the child's power of imagination and construction. Burt categorized the following stages of children's drawings.

These stages were paraphrased by Harris.

1. Scribble (ages two to three)

a. Purposeless pencillings, enjoyed principally as motor expression

b. More purposive pencillings, the results themselves becoming the focus of attention

c. Imitative pencillings, modeled on an adult's movements rather than his production

d. Localized scribbling: child seeks to reproduce specific parts of an object

2. Line (age four). Single movements of the pencil replace oscillations of massive scribbling. In the man drawing, parts are juxtaposed rather than organized.

3. Descriptive symbolism (five to six). In the man drawing, a crude scheme becomes apparent, with little attention to shape or proportion, involving principally head, body, arms, legs, and facial features. "Laid horizontally, with limbs appropriately rearranged, it serves, with equal felicity, drawn large, for a horse or a cow; drawn small, for a cat or a dog."<sup>48</sup>

Israelite,<sup>49</sup> 1936, compared the relative difficulty of items on the Goodenough scale for normal and mentally defective children of the same M.A. In general, defectives

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<sup>48</sup>Ibid., p. 17.

<sup>49</sup>Ibid., p. 21.

respect to the number of details shown while normal children excelled on items involving correct organization and proportion of parts.

According to Harris,<sup>50</sup> the child's pencil or crayon marks have form. The motor aspects of drawing have an influence on the form of drawings and on the manner in which the drawings are developed. Children's drawings have meaning and the development of a drawing depends to some extent on perceptual experience with objects. Children never portray objects as they appear. They tend to select, modify, and even add to what may be perceived in the object. Language seems to be closely related to the child's ability to draw. This fact strengthens the conclusion that drawing for the child is primarily a cognitive process.

#### VI. AGE OF SCHOOL ENTRANCE

Carline<sup>51</sup> published an article in The Kansas Teacher which concerned itself with the age of admission of school children. It was his opinion that a later date of entrance into school situation would increase the ability of the child to adjust to the needs placed upon him. The purpose of this late entrance would be to allow a greater proportion of the children sufficient

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<sup>50</sup>D. Harris, Children's Drawings as Measures of Intellectual Maturity, p. 173.

<sup>51</sup>D. Carline, "Age of Entrance: When Are They 'Ready'?" The Kansas Teacher, (Dec., 1964), pp. 9-11, 33-37.

time to develop and mature in accordance with the demands of the school environment. The basic assumption was that many children may not be ready at an earlier age and therefore, by delaying the age of entrance, it was hoped that a greater number of children would make a more successful adjustment. Carline mentioned several studies which demonstrated the advantage of later entrance as opposed to the presently existing conditions. A later date of entrance permitted a greater number of children to mature and develop in order to make a successful adjustment to school.

Mawhinney<sup>52</sup> found that an early entrance program conducted for fourteen summers in Grosse Pointe, Michigan proved unsatisfactory. Children who reached their fifth birthday were eligible for early admittance on the basis of psychological evaluation. Between 1949 and 1960, 1378 boys and girls were tested and 777 were found to be acceptable. Of these 777, 745 entered the school system early and 359 of them withdrew from the school system entirely before high school graduation.

In May and June of 1961, a survey was conducted which focused upon the 386 remaining students. One-third was evaluated as poorly adjusted. One out of twenty was found to be an

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<sup>52</sup>Mawhinney, Paul E. "We Gave Up on Early Entrance", Educational Research, Vol. 7-8, Nov. 1964-June 1966.

outstanding leader while three out of four were lacking in leadership ability. One out of four was found to be academically superior while one out of four was found to be below average academically or had repeated a grade.

This program was dropped for three reasons. The first was exceptional community anger towards the project by parents whose children were denied admittance. The second reason was the experiences and results of those students who were admitted to Kindergarten early. The third reason was the high cost of the program.

Other studies, however, have demonstrated that when criteria other than age were employed and carefully controlled, adjustment of younger children to the school situation was successfully. Stake<sup>53</sup> 1960, found that by permitting children to enter school early, providing the local school officials had agreed that they had reached a sufficient degree of mental, physical, emotional, and social maturity, adjustment to the school situation could be made successfully.

Cone,<sup>54</sup> 1955, reported the results of a longitude study covering some twenty years in Brookline, Massachusetts. The

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<sup>53</sup>Robert Stake, "Predicting Success of the Early Starter," Overview, 1:32-34, Nov. 1960.

<sup>54</sup>Herbert Cone, "Brookline Admits Them Early," Nation's Schools, (March, 1955), Vol. 55: 46-47.

study demonstrated that children admitted early did as well as or better than normally admitted children if proper assessment of those desiring early admittance was made.

Birch et al.,<sup>55</sup> published the results of the Warren Demonstration Project. This program was sponsored by the Co-op. Research Program, U.S. Office of Education in conjunction with the University of Pittsburg and the Warren School System.

The children were examined and evaluated by psychologists. Those children who were eligible for admission in September, 1963 were examined from 1961 through 1962. Achievement tests, Stanford-Binet, and G.D.A.M. were administered. The children were rated for intelligence, behavior, social and emotional maturity as well as physical health. The parents were required to complete case history forms.

Of the 257 children eligible, 229 were examined and 37 were found to be possible candidates by the psychologist, for the Fall of 1962. The selected children visited neighborhood kindergartens when experienced teachers observed their behavior.

Of the 37 candidates, 26 were finally accepted. Their ages ranged from three years and eight months to four years and eight months as of 1962. Of the 26

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<sup>55</sup>Jack W. Birch, et al., "Early Admission of Able Children to School," Education Digest, (Oct., 1964); Vol. 30: 5-7.

found acceptable, nineteen parents permitted their children to enroll early.

The children were found to be as well adjusted as children admitted normally. On a reading readiness test given in 1962 and 1963, normal pupils ranges from zero to ninety-nine, while those admitted early ranged from twenty-nine to ninety-nine. The group's mean of the Stanford-Binet remained stable for the group at the end of the year. All nineteen were promoted and eighteen of them were found to be doing well. The nineteenth child was a product of a broken home. The children were not treated as outsiders by their older classmates, but instead, were accepted by the group. The same procedure was followed in 1963-1964. Eleven children were selected; none were having difficulty.

Birch et al. stated that:

Many educators and laymen are opposed to early entrance programs because they lack sufficient or accurate information. Some cry out against the danger of "pushing" and of depriving the child of some of the joys of childhood. But early admission when properly handled, does not involve pushing. Adequate selection procedure insure that the "whole" child is ready for school. Children who are not ready to be admitted to school when they are ready, in reality, may be losing some of the joys of childhood, chief among which is the successful accomplishment of tasks they are capable of doing.<sup>56</sup>

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<sup>56</sup>Ibid., p. 5.

Birch et al. concluded that:

Arbitrary admission ages are as much a barrier to flexibility as arbitrary age-grade promotion practices and static curriculums.<sup>57</sup>

There was much literature in favor of admitting children at more advanced ages, and there was substantial evidence for the early admittance of certain children. Many programs that admitted children early solely on the basis of I.Q. found that these children manifested difficulties later in their school career. Readiness is a broad-based term which implies various developmental antecedents requisite for school adjustment of which intelligence is only one.

It appears that other factors such as physical maturity, level of independence, emotional maturity, and other more subtle factors, must be developed to a certain minimal level if the child is to be termed ready for school. Age in itself, cannot be the sole criterion because it merely enters into the picture in terms of the amount of time that is expected to pass in order for these qualities to germinate and to come to fruition.

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<sup>57</sup>Ibid., p. 7.

## CHAPTER III

### THE MATERIALS AND GROUPS USED

#### I. POPULATION SOURCE

The study was conducted in Emporia, Kansas, a town of approximately 20,000. It contains two colleges, one a state teachers college, the other a Presbyterian college with the public schools having a disproportionately large percentage of children of college professors. The town is basically a rural area service community surrounded by rural farmland and located near major highways. The railroad employs numerous townspeople.

The population of Emporia is composed of college students, faculty members and their children, small business merchants, and workers in business and small industries. The religious affiliation is predominantly Protestant. There is, however, a substantial Catholic minority. The ethnic composition is for the most part Caucasian, with Negroes and Mexicans accounting for the remainder of the population.

#### II. THE MATERIALS USED

##### Revised Goodenough Draw-a-Man

In the fall of 1966, the experimenter scored over 300 G.D.A.M.s which had been administered to children of the entering kindergarten class. For use in the study, the writer selected the twenty Goodenough criteria which appeared most frequently in the drawings submitted by these 300

children. This test was chosen because it is easy and inexpensive to administer and simple to score.

#### Goodenough Draw-a-Man

The G.D.A.M. emphasizes the child's accuracy of observation and the development of conceptual thinking, rather than accuracy or artistic skill.<sup>58</sup> The test is characterized as follows: it utilizes only the drawing of a man, is non-verbal, requires ten minutes to administer, is useful from ages four through ten, has a reliability index between .80 and .90 for a single, unselected age group, and correlates with the Stanford-Binet at .76.

#### Anton Brenner Gestalt Test

The Anton Brenner Gestalt Test was administered by the Office of the Scholl Psychologist of Emporia. This test was developed by Anton Brenner, the director of the Merrill-Palmer Institute. The test uses Gestalt principles in developmental psychology in order to interpret readiness. (Readiness, in terms of this experiment, has been defined in the Definitions of Terms section of Chapter I.) The test contains five subtests, can be administered by a teacher, and can be scored in ten minutes by the teacher.<sup>59</sup>

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<sup>58</sup>A. Anastasi, Psychological Testing (New York: The Macmillan Co., 1961), p. 264.

<sup>59</sup>A. Brenner, The Brenner Gestalt Test for School Readiness (Test Manual) (Merrill-Palmer Institute, 1963), p. 2.

The A.B.G.T. was implemented by the Office of the School Psychologist of Emporia in order to measure the effects of the Headstart program. The test was administered to the Headstart children previous to their completion of it. The test was also administered to a random sample of entering Kindergarten students in the fall of 1966 in order to compare the scores of the two groups. It was from the latter group that the sample for this experiment was selected.

### III. SAMPLE

Eighty-one children were chosen at random for the entire entering kindergarten class of Emporia of September 1966. The teachers in each school submitted the names of their students in alphabetical order. The group was then arranged by class and selected according to a table of random numbers. Random selection was used in order to keep the selected unbiased. Eighty-one students were selected in this manner in order to provide a sample representative of the general kindergarten population.

## CHAPTER IV

### TECHNIQUE AND RESULTS OF THE EXPERIMENT

The A.B.G.T. was administered to the entering Kindergarten class of the Emporia school system for 1966 by the Office of the School Psychologist. The writer scored these tests during the autumn of 1966. As the A.B.G.T. contained a Draw-a-Man sub-test, the writer marked this sub-test with his revised criteria. The twenty criteria used for scaling the drawings appear in TABLE I. Each criterion was evaluated in accordance with Goodenough's criteria for her Draw-a-Man.

A coefficient of correlation was computed in order to determine the strength of the linear relationship between the variables,  $^{60}x$  being the A.B.G.T. and  $y$  being the G.B.A.M. The coefficient of correlation was found to be  $+0.73$  by both methods.

The  $x$  test of significance ( $z=r \sqrt{n-1}$ ) yielded a score of 6.53 thus rejecting the null hypothesis at the .0000002 level of significance. The correlation of  $+0.73$  would then appear to be due to the operation of non-chance factors.

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<sup>60</sup>John E. Freund, Modern Elementary Statistics (Englewood Cliffs: Prentice-Hall, Inc., 1960), p. 328.

TABLE I  
CRITERIA FOR SCORING WRITER'S  
REVISION OF G.D.A.M.

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Head  
Trunk  
Arms  
Legs  
Arms and legs joined to trunk  
Arms and legs in two dimension  
Eyes  
Pupils  
Lashes or brow  
Nose  
Mouth  
Ears  
Hair  
Hands  
Fingers  
Correct number of fingers  
Neck  
One article of clothing  
Head smaller than trunk  
Trunk longer than wide

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Note: All items that are acceptable receive one point of credit. The maximum score is twenty points.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In the Fall of 1966, eighty-one children were chosen at random from the entering public school kindergarten population of Emporia, Kansas. The Office of the School Psychologist of Emporia administered the Anton Brenner Gestalt Test for School Readiness to the eighty-one kindergarten children. These tests were scored by the writer during the Fall of 1966. A sub-test of the A.B.G.T. required the subject to draw a man. This sub-test was marked in accordance with the writer's twenty criteria. The writer had chosen these criteria after scoring over 300 Draw-a-Man tests. These twenty criteria appeared to be the most prevalent ones in the four to six age bracket.

The A.B.G.T. was devised in order to measure the readiness of entrance age populations. It was the intention of this writer to devise a shortened form could be more easily administered and scored and would be significantly less expensive for the concerned school system.

The coefficient of correlation was found to  $+0.73$  thereby demonstrating a positive linear relationship between the student's A.B.G.T. scores and the writer's selected Goodenough criteria. The z test of significance yielded a score of 6.53 thus rejecting the null hypothesis at the  $.0000002$

level of significance. The correlation of .73 would then appear to be due to the operation of non-chance factors.

Further experimentation would be necessary to determine the reliability and validity of the experimenter's revised G.D.A.M. It would be helpful to administer the A.B.G.T. to other large populations and to score the Draw-a-Man sub-test with the writer's criteria so that further correlations could be computed and evaluated.

Questionnaires should be submitted to teachers concerning the academic, social, and emotional adjustment and the progress of each child tested. The school psychologist should, through the application of psychometrics, gather additional information in these areas for each child. These results would aid in determining if, in fact, the experimenter's revised G.D.A.M. does discriminate between the early and late developer in a population that is chronologically ready to enter school.

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