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A CANADIAN INVESTIGATION OF THE COLUMBUS: A NEW PROJECTIVE DEVICE

by

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A THESIS

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ABSTRACT

This study investigated the ability of the Columbus Picture Analysis of Growth Towards Maturity to discriminate normal from emotionally disturbed children.

The subjects were 48 children from a public school, serving families from a variety of socioeconomic backgrounds, in Edmonton, Alberta, Canada; and 33 children receiving psychiatric care at two institutions for the emotionally disturbed in Edmonton, Alberta, Canada. All children were of average intelligence and between the ages of 8 and 13 years, inclusive. The public school children served as the control group, while the children receiving psychiatric care served as the experimental group.

Ten of the Columbus cards, numbers 5 through 14, were individually presented to each child, and the child was required to tell a story about each picture. The resulting stories were scored according to five criteria: latency, story quality, bizarre content, negative affective words, and positive affective words.

In addition, four certified psychologists rated the boys' protocols as either "normal" or "suspect." The chi-square test was used to determine the reliability of the ratings.

The results indicated that the control subjects told complete stories and used positive words more frequently than experimental subjects. However, no significant differences were obtained between the groups on the criteria of latency, bizarre content, and negative affect. The total scores for each of the ten cards failed to discriminate experimental from control groups. Only one of four psychologists was able to correctly assign protocols to "normal" and "suspect" groups at a level significantly greater than chance.

Popular themes for the ten cards were tabulated separately for experimental and control groups, and the manifest stimuli of each card were described.

It was concluded that while the Columbus appears to have some value for assessing a child's emotional health, it should always be used as part of a test battery, preferably including a paper-and-pencil personality test. The lack of normative data for the remaining cards of the test was discussed, and guidelines for further research were suggested.

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CHAPTER I

INTRODUCTION

The clinician faced with a strange child and a short amount of time in which to glean information about his behavior and emotional status has a limited number of methods to employ. The psychologist can directly question the child or parents, he can observe the child in a variety of settings, he can administer a paper and pencil test, or he may administer one or more of a wide variety of projective devices. Despite controversy over their validity, and difficulty in scoring, projectives are widely used because of the ease of administration, especially for less intelligent or more seriously disturbed clients, and a "richness of clinical information," referring to slight nuances of the client's behavior, including facial expression, speech hesitancy, pencil pressure, etc.

I. The Columbus -- A New Projective Device

A. Description

The Columbus Picture Analysis of Growth Towards Maturity (hereinafter referred to as the Columbus) is such a projective device, recently (1969) introduced to North

America after twenty years of development and use in Europe. It contains twenty-four pictures, portraying individuals, groups, and families in various settings, three of which are in color, and two of which (both colored cards) portray imaginary situations. The author (Langeveld, 1969) states that this device can be used from ages five to late adolescence, or close to twenty years of age. The cards are divided roughly in a table, with certain cards being recommended for certain age groups. The resulting division provides approximately six to eight cards for each age group, although the authors emphasize that this is only a guideline, and that clinicians using the test should feel free to add or remove certain cards and also to use appropriate material from other picture projectives such as the Michigan Pictures Test (Hartwell, et. al., 1953), or the Children's Apperception Test (Bellak and Bellak, 1949).

B. Focus of the Columbus

Interestingly, the test has as its focus the mental development of the child, and is designed as "an instrument for the disclosure and study of some basic aspects of the growing child's creation of himself and his correlative world" (Langeveld, 1969). The author purports to provide information on a child's growing independence, or lack thereof, in terms of his relationships with his family, peers, and educators. The philosophy of child development

on which the test is based claims that it is a process wherein the child takes an increasingly active part in forming his own conceptions of the world and shaping his own future ("emancipation").

Very little mention is made in the manual of using the test to detect pathology. Neither are the pictures oriented towards pathology; that is, no cards contain human figures in conflict situations, and few cards present the child with what could be described as an unpleasant setting. Thus, on inspection, it would seem that there is a reasonably high likelihood that conflicting and emotionally laden stories will represent the child's own experiences or feelings, rather than his elaboration of what the card may suggest in the first place.

C. Problems

Since the test has been in North America only three years at the time of this writing, there has been very little research done on the test in this continent. Certain aspects of the pictures raise the question of how clinically useful they would be for North American children. For example, one card portrays the interior of an old-fashioned home with adults sitting around the fire and a pot cooking on the fire, which may not be recognized as an ordinary home scene by Canadian children. The applicability of the cards suggested for ten-year-olds in European psychologists'

offices may bear little relationship to which card will elicit the most useful clinical data from Canadian ten-year-olds.

However, the purported ability of the cards to elicit "clinically useful" responses from a wide age range appears to offer an advantage over other similar devices which are only suitable within a limited age range. For example, the CAT (Bellak and Bellak, 1949) seems most useful for children of ages eight and younger, because of its investigation of events occurring very early in the child's life (for example, toilet-training) and its use of animal figures in one form. The fact that the Columbus cards portray a child in a wide variety of social situations without directly portraying or indirectly suggesting an unhappy scene has been mentioned earlier. This is a definite advantage to the clinician using the Columbus, since he can more safely assume that unhappy stories are not themes suggested by the card, but by the child's own experience. Thus, the Columbus appears worthy of investigation.

More accurate information as to what a projective device measures is imperative in light of decisions which are currently being made about children and adults on the basis of projective material. People requiring psychiatric or psychological treatment are typically diagnosed following administration of a battery of tests which includes

projective devices, as well as one or more interviews. If the decision to admit a client to one of several mental institutions or treatment centers is based on such information, surely it is the responsibility of clinicians and researchers alike to ensure that their information is accurate. Furthermore, decisions regarding the type of treatment needed are based on the same information gleaned from the test battery. Tuddenham and MacFarlane (Tuddenham and MacFarlane, in Anderson and Anderson, 1951) offer five reasons for concern with the validation of projectives: a social responsibility, a professional responsibility, a teaching responsibility, a challenge to research skills, and an opportunity to advance an important area of knowledge.

II Purpose of This Thesis

The present study was designed, therefore, to investigate the usefulness of Columbus cards for discriminating "normal" from "emotionally maladjusted" children using cards suggested for each age group. This was attempted by devising a simple scoring system wherein each child's individual stories could be given a numerical score. The scores of the disturbed children were to be compared with the scores of the normal children. Also, the protocols were given to four certified, practising psychologists with no prior knowledge of the children tested. They were asked to sort the protocols on the basis of whether or not they felt the protocols indicated a seriously maladjusted

child, using their own scoring methods and clinical judgment.

To provide other psychologists using the test with some data on popular responses for each card, the themes for all stories were tabulated and the most common ones for both normal and disturbed children were determined.

For the purposes of this thesis the "normal" children were defined as being of average intelligence (viz., within one standard deviation above or below the mean) as measured by either the Wechsler Intelligence Scale For Children, or the Stanford-Binet, or if neither had been administered, by any other standardized intelligence test. The "normal" children attended a regular public school and were not receiving any type of psychological treatment at the time of testing. The emotionally maladjusted group were also required to fall within the average range of intelligence, but were further required to be currently receiving psychological or psychiatric treatment at the time of testing. A more rigorous definition of the experimental group was not employed because projective devices are used extensively to answer the initial question, "Does this child need therapy?", a question which had already been answered "yes" for the experimental group. Hence, upon many specific criteria, the group had been defined as different from the control group, and all children were unable to cope with a regular school setting. It was to determine

whether or not these groups gave significantly different responses to the Columbus which may in future aid clinicians in answering the above question, that the present study was directed.

III Limitations

Due to monetary and temporal considerations, the investigation was limited to children between the ages of eight and thirteen years, inclusive. Therefore, only the Columbus cards suggested by the author to be applicable to that age range have been investigated, and further research employing the remaining cards would be necessary to determine comparable results for them.

IV Overview of the Thesis

In chapter two the available literature related to the Columbus and other similar projective devices has been discussed. Chapter three includes the hypotheses of the study, methods of data collection, and statistical analysis, as well as limitations of the study. Results of the research have been presented in chapter four, while in chapter five the author has summarized these results in addition to presenting conclusions, implications, and recommendations for future research.

CHAPTER II

REVIEW OF RELATED LITERATURE

I. Historical Development of Projective Devices

In the late nineteenth century, when most psychometricians were developing tests of various types based on objective, data-oriented scoring systems, Carl Jung developed the forerunner of modern projective devices. This was a one-hundred word free association test intended to assist in the diagnosis of various mental illnesses. Kent and Rosanoff produced tables containing responses of normal subjects of Jung's list, which provided a crude basis for comparison of abnormal subjects (DuBois, 1970).

Hermann Rorschach, a student of Jung's, further developed Binet and Henri's (1896) discovery that inkblots could evoke various responses. He selected, in 1921, the now-familiar ten inkblots as "....chance or non-specific stimuli to be interpreted, one at a time, by the subject" (DuBois, 1970). The interpretation was regarded by Rorschach to involve the subject's perception rather than his imagination. He made further progress in scoring techniques: he attempted to relate responses to intelligence and psychiatric diagnoses by categorizing the responses according to form, detail, and shading characteris-

tics. Rorschach's test was popularized in the United States in the early 1930's by David Levy and Samuel Beck (DuBois, 1970) and is now the most widely used projective device.

The idea of employing ambiguous stimuli to test personality appealed to many clinicians. In fact, three tasks originally used as intellectual measures came to be employed as projective personality measures. These include the interpretation of pictures (developed by Binet), sentence completion (devised by Ebbinghaus), and human figure drawing (used by Goodenough) (DuBois, 1970).

The most famous adaptation of picture interpretation tests is the Thematic Apperception Test or TAT, developed in 1935 by Henry Murray (Morgan and Murray, 1935), in which the subject is required to tell a story to an ambiguous picture. The TAT has the most widespread acceptance among clincians, after the Rorschach (DuBois, 1970). The sentence completion technique was developed through the efforts of several men: Payne (1928), revised by Rohde in 1939; Willerman and Rotter in 1946; and Cameron, 1938. Some of these were used as Army screening devices and after World War II, were revised and published as formal tests (DuBois, 1970).

Helen Sargent noted that although use of projective techniques was common before 1939, they were not

labelled as such until L. K. Frank introduced his definition in 1939 (Sargent, 1945). He defined projectives in the following manner:

> *A projective method for the study of personality involves the presentation of a stimulus situation chosen because it will mean to the subject not what the experimenter has arbitrarily decided what it should mean (as in most psychological experiments using standardized stimuli in order to be "objective") but rather it must mean to the personality who gives it, or imposes upon it, his private, idiosyncratic meaning and organization.*
> (Frank, 1939)

Many clinicians' imaginations were fired by the wide variety of media which might be adapted for projective purposes; for example, the House-Tree-Person test was introduced by Buck in 1948, while the Rosensweig Picture-Frustration Study appeared in 1945 (DuBois, 1970). Currently such diverse materials as puppets, finger paints, comic strip characters, dolls, and modelling clay are being used, both experimentally and in less formal therapy sessions.

II. Picture Projectives

A. Theory Behind the Thematic Apperception Test (TAT)

Henry Murray based his rationale of the TAT on two assumptions: (1) that a person will tend to interpret

an ambiguous social situation in terms of his own experiences and needs, and (2) that in making up a story for an examiner, the person will say things about a story character which apply to himself, thus providing the examiner with a picture of his inner motives, needs, and feelings (Murray, 1943).

The method of analysis suggested by Murray involves analyzing each event into, firstly, forces which emanate from the hero, or the character in the story with whom the subject identifies himself; secondly, the motives, trends, and feelings of the hero, with especial note being taken of uncommon responses. Murray defined twenty-eight of these needs, which may be expressed as an impulse, a wish, or as an overt behavior trend. The strength of need was to be measured on a five-point scale, by intensity, duration, frequency, and importance. Thirdly, he considered press variables to represent forces in the subject's apperceived environment, whether past, present or future. The presses were analyzed on the same five-point scale, according to the threat they had or may have had for the hero. Murray expanded the concept of press to include the absence of a required beneficial press (Murray, 1943).

In interpreting outcomes of the stories, Murray allowed for variety and flexibility of examiner styles.

He recommended that interaction of presses and needs be examined, since these would provide a ratio of the subject's successes to failures, and happiness to unhappiness. In addition, a list of the most prevalent need-press combinations would yield information about issues most important to the subject. Implicit in Murray's system was the assumption that attributes of heroes represented aspects of the subject's personality (Murray, 1943).

B. Trends in Theories of Picture Projection

Theories of picture projection have undergone considerable change since their early appearance in the first half of this century. A change which has been reflected in various scoring techniques and test materials was the broadened definition of projection. In the strict Freudian interpretation, projection was defined as an unconscious defense mechanism, wherein a person ascribed to others aspects of himself which it would be painful for his ego to admit. As an unconscious mechanism, this was not communicated to others and was a false perception in the individual himself. At present, however, tests labelled "projectives" are being used to measure virtually all imaginable mental mechanisms, whether expressive or defensive (Anderson and Anderson, 1951).

Murstein has described the changes in projective

theories which have followed changes in basic personality theory (Murstein, 1963). Initially, interpretation of projective devices was centered largely in psychoanalytic theory. Everything the subject said, regardless of how it was said or under what conditions, was considered to be an expression of "id" drives or needs (response determinism). Gradually a switch in emphasis took place, so that content became less significant in interpretation than the way in which it was presented by the subject, thus making the "ego" the factor used to explain observed behavior (Murstein, 1963). MacFarlane and Tuddenham criticized assumptions which ignored the effect of environmental and peripheral factors (MacFarlane and Tuddenham, in Anderson and Anderson, 1951).

A variation of psychoanalytic interpretation was presented by Holt (Holt, in Anderson and Anderson, 1951). This involved a series of nine determinants which affect the final form and content of a TAT story. These determinants are (1) the situational context in which the subject is being tested; (2) the directing sets or preconceptions about the test situation which the subject brings with him; (3) the perceptual impact of the stimulus card; (4) the arousal of needs and affects during the course of the test; (5) defensive circuiting such as identification, reaction formation, and sublimation; (6) associative elaboration or accretion to the story of information from

personal, sentimental, and general information contexts; (7) effect of ability; (8) the prevalent internal emotional climate; and (9) the personal style (Holt, in Anderson and Anderson, 1951).

A move toward quantification of human behavior was reflected in interpretation of projective devices. Some of the more popular models derived from learning theory, approach-avoidance gradients, or decision theory. Such persons as McClelland, Atkinson, Epstein, Purcell, and Lesser did much research in this area and contributed a great deal to projective theory (Murstein, 1963).

Most recently, emphasis on using the ambiguous stimuli to provide the examiner with a picture of the subject's inner world has declined, as clinicians have come to recognize the influence of environmental factors on the subject's responses. Research studies have been used to investigate such variables as subject-examiner interaction, differential responding as a function of the examiner's status, and responses to tasks of varying levels of difficulty. This "field approach" is exemplified by Murstein's statement that "a projective response is the result of the pooled interaction of the 'stimulus,''background,' and 'organismic' variables in the behavioral situation (Murstein, 1959, in Murstein, 1963).

C. Recent Research on the TAT

Since the emphasis on quantification, with the concomitant of validation and reliability checks, projective devices have declined in popularity and in fact have come under a barrage of criticism for their imprecise scoring systems, and lack of reliability and validity data. Proponents of projective devices have offered the defense that they were never intended to be used as any more than an aid to the clinician for obtaining information and that projective devices should not be considered as "tests." The artistry of the individual interpreter in extracting information from a protocol cannot, nor should it be, quantified (Murray, 1943; Langeveld, 1969; Murstein, 1963; Tomkins, 1947).

Dana noted that validity studies over the past six years have declined, indicating some acceptance of the aforementioned defense (Dana, in Buros, 1972, V. 1). In a similar review of recent TAT research, Eron concluded that there does appear to be a direct rather than inverse relationship between TAT fantasy and behavior. However, this relationship cannot be stated in such a way that it will hold for all ages, both sexes, and all forms of motivation (Eron, in Buros, 1972, V. 1).

Megaree and Parker questioned the ability of the TAT, the Edwards Personal Preference Schedule (EPPS), and

the Adjective Check List (ACL) to equivalently measure "Murrayan" needs. Their research indicated that these tests cannot be considered parallel measures of "Murrayan" needs, and that using one of these tests as an operational definition of a given need, did not imply generalizability of the results to other instruments which purport to measure the same thing (Megaree and Parker, 1968). Another investigation of needs revealed little relationship between need for achievement (nAch) on the TAT and grades, in three different measures (McKeachie, Isaacson, Milholland, and Yi-Guang, 1968).

Dana summarized the results of this type of research very well, saying that the measurement of motives or needs in picture projectives has resulted in limited reliable knowledge of what they measure "with a very dubious degree of generality to clinical practice" (Dana, 1968). He further emphasized that one must know the stimulus value of the pictures for large populations in order to compare this information with the protocol of a given client (Dana, 1968). In an attempt to clarify this problem, Irvin and his associate (Irvin and VanderWoude, 1971) found that for adult males, cards which actually produced the greatest amount of thematic material corresponded very closely to cards rated as most clinically useful by psychologists.

Many researchers have used projective methods in

an attempt to demonstrate improvement resulting from therapy, while others have attempted to show that projective devices can discriminate normal from pathological groups. An example of the former type of study is Kempler and Scott's (1972) study in which TAT data on antisocial boys did not reflect community adjustment data. Their earlier study found, however, that TAT stories of antisocial children showed marked differences from the protocols of normal children (Kempler and Scott, 1970).

Parent-child interactional behavior was assessed from TAT protocols in a comparative study by Werner, Stabenau, and Pollin (1970). They found that parents of normal children told stories with substantially different interactional patterns than either parents of schizophrenics or parents of delinquents. They did not relate the differences in test performance to behavioral differences, although the need for such research was mentioned.

Another significant area of research with the TAT has centered around seeking support for existing constructs or concepts in personality theory, as well as attempting to delineate new concepts which may prove useful in the systematic study of personality. An example of this type of paper is Paul Wohlford's investigation of the ability of the TAT and Sentence Completion Techniques to elicit responses indicating an individual's personal time (Wohlford,

1968), which is defined as "the total array of his cognitions which may have referents in the past or future" (Wohlford, 1968). The length of time covered in TAT stories is considered an indication of the subject's personal time.

In the same vein, Robert Stolorow investigated differences in causes of distress, between subjects who perceived themselves to have a high degree of voluntary control (VC) over their lives, and those who perceived little voluntary control. As predicted, high VC's were more distressed by actual failures; whereas the low VC subjects found actual object losses to be more upsetting (Stolorow, 1971).

Using TAT cards showing various situations of anger and aggression, May found support for the theory that paranoid schizophrenia in men involves severe anxiety over aggression or assertion (May, 1970). He found that only paranoid schizophrenics responded defensively to the TAT cards.

J. M. Smith demonstrated a positive correlation between the achievement motivation score awarded and the number of words in a given TAT story (Smith, 1970). A cautionary note of other possible spurious relationships emerging from various scoring systems was sounded by Murstein and Wolf (Murstein and Wolf, 1970). Using five

projective methods (Draw-a-Person, Rorschach, TAT, Incomplete Sentence Blank, and Bender-Gestalt), they found a significant correlation between amount of projection and inferred pathology for all subjects, normal and psychiatric.

In looking at psychologists' usage of TAT protocols in report writing, Keepers found that reports contained significant amounts of information from the protocols, and that the psychologists did not show any systematic bias (Keepers, 1971). The significance of Keepers' findings is that it presented some evidence that experienced psychologists using projective devices are systematic and non-biased, despite any flaws in the instrument they are using.

D. Recent Research on Other Picture Projectives

Despite the preponderance of picture projectives and the continued publication of new ones, little research has been done on devices other than the Rorschach and the TAT. However, a review of recent work in this area is included here.

Kadushin and his colleagues used the Family Story Technique in family therapy to see if the test related changes in family interaction (Kadushin, Waxenberg, and Sager, 1971). They found significant changes in the test scores, and presented an easily quantifiable scoring system,

but did not relate the changes in test performance to actual behavioral changes.

The Bene-Anthony Family Relations Test was found to discriminate normal from school-disorder from institutionalized emotionally disturbed children (Kauffman, 1971). However, Levenson and Neuringer found no significant differences in intropunitiveness among suicidal, disturbed, but non-suicidal, and normal adolescents, using the Rosensweig Picture-Frustration study (Levenson and Neuringer, 1970). They concluded that the hypothesis that intropunitiveness underlies self-destructive behavior, should be re-ecamined in the light of their experimental data.

The comparison of the two forms of the Children's Apperception Test (Bellak and Bellak, 1949) was the subject of research by Neuringer and Livesay (1970). They concluded that since there were no significant differences in responses to the CAT and the CAT-H, which uses human rather than animal figures, the two forms were equivalent. The existence of equivalent forms in the realm of projective methods is very rare, the authors continued, and something of great potential value.

III. The Columbus

A. Description of the Test

The Columbus (Langeveld, 1969) consists of twenty-

four pictures, approximately six inches by nine inches, contained in a pocket inside the cover of the manual. Three of the pictures, numbers five, fourteen, and twenty-four, are printed in color. The pictures were all sketched or painted by professional artists and revised many times after experimental use with children. The content of the pictures varies immensely, but all are generally intended for children and adolescents ages five to twenty. Hence, the earliest cards in the series are suitable for younger children, while the cards with highest numbers would find their greatest usefulness with late adolescents. Certain of the cards (6, 10, and 18) depict scenes a North American child might have difficulty identifying: card six portrays the interior of an old-fashioned house with two figures seated around an open fire. Card ten shows a figure standing on an entranceway to a second-storey home or flat, with a dark and empty hallway below; and card eighteen depicts a soccer game which may not yet be a familiar sight in all parts of this continent.

The manual (M. J. Langeveld, 72 pages) contains information about the origin and development of the test, description of the cards, and discussion about interpretation in general. No information on reliability or validity is presented, although the authors recognize the need for such data. Its absence is rather curious, especially in view of the fact that the Columbus was developed and

used over a twenty year period prior to its publication.

Basic determinants which the author feels can be measured by the Columbus are (a) relationships to significant others in the child's environment; and (b) signs of dependence or independence which Langeveld labels the process of emancipation (Langeveld, 1969).

The manual is written in a florid, romanticized European style which makes it difficult for the North American reader to comprehend. For example, the instructions for presentation of the cards state, "...the child should always be given the opportunity to 'graze' before 'inducements' [questions designed to elicit projective material] ....are resorted to" (Langeveld, 1969). With respect to interpretation, aspects of protocol stories, which Langeveld feels to be important, are listed and categorized. Unfortunately, they are couched, for the most part, in abstract terms and are not operationally defined.

The final chapter in the manual is devoted to general comments on projection, and its relationship to the concepts of maturity and emancipation.

B. Goals and Uses of the Test

"The aim of the series is to facilitate projec-

jective examination of children from a very early age up

to maturity" (Langeveld, 1969). Langeveld and his colleagues, working both on a consultant and remedial basis with children encountering developmental and educational problems, found that use of psychometrically standardized tests did not provide enough information proportional to the amount of time required for administration. Hence, over twenty years of work in this area, the Columbus was developed.

Emphasis was laid on the variety of uses to which the individual examiner may put the cards, such as a lead into therapy, an aid to interviewing, or a point of relaxation or refreshment for the child. The primary usage, however, was held to be the providing of information about the child's perception of his world, in conjunction with a battery of different psychological tests.

C. Available Research

There is no available research on the Columbus that has been conducted in North America, nor does Langeveld report results of any European research. The Seventh Mental Measurements Yearbook, Vol. 1 (Buros, ed., 1972) lists only two articles which are merely descriptions of the test (Vanderberg, 1970; Ammons and Ammons, 1970). Both papers criticize the lack of information on reliability and validity, and Vanderberg questions Langeveld's assumptions of the cross-cultural suitability of the test.

IV. Standardizing a Projective Device

A. Difficulties

Standardization implies accuracy and replicability of most aspects of the testing situation: instructions to the client, presentation of material, recording the responses, and scoring of responses. Since the first three can be controlled with relative ease, even with projective devices, it is the last aspect which has received and will continue to receive the greatest amount of attention from researchers in the field.

First, the wide variety of psychologists' theoretical positions has resulted in multifarious opinions as to just which aspects of the projective protocol should be considered for scoring. It is obvious that no universally accepted conclusions can be reached when many users of the device in question disagree with the theoretical basis of any proferred scoring system. The result has been a deluge of widely varied scoring systems for various projective devices, notably the Rorschach and the TAT, each with a small amount of supportive research.

Even if this problem could be overcome, which seems unlikely, the prospective standardizer must decide which aspects of the subjects' responses to measure: Should he count the number of words per story? Should he include such peripheral aspects of performance as sighs,

blushes, or other sighs of distress? or, Should he devise a method of measuring an abstract concept such as "depression" or "need for affiliation"?

The latter type of analysis has been the most popular but is also the most difficult. It is virtually impossible to take into consideration all the determinants which result in any particular story a client may tell (see page 13), especially peripheral situational factors and native ability factors. Researchers have had to decide how to score an item to which the subject did not respond, or in which the subject merely described objects in the picture rather than telling a story.

Replicability of results has been extremely difficult to determine, because results depend so much on subjective interpretations by each individual tester. Individual tester differences even affect the number or type of responses given by the same subject, and sex of the examiner may also influence the subject's pattern of responding. There is also the strong possibility that the examiner may project his own feelings or attitudes into the client's protocol (Nunnally, 1967).

Standardization further requires the presentation of a pool of responses of normal subjects and also of abnormal subjects, so that another psychologist using the device may compare results he obtains with the samples, rather

than simply relying on his own intuition. This would be especially valuable to clinicians of limited experience.

Again, the largest difficulty is in deciding what facets of response are most significant: Should one describe normal and atypical latency times for different groups? Are the details of the picture mentioned by different subjects most important? Should one concentrate on describing the voluminous thematic material elicited by different cards, and attempting to pinpoint themes which may distinguish normal from abnormal subjects? Obviously, attempting to provide any of these types of standardized norms involves much more laborious work than providing norms for a quantified psychometric test.

B. Attempts at Standardization

The amount of published data directed to providing any type of norms or guidelines to projective devices is virtually nil. Henry, in his book The Analysis of Fantasy, described certain popular responses and popular details for the TAT cards (Henry, 1956) but did not give information about aberrant responses or their significance.

Pickford presented a list of popular responses for the Pickford Projective Pictures (Pickford, Bowyer, and Struthers, 1963). He included, for boys and girls separately,

...frequency of sex identification of the

> *pictured figures, identification of other objects presented, and actions, interactions, or outcomes. There is also a listing of each picture with the most frequent story themes, (and) a descriptive list of the pictures....* (Segal, in Buros, 1965).

However, data are for disturbed rather than normal children, and hence a psychologist using the test has no way of comparing his client's protocol with those of emotionally healthy children.

V. Closely Related Studies

A. Recent Validity Studies for Other Picture Projectives

Paul Kline investigated the claim of the author of the Family Relations Indicator to measure a subject's perception of his family relationships (Kline, in Buros, 1972, V. 1). Subjects' (i.e., mothers, fathers, and children of families receiving therapy) test scores were compared to a psychiatrist's rating of the subject's perception of family relationships. Although there was a greater than chance agreement between test scores and psychiatric rating for mothers and children, there were still many errors. It may also be argued that the criterion of validity (i.e., agreement with psychiatric rating) was weak and open to question.

Adcock summarized recent validity research on the TAT (Adcock, in Buros, 1965). Inconsistency was noted:

Takahashi failed to find any significance between overt aggression and hostile content of TAT stories (Takahashi, 1960), while Dreger (1960) found no relationship between Rorschach and TAT measures of productivity. Henry was able to identify the disturbed twin in a study of identical twins with the TAT (Henry, in Carr (ed.), 1960) but did not formulate any clear principles for future use from his findings.

There is little clear-cut evidence for the validity of projective devices, for two reasons: firstly, because of the technical difficulty of devising a measure of validity, such studies have not been popular. Secondly, as mentioned previously, more clinicians appear to be accepting the theory that projective methods are not tests but simply devices to aid the practising psychologist.

Despite these shortcomings, projective devices are still used widely in clinical settings. They have the advantage of being able to elicit responses from severely disturbed subjects who may refuse to complete or respond to more psychometrically oriented personality tests. Different forms are not needed for persons of differing intellectual capabilities or reading levels, and frequently the same form is found useful for persons of differing cultures. The task of responding to the picture or inkblot is usually interesting for the subject, and the time for test administration is relatively short.

The richness and variety of material obtained from the subject's projective protocol represents a sample of his behavior which is more extensive and qualitatively different from the same subject's profile on a pencil and paper personality test, many psychologists have concluded. On a test such as the Columbus, the examiner can note behavioral cues of tension or relaxation, including blushes, stammers, perspiration, position in chair, smiles, laughter, or eye contact with examiner, and the relation of these cues to particular stories the subject tells.

Not infrequently, a subject may tell a story describing an actual personal incident which he might not have been able to tell the therapist in direct conversation. Thus, the projective protocol often gives direct and individualistic leads to areas of difficulty which may be dealt with in therapy.

In summary, projective devices yield a large amount of data about a client which is amenable to personal and specific interpretation. Results of standardized personality tests are more frequently expressed in traits, defenses, and the extent to which these are present in the subject. While this information can certainly be useful, often it is the detailed personal incidents elicited through a TAT or Columbus, which give the psychologist his most useful indicators of what type of therapy is needed, if any, and the specific details of the client's environment with

which he encounters greatest difficulty.

CHAPTER III

METHOD

I. Selection of Subjects

The control group or "normal" children were randomly selected from all children of average intelligence (definition, pg. 6) between the ages of eight and thirteen inclusive, who were attending an elementary-junior high school in Edmonton, Alberta, Canada. Intellectual level was determined from reported intelligence test results in the children's school cumulative record cards.

The experimental group or "maladjusted" children selected were from the same age group and intellectual level as the control group. However, they were all receiving in-patient or day-patient therapy at one of two institutions for the treatment of emotionally disturbed children. Insufficient numbers of children in this city precluded random selection of those who were included in the experimental sample.

The children were divided into three groups, according to age, in order to facilitate the statistical analysis with small sample sizes. The groups were as fol-

lows: Group 1: eight and nine year olds; Group 2: ten and eleven year olds; and Group 3: twelve and thirteen year olds. For each age group, eight boys and eight girls were included in the "normal" sample, yielding a total of forty-eight subjects in the control group. Eight boys were included in each age group in the "maladjusted" sample, but due to insufficient numbers of girls available at the treatment institutions, only two were included in Group 1, with four in Group 2, and three in Group 3. This gave a total of thirty-three subjects in the experimental group, with a total sample size of eighty-one.

II. Testing Procedure

All subjects were tested individually by the author in a room where privacy was ensured. Ten of the Columbus cards, numbers five through fourteen inclusive, were administered to all subjects and the childrens' responses were tape-recorded, except for two subjects in the experimental group who refused permission for use of the tape-recorder. Responses of those two subjects were written down verbatim by the examiner. Identical instructions were given to all subjects. These are presented below:

> *I have some cards here with different pictures on them, of boys and girls and some things they might do. I would like you to tell me a story about each card. Just make up your very own story,*

with a beginning, a middle, and an end. Are you ready? ... Here is the first card.

The children were assured that their responses would not in any way affect their school grades, nor would the stories be released to any other adults in the various institutions. The testing was carried out during regular school hours, and time for administration varied from five minutes to one-half hour.

III. Scoring Procedure

A. Rationale

The lack of an existing scoring system for the Columbus necessitated either the development of a new scoring system or the adaptation of a system developed for a similar projective device, to the Columbus. The former course of action was chosen for several reasons. Firstly, existing scoring systems were based upon theories such as psychoanalysis or the Murrayan need-press theory, which underlie the development of the tests they apply to. None of these theories are congruent with the rationale of the Columbus, in which maladjustment is considered to be a developmental problem, where a child's maturity and sense of "emancipation" are inappropriate for his age level. Unfortunately, Langeveld did not clearly state what specific effect "emancipation" or the lack thereof should have on the

Columbus protocols of children of any given age, and he did not give any examples of protocols which he considered to show satisfactory or unsatisfactory development of maturity.

Furthermore, it has been the experience of the author that the majority of psychologists using projective devices do not employ any specific scoring method, but depend instead on an intuitive application of many theories of personality in making their interpretation. Since it appeared unlikely that an adaptation of an extant scoring system would be used clinically on the Columbus, it was decided to attempt to devise a scoring technique which merely quantified some of the intuitive scoring methods popularly utilized by clinical psychologists.

B. Development of Scoring System

The present scoring system was developed over a period of six months. Much revising and refining of original categories was found to be necessary following discussion with several professors in Educational Psychology regarding both the psychometrics of scoring responses, and the theoretical rationale for choosing certain aspects of the protocol to be scored. A pilot study employing twelve children volunteering for the project disclosed further weaknesses in the scoring system. For example, a three point rating scale was found to yield insufficient variation

in total scores for each of the ten cards. An attempt to code and score thematic responses had to be abandoned due to the difficulty of scoring them reliably. It was decided, in consultation with several faculty members, to include the category of affective words instead of the thematic material. The scoring categories eventually chosen for use are presented below.

C. Form of the Scoring System

Since a complete investigation and quanitification of intuitive scoring methods was well beyond the scope of this thesis and another topic of research in itself, only several of the least complex and most easily operationalized aspects of an intuitive scoring approach were selected for use. These were (1) latency, (2) story quality, (3) bizarre content, and (4) presence of affective or emotional words.

D. Definitions

(1) Latency

Latency was defined as the time, in seconds, which elapses between the presentation of the stimulus and the initiation of a response by the subject. It may be measured by a stop-watch or by the second hand of a wrist-watch; a wrist-watch was used for this investigation. It is popularly considered to have a direct relationship to

degree of defensiveness of the client--defensiveness in this case is thought to be indicative of emotional difficulties.

(2) Story Quality

Story quality was chosen to indicate the extent to which the subject followed the examiner's instructions to tell a complete story with beginning, intervening action, and ending. This item was scored by means of a rating scale, in which "zero" represented no response. One point was awarded if the response consisted of mere enumeration of objects or persons on the card (e.g., "a boy by a house," "trees"), or simple description of the pictures (e.g., "he's walking," or "they are playing in the street"). A response earning two points included description and some interpretation, which had not been sequentially organized into a story (e.g., "they just ate supper" or "he went home from school"). A three point response would indicate an interpretation and assimilation of the stimulus into a sequential story, usually but not necessarily exceeding the physical and temporal limits of the stimulus itself. It need not be lengthy (e.g., "He's going to get something and then he's going to play with it"). The action is continuous and sequential; hence, it is a "three" response.

Many psychologists known to the author concluded

that the ability to tell a story is related to an ability to express oneself openly around other persons, and to good adjustment; while children who describe the stimulus often seem to be defensive, as inferred from such behaviors as poor social skills in mixing with both peers and adults. Hence, it was decided to include this item in the rating scale.

(3) Bizarre Content

Bizarre content refers to unnatural, unrealistic distortions of ordinary story material, or to sudden and unexplained changes of topic, character or location (e.g., "'I've got something to tell you' said the cat"; or "he ate his cereal and it was Christopher Columbus chewing in the rowboat"). Every time an item such as the above occurred, it was counted as one point. If more than one bizarre item (as opposed to an elaboration or continuation of the first bizarre item) occurred, one point was scored for each item, so that this scale had a minimum of zero but no maximum.

Bizarre, distorted material has long been considered a sign of withdrawal from reality or psychosis. The relative ease of scoring this item was another reason for its inclusion.

(4) Affective Words

Affective words were defined as adjectives, adverbs, nouns, or verbs describing an emotional state, or a personality trait. Each word falling into this category was given one point, and scored + if it indicated a pleasant or desirable state, and a - if it indicated an unpleasant or undesirable state. If desirability or undesirability could not be determined within the context of the story, the word was not scored. Again, this category allowed a minimum score of zero with no maximum. Examples of words which were scored + included "like," "happy," "friendly," and "fun"; examples scored - included "sad," "lonely," "mean," "scary"; examples not scored because of ambiguity included "want," "wondered," and "learning."

The general emotional tone of a child's stories as a reflection of his internal emotional state is an application and expansion of Freud's original theory of projection. That is, the child who is happy perceives the world around him to be happy, and vice-versa for the unhappy child. This is perhaps the single most oft-examined aspect of projective stories. Thus, affective content was included in the scoring system since it seems to be part of the intuitive scoring system mentioned earlier. Each story was rated on all five criteria, which resulted in fifty separate scores for each subject.

Each protocol was scored by the examiner on a separate sheet of paper. In order to establish reliability of the scoring procedure, fifteen randomly selected protocols were re-scored and the results were compared with the initial scores obtained for the same subjects.

E. Use of Outside Raters

As a further check on the usefulness of the Columbus, unrelated to the author's scoring system, the protocols of all the boys were judged by four certified and practising clinical psychologists in the Province of Alberta, to belong to either "normal" or "disturbed" children. (The girls' protocols were not sorted due to insufficient numbers in the experimental group.) The psychologists judged the protocols according to any criteria they chose, and each psychologist rated the protocols independently. The first rater was the director of a psychology department in a local hospital, and was also engaged in private practise. The second was employed as a psychologist in a local hospital, and consultant to a treatment unit for disturbed children. The third was engaged primarily in private counseling and diagnostic testing; and the fourth tested and screened children for emotional or intellectual deficits for a city-wide screening program.

F. Recording of Thematic Material

The main theme for every story was recorded and frequencies of repeated themes were tabulated separately for control and experimental groups. Frequencies of no response and simple descriptive responses were also recorded. The purpose of analyzing the thematic content was to provide a normative pool of subject responses against which psychologists using the Columbus could compare protocols of children they have tested.

IV. Statistical Analysis

A. Hypotheses

The following hypotheses were tested:

1. The sum of all latency scores for each subject would be significantly higher for experimental than control groups, for all three age groups.
2. The sum of story quality scores for each subject would be significantly lower for experimental than control groups, for all three age groups.
3. The sum of bizarre items for each subject would be significantly higher for experimental than control groups, for all three age groups.
4. The sum of negative words for each subject would be significantly higher for experimental than control groups, for all three age groups.

5. The sum of positive words for each subject would be significantly lower for experimental than control groups, for all three age groups.

6. The sum of the five within-card scores for each of the ten cards would be significantly higher for the control than the experimental group, for all three age groups.

7. The four certified psychologists would correctly rate protocols as belonging to experimental or control groups at a level significantly greater than chance.

B. Statistical Procedures

1. Assembling Subject Pool

Out of eighty-one subjects tested, eight gave no response to one or more cards. Since there was no way of meaningfully coding the resulting missing data, those eight subjects were discarded. This made division of subjects by sex impossible, since one cell of the data matrix had only one subject (experimental group, 8 and 9 year old girls). Hence, subjects were categorized according to age and experimental group only. Three more subjects then were randomly discarded; two from experimental 10 and 11's, and one from control 12 and 13's, to yield equal cell frequencies for all experimentals, and equal cell frequencies for all controls. The final cell frequencies used in the analysis are shown in table 1.

TABLE 1: CELL FREQUENCIES BY GROUP AND AGE

Group \ Age	8+9	10+11	12+13
Exp.	8	8	8
Contr.	15	15	15

All data were punched on data processing cards, prior to the final analysis.

2. Analysis of Scoring Criteria

The first step in the analysis was to test hypotheses one through five, which concerned the ability of the individual scoring criteria to discriminate experimental Ss from control Ss, regardless of the particular stimulus which was presented.

Since it was important to determine whether or not each of the five scoring variables discriminated among children of different age categories as well as between experimental and control groups, the two-way analysis of variance procedure was employed. This permitted simultaneous determination of significant differences associated with either age or group, in a given variable.

Five separate two-way analyses of variance were carried out, with age and experimental group remaining constant. The dependent variables (latency, story quality, bizarre content, negative affect, and positive affect) were

changed for each analysis of variance.

The final analysis carried out on the individual variables was a discriminant function analysis. This procedure was designed to indicate which of the five variables was the best predictor of normal or abnormal emotional adjustment. The statistical procedure assigned weightings to each of the variables, and the variable with the highest weighting was the best discriminator between the experimental and control groups, of the five variables used.

3. Analysis of Columbus Cards

The same rationale was used in analyzing the ability of the individual cards to discriminate among age groups and between control and experimental groups (hypothesis 6). Ten two-way analyses of variance were carried out on the total of scores obtained for each of the ten cards used, with age and group being held constant each time. Again, a discriminant function analysis was employed to ascertain which particular cards were the best discriminators.

4. Analysis of Independent Ratings

Calculation of the chi-square coefficient was made to determine the level of significance of raters' correct responses (hypothesis 7). The chi-square statistic is ideally suited for comparing raters' sorting of

protocols to the previously determined correct sorting into either experimental or control groups.

CHAPTER IV

RESULTS AND DISCUSSION

I. Analysis of the Five Scoring Variables

Re-scoring of fifteen randomly selected protocols and comparing the results with the initial scores of the same protocols, indicated that there was an 8.6% scoring error, which was sufficiently low to establish the reliability of the scoring system within reasonable limits. That is, the average number of scoring errors per subject was 4.3, out of a possible total of 50 scores per subject. The error was lowest for latency and bizarre scores, and highest for negative affect scores. There were no errors on latency scores, and an average of 0.5 errors per subject on bizarre content scores. The relatively high number (23%, or 2.3 per subject) of errors on negative affect scores were reduced to 0.2 errors per subject if only errors of more than one negative affective word were counted.

A. Hypothesis 1

The hypothesis that the sum of latency scores for all age groups would be significantly higher for the experimental groups than the control group was not supported by the data analysis. The summary of the two-way

analysis of variance is presented in Table 2. (For Tables 2 through 16, SSA represents sum of squares for Factor A; SSB represents sum of squares for Factor B; and SSAB represents interaction.)

TABLE 2

TWO-WAY ANALYSIS OF VARIANCE SUMMARY
FOR LATENCY RESPONSES
TO COLUMBUS CARDS

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	2375.55	0.316	0.576
SSB	2	67.77	0.009	0.991
SSAB	2	3204.22	0.426	0.655
ERROR	63	7520.76		

The F ratios are not significant.

The very low F ratio obtained on Factor B (Age) indicated that there was virtually no variability in latencies for children of different age groups. The lack of statistical support for Hypothesis 1 suggested that a long latency period was not a useful criterion for judging a child to be emotionally disturbed.

B. Hypothesis 2

The second hypothesis predicted that the story

quality of the control group protocols would be significantly higher than the story quality of experimental group protocols, for all age groups. The summary of this analysis is presented in Table 3.

TABLE 3

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR STORY QUALITY RESPONSES TO COLUMBUS CARDS

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	192.96	10.523*	0.002
SSB	2	6.97	0.380	0.685
SSAB	2	37.01	2.019	0.141
ERROR	63	18.33		

* - indicates that the F is significant ($\alpha = .01$)

The hypothesis was thus supported by the data, in that control children tended to tell more complete stories than experimental children, regardless of age. There was no indication from this analysis that children tend to tell more complete stories as they grow older.

C. Hypothesis 3

It was hypothesized that more bizarre items would be detected in experimental than control protocols, regardless of age. The two-way analysis of variance, as

presented in Table 4, failed to support this hypothesis. However, the F ratio approached significance at the .05 level for Factor B (Age). Examination of column means revealed that 10- and 11-year-old children used fewer bizarre items than either 8- and 9-year olds or 12- and 13-year-olds, a curious finding most probably resulting from sampling fluctuations.

TABLE 4

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR BIZARRE RESPONSES TO COLUMBUS CARDS

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	2.14	0.800	0.374
SSB	2	7.71	2.889	0.063
SSAB	2	2.70	1.013	0.369
ERROR	63	2.67		

The F ratios are not significant.

The low frequency of bizarre items actually tabulated for both experimental and control subjects suggested that examination of bizarre content was of very limited value in discriminating normal from emotionally disturbed children.

D. Hypothesis 4

Hypothesis 4 predicted that the experimental

group would employ more overt expressions of negative affect than the control group, regardless of age. Results, as summarized in Table 5, failed to support the hypothesis.

TABLE 5

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR NEGATIVE WORD RESPONSES TO COLUMBUS CARDS

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	31.15	1.642	0.205
SSB	2	51.41	2.711	0.074
SSAB	2	11.36	0.599	0.552
ERROR	63	18.96		

The F ratios are not significant.

The differential usage of negative words for children of different age groups approached significance, and examination of column means revealed a steadily decreasing incidence of negative words with increasing age. A possible reason for this finding was that children become more conscious of inhibiting socially unacceptable negative emotions as they become older and hence use negative words less in their stories as their ages increase. However, there is no statistical basis for using number of negative words as an indicator of emotional disturbance.

E. Hypothesis 5

It was further predicted that children in the experimental group would employ significantly fewer positive words in their stories than would children in the control group, regardless of age. This hypothesis was substantiated by the statistical analysis, summarized in Table 6 below.

TABLE 6

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR POSITIVE WORD RESPONSES TO COLUMBUS CARDS

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	85.01	4.880*	0.031
SSB	2	8.53	0.490	0.615
SSAB	2	9.47	0.544	0.583
ERROR	63	17.42		

* - indicates that the F is significant ($\alpha = .05$)

The difference was in the expected direction; that is, protocols of normal children contained more positive words than did protocols of disturbed children, regardless of age group.

F. Weighting of the Five Scoring Variables

The assumption of homogeneity of the covariance

matrix was violated by the data; hence, no meaningful results were obtained from the discriminant function analysis of the five scoring variables. It was therefore necessary to use only the results of the analyses of variance to determine the usefulness of the individual scoring criteria.

II. Analysis of the Ten Columbus Cards

A. Hypothesis 6

It was predicted that control Ss would have significantly higher total scores, for each of the ten Columbus cards administered, than experimental Ss, regardless of age group. Statistical analysis failed to support this hypothesis for any of the ten cards. Summaries of the two-way analyses of variance are presented in Tables 8 through 17.

TABLE 7

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #5

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	4.09	0.111	0.740
SSB	2	5.23	0.142	0.868
SSAB	2	22.08	0.600	0.552
ERROR	63	36.80		

The F ratios are not significant.

TABLE 8

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #6

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	127.81	0.441	0.509
SSB	2	62.91	0.217	0.805
SSAB	2	123.09	0.425	0.656
ERROR	63	289.59		

The F ratios are not significant.

TABLE 9

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #7

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	80.70	0.276	0.601
SSB	2	46.35	0.158	0.854
SSAB	2	86.65	0.296	0.745
ERROR	63	191.46		

The F ratios are not significant.

TABLE 10

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #8

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	35.95	0.214	0.645
SSB	2	141.91	0.844	0.435
SSAB	2	10.31	0.061	0.941
ERROR	63	168.23		

The F ratios are not significant.

TABLE 11

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #9

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	14.79	0.262	0.611
SSB	2	36.68	0.596	0.554
SSAB	2	35.63	0.631	0.535
ERROR	63	56.48		

The F ratios are not significant.

TABLE 12

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #10

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	18.52	0.207	0.651
SSB	2	2.85	0.032	0.969
SSAB	2	132.40	1.479	0.236
ERROR	63	89.54		

The F ratios are not significant.

TABLE 13

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #11

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	84.15	1.104	0.297
SSB	2	84.04	1.102	0.338
SSAB	2	37.24	0.488	0.616
ERROR	63	76.25		

The F ratios are not significant.

TABLE 14

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #12

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	29.73	0.522	0.473
SSB	2	8.52	0.150	0.861
SSAB	2	5.13	0.090	0.914
ERROR	63	59.92		

The F ratios are not significant.

TABLE 15

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #13

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	10.33	0.149	0.770
SSB	2	22.88	0.331	0.720
SSAB	2	14.14	0.205	0.816
ERROR	63	69.17		

The F ratios are not significant.

TABLE 16

TWO-WAY ANALYSIS OF VARIANCE SUMMARY FOR TOTAL SCORES ON COLUMBUS CARD #14

Factor A = Group, Factor B = Age

Source	df	MS	F	P
SSA	1	5.08	0.083	0.774
SSB	2	12.60	0.206	0.814
SSAB	2	64.43	1.053	0.355
ERROR	63	61.21		

The F ratios are not significant.

The lack of significant findings for the individual cards was not surprising, in view of the fact that the score for each card was the sum of the five variable scores for that card, only two of which differed significantly between control and experimental groups.

One conclusion drawn from these data was that attempts to describe a child's emotional health or lack thereof solely on the basis of a projective protocol or, worse, on the basis of only one or two cards from a device such as the Columbus, contain a very high risk of error. Clinicians would be well advised to administer projective devices only as part of a more comprehensive test battery.

B. Weighting of the Ten Cards

Again, violation of the assumption of homogeneity of the covariance matrix invalidated the results of the discriminant function analysis. The data obtained were discarded, and the analyses of variance were retained as the measure of the ability of the Columbus cards to discriminate experimental from control groups.

III. Use of Outside Raters

A. Hypothesis 7

It was predicted that each of the four certified psychologists used as raters would be able to distinguish "normal" from "suspect" protocols at a level significantly greater than chance. Results for each rater's performance are presented individually below in Tables 17 through 20, while Table 21 summarizes the ratings of all four psychologists. The chi-square coefficient was used to calculate the level of significance of accurate ratings.

Results of the chi-square test generally failed to support the hypothesis, with one exception. Psychologist A was able to discriminate control protocols from experimental or "suspect" protocols with a high degree of significance ($\alpha = 0.001$). Since all raters were certified psychologists with training and experience in the use of

TABLE 17

SUMMARY OF CHI-SQUARE TEST FOR ACCURACY OF RATINGS OF PSYCHOLOGIST "A"

	Rated Suspect	Rated Control
Suspect Children	19	5
Control Children	5	19

N = 48 df = 1 X^2 = 16.333*

* - indicates X^2 is significant (α = 0.001)

TABLE 18

SUMMARY OF CHI-SQUARE TEST FOR ACCURACY OF RATINGS OF PSYCHOLOGIST "B"

	Rated Suspect	Rated Control
Suspect Children	14	10
Control Children	10	14

N = 48 df = 1 X^2 = 1.33

The X^2 value is not significant.

TABLE 19

SUMMARY OF CHI-SQUARE TEST FOR ACCURACY OF RATINGS OF PSYCHOLOGIST "C"

	Rated Suspect	Rated Control
Suspect Children	11	13
Control Children	13	11

N = 48 df = 1 X^2 = 1.667

The X^2 value is not significant.

TABLE 20

SUMMARY OF CHI-SQUARE TEST FOR ACCURACY OF RATINGS OF PSYCHOLOGIST "D"

	Rated Suspect	Rated Control
Suspect Children	9	15
Control Children	15	9

N = 48 df = 1 X^2 = 3.000

The X^2 value is not significant.

TABLE 21

SUMMARY OF CHI-SQUARE TEST FOR COMBINED ACCURACY OF PSYCHOLOGISTS' RATINGS

	Rated Suspect	Rated Control
Suspect Children	53	43
Control Children	43	53

N = 192 df = 1 $X^2 = 2.083$

The X^2 value is not significant.

projectives, this raised questions as to the validity of projective devices even in the hands of trained professionals. All raters commented on the difficulty of the task, and felt that certain protocols obtained from children in the control group were strongly indicative of emotional maladjustment. Since the control group was randomly selected, it was certainly possible for some unidentified but maladjusted children to have been included as control subjects.

IV. Recording of Thematic Material

Popular themes given for each card for both normal and disturbed groups were recorded, with the objective of providing a pool of normative responses for the

aid of psychologists using the Columbus. A complete list of "normal" and "disturbed" responses is to be found in Appendix B, following a description of the manifest stimuli of each card in Appendix A.

Careful examination of the themes revealed a great deal of overlap; that is, many themes were common to both normal and disturbed subjects. For example, the most popular theme for card 8 was one of children playing various games together. Twenty-nine "normal" children and twenty "disturbed" children gave this response. Certain cards elicited a greater variety of themes than other cards. The number of themes for each card is presented in Table 22, in order of most to least themes elicited.

TABLE 22

NUMBER OF DIFFERENT THEMES ELICITED BY COLUMBUS CARDS 5 THROUGH 14

CARD	THEMES
12	23
7	22
10	20
11	20
6	16
13	14
8	12
5	11
9	11

Thus, cards 6, 7, 10, 11, and 12 were most useful in terms of the variety of thematic material obtained. However, the variety of data may be considered less important if certain cards elicit fewer responses or more descriptive responses (as opposed to complete stories) than others. Table 23 presents, in ascending order, the number of non-responses and descriptive responses for each card.

TABLE 23

NUMBER OF NON-RESPONSES AND DESCRIPTIVE RESPONSES TO COLUMBUS CARDS 5 THROUGH 14

Card	Non-Responses	Card	Descriptive Responses
14	0	12	3
7	0	8	5
8	0	6	7
11	0	9	7
13	0	11	11
5	1	14	11
9	1	7	12
10	1	10	13
6	3	13	13
12	7	5	20

From inspection of Tables 22 and 23, it was obvious that a professional wishing to use the Columbus must decide what he wishes to gain from the instrument. If he were

looking for unusual and interesting story material, he might choose card 12, although he would run a fairly high risk of getting no story at all. Card 7 elicited many different themes and was responded to by all subjects, but produced a large number of simple descriptive responses.

To summarize, cards 12, 7, and 11 appeared to be stimulating to the imaginations of most of the children, while cards 5 and 9 tended to elicit a small number of themes or else simple descriptive material, and the clinician would be wise to avoid the latter two cards if possible. However, the necessity of judging the value of each card in terms of the particular child with whom the psychologist is confronted, should not be underemphasized.

CHAPTER V

CONCLUSION

I Summary

The purpose of this thesis was to investigate the usefulness of the Columbus (Langeveld, 1969) for discriminating normal from emotionally disturbed children, whether rated by certified psychologists according to their own scoring methods, or scored according to a method described by the writer, which incorporated some scoring criteria informally used by those employing projective devices clinically.

The results were inconsistent. The scoring criteria of story quality and positive affect reliably discriminated experimental Ss from control Ss; however, the criteria of latency, bizarre content, and negative affect failed to do so. Only one of the four psychologists who rated the protocols was able to correctly discriminate experimental Ss from control Ss at a level significantly better than chance.

The usefulness of the ten Columbus cards tested was discussed in terms of the variety of thematic material

elicited, in terms of total responses elicited, and in terms of complete stories elicited.

II Conclusions and Implications for Clinical Practice

The results of the study indicated that the Columbus cards tested have some usefulness with respect to eliciting different responses from normal children than from emotionally disturbed children. However, several popularly used aspects of the projective protocol did not differentiate the two groups.

Latency times, whether for each card or for the total of ten cards for each subject, failed to discriminate control Ss from experimental Ss. Since this was the most easily and reliably measured score, the writer can only conclude that employing overall latency scores in analyzing Columbus protocols is not advisable.

Another scoring measure, bizarre content, was observed so infrequently as to render its inclusion in the scoring system extraneous. The one protocol of a "disturbed" child which contained flagrant bizarre patterns and distortion of reality, yielded very little new information about the child, since her running conversation was equally distorted.

An interesting finding was that although control Ss and experimental Ss did not differ significantly in

their use of negative words, control Ss used significantly more positive words than their experimental counterparts. One possible explanation for this apparent incongruity may lie in the truism that all children experience unpleasantness both from their physical environment and from other people with whom they come in contact. However, normal children may experience or at least perceive more pleasant occurrences, than disturbed children. This (lack of positive reinforcement) has been viewed by behaviorists and other mental health practitioners, as a causal factor in the etiology of maladjustment or emotional disturbance. Regardless of the validity of this explanation, this study has suggested that use of many positive words in a Columbus protocol is directly related to adequate emotional health.

The story quality of a child's responses was the best single discriminator between control Ss and experimental Ss. Control Ss tended to follow the examiner's instructions in making up a complete story about each card. Often they used much colorful detail and some even employed "sound effects," or changed their voices with each character. Experimental Ss, on the other hand, frequently gave simple one-sentence descriptions of the cards, or in attempting to tell a story, simply named objects in the pictures. The experimental group were often more resistant to the testing, and questioned its purpose far more often

than control group children. (The foregoing observations were subjective impressions rather than accurate measurements.) Whether this was a result of the frequent exposure of emotionally disturbed children to testing situations for which they were given poor explanations; or whether their laconic stories reflected a genuine difficulty in expressive communication, it was not possible to say.

The ability of only one of the four certified psychologists to reliably discriminate control Ss from experimental Ss has raised serious objections to the exclusive use of projective devices in the assessment of a child's emotional status. All raters had had extensive training and experience with projective devices, but minimal exposure to the Columbus. This may have indicated either that training and experience in the use of the most popular projective methods need not imply facility with lesser-known methods; or it may have indicated that training and experience with projective devices is of secondary importance, in the ability to use the devices well, to an undefined "talent" for accurate protocol interpretations. Many psychologists, the writer included, have considered that analysis of the projective protocol is an art much more than a science. Clinical practitioners, therefore, should include at least one standardized personality test in their test battery, wherever possible.

Analysis of scores for each of the ten Columbus

cards tested failed to yield any significant differences. The conclusion that no card is better able to discriminate control Ss from experimental Ss must be resisted, however, since these total scores included three scoring criteria which of themselves failed to discriminate between the two groups. Since the analysis was not repeated utilizing the scoring criteria which were able to differentiate the two groups, more complete investigation of the individual Columbus cards must be left for future research.

III Limitations and Recommendations for Future Research

The incompleteness of the analysis of the individual Columbus cards 5 through 14 has already been mentioned. An extension of this investigation for the remaining cards would be of value to clinical psychologists, as would a more intensive examination of popular themes for normal and disturbed subjects for all twenty-four cards. The size of the subject sample in the present study precluded presentation of more thorough thematic data. Also, themes listed were primarily the simple dramatic plots of the stories. Analyses of outcomes, of physical aspects of the cards popularly used, etc., would also be helpful in establishing normative data for the Columbus.

The lack of significant differences between age groups on any of the five scoring criteria was somewhat

surprising. It seemed unlikely that the difference in maturity between eight-year-olds and thirteen-year-olds would not be reflected in the stories they told. Possibly the scoring criteria were not sufficiently sensitive to these differences, or perhaps the child's level of maturity could better be measured in a completely different way, such as calculating sentence lengths or sophistication of grammar. In clinical settings, it may be crucial to assisting a particular child to know if he is functioning socially behind or ahead of his age level. Extension of such research to all age levels purportedly testable with the Columbus would provide extremely valuable information to the clinician.

The regrettable insufficiency of female "disturbed" subject must be considered a serious limitation of this thesis. Sex differences in responses to the Columbus (and to most other projective methods) remain unexamined by researchers. Langeveld's claim that girls can identify with male figures, but boys seldom identify with female figures, would certainly be a topic worthy of future investigation.

Few reasons for the failure of three out of four clinical psychologists to discriminate experimental from control subjects were presented. It would be most interesting to investigate, firstly, whether or not this was representative of most clinical psychologists; and secondly,

whether certain individuals were consistently better raters than others, regardless of the projective device used.

The loose definitions of "normal" and "disturbed" children employed in this thesis may have contributed to the obscurity of the analysis of the scoring criteria. A replication of this study using much more rigorous definitions of the groups would assist in clarifying the usefulness of the five scoring criteria, since possible real differences between normal and disturbed children would not be confused by the misplacement of subjects in either group.

The scoring system employed herein has shown some potential value for assessing children's Columbus protocols. Expansion of the story quality score, possibly extending the range from "zero to three," to "zero to five"; and defining those ratings more adequately, may enable clinicians to make more accurate judgments about children's emotional status. The latency score should be dropped completely, since it failed to prove a useful discriminator. Since the discriminant function analysis failed to provide weightings for the scoring factors, seeking alternative methods of determining whether or not use of bizarre content is a strong indicator of maladjustment could provide further material for future research. In-

vestigation of the writer's *ex post facto* explanation of the difference in results between positive words and negative words (see p. 66) could yield an interesting, if small, contribution to personality theory.

There is immense scope for development and investigation of expanded, parallel, or totally different scoring systems for the Columbus, both to provide the clinical psychologist with an aid for analyzing protocols, and to continue in the difficult, but necessary investigation of the validity of projective devices.

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APPENDICES

APPENDIX A

MANIFEST STIMULI OF COLUMBUS CARDS 5 THROUGH 14

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CARD 5

A small human or humanesque figure is seated on a bird which is flying above a harbor town.

CARD 6

A man and a female of obscure age are seated close to a fire on which a pot is placed. The man has one hand open and slightly extended. They are in a large room which contains a table on which some dishes are sitting. An ambiguous object lies under the table, and two chairs are in the background. On one chair some articles, possibly clothing, have been draped. A lamp hanging from the ceiling lights the room. At the back, an open door reveals two human figures in bed.

CARD 7

A young boy is walking on a sidewalk in front of a house. Both the gate and door of the house are open, and there may be a figure at the upstairs and downstairs windows. There is a shadowy figure seated

in the back yard, and trees are behind the house. A tall building, possibly a church, is in the far left background, as the street curves past the house.

CARD 8

A dozen or more children of both sexes are gathered in front of a courtyard or street. Some of the girls are skipping. Several of the boys appear to be talking together with a much smaller child, while three other children are engaged in observation or solitary activity. Another child is in the background, and an adult figure is seen in the window of a building resembling row housing or a school. There is a construction site in the background.

CARD 9

A figure of indeterminate sex is seen entering or leaving a cluttered attic by a ladder. The room contains an old stove, a lamp, a large basin, and many other shadowy items.

CARD 10

A male figure stands in an open doorway at the top of a staircase. The stairs lead to a narrow chamber of some sort with one bench and possibly a doorway at

the extreme right. One barred window lets in light.

CARD 11

In the foreground, a male figure of uncertain age stands with hands clasped behind his back, facing away from the viewer. In front of him is a short pier with a boat tied beside it. Neither oars, paddles, nor motor are in evidence. The body of water could be either a river or a lake. Across the water from the boat are a shack and a large tree, with a more obscure building or landmark to the right. Sails are visible in the background.

CARD 12

A figure of obscure sex, with its back to the river, stands with arms extended at each side. The figure is surrounded by vague underbrush or smoke. In the background is an archway, possibly with another figure to one side of it, and further back, another archway is visible.

CARD 13

A sexually ambiguous figure stands behind a curtain, apparently looking out of the window. The

room is bereft of furniture but may have a carpet. The scene outside is totally unclear.

CARD 14

A boy is laying on some grass under a large tree, only the trunk of which is visible. A road or path may be in the extreme foreground, while two houses are in the background at varying distances from the viewer.

APPENDIX B

THEMES HAVING MORE THAN ONE RESPONSE FOR COLUMBUS CARDS 5 THROUGH 14

THEMES HAVING MORE THAN ONE RESPONSE FOR
COLUMBUS CARDS 5 THROUGH 14

CARD 5

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
Child explores or visits other territories on the bird	20
Child "escapes" an unpleasant situation on the bird	11
Child is dreaming about events in the picture	8
The child is frightened or seized by the bird	4

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
Child explores or visits other territories on the bird	4
Child "escapes" an unpleasant situation on the bird	4
Child is dreaming about events in the picture	2

CARD 6

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
adults discussing family matters	11
parents relaxing	11
adults worried over family matters	9
Parent(s) reading to or talking to child	4
people warming themselves by the fire	4

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
parents relaxing	8
adults discussing family matters	4
people warming themselves by the fire	3
a secure family	2
parent(s) reading to or talking to child	2

CARD 7

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child going to or coming from school	12
child going home from somewhere other than school	8
child searches for friend outside his home	6
child playing with friends	4
child is lost and asks help to get home	3

"DISTURBED" RESPONSE

RESPONSE	FREQUENCY
child going to or coming from school	9
child going home from somewhere other than school	5
child sees frightening sight in or near house	2

CARD 8

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
children playing together	29
one child has nobody to play with	4
the boys are teasing the girls	6
a child or children are fighting	3

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
children are playing	20
one or more children are being teased	2

CARD 9

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child is exploring or looking for something, enjoying it	24
child adventures in a frightening setting	9
child is punished for exploring strange place	4
child lives in the room	4

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
child is exploring or looking for something, enjoying it	13
child entering or leaving cellar	6
child is hiding	4

CARD 10

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child explores a strange building	12
child waiting for something or someone	7
person is alone or lonely	7
child is leaving the building	6
child is bored, puzzled or indecisive	5

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
person looking from the room	5
child is angry or upset and isolates himself	3
child is leaving the building	3
child is entering the building	2

CARD 11

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child goes fishing alone	10
child attempts to go fishing with his father	9
adult goes fishing	7
child debates about using the boat	7
child goes exploring in the boat	4

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
child debates about using the boat	6
child daydreams about fishing	4
child goes exploring in the boat	3
person using the boat is hurt or killed	3
adult gazing at something across the river	2

CARD 12

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child explores a strange or magical situation	21
child finds a cave	6
a stage presentation or work of art	4
child doing exercises	4
person at church	3

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
religious theme of supernatural or strange events	6
child walking through a forest	3
child explores a strange or magical situation	2
child finds a cave	2
a person looking outside	2

CARD 13

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child gazes at nature outside	17
child watches activity and wishes to join in	10
child alone waiting for someone	6
child watches activity and joins in	5
child is fantasizing	2

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
child gazes at nature outside	11
child watches activity and wishes to join in	5
child investigates noise	3
child going to bed	2

CARD 14

"NORMAL" RESPONSES

RESPONSE	FREQUENCY
child daydreaming about previous or future experiences	14
child is resting	13
boy is lazy and "gets away" with it	5
boy falls asleep	3
boy eating	3

"DISTURBED" RESPONSES

RESPONSE	FREQUENCY
child is resting	7
child is lazy and "gets away" with it	4
child thinking of someone else	3
child daydreaming about previous or future experiences	3
child eating	2

END OF REEL

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