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ASSESSING CHILDREN'S MOTIVES.

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STORY PREFERENCES: A TECHNIQUE FOR ASSESSING  
CHILDREN'S MOTIVES

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STORY PREFERENCES: A TECHNIQUE FOR ASSESSING  
CHILDREN'S MOTIVES

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## CHAPTER I

### THE STUDY

Closely related to the development of the modern curriculum are recent changes in points-of-view on motivation in learning. Cause-and-effect relationships between the two cannot be defensibly postulated, but concomitant developments which reflect similar thinking can be seen in several aspects of both. The watchwords of many of the recently developed curricula are discovery and inquiry. Exploratory approaches to teaching suggested by these two terms imply the presence of a need to know and understand. During the time the shift toward exploratory approaches has occurred, psychologists have studied the exploratory behavior of animals (McKeachie & Doyle, 1966, pp. 217-218) and have described curiosity as "almost a prototype of the intrinsic motive" (Bruner, 1966, p. 114). The Association for Supervision and Curriculum Development has published a yearbook (ASCD, 1962) built around the point-of-view that the learner must be perceived as a dynamic, self-actualizing individual who has a deep-seated need to become the most adequate person of which he is capable. Associated with this concept of the individual are the "need for self-actualization" (Maslow, 1954), the "need to achieve"

(McClelland, Atkinson, Clark, & Lowell, 1953) and the "ego-integrative motives" (Sears & Hilgard, 1964). The extensions of the concept of motivation and their apparent relationships to current curriculum developments have generated great interest in the motives which teachers can arouse and utilize effectively within the classroom setting.

As in every area of human behavior, individual differences are present in motivation. McKeachie and Doyle (1966, p. 250) wrote, "One of the most universal findings in the study of motivation is the existence of widespread individual differences." Apparently, all children cannot be expected to be equally curious, to have comparable needs to successfully meet a challenge, or to be equally influenced by peer pressures. If, therefore, the classroom teacher is to make maximum use of children's motives to facilitate the learning process, it is vitally important that he have some means of assessing motives usable in the school situation. To be widely accepted and used, such a measuring instrument needs to be conveniently administered, objectively scored, and easily interpreted by the typical classroom teacher. Because such an instrument has not been available, the objective of this study was to explore the feasibility of measuring children's motives by their story preferences expressed in response to picture stimuli.

### Statement of the Problem

The problem of this study was to determine whether or not story preferences expressed in response to a given set of picture stimuli can be used to effectively differentiate among selected categories of children's motives. Inasmuch as some instruments designed to measure motives have been found to be more effective with men than with women, sex differences in response to items were considered.

### Selection of Motive Categories

The first task considered was the selection of motive categories to be included in the study. Many lists of needs and motives have appeared in psychological literature. Two of the most widely quoted have been Murray's (1938) and Maslow's (1954). Both of these went beyond the scope of motives which can be effectively utilized in today's classroom setting and included motives which underlie behavior in all types of situations. Inasmuch as this study was limited to those motives more appropriate for the classroom, a search was made of literature related to motivation in classroom learning. Discussions of this topic by Sears and Hilgard (1964) and by Bruner (1966) reflect the tenor of current thinking.

Sears and Hilgard (1964, pp. 184-187) listed three broad groups of motives as important in classroom learning --social motives, ego-integrative motives, and curiosity

and other cognitive motives. Bruner (1966, pp. 113-128) stressed the need for teachers to appeal to curiosity, to the need for competence, to the need for identification with a nurturant adult, and to the need for responding to others and working cooperatively with them toward an objective. Comparing the two discussions, one finds that both placed a great deal of emphasis upon curiosity, that both included motives related to establishing one's own competence with respect to his environmental milieu, and that both presented needs for affiliation as useful in promoting classroom learning.

Establishment of one's own competence with respect to the environment was associated with the achievement motive by Sears and Hilgard (1964). In the manual developed by McClelland and his associates for scoring TAT stories for achievement imagery (Atkinson, 1958, pp. 181-184), achievement motivation was defined so as to include competition with others, competition with a self-imposed standard of excellence, unique accomplishment, and long-term involvement. Costello (1967) presented evidence that the achievement motive includes more than a single motive.

Three emphases within affiliation motives were emphasized by Sears and Hilgard (1964) and Bruner (1966). These were the impact of nurturance on the part of the teacher and the effects of its withdrawal, the role of identification by the student with the teacher, and the

effects of peer forces operating within the classroom.

On the basis of the information summarized above, six motive categories were selected for inclusion in the present study. These motive categories were identified and defined as follows:

1. Curiosity (C) - Curiosity is associated with the need to know and understand. It is evidenced by a disposition to strive for greater understanding of the environment, by a disposition to explore the new, and by the capacity for satisfaction in the attainment of knowledge and understanding.

2. Competition with a self-imposed standard of excellence (SIS) - Competition with a self-imposed standard of excellence is associated with the need to achieve mastery of the environment. It is evidenced by a disposition to strive for the attainment of self-imposed standards of good performance or to strive for the attainment of personally-accepted, long-term achievement goals and by the capacity for satisfaction in the attainment of those goals.

3. Unique accomplishment (U) - Unique accomplishment is associated with the need to be a personal success through achieving something extraordinary. It is evidenced by a disposition to strive for the attainment of some goal other than a run-of-the-mill daily task and by the capacity for satisfaction in the attainment of such a goal.

4. Competition with others (CO) - Competition with others is associated with the need to do as well as or

better than others. It is evidenced by a disposition to strive for excellence in relationship to the task itself and by the capacity for satisfaction in the attainment of a favorable comparison with others.

5. Adult affiliation (AA) - Adult affiliation is associated with the need for adult acceptance and approval. It is evidenced by a disposition to strive to establish, maintain, or restore a positive affective relationship with adults and by the capacity for satisfaction in the attainment of this relationship.

6. Peer affiliation (PA) - Peer affiliation is associated with the need for peer acceptance and approval. It is evidenced by a disposition to strive to establish, maintain, or restore a positive affective relationship with peers, by a disposition to respond favorably to peers and to work jointly with them toward an objective, and by the capacity for satisfaction in the attainment of warm peer relations.

#### Selection of the Technique

Several approaches have been used to determine the presence of motives and their relative strengths. The most effective ones have been projective instruments which require highly specialized training for administration, scoring, and interpretation. A few objectively scorable instruments have been constructed and tried, but they have shown only limited promise and usually have been restricted to one

motive category. Another approach, developed by McClelland and his co-workers, has been described extensively in Motives in Fantasy, Action and Society (Atkinson, 1958). This approach was basically projective, but adequate scoring criteria have been developed to permit highly consistent scoring among trained personnel and to permit computerized content analysis (McClelland, 1966b, p. 20). Scoring criteria have been developed for achievement, affiliation, and power motives. This approach formed the foundation for the one selected for this study.

Briefly, the approach developed by McClelland and his associates presents the subject with picture stimuli to which he responds by telling or writing stories. These stories are then scored for imagery related to the selected motive. For this study, stories containing imagery related to the motive categories included were constructed to go with selected picture stimuli. Subjects were then asked to rank each set of stories in order of preference to go with the corresponding picture. Such an approach was chosen because it would permit the typical classroom teacher to administer and score the test without extensive special training and would keep critical features of the approach from which it was developed.

#### Construction of the Story Preference Test

Once the basic approach for measurement had been selected, the next task was the construction of the



instrument itself. Initially, forty-six pictures were selected. Each portrayed one or more children involved in some activity. Included were pictures of children with adults, with other children, and with adults and other children as well as pictures of individual children. In-school and out-of-school activities were portrayed. These pictures were mounted on heavy cardboard for convenient use with an opaque projector. To determine which pictures would be most suitable for use in the test, stories for each were secured from a fourth, fifth, or sixth grade class in Chickasha, Oklahoma. These classes were six heterogeneous groups, ranging in number from twenty-four to thirty-one pupils. The examiner made no effort to alter the nature or the strength of children's motives while securing the stories. A description of the procedures followed in securing the stories and a copy of the form on which the children wrote their stories are included in Appendix A.

After the stories were collected, each was scored for imagery related to the six selected categories of children's motives. The following criteria were used:

1. Imagery related to curiosity was scored when the story contained evidence of concern in one or more of the characters over knowing more about the old, understanding the new, or exploring the environment. Concern over knowing, understanding, or exploring should be

self-induced rather than induced by requirements imposed by others or induced in order to please others.

2. Imagery related to competition with a self-imposed standard of excellence was scored when the story contained evidence of concern in one or more of the characters over meeting self-imposed standards of good performance or over the attainment of a personally-accepted, long-term achievement goal. Competition with others, concern over the attainment of achievement goals in order to satisfy others, and concern over the attainment of the unique as defined below were excluded from this category.

3. Imagery related to unique accomplishment was scored when the story contained evidence of concern in one or more of the characters over accomplishing something other than a run-of-the-mill daily task which will mark him as a personal success. Inventions, artistic creations, and other extraordinary accomplishments were accepted as meeting this criterion.

4. Imagery related to competition with others was scored when the story contained evidence of concern in one or more of the characters over doing as well as or better than others or over winning.

5. Imagery related to adult affiliation was scored when the story contained evidence of concern in one or more of the characters over meeting standards imposed by adults, over showing adults what he can do, over pleasing adults,

or over establishing, maintaining, or restoring a positive affective relationship with adults.

6. Imagery related to peer affiliation was scored when the story contained evidence of concern in one or more of the characters over establishing, maintaining, or restoring a positive affective relationship with peers or over responding to others and working jointly with them toward an objective.

It was assumed that pictures which elicited the largest number of different types of imagery most adequately permitted the subjects to project their own needs into the stories. Therefore, only those pictures which elicited imagery related to three or more of the motive categories were considered for the final instrument. Twenty-eight of the forty-six pictures met this criterion.

Four stories were constructed for each picture included in the test. Three contained imagery related to motive categories and the fourth (D) was descriptive of the picture but contained no imagery related to a motive category. Using a formula given by Richardson (1958, p. 204), the number of possible combinations for the six motive categories taken three-at-a-time was determined to be twenty. Therefore, twenty pictures eliciting imagery in all the possible combinations were selected from the twenty-eight meeting the earlier criterion. Table 1 shows the combinations included and the order in which they appeared in the test.

TABLE 1

Imagery Content of Stories Constructed  
for Each Picture

Picture Number	C	SIS	U	CO	AA	PA	D
1	X		X	X			X
2				X	X	X	X
3		X	X			X	X
4			X	X	X		X
5	X	X	X				X
6	X			X	X		X
7	X		X			X	X
8	X				X	X	X
9	X	X		X			X
10	X	X			X		X
11		X		X		X	X
12	X			X		X	X
13		X			X	X	X
14	X	X				X	X
15		X	X		X		X
16		X		X	X		X
17		X	X	X			X
18			X		X	X	X
19			X	X		X	X
20	X		X		X		X

The basic ideas for the items accompanying the pictures came from the stories written by the fourth, fifth, and sixth grade students described earlier. They were modified only to intensify imagery and to improve sentence construction and language usage. The resulting instrument is the Story Preference Test included in Appendix B.

### Subjects

The subjects for the study were selected from fifth and sixth grade students in three Midwest City, Oklahoma, elementary schools. The three schools were chosen to yield subjects from a wide range of socioeconomic levels, with one school serving a lower socioeconomic class neighborhood, one a middle class neighborhood, and the other an upper class neighborhood. The classification of neighborhoods served by the schools was provided by the school administration. In order to facilitate the study of sex differences in response to items, an equal number of boys and girls was selected from each of the schools.

In addition to grade level and socioeconomic neighborhood criteria, subjects were chosen to provide criterion groups for studying the validity of the test. It was essential to identify groups of children who appeared to have strong needs related to each of the motive categories included. Inasmuch as no instrument was available for identifying these children, preferences expressed by the children were utilized. Sets of items for activity, grading

system, and classmate preferences were presented to 505 fifth and sixth grade students to rank. Each of the three sets of items contained preferences related to the six selected motive categories. This instrument and a summary of the subjects' preferences are included in Appendix C. The sums of the motive-category ranks were then computed, and the lower sums were assumed to indicate the stronger motives present in the subject. Each subject was placed on a list for the two categories for which he showed the lowest sums of ranks. In the event of ties which prohibited identification of the two strongest motive categories, his name was placed on enough lists to include the tied sums of ranks. These lists were then submitted to the subjects' teachers with the request that they mark off the names of any children whose classroom behavior was clearly inconsistent with the preferences expressed. The forms used for this purpose are included in Appendix C.

From the lists of children whose preferences were verified by their teachers, the final selection of subjects was made. The five boys and five girls with the lowest sums of ranks for each of the motive categories were selected from each of the three schools. In the event of ties among those who fit the criteria, a random selection procedure was followed. Table 2 shows the distribution of subjects by school, sex, and motive category.

TABLE 2  
Distribution of Subjects by School, Sex,  
and Motive Category

Motive Category	Sex	Schools		
		A	B	C
C	Boys	5	5	5
	Girls	5	5	5
SIS	Boys	5	5	5
	Girls	5	5	5
U	Boys	5	5	5
	Girls	5	5	5
CO	Boys	5	5	5
	Girls	5	5	5
AA	Boys	5	5	5
	Girls	5	5	5
PA	Boys	5	5	5
	Girls	<u>5</u>	<u>5</u>	<u>5</u>
Total		60	60	60

### Administration of the Test

Although only 180 subjects were included in the study, the Story Preference Test was administered in class groups to all fifth and sixth grade students in the three schools by the investigator. The initial directions for the test were given orally by the examiner. Thereafter, the items and directions to go with each item were presented by tape-recording in order to assure uniform administration and to overcome reading difficulties which subjects might encounter. The examiner made no effort to alter the nature or strength of motives during the testing session. The directions given for taking the test are included with the test and reported in Appendix B.

### Hypotheses Tested

The following three null hypotheses related to the problem were formulated and tested:

- $H_{01}$ : There is no statistically significant difference in the percentage of boys who assign a rank of 1 to a given test item and the percentage of girls who assign a rank of 1 to the same item.
- $H_{02}$ : There is no statistically significant difference in the percentage of subjects from one criterion group who assign a rank of 1 to a given test item and the percentage of subjects from any other criterion group who assign a rank of 1 to the same item.



$H_{o3}$ : There are no statistically significant differences among the sums of the ranks of scores obtained on the Story Preference Test for any given motive category by the six criterion groups.

For each hypothesis, the .05 level of significance was accepted as the point at which the null hypothesis would be rejected.

#### Analysis of Data

For the first two hypotheses, differences in percentages of the appropriate groups were determined and these differences were tested for significance. The raw data used in these analyses are reported in Appendices D, E, and F. For the third hypothesis, scores for each of the six motive categories were ranked and the Kruskal-Wallis one-way analysis of variance by ranks was used to determine whether or not the criterion groups responded differently on the composite of items related to any given motive category. If a significant difference was found, the Mann-Whitney U Test was used to further analyze the data and to determine the exact location of the significant differences. The raw data used in this analysis are presented in Appendix G. All analyses of data are discussed in Chapter III.

#### Limitations of the Study

This study was limited to the consideration of the six motive categories identified above as being of particular

significance to the classroom teacher. Moreover, all subjects were fifth and sixth grade Caucasian students who lived in Midwest City, Oklahoma, and attended one of the three selected elementary schools.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

Research pertinent to the present study can be grouped under two headings. The first includes recent investigations which have formed the basis for current concepts of the nature and classification of motives which can be aroused and utilized by the classroom teacher. The second includes recent studies which have been concerned with developing an objectively scorable and easily interpreted instrument for assessing human motives usable in the classroom.

#### Motives

Prior to 1950, American psychologists studying motives placed the major emphasis upon those related to physiological needs. Hull (1943), who provided major leadership for this period, concluded all motives were ultimately related to physiological needs, with social motives learned by association with physiological drives. Recently, such a concept of motivation has been increasingly viewed as inadequate. McKeachie and Doyle (1966, p. 215) wrote, "Hull's theory was simple, elegant, and rigorous, but experiments

in the fifties and sixties have suggested some difficulties in the Hullian conception." White (1959, p. 297) stated, "---there is evidence of deepening discontent with theories of motivation based upon drives....Something important is left out when we make drives the operating forces in animal and human behavior." Butler (1958, p. 111) wrote, "The complete reliance of animal behavioral studies upon the biological drives, however, has had some unfortunate consequences." These statements reflect the current point of view that physiological needs are directly related to some motives but do not provide an adequate base for a comprehensive theory of motivation. Numerous studies in recent years have been devoted to identifying and understanding motives which cannot be explained in terms of physiological needs. Among those identified have been exploratory, manipulatory, mastery, and certain affiliation motives. Inasmuch, as these motives are ones which the classroom teacher can effectively arouse and utilize, the following discussion will be oriented toward such studies and limited to research conducted since 1950.

Several general discussions of the present trends in motives have been written. One of these is a paper presented by Harlow (1953) to the Division of Experimental Psychology of the American Psychological Association. He expressed his position as follows:

It is my belief that the theory which describes learning as dependent upon drive reduction is false,

that internal drive as such is a variable of little importance to learning, and that this small importance steadily decreases as we ascend the phyletic scale and as we investigate learning problems of progressive complexity. Finally, it is my position that drive-reduction theory orients learning psychologists to attack problems of limited importance and to ignore the fields of research that might lead us in some foreseeable future time to evolve a theoretical psychology of learning that transcends any single species or order (p. 24).

Beginning with the amoeba and paramecium, Harlow showed that motivation results from both internal and external stimulation, that both types of stimulation are found in all animals, and that the two types function in interactive rather than in dominant-subordinate roles. To support his arguments, Harlow cited fetal responses to external stimuli, the climb of the newborn opossum up the belly of the female and into the pouch, human neonate responses to tactual stimulation, and differentiated sucking response patterns to quantitatively varied thermal and chemical stimuli in the human infant only a few hours old. He found neither phylogenetic nor ontogenetic studies to support the conclusion that drive states elicit more fundamental and basic response patterns than do external stimuli (Harlow, 1953, p. 25).

"Convinced that the key to human learning is not the conditioned response but, rather, motivation aroused by external stimuli," Harlow (1953, p. 29) initiated a series of studies on curiosity-manipulation behavior as related to learning in rhesus monkeys. Based upon his work and a review of related research with primates, he concluded that

motivation aroused by external stimuli is sufficient to support learning.

Harlow and McClearn (1954) conducted research at a later date which reinforced the above conclusions. In this study, three rhesus monkeys were presented a series of seven discrimination problems under conditions in which manipulation of the correct stimulus-object was the only apparent incentive. The three monkeys showed significant, progressive improvement on the problems, and manipulation motivation persisted with no significant decrement throughout the seven problems of the study.

In a study by Butler and Harlow (1957), seven monkeys were presented a series of discrimination problems with visual exploration as the incentive. The monkeys demonstrated discrimination learning, and the motivational strength of visual exploration incentives did not decrease during the experiment.

A somewhat different type of experiment was also reported by Harlow (1958). Newborn monkeys were separated from their mothers within six to twelve hours after birth. Each infant monkey was placed with two surrogate mothers, one made of wire mesh and one made of wood and sponge rubber covered with terry cloth. One-half of the monkeys received food from bottles inserted in wire substitute mothers, and one-half from bottles inserted in the cloth-covered "mothers." All monkeys spent more time with the cloth-covered

"mothers" and clung to them under strange or frightening circumstances. If the cloth-covered "mother" was not available, the infant crouched or showed other distressed behavior but did not show attachment to the wire "mother." Even affiliation was found to be based upon external stimulation rather than based upon a learned association with a primary drive.

Butler (1958) presented an overview of experiments in exploratory and related behavior of rats, monkeys, and chimpanzees and discussed their implications for understanding man's behavior. Berlyne (1958) discussed reasons for the neglect of research on exploratory and related behavior, the present status of research on the topic, and directions which should be taken in future research. He noted that curiosity had been investigated in human adults, human infants, apes, monkeys, dogs, rats, mice, and cockroaches. One area he cited as needing much study was the determinants of exploratory behavior in animals and human beings.

Three widely differing current points of view on motivation in relation to learning were presented by Hebb (1958), Miller (1958), and Skinner (1958) in a symposium on learning sponsored by the American Psychological Association. The symposium pointed out clearly the ferment characteristic of discussions on motivation in recent years.

The most extensive summary and synthesis of recent

literature concerned with motivation was written by White (1959). He saw a widespread trend toward a broad concept of motives no longer limited to drive-reduction appearing in animal psychology, psychoanalytic psychology, general psychology, child development, cognitive psychology, and the psychology of personality. White discussed studies related to such topics as exploratory behavior, activity and manipulation, an instinct to master a segment of the environment, autonomous ego development, optimal stimulation, and the role of affect in motivation. Reflecting on the literature cited, he concluded "---there is persistent pointing to kinds of behavior neglected or explained away by drive orthodoxy: exploration, activity, manipulation, and mastery" (White, 1959, p. 312). He further stated:

The thesis is then proposed that all of these behaviors have a common biological significance: they all form part of the process whereby the animal or child learns to interact effectively with his environment. The word competence is chosen as suitable to indicate this common property. Further, it is maintained that competence cannot be fully acquired simply through behavior instigated by drives. It receives substantial contributions from activities which, though playful and exploratory in character, at the same time show direction, selectivity, and persistence in interacting with the environment. Such activities in the ultimate service of competence must therefore be conceived to be motivated in their own right. It is proposed to designate this motivation by the term effectance, and to characterize the experience produced as a feeling of efficacy....Effectance motivation must be conceived to involve satisfaction--a feeling of efficacy--in transaction in which behavior has an exploratory, varying, experimental character and produces changes in the stimulus field. Having this character, the behavior leads the organism to



find out how the environment can be changed and what consequences flow from these changes (p. 329).

During the present decade, the existence of motives in addition to those based on physiological needs has been widely accepted. Authors have written extensively about them, emphasizing both theoretical aspects and applications to learning situations. Berlyne (1960) wrote Conflict, Arousal, and Curiosity. Rethlingshafer (1963) included a chapter entitled "The Investigative-Exploratory Orientation." Sears and Hilgard (1964), in a matter-of-fact way, listed the motives which teachers can arouse and utilize as social motives, ego-integrative motives, and curiosity and other cognitive motives. Bruner (1966, pp. 113-128) stressed the need for teachers to appeal to curiosity, to the need for competence, to the need for identification with a nurturant adult, and to the need for responding to others and working cooperatively with them toward an objective. Clearly, these authors have reflected the influence of a concept of motives beyond that which can be tied to drive-reduction and have challenged classroom teachers to make maximum use of these motives. The ability of classroom teachers to meet this challenge depends to a great extent upon the availability of an instrument for assessing these motives which they can readily use.

## Assessing Human Motives

The present study is concerned with objectively scorable measuring techniques which classroom teachers can use to assess children's motives which are usable in the modern classroom. Although motives have been most effectively assessed by analysis of projective fantasies elicited by procedures such as followed in the Thematic Apperception Test (TAT) and the Rorschach Test, these require training for administration, scoring, and interpretation beyond that which can reasonably be expected of classroom teachers.

An adaptation of the TAT has been developed for measuring achievement, affiliation, and power motives (Atkinson, 1958). Even though this approach could not readily be used by classroom teachers, it is included because it has served as a major stimulus for the increased interest in assessing motives and has formed the basis for adaptations which teachers might find useful. Two of these adaptations are the Test of Insight (French, 1958) and the Iowa Picture Interpretation Test (Hurley, 1955). Several other objective and self-report measures have been reported in the literature and are included in the following discussion. Some of the techniques have been used only with adults, but could be adapted for use with children. All of the approaches include measures of the achievement motive; some include measures of the affiliation motive; but none includes measures of cognitive motives.

### McClelland's Approach

The approach developed by McClelland and his associates (McClelland, et al., 1953, and Atkinson, 1958) is an adaptation of the TAT, using TAT or TAT-type pictures to elicit stories which are then scored for the presence or absence of desired imagery and for categories of this imagery. Scoring criteria and procedures have been developed for achievement, affiliation and power motives (Atkinson, 1958). Studies of scoring reliability among trained examiners have generally exceeded .90 (McClelland, et al., 1953, pp. 185-187), and recent developments have made it possible to analyze the content of the stories by computer (McClelland, 1966b).

Numerous studies have been conducted to explore the relationship of the motives indicated by the McClelland approach, especially the achievement motive, and various criteria. Early studies are reported by McClelland and others (1953, pp. 218-274). Martire (1955) reported that subjects in his study who obtained high n Achievement scores tended to show a greater discrepancy between their self-Ideal and Self ratings. Marlowe (1959) found a correlation of .33 between n Achievement scores and a sociometric measure of overt achievement behavior. Rosen (1959) examined the relationship between n Achievement scores of various race and ethnic groups and social mobility. He found achievement motivation to be more characteristic of Greeks, Jews, and white Protestants than of Italians, French-Canadians, and Negroes. These differences persisted even when social

class was controlled.

Cole, Jacobs, Zubok, Fagot, and Hunter (1962) made two studies of the relationship between n Achievement and academic performance. In the first, superior male students had significantly lower n Achievement scores than average male students. In the second, a nonsignificant difference in the same direction was found. Superior and average girls did not differ significantly in either study. Lesser, Krawits, and Packard (1963), in a study of adolescent girls, found that achieving girls responded with the expected increase in achievement imagery under achievement orienting conditions only if the picture stimuli depicted females. Non-achieving girls showed the expected increase only if the picture stimuli depicted males. Smith (1963) compared the goal-setting behavior of male college students who had high n Achievement scores with that of comparable students who had high n Affiliation scores. Only under relaxed conditions did the high n Achievement students show a significantly higher preference for tasks of intermediate difficulty. Crotoft (1963) found his data to indicate a greater n Achievement among bright and normal achievers than among bright underachievers. Nuttall (1966) studied n Achievement among Negroes living in a northern city. When grouped according to whether they were reared in the North or in the South, n Achievement was found to be positively correlated with occupational status and with education for

northern men and women and with family income for southern men.

Skolnick (1966) scored adolescent and adult TAT protocols for imagery related to achievement, affiliation, power, and aggression for ninety-one subjects and correlated them with behavioral measures made at corresponding times. All the correlations between n Achievement and the dependent measures were positive and no striking sex differences appeared. Power imagery showed many direct correlates for men and boys, few for girls, and an inverse relationship for adult women. Aggressive imagery tended to correlate directly with aggressive behavior, but affiliation imagery appeared to be compensatory, reflecting deprivation or lack of affiliation but not necessarily lack of striving for affiliation. Lazarus (1966) and McClelland (1966a) wrote critical reviews of Skolnick's research.

In summary, the McClelland approach has been widely used, has been shown to have important behavioral correlates in areas of personality, achievement, economic development, and child-rearing practices, and has been adapted to a wide range of age levels with modifications in administration and scoring techniques. It has shown limitations inasmuch as not all motives can be measured with equal validity, conditions of administration affect the results significantly, extensive training is required for administration and scoring, and it does not consistently assess motives of

women as effectively as it does those of men. For more extensive discussions of the McClelland approach to motive assessment and studies using it, the reader is referred to McClelland and others (1953), Atkinson (1958), McClelland (1961), Atkinson (1964), Klinger (1966) and Atkinson and Feather (1966).

#### Test of Insight

The Test of Insight was developed by Elizabeth French (1958) and is an outgrowth of efforts to combine techniques used by McClelland and described above and by Sheriffs (1948). The test consists of ten statements, each describing a person or telling something a person said. The subject is asked to tell why the person in the statement behaves the way he does. These responses are scored for achievement and affiliation imagery. In a study of 100 airmen undergoing basic training, French and Thomas (1958) found individuals with high achievement motivation more likely to succeed in solving a problem related to achievement goals than individuals with low achievement motivation. Greater persistence at the task was also evident. Using this instrument, Sampson (1962) found first-born subjects to score higher on achievement motivation than later-born subjects. French and Lesser (1964) studied characteristics of the achievement motive in women and concluded that achievement motivation was positively related to performance

only if the performance led to a valued goal and that valued goals differed among women, with some favoring an intellectual role, some favoring a woman's role, and some favoring both roles. The Test of Insight, although not as extensively validated, probably has most of the strengths and limitations of the McClelland approach. It has not been used below the high school level but probably could be adapted for children several years younger.

#### Iowa Picture Interpretation Test (IPIT)

The Iowa Picture Interpretation Test (Hurley, 1955) is a multiple-choice version of the TAT which was originally stimulated by n Achievement work of McClelland and his associates. It was designed to measure anxiety, hostility, achievement motivation, and blandness. Subjects taking the test are presented with a TAT picture and asked to rank four alternatives according to the interpretation they would be most likely to give. The original test contained ten items, but the one used at the present time has been extended to twenty-four items.

Hurley (1957) found a positive correlation between the measure of Achievement Imagery (AI) and verbal learning performance for 128 college students. Johnston (1957) reported that a revised form of the IPIT yielded a higher correlation with criterion scores on the number of problems attempted on each of ten pages of simple three-digit addition

problems than did the original form. Hills found no significant relationship between AI scores and arithmetic performance. Negative or inconclusive results between the AI score and GPA were reported by Barnette (1961).

Schneider (1963) modified the test for use with elementary school children and administered it to 150 fourth, fifth, and sixth grade students. Significant differences in AI scores favored underachieving girls over underachieving boys, overachieving boys and girls over average achievers, and overachieving boys over underachieving boys. Other comparisons between groups failed to show significant differences. Evans (1967) reported that subjects with high AI scores were clearly superior in learning by discovery than were subjects with low scores.

Among the instruments thus far reported, the IPIT is undoubtedly the most usable by classroom teachers. The longer version of the instrument apparently functions better than the shorter one. However, it is limited in that it makes no provision for assessing affiliation and cognitive motives which are of substantial importance to classroom teachers.

#### Self-Report Measures

The Edwards Personal Preference Schedule (EPPS), which has been widely used with college students, is based upon the system of motives proposed by Murray (1938). The



profile derived from responses on the inventory describes fifteen motives which presumably direct the subject's actions (Cronbach, 1960, p. 487). Marlowe (1959) and Crootof (1963) reported that achievement motivation as measured by this inventory is apparently not the same as that measured by McClelland's approach. The instrument has been used with high school students but would require considerable revision for use below that level.

Costello (1967), by factor analysis of 100 items presumed to contain achievement imagery, identified two distinct factors in what is commonly called the achievement motive, one measuring a disposition to do well when performing a task and the other measuring a need to be a success. Selecting items with the highest factor loadings, he constructed a scale for measuring each of the factors. Although the scales are not appropriate for elementary school children, the approach followed in developing them could probably be used in constructing appropriate scales.

### Conclusions

Measures which can be conveniently administered, objectively scored, and easily interpreted and which assess a wide range of children's motives usable by the classroom teacher have not been developed to use with elementary school children. Construction of an adequate instrument for this purpose is, therefore, of first-order importance

if children's motives are to be used to maximum advantage in the learning process. Available evidence suggests that the most promising technique is one which retains the critical features of the McClelland approach, can be easily scored, and includes cognitive motives as well as achievement and affiliation.

## CHAPTER III

### ANALYSIS OF THE DATA

This study was conducted to determine whether or not story preferences expressed in response to a given set of picture stimuli can be used to effectively differentiate among six selected categories of children's motives. In order to achieve this end, the Story Preference Test was constructed and administered to fifth and sixth grade students in three elementary schools in Midwest City, Oklahoma. The data obtained from this test on 180 children selected to yield six criterion groups provided the information analyzed in this chapter.

#### Testing the First Hypothesis

To test the hypothesis that there is no statistically significant difference in the percentage of boys who assign a rank of 1 to a given test item and the percentage of girls who assign a rank of 1 to the same item, the procedures recommended by Garrett (1958, pp. 235-236) for determining the significance of the difference between percentages were followed. Of the eighty items ranked, only six showed differences significant at or beyond the

.05 level. These data are presented in Appendix E.

The items on which responses were significantly different by sex, the motive category to which the imagery in each item was related, and the percentages of boys and girls who ranked the item 1 are presented in Table 3.

Three of the items were descriptive, and girls showed a stronger preference for two of these items than did boys. Two of the items contained competition imagery for which boys expressed a stronger preference than did girls.

The sixth item which showed a significant difference contained adult affiliation imagery and was preferred more by girls than by boys. Because the significant differences found did show some consistency in direction for descriptive and competition items, future study should provide for special attention to possible sex differences in these categories.

According to Brozek and Tiede (1952), the probability of obtaining by chance six differences significant at the .05 level in a series of eighty items is .1515. Therefore, the number of differences by sex was not adequate to justify rejecting the first hypothesis. Because sex differences in preferences were not found to be statistically significant, subsequent analyses of data were carried out with scores from both sexes combined.

Table 3

Items on Which Boys' and Girls' Responses Showed  
Statistically Significant Differences

Item Number	Motive Category	Percentage of Boys	Percentage of Girls
2b	D	28.9	51.1
4d	CO	11.1	2.2
6a	AA	35.6	60.0
6c	D	27.8	11.1
12b	CO	22.2	11.1
20c	D	28.9	44.4

#### Testing the Second Hypothesis

To test the hypothesis that there is no statistically significant difference in the percentage of subjects from one criterion group who assign a rank of 1 to a given test item and the percentage of subjects from any other criterion group who assign a rank of 1 to the same item, the statistical procedures followed in testing  $H_{01}$  were used. In this instance, comparisons were made for each possible combination of two criterion groups on each item. Of the 1200 comparisons made, sixty-four of the differences were significant at or beyond the .05 level. These differences in percentages for the groups on each item are presented in Appendix F.

The distribution of the sixty-four significant

differences among the criterion groups compared is highly significant. This distribution is shown in Table 4. From the totals given in the right-hand column, the number of significant differences involving any one of the criterion groups can be determined. Thirty-five of them involved the U-group. With each criterion group involved in 400 comparisons, the probability of thirty-five significant differences at the .05 level of significance occurring by chance alone is .0003 (Brozek & Tiede, 1952). In this study, the U-group expressed significantly different preferences on the test items, therefore, the second hypothesis is rejected for this group. The number of significant differences for each of the other groups was inadequate to warrant rejection of the hypothesis.

Furthermore, the distribution in Table 4 shows two important findings related to the motive category of the items. The totals in the bottom row show sixteen significant differences in competition items and, also, in peer affiliation. With 150 comparisons for each of the types of items other than the descriptive, the probability of finding sixteen differences significant at the .05 level is .0008 (Brozek & Tiede, 1952). Therefore, in this study, the criterion groups expressed significantly different preferences on items containing CO-imagery and PA-imagery.

Table 4

Distribution of Significant Differences by Motive  
Category of Item and Groups Compared

Groups Compared	C	Motive SIS	Category U	of CO	Item AA	PA	D	No. by Groups Compared
C-SIS								0
C-U			-1*	-2		-1 +1	+2	7
C-CO			-1			-2		3
C-AA				+1		+1		2
C-PA			-1	-1	-1		+1	4
C-Others	0	0	-3	-3 +1	-1	-3 +2	+3	16
SIS-C								0
SIS-U	-1			-3		-1	+4	9
SIS-CO		-1	-1			-1	+1	4
SIS-AA							+1	1
SIS-PA			+1				+2	3
SIS-Others	-1	-1	-1 +1	-3	0	-2	+8	17
U-C			+1	+2		-1 +1	-2	7
U-SIS	+1			+3		+1	-4	9
U-CO				+1		-2	-1	4
U-AA	+2			+4		-1 +1	-4	12
U-PA				+1		+1	-1	3
U-Others	+3	0	+1	+11	0	-4 +4	-12	35

\* The numeral tells the number of significant differences.  
A ± indicates that the group listed first at the left  
showed a stronger preference for the item(s).

Table 4 (Cont.)

Groups Compared	C	Motive SIS	Category U	of CO	Item AA	PA	D	No. by Groups Compared
CO-C			+1			+2		3
CO-SIS		+1	+1			+1	-1	4
CO-U				-1		+2	+1	4
CO-AA	+1		+1	+1		+2		5
CO-PA						-1		1
CO-Others	+1	+1	+3	-1 +1		-1 +7	-1 +1	17
AA-C				-1		-1		2
AA-SIS						-1		1
AA-U	-2			-4		-1 +1	+4	12
AA-CO	-1		-1	-1			-2	5
AA-PA	-1			-1 +1		-1	+2	6
AA-Others	-4	0	-1	-7 +1	0	-4 +1	-2 +6	26
PA-C			+1	+1	+1		-1	4
PA-SIS			-1				-2	3
PA-U				-1		-1	+1	3
PA-CO					+1			1
PA-AA	+1			-1 +1		+1	-2	6
PA-Others	+1	0	-1 +1	-2 +2	+2	-1 +1	-5 +1	17
No. by Item Category	5	1	6	16	2	16	18	64



## Testing the Third Hypothesis

To test the hypothesis that there are no statistically significant differences among the sums of the ranks of scores obtained on the Story Preference Test for any given motive category by the six criterion groups, the Kruskal-Wallis one-way analysis of variance by ranks was used. The procedures followed were those given by Siegel (1956, pp. 184-193) and included the correction for tied observations. The obtained H-values are reported in Table 5.

Table 5

H Values for Sums of Ranks for all Groups on  
Composite of Items Containing Imagery  
Related to a Given Motive Category

Motive Category of Item Imagery	H (Corrected for Ties)
C	7.07
SIS	7.63
U	1.14
CO	11.93*
AA	5.46
PA	2.80
D	8.41

df = 5,      N = 180,       $H_{.05} = 11.07$

\* Significant at or beyond the .05 level of significance.

In the Kruskal-Wallis analysis of variance, the criterion groups showed statistically significant differences in their sums of ranks for items which contained competition imagery. The data for this category were further analyzed to determine more exactly the location of these differences. Fifteen Mann-Whitney U tests were computed to compare the sums of ranks for each criterion group with those of each of the other criterion groups. The procedures followed were those given by Siegel (1956, pp. 116-127) where corrections for tied observations were made. The resulting U and Z scores are recorded in Table 6.

Four of the Z scores were significant at or beyond the .05 level. Both the U-group and the CO-group expressed significantly stronger preferences for the composite of items which contained competition imagery than did either the SIS-group or the AA-group. Significant differences existed between the preferences for the set of items containing competition imagery between the SIS-group and the U-group, between the SIS-group and the CO-group, between the U-group and the AA-group, and between the CO-group and the AA-group. Therefore, for these four comparisons on the composite of competition items, the third hypothesis was rejected. No other statistically significant differences were found among the sums of the ranks of scores obtained on the Story Preference Test for any given motive category by the six criterion groups.

Table 6

U and Z Scores for Sums of Ranks on Composite of  
Items Containing Imagery Related to  
Competition with Others

Criterion Groups Compared	U	Z
C-SIS	519.5	1.03
C-U	339.5	-1.64
C-CO	378.0	-1.06
C-AA	511.0	0.90
C-PA	455.5	0.08
SIS-U	275.5	-2.59*
SIS-CO	315.5	-1.99*
SIS-AA	405.5	-0.66
SIS-PA	397.0	-0.79
U-CO	484.5	0.51
U-AA	644.5	2.89*
U-PA	561.5	1.65
CO-AA	608.5	2.35*
CO-PA	529.5	1.18
AA-PA	407.5	-0.63

\* Significant at or beyond the .05 level of  
significance. Positive differences favor  
the group listed first.

## CHAPTER IV

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A great need exists for an instrument which classroom teachers can use to identify children's motives which they can arouse and utilize effectively in the classroom and to measure the relative strengths of these motives. The instrument should be one that can be conveniently administered, objectively scored, and easily interpreted by the classroom teacher. This study was designed to explore the feasibility and validity of using story preferences in response to selected picture stimuli for assessing children's motives. The Story Preference Test developed for the study utilizes this approach.

#### Summary

Curiosity, competition with a self-imposed standard of excellence, unique accomplishment, competition with others, adult affiliation, and peer affiliation were selected as motives which teachers can effectively arouse and utilize in today's classroom. From children in six fourth, fifth, and sixth grade classrooms in Chickasha, Oklahoma, original stories were secured in response to

forty-six pictures. These stories were scored for imagery related to each of the selected motive categories. Twenty-eight pictures, each of which elicited imagery related to three or more of the categories, were identified as usable pictures for the test. The final group of pictures consisted of twenty of the twenty-eight usable pictures. These were chosen in order to give a set which elicited imagery in every possible combination of the selected motive categories taken three-at-a-time. Based upon the stories written by the children, four skeletal stories were constructed for each of the pictures, with three containing imagery related to the desired motive categories and one describing the picture.

The test thus constructed was administered to 180 fifth and sixth grade students in Midwest City, Oklahoma. The subjects were selected from 505 fifth and sixth grade students attending three Midwest City elementary schools. They were chosen so as to yield an equal number of boys and girls, an equal number of subjects from schools serving upper, middle, and lower socioeconomic class neighborhoods as identified by the school administration personnel, and an equal number of subjects for each of the six criterion groups. The criterion groups, established for studying the validity of the instrument, were set up according to students' expressed preferences related to activities, grading system, and classmates. Subjects were selected only if

their teachers agreed that their behavior was consistent with their preferences.

Using the data collected, three null hypotheses were tested. The first hypothesis was for the purpose of determining whether or not boys and girls differed significantly in the percentage of subjects assigning a rank of 1 to any given item. This hypothesis was not rejected. The second hypothesis was concerned with whether or not the criterion groups differed significantly in the percentage of subjects assigning a rank of 1 to any given item. This hypothesis was rejected for the U-group, but not for any other group. It was further observed that the number of significant differences among criterion groups exceeded that reasonably expected by chance at the .05 level of significance for competition items and peer affiliation items. The third hypothesis was for the purpose of determining whether or not the criterion groups differed significantly in their responses on the composite of items related to each of the six motive categories. This hypothesis was rejected for the set of competition items but not for any of the other sets. On the composite of competition items, the U-group and the CO-group expressed significantly stronger preferences than either the SIS-group or the AA-group.

#### Conclusions

The percentage of subjects who assigned a rank of 1 to a given item on the Story Preference Test did not differ

significantly by sex. The fifth and sixth grade boys and girls included in the study tended to show very similar preferences. If story preferences in response to picture stimuli can be developed as a means for measuring children's motives, this study suggests that the same set of items and the same scoring procedures could be appropriately used for both sexes. Since the number of boys and girls for each motive category was controlled in this study, it cannot be assumed that a more general population would yield the same results. If, for example, a greater proportion of boys rather than of girls in the general population strongly prefer competition, it is possible that significant sex differences in responses could appear.

Some of the items in the Story Preference Test discriminated acceptably among criterion groups. This indicated that the basic approach can be used as a technique to measure the motives of children. However, the items did not always discriminate in the expected manner. For example this finding suggested the need for further study of the interrelationships among the motive categories. The classifications followed in the present study may have fragmented the motives too much. This was also suggested by the findings with respect to the third hypothesis. On the composite of competition items, close relationships existed between the preferences of the U-group and the CO-group and between the preferences of the SIS-group and the AA-group.

The instrument may have measured only two or three distinct categories of motives instead of six. A factor analytic study of the preferences expressed on the test would identify the relationships which exist.

The factor analysis would also provide information about the way children perceived specific types of imagery. Although an effort was made to write items consistent with what children saw in the pictures, misjudgments may have been made in classifying the imagery in terms of children's perceptions. Such misjudgments could account for the failure of some items to discriminate in the expected manner. Greater knowledge of children's perception of imagery presented would assist materially in developing a more valid test.

A need for refinement or replacement of some of the items was indicated. There were items which received only a small percentage of the top ranks. This suggested the possibility that significant differences in social acceptability of items affected children's choices. A procedure for selecting items of equal social acceptability such as that followed by Stricker (1962) in the development of the Objective Apperception Test might have achieved equipotentiality of the items and thereby improved the instrument substantially. However, this procedure might have been criticized because it would have been based on the assumption that the motives were equally distributed among the subjects.



One of the most interesting outcomes of the present study was found in the results of testing the third hypothesis. These results strongly suggested that the U-group and the CO-group came from a significantly different population with regard to motives characterizing the subjects than did the SIS-group. At least, this was true for preferences expressed on competition items. This was especially interesting in view of the fact that all three groups, as defined in this study, lay within a broader group generally found described as high in achievement motivation. The finding of this study was consistent with that of Costello (1967) who identified two factors in what has typically been called the achievement motive.

Failure to find a greater number of significant differences among preferences expressed by the criterion groups may have lain in the procedure followed in selecting subjects for the groups. Although the procedure used two criteria and showed limited evidence of effectiveness, additional validation procedures would be helpful in determining the effectiveness of story preferences as a means for assessing motives.

#### Recommendations

This study indicates that story preferences in response to picture stimuli should receive further exploration as a means of measuring children's motives which

teachers can effectively arouse and utilize in the classroom. Therefore the following recommendations for further study are made:

1. Differences in responses to items by sex should be studied using a sample selected without the criterion group restriction.

2. A factor analysis of children's responses on the Story Preference Test should be made to determine more precisely how many factors are being measured and the contribution of each item to the factors identified. Further analysis should be made to determine the relationships of motive categories in this study to the factors identified.

3. Studies should be designed and conducted to determine the social acceptability of behavior related to each of the various motive categories. The results of such studies should then be used as guidelines for refining the social acceptability of items within the Story Preference Test.

4. In the present study efforts were made only to control the effects of social class. Additional studies should be designed and conducted to determine whether or not significant differences in story preferences by social class exist.

5. The present study was limited to fifth and sixth grade students. Further study should be made of the utility of story preferences for assessing motives of

younger and older subjects.

6. Additional validation studies using various criteria should be conducted in order to gain greater insight into the effectiveness of the procedure.

7. Continued research should be conducted to refine and improve the story preference approach to assessing children's motives usable in the classroom setting.

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APPENDIX A

PROCEDURES FOLLOWED AND FORM USED FOR SECURING  
STORIES ON THE ORIGINAL FORTY-SIX PICTURES

## INSTRUCTIONS FOR SECURING STORIES

General Instructions for the Examiner: Instructions for the examiner only are underlined. All other instructions are to read aloud to the students.

Distribute story booklets.

Say: I am making a study of stories written by fourth, fifth, and sixth graders. You have been selected to write some stories for this study. I am interested only in the types of creative imagination included in the stories. Do not worry about your spelling or English; just write your stories in the best way you can without any help. Since only eight minutes are allowed for each story, no questions may be asked during the writing time. Work as fast as you can in order to finish in the allotted time. For each story a picture will be projected on the screen. There is no right or wrong story for a given picture, so you may make up any kind of story about the picture that you choose. Make each story as interesting as you can.

Now, look at the first page of your story booklet. At the top you will see a place for your name. Write your name on the line provided. Be sure to write your full name. Allow the needed writing time. Next, you will find a line for your age. Write how old you are in this space. On the line beside Grade, tell whether you are in fourth, fifth, or sixth grade. Finally, tell whether you are a boy or a girl on the line beside Sex.

Look at the directions on your story booklets.  
Read them to yourself as I read them aloud to you.

Directions:

You will all spend the next few minutes making up stories and writing them on the pages which follow. Each story will be written about a person or some people you will see in a picture. The picture will be projected on the screen for one minute. While you are studying it, think about the following questions:

1. What is happening? Who are the people?
2. What happened before this picture was taken?
3. What is being thought about and what is wanted by the people in the picture?
4. What will happen?

If you need more room to write your story, you may use the back of the sheet.

After you have studied the picture, you will have about eight minutes to write your story. You should spend about two minutes answering each of the four questions. I will keep time and tell you when it is about time to go on to the next question. Are there any questions about what you are to do? Answer any questions raised.

Darken the room and show the first picture for one minute. Turn the lights on and say:

Now turn to Page 2 in your story booklet. Be sure that each pupil has the correct page. At the top of the

page where you read Picture No., write \_\_\_\_\_. The number of each picture is on the back of the picture.

At the end of 2, 4, and 6 minutes say:

All right, it is about time to go on to the next question.

When the pupils have written about 1½ minutes on the last question, say:

Try to finish up in 30 seconds.

After the allotted time has elapsed, set up the next picture for showing. Pupils may continue working on the previous story while the picture is set up, if it does not take more than 15 seconds.

After allowing the extra 15 seconds, turn out the light and repeat the process with the next picture. Always be sure that each pupil is working on the correct page.

Name \_\_\_\_\_ Age \_\_\_\_\_  
First Middle Last  
School Grade \_\_\_\_\_ Sex \_\_\_\_\_

## DIRECTIONS

You will all spend the next few minutes making up stories and writing them on the pages which follow. Each story will be written about a person or some people you will see in a picture. The picture will be projected on the screen for one minute. While you are studying it, think about the following questions:

1. What is happening? Who are the people?
2. What happened before this picture was taken?
3. What is being thought about and what is wanted by the people in the picture?
4. What will happen?

If you need more room to write your story, you may use the back of the sheet.



APPENDIX B

STORY PREFERENCE TEST



Name \_\_\_\_\_

School \_\_\_\_\_

Grade \_\_\_\_\_

Teacher \_\_\_\_\_

## STORY PREFERENCE TEST

DIRECTIONS: For each test item you will be shown a picture for one minute. After you have seen the picture, read each of the four stories to yourself as they are read aloud to you. When all four stories have been read, choose the story that you most prefer for the picture and write 1 on the line beside that story. Next, write 2 on the line beside the story which is your second choice for the picture. Finally, write X on the line beside the story you least prefer to go with the picture.

Let's do one together so that you can be sure you understand the directions.

## Sample Picture

- \_\_\_\_\_ A. Steve is thinking about drawing the best picture in class. He sure would like to, but he knows Marie will probably draw a better one than he does.
- \_\_\_\_\_ B. Steve and Marie are in art class. Steve does not like art and is thinking about something else. His teacher will not like this.
- \_\_\_\_\_ C. Marie is painting a picture. Art is her favorite class. She wishes it would last all day.
- \_\_\_\_\_ D. It is a rainy day. Steve and Marie have to stay in the house. Marie is coloring, but Steve can't find anything to do.

## PICTURE 1

- \_\_\_\_\_ A. Kathy has just arrived at school. She is always eager to see what they're going to do during the day. She is looking at the bulletin board to see if it tells what they will do.
- \_\_\_\_\_ B. Kathy is looking at the bulletin board in her classroom. Now she is reading a poem about snow. The poem has a picture to go with it. There are several pictures on the board.
- \_\_\_\_\_ C. Kathy likes things that are pretty. She painted the picture and wrote the poem on the board. When she grows up, she will make pretty things for other people. She might be a florist.
- \_\_\_\_\_ D. Kathy has entered her picture and poem in a school contest. Tomorrow the judges will pick the best one. She surely hopes hers will win the blue ribbon.

## PICTURE 2

- \_\_\_\_\_ A. The last time Jim was on a horse he fell off. This time he wants to do a good job because his dad is watching. Jim will ride well and his dad will be very proud of him.
- \_\_\_\_\_ B. Jim is holding the horse by one of its bridle reins and rubbing its neck. The horse is black with a white spot on its forehead. It looks very gentle.
- \_\_\_\_\_ C. Jim has just got a horse of his own. All of his friends have horses. He is very happy because he can now do more things with his friends.
- \_\_\_\_\_ D. Jim and his horse are all ready for the race. Three prizes will be given, and Jim wants one of them. Jim will win second place but will try again for first next year.

## PICTURE 3

- \_\_\_\_\_ A. It is a very pretty day. David has put on his blue shirt and brown trousers and is playing outside. Right now he is walking on a big pipe. He holds his arms out to balance himself.
- \_\_\_\_\_ B. David is walking across a long pipe. He balances himself by holding his arms out. Someday David will be a great acrobat and tightrope walker.
- \_\_\_\_\_ C. David is walking on a big pipe. He wants to see if he can make it all the way to the end without falling. He will get all the way to the end and jump off.
- \_\_\_\_\_ D. David is playing with a friend who is hiding in the big pipe. David is trying to scare him out of the pipe. They are having a very good time. David is happiest when he is with his friend.

## PICTURE 4

- \_\_\_\_\_ A. Jill wants to be an artist. The test she is taking will help her know what to do to be a good artist. She will work hard and will become a famous artist.
- \_\_\_\_\_ B. Jill is taking a test. She wants to do well on the test. Her score will be very high. Jill's teacher and her parents will be proud of her and will congratulate her.
- \_\_\_\_\_ C. Jill is taking a test. She is holding a big pencil in her hand. She is using a marker to help her keep her place. Jill is pointing at a picture in the test.
- \_\_\_\_\_ D. Jill is taking a test. She wants to do well on the test. But, most of all, she wants to finish before anyone else finishes. She always likes to be first.

## PICTURE 5

- ☐ A. Joe and Jed are looking at a book. Joe is showing Jed something in the book which is very interesting. Jed has a pencil in his hand. He has probably been drawing.
- ☐ B. Joe and Jed are learning to read. They want to read well enough to read this book that they got at the library. They will try hard and will be very good readers.
- ☐ C. Joe and Jed are looking at a new book. Their grandmother brought it to them from Maine. The book is all about prehistoric dinosaurs. They are very glad to get the book because they want to know more about dinosaurs.
- ☐ D. Joe and Jed are looking at a picture. Jed is trying to draw a picture like it. Joe is helping him. They will both be good artists some time.

## PICTURE 6

- ☐ A. Jane is trying to make a Mother's Day present for her mother. She is modeling clay into figures and will paint them when they're dry. She wants her mother to like them very much.
- ☐ B. Jane is making a scene for a contest. She wants it to be very pretty. The judges of the contest will like her scene. It will win a prize.
- ☐ C. Jane is modeling clay. She has already made several objects. But she is probably going to make several more. She has a big lump of clay left.
- ☐ D. Jane is modeling play-doh. It is the first time she has had any to play with. She is eager to see if it works as well as clay.

## PICTURE 7

- \_\_\_\_\_ A. Cindy is holding a flower. She picked the flower. She is looking between two of the branches on the tree. The tree has blossoms.
- \_\_\_\_\_ B. Cindy is smelling a flower. She wants to know what kind of flower it is. She will take it to her mother and ask her what kind it is.
- \_\_\_\_\_ C. Cindy has just moved to a new house. She is watching some girls play next door. She wants to meet them so that she will have new friends.
- \_\_\_\_\_ D. Cindy has found a flower to add to her collection. She is trying to collect one blossom from each kind of flower in her community.

## PICTURE 8

- \_\_\_\_\_ A. Linda is studying words for the city spelling contest. Linda's mother won the contest when she was twelve. Now she wants Linda to win it too. Linda didn't want to enter the contest, but she decided she would to please her mother.
- \_\_\_\_\_ B. Linda has been reading. Her book is still open, but now she is daydreaming. She may be thinking about what she has read, or she might be thinking about what she would like to be doing instead of reading.
- \_\_\_\_\_ C. Linda has been studying her social studies but finds it difficult to keep her mind on it. She prefers to be with her friend. She will hurry and finish her work so she can play with her friend.
- \_\_\_\_\_ D. Linda is studying her social studies. She is wondering how it would have been to have lived many years ago. She wants to know more about the people she is studying. She will ask her teacher and will read in other history books and the encyclopedia.

## PICTURE 9

- \_\_\_\_\_ A. Frank and George are trying to put a puzzle together. It is a new puzzle and they are eager to see what it will look like when it is completed.
- \_\_\_\_\_ B. Frank and George are trying very hard to put a puzzle together. They have been working on it for an hour. It is a tough one but they'll finish it and be very proud of themselves.
- \_\_\_\_\_ C. Frank and George are playing a game. It is a mathematics game. They are arranging the cards in a special order. Both boys like the game very much.
- \_\_\_\_\_ D. Frank and George are playing a game. Frank is usually not very good at the game, but today he is winning. He's really happy because he's finally beating George.

## PICTURE 10

- \_\_\_\_\_ A. Pam and Carla are making a poster on safety. When it is finished, it will be hung in the hall. They hope their teacher and the principal will like it very well. The principal will call them to his office and congratulate them.
- \_\_\_\_\_ B. Pam and Carla are looking at a pencil that Pam is holding. Pam is telling Carla about the pencil. Carla has blonde hair, but Pam's is quite dark. They are probably in art class and may be drawing a picture.
- \_\_\_\_\_ C. Pam and Carla are looking at a pencil. They want to know how pencils are made, especially how people get the lead in the pencil. They will read an article about the making of pencils and find answers to their questions.
- \_\_\_\_\_ D. Pam and Carla are trying to cut some cardboard with a stencil knife. They want their edges to be very straight and smooth because they will use it in making a poster. They will be proud of their poster.

## PICTURE 11

- \_\_\_\_\_ A. Pam is practicing her yells for the game today. She wants to be sure she can do her signals. She has practiced hard and will not make any mistakes.
- \_\_\_\_\_ B. Pam is a good cheerleader. She works hard to cheer the team on to win. Every game is important to her because she's doing her share along with the team.
- \_\_\_\_\_ C. Pam is trying out for cheerleading. She wants to be the head cheerleader. She will be the best cheerleader at the first game and will be elected head cheerleader.
- \_\_\_\_\_ D. Pam is a cheerleader for her school. She wears a special sweater for the games. Her sweater has a letter for the school she attends and has the same colors as the football suits.

## PICTURE 12

- \_\_\_\_\_ A. Joe is holding a plant in his hand and is looking at it. In his other hand he has a little stick or straw. Joe is about eleven years old.
- \_\_\_\_\_ B. Joe is growing a plant to show in a contest at the county fair. The plant will be better than anyone else's plant. It will win the contest.
- \_\_\_\_\_ C. Joe has found an insect on his plant. He will find its picture in a book and read about it so that he can know what kind of insect it is.
- \_\_\_\_\_ D. Joe wants the plant to grow strong and healthy. He is going to show it to everyone in his class. All the students will think that Joe has done a good job.

## PICTURE 13

- \_\_\_\_\_ A. Bill is wondering how well he will do at bat this time. Will he hit the ball? He will hit a home-run and will be very happy with himself.
- \_\_\_\_\_ B. Bill is at bat. The bases are loaded. If he can hit a home-run, he will be a hero. He hits the home-run and all the other students think he is a great hero.
- \_\_\_\_\_ C. Bill is afraid he will strike out. His coach tells him he will do okay. He will hit a home-run. The coach, Bill's parents, and all the crowd will be very happy.
- \_\_\_\_\_ D. Bill is on a baseball team. It is his turn to bat. He is all set to hit the ball that's coming toward him. Bill likes to play baseball.

## PICTURE 14

- \_\_\_\_\_ A. Julie has had a fight with her friends and is hiding in a tree. Now she wishes that they would let her play with them again. They will come over and play with her.
- \_\_\_\_\_ B. Julie is in a tree. She is holding on with both hands and looking out between two branches. The tree is a very big one, and it looks as if it's hard to climb. Julie has dark hair.
- \_\_\_\_\_ C. Julie is climbing a tree. She wants to see how things look from the top of it and how far she can see from it. She will feel wonderful as she looks out from the top.
- \_\_\_\_\_ D. Julie is trying to climb a tree. She wants very much to climb all the way to the top. Her mother is calling her, but she doesn't want to come down before she gets to the top.



## PICTURE 15

- \_\_\_\_\_ A. The students in this class are taking a test. It is a very important test. They want to do better on the test than they have ever done before.
- \_\_\_\_\_ B. The teacher of this class has given an assignment. She wants the children to do a very good job. The students will try hard so that the teacher will be pleased.
- \_\_\_\_\_ C. The class is studying about a country in which people may not choose what they want to do. When these children are grown, they will help the people of this country gain their freedom.
- \_\_\_\_\_ D. These students are working on an assignment. Everyone is in his seat and seems to be working hard. They are writing the assignment.

## PICTURE 16

- \_\_\_\_\_ A. Jimmy is showing his father the schedule for the track meet. Jimmy will run in the fifty-yard dash. He's afraid he will come in last. In the meet, he will come in first and will never be afraid to run again.
- \_\_\_\_\_ B. Jimmy and his father are looking at Jimmy's report card. His father just got home from work and is relaxing in a comfortable chair. Jimmy is leaning on the chair.
- \_\_\_\_\_ C. Jimmy is showing his father his report card. His grades are good and his father is proud of him. But Jimmy is still not satisfied with his grades. He will work hard to raise them more.
- \_\_\_\_\_ D. Jimmy is showing his father his report card. It is better this time than it was the last time he brought it home. He hopes his father will like his grades and work and will be proud of him.

## PICTURE 17

- \_\_\_\_\_ A. Tom and Rod are in art class. Tom likes art very well. Now he is coloring with a crayon. He is holding his paper so that it won't slip as he colors. Rod is watching him color.
- \_\_\_\_\_ B. Tom and Rod are drawing for a contest. Rod is wondering if his picture will be better than Tom's picture. He hopes that it will win first prize and that Tom's will win second prize.
- \_\_\_\_\_ C. Tom is in art class. This is his favorite class. He will grow up to be a famous artist and his pictures will be hung in restaurants on Broadway.
- \_\_\_\_\_ D. Tom is drawing and coloring pictures. He likes art very well and wants this picture to be the best he has ever made. It will be a very good picture.

## PICTURE 18

- \_\_\_\_\_ A. James is resting for a little while. He is looking for a Christmas tree. James will find a very pretty one. He hopes the one he finds will please his mother very much.
- \_\_\_\_\_ B. James is playing in the snow. He will build himself a snow house. James will be a good architect when he is grown.
- \_\_\_\_\_ C. James is playing by himself. He wishes someone would come and play with him because he is lonesome. His mother will not let him leave the yard.
- \_\_\_\_\_ D. James is outside in the snow. It is very cold. He has on a heavy sweater and high, warm socks. It looks as if James is sitting on some snow or ice.

## PICTURE 19

- \_\_\_\_\_ A. Jane's mother has asked her to go to the store, but Jane does not want to go by herself. It would be too lonesome. She will ask her friend, Debbie, to go with her. They will have a lot of fun together.
- \_\_\_\_\_ B. Jane is taking a music lesson. She is a very good singer. By the time she is sixteen, she will be making records. She will be one of the greatest singers in the United States.
- \_\_\_\_\_ C. Jane is talking to her teacher. She is in the fourth grade. This is the first day she has worn this dress to school. They are probably talking about how pretty it is.
- \_\_\_\_\_ D. Jane's teacher has just told her that she won the spelling contest. Jane can hardly believe it. This is what she wanted to do more than anything else in the world.

## PICTURE 20

- \_\_\_\_\_ A. Terry once dropped out of school but has now come back. He has always wanted to be an individual and to express himself in his own way. When he is thirty-four, Terry will be a great poet.
- \_\_\_\_\_ B. Mr. Jones has given the class a question to answer. Terry is looking very hard for information to help him answer it. He will find the answer, and Mr. Jones will congratulate him for his good work.
- \_\_\_\_\_ C. Terry and Mr. Jones are looking at a book. Mr. Jones is Terry's history teacher. They are in the library and have probably just taken the book off the shelf to read a few pages in it.
- \_\_\_\_\_ D. Terry was reading a story about the Cyclops and wanted to know more about them. Mr. Jones agreed to help him find some information. Terry will go to the library and read a lot more about the Cyclops.

APPENDIX C

PREFERENCE FORMS

FORMS FOR CONFIRMATION OF STUDENT PREFERENCES

SUMMARIES OF SUBJECTS' PREFERENCES

Name \_\_\_\_\_

School \_\_\_\_\_

Grade \_\_\_\_\_

Teacher \_\_\_\_\_

Age \_\_\_\_\_

Sex \_\_\_\_\_

## ACTIVITY PREFERENCES

- \_\_\_ A. In school work, I like contests which show me whether or not I can do better than other students. I get a real thrill when I win.
- \_\_\_ B. In school work, I like activities which will get me the best grades. By doing these, I will please the teacher and make my parents happy.
- \_\_\_ C. In school work, I like activities which let me do a lot of study on my own. Often, I find things I'd like to know more about and want to learn it right then.
- \_\_\_ D. In school work, I like group activities. Doing things with others is more fun than doing it by yourself.
- \_\_\_ E. In school work, I like activities which let me do things my own way. Often, I like to do them in a different way than everyone else is doing them.
- \_\_\_ F. In school work, I like activities which are just a little hard for me. I don't like work that is too easy. Challenging activities show me how well I can do things.

## HOW I BELIEVE A TEACHER SHOULD GRADE

- \_\_\_\_\_ A. I believe a teacher should grade on how well a student has done what the teacher thinks he should do. Teachers know what students ought to be doing in order to get a certain grade.
- \_\_\_\_\_ B. I believe a teacher should grade on how well a student gets along with his classmates. Getting along with others is very important today.
- \_\_\_\_\_ C. I believe a teacher should grade on how well a student has done in comparison with the other students in the class. The students who do the best work should get the best grades.
- \_\_\_\_\_ D. I believe a teacher should grade on how much the student has improved since the last time he was graded. Whether or not a person is improving is more important than how much he knows.
- \_\_\_\_\_ E. I believe a teacher should grade on how curious a student is and on how interested he is in learning about a subject. Anyone who is curious and interested will learn a lot.
- \_\_\_\_\_ F. I believe a teacher should grade on how creative a student is---on how many new ideas he thinks of, on how much he thinks for himself, and on how artistic or inventive he is. The creative person is the one who will accomplish the most.

## THE PERSON I ADMIRE MOST

- \_\_\_\_\_ A. The person in this class I most admire is one who gets along especially well with the teacher and the other adults at school. He (She) gets a lot of praise from the teacher.
- \_\_\_\_\_ B. The person in this class I most admire is one who really tries to do a good job of everything. He (She) doesn't put work off until the last minute either.
- \_\_\_\_\_ C. The person in this class I most admire is one who nearly always beats everyone else in school contests. He (She) usually wins and really enjoys winning.
- \_\_\_\_\_ D. The person in this class I most admire is one who is very creative. He (She) can always think of an unusual way to do something.
- \_\_\_\_\_ E. The person in this class I most admire is one who is very curious. He (She) seems to want to know something about everything.
- \_\_\_\_\_ F. The person in this class I most admire is one who is really popular with the other students. He (She) seems to get along well with all of them.

The students listed below have indicated preferences consistent with a high level of curiosity. These individuals should be ones who show evidence of seeking information or understanding beyond that required of them. In fact, at times, their own pursuit of information may interfere with their fulfillment of assigned responsibilities. The information or understanding may be sought through any or all of several sources--reference materials, other printed sources, other people, or observation of objects, actions, and specimens. If your observations on any of these students are clearly inconsistent with these characteristics, please draw a line through his name.



The students listed below have indicated preferences consistent with a strong need to achieve. They would be individuals who prefer tasks which are of intermediate difficulty in relation to their ability. They don't like tasks which are too hard or too easy. Mastery of some new task is in itself rewarding to them; extrinsic rewards, such as prizes, praise, and excelling over others, are not of primary importance and may have little or no effect on achievement. If your observations on any of these students are clearly inconsistent with these characteristics, please draw a line through his name.

The students listed below have indicated preferences consistent with a strong need to accomplish something unique. They should get greater satisfaction from activities which give maximum freedom to do things their own way and from activities in which they can express individuality. They may resent highly structured situations in which they must follow the "rules." They are often the ones who are highly interested in the more creative activities. If your observations on any of these students are clearly inconsistent with these characteristics, please draw a line through his name.

The students listed below have indicated preferences consistent with a strong need to do as well as or better than other students. They should be ones who enjoy contests if they have a chance to win. Mastery itself is not a primary concern; the important task is to win over someone else. If your observations on any of these students are clearly inconsistent with these characteristics, please draw a line through his name.

The students listed below have indicated preferences consistent with strong needs for acceptance and approval from adults. They should be individuals who show concern for what teachers and/or parents will think of what they say and do. They may often solicit the teacher's approval of their work before they proceed very far in the lesson. They may hesitate to express an opinion until after significant adults have expressed theirs. They often want good grades because these indicate approval from the teacher and get approval from the parents. If your observations on any of these students are clearly inconsistent with these characteristics, please draw a line through his name.

The students listed below have indicated preferences consistent with a strong need for peer acceptance and approval. They should be individuals who manifest behavior designed to gain and maintain good interpersonal relations with classmates. They tend to prefer cooperative and team activities over individual activities. If your observations on any of these students are clearly inconsistent with these characteristics, please draw a line through his name.

Table 7

Sums of Ranks Assigned by High Curiosity Subjects on Preferences  
Related to Each Motive Category

Subject Number	Boys						Subject Number	Girls					
	C	SIS	U	CO	AA	PA		C	SIS	U	CO	AA	PA
GB 10	7	11	8	15	11	11	GG 4	6	14	9	12	8	14
GB 16	7	8	16	15	9	8	GG 20	3	11	14	12	11	12
GB 18	4	12	11	12	12	12	GG 25	5	6	15	11	11	15
GB 34	8	8	11	8	14	14	GG 34	5	6	8	17	14	13
GB 66	5	8	13	15	10	12	GG 59	5	11	12	14	7	12
RB 12	4	7	16	13	13	10	RG 9	5	5	15	13	9	16
RB 25	7	15	11	11	10	9	RG 29	5	12	14	13	12	7
RB 58	6	7	13	14	10	13	RG 39	6	7	14	17	11	8
RB 61	6	10	10	15	8	14	RG 71	4	13	10	17	10	9
RB 74	5	11	10	11	10	16	RG 78	5	13	15	11	13	6
TB 5	8	9	13	12	12	8	TG 23	6	9	10	15	15	8
TB 8	7	7	12	13	10	14	TG 30	7	8	8	18	9	13
TB 31	8	9	8	13	12	13	TG 60	5	8	15	10	11	14
TB 58	5	15	8	13	8	14	TG 68	6	8	13	17	10	9
TB 71	6	6	13	13	14	11	TG 72	6	6	11	18	9	13

Table 8

Sums of Ranks Assigned by High Competition With a Self-Imposed Standard  
Subjects on Preferences Related to Each Motive Category

Subject Number	Boys						Subject Number	Girls					
	C	SIS	U	CO	AA	PA		C	SIS	U	CO	AA	PA
GB 20	7	3	13	18	12	10	GG 9	10	5	12	15	6	15
GB 25	11	4	14	6	11	17	GG 16	11	3	10	18	14	7
GB 28	13	5	13	11	8	13	GG 58	13	4	17	12	6	11
GB 35	11	5	12	15	8	12	GG 73	9	4	14	14	10	12
GB 45	15	5	14	12	6	11	GG 75	11	5	10	13	8	14
RB 7	8	3	10	12	13	17	RG 3	15	5	12	11	10	10
RB 15	11	4	17	12	7	12	RG 12	12	3	11	13	14	10
RB 18	9	3	11	12	17	11	RG 17	10	5	16	16	9	7
RB 37	13	4	11	16	14	5	RG 44	12	5	14	9	15	8
RB 51	10	3	14	15	11	10	RG 49	9	3	10	17	12	12
TB 6	11	4	13	15	11	9	TG 7	11	3	13	17	11	8
TB 10	13	4	12	13	14	7	TG 20	12	4	15	15	6	11
TB 18	7	4	11	12	13	16	TG 31	15	4	16	9	7	12
TB 43	12	4	11	12	11	13	TG 41	10	4	14	15	9	11
TB 52	14	5	15	12	6	11	TG 65	10	4	12	10	13	14

Table 9

Sums of Ranks Assigned by High Unique Accomplishment Subjects on  
Preferences Related to Each Motive Category

Subject Number	Boys C	SIS	U	CO	AA	PA	Subject Number	Girls C	SIS	U	CO	AA	PA
GB 13	14	14	5	13	6	11	GG 13	14	14	6	12	15	5
GB 27	10	11	7	15	11	9	GG 17	15	10	8	12	11	7
GB 37	5	10	5	17	13	13	GG 54	8	7	7	14	14	13
GB 44	9	14	6	10	11	13	GG 66	13	12	7	14	5	12
GB 52	9	11	8	12	13	10	GG 80	11	11	8	14	6	13
RB 3	12	6	5	16	11	13	RG 19	11	10	8	12	11	11
RB 23	6	9	6	10	14	18	RG 87	16	10	8	10	8	11
RB 48	10	6	4	15	12	16	RG 88	9	10	8	10	16	10
RB 54	13	12	6	13	11	8	RG 92	7	10	5	16	9	16
RB 81	9	9	6	15	13	11	RG 93	13	13	7	9	10	11
TB 23	10	7	6	17	9	14	TG 17	15	10	5	14	8	11
TB 28	15	13	8	9	10	8	TG 19	9	8	5	17	15	7
TB 48	13	13	6	8	11	12	TG 21	13	12	6	10	7	15
TB 51	9	13	3	11	15	12	TG 42	8	9	8	13	13	12
TB 60	12	10	5	15	11	10	TG 51	13	15	5	15	9	8



Table 10

Sums of Ranks Assigned by High Competition with Others Subjects on  
Preferences Related to Each Motive Category

Subject Number	Boys						Subject Number	Girls					
	C	SIS	U	CO	AA	PA		C	SIS	U	CO	AA	PA
GB 8	7	10	16	5	14	9	GG 14	12	15	12	9	11	4
GB 23	11	6	17	6	8	15	GG 21	10	13	16	8	9	7
GB 39	16	8	16	6	9	8	GG 40	14	10	10	10	11	8
GB 60	11	9	11	7	8	17	GG 49	17	10	12	8	11	5
GB 63	10	11	11	6	11	14	GG 64	10	7	15	9	10	12
RB 5	11	12	15	7	9	9	RG 5	12	13	11	7	11	9
RB 11	9	9	12	8	11	14	RG 11	11	11	10	8	11	12
RB 55	16	6	15	4	9	13	RG 26	13	11	10	7	12	10
RB 57	12	9	12	6	14	10	RG 56	13	15	12	5	9	9
RB 62	13	11	15	6	11	7	RG 64	12	11	12	9	12	7
TB 21	17	11	13	5	6	11	TG 35	13	14	11	8	9	8
TB 35	13	9	13	7	9	12	TG 48	12	10	13	6	15	7
TB 42	9	11	18	6	6	13	TG 50	13	9	9	8	8	16
TB 76	12	10	11	6	10	14	TG 71	12	9	15	7	8	12
TB 81	15	11	12	7	10	8	TG 77	13	9	14	7	8	11

Table 11

Sums of Ranks Assigned by High Adult Affiliation Subjects on Preferences  
Related to Each Motive Category

Subject Number	Boys						Subject Number	Girls					
	C	SIS	U	CO	AA	PA		C	SIS	U	CO	AA	PA
GB 11	11	14	13	14	3	8	GG 2	12	13	12	13	3	10
GB 31	10	9	14	16	3	11	GG 27	15	9	11	13	4	11
GB 42	13	10	12	13	4	11	GG 52	10	12	13	11	4	13
GB 47	9	12	12	16	3	11	GG 78	17	6	11	14	4	11
GB 55	12	10	13	11	4	13	GG 79	15	10	12	14	5	7
RB 10	11	13	10	13	4	12	RG 6	9	10	10	14	4	16
RB 41	13	10	14	10	4	12	RG 28	7	9	15	16	3	13
RB 69	11	9	15	11	3	14	RG 30	12	10	15	14	4	8
RB 79	9	14	12	15	3	10	RG 42	13	10	11	12	3	14
RB 83	12	6	16	14	4	11	RG 70	15	9	8	16	4	11
TB 12	13	12	16	12	3	7	TG 9	9	7	13	16	3	15
TB 36	12	7	18	11	4	11	TG 12	15	6	14	14	3	11
TB 39	13	10	13	14	3	10	TG 46	15	5	14	13	4	12
TB 45	9	13	13	11	3	14	TG 53	9	10	12	17	3	12
TB 57	10	11	15	13	4	10	TG 64	11	10	13	16	3	10

Table 12

Sums of Ranks Assigned by High Peer Affiliation Subjects on Preferences  
Related to Each Motive Category

Subject Number	Boys						Subject Number	Girls					
	C	SIS	U	CO	AA	PA		C	SIS	U	CO	AA	PA
GB 1	10	8	14	15	9	7	GG 6	12	8	15	11	11	6
GB 2	10	13	9	15	12	4	GG 11	10	5	13	16	15	4
GB 3	12	11	11	11	14	4	GG 33	9	16	9	16	8	5
GB 14	11	8	17	12	8	7	GG 43	9	9	17	15	8	5
GB 36	9	7	17	15	9	6	GG 72	16	12	10	14	6	5
RB 19	12	12	17	9	9	4	RG 15	11	8	11	16	12	5
RB 26	9	15	10	12	12	5	RG 46	13	10	12	14	8	6
RB 29	8	8	11	17	14	5	RG 55	13	6	14	16	8	6
RB 53	15	14	6	11	14	3	RG 58	14	7	10	18	8	6
RB 84	12	9	14	15	8	5	RG 72	12	8	12	17	9	5
TB 11	11	12	10	13	13	4	TG 3	12	11	9	10	18	3
TB 15	14	8	12	10	15	4	TG 6	14	11	8	11	15	4
TB 38	10	9	15	10	13	6	TG 8	9	10	10	14	15	4
TB 54	12	13	8	11	12	7	TG 33	14	6	12	12	14	5
TB 83	9	9	16	11	13	5	TG 66	11	13	13	14	7	5

APPENDIX D

NUMBER OF FIRST-PLACE RANKS ASSIGNED TO EACH  
ITEM BY SEX AND CRITERION GROUPS

Table 13

Number of First-Place Ranks Assigned to Each Item by Members of  
Sex and Criterion Groups

No.	Boys							Girls							Combined Total
	C	SIS	U	CO	AA	PA	Total	C	SIS	U	CO	AA	PA	Total	
1a	3	2	4	2	6	5	22	4	1	2	2	1	3	13	35
1b	6	5	5	6	5	2	29	5	7	3	4	8	4	31	60
1c	1	1	1	2	2	3	10	0	2	2	2	2	3	11	21
1d	5	7	5	5	2	5	29	6	5	8	7	4	5	35	64
2a	2	1	0	2	3	3	11	0	1	3	1	1	2	8	19
2b	4	4	2	5	7	4	26	10	6	6	10	8	6	46	72
2c	6	6	9	4	3	6	34	4	7	4	2	4	4	25	59
2d	3	4	4	4	2	2	19	1	1	2	2	2	3	11	30
3a	6	6	3	5	12	6	38	7	7	5	9	7	5	40	78
3b	3	1	2	2	1	2	11	0	3	0	0	4	3	10	21
3c	2	3	1	3	2	4	15	4	2	3	2	2	2	15	30
3d	4	5	9	5	0	3	26	4	3	7	4	2	5	25	51
4a	5	1	5	3	2	5	21	6	7	4	6	7	2	32	53
4b	4	6	4	6	5	6	31	4	2	5	4	5	8	28	59

Table 13 (Cont.)

No.	Boys							Girls							Combined Total
	C	SIS	U	CO	AA	PA	Total	C	SIS	U	CO	AA	PA	Total	
4c	5	7	1	4	8	3	28	5	6	5	5	3	4	28	56
4d	1	1	5	2	0	1	10	0	0	1	0	0	1	2	12
5a	5	3	1	3	5	2	19	6	6	2	6	6	4	30	49
5b	2	3	3	1	4	6	19	4	3	2	2	3	2	16	35
5c	5	7	8	7	5	6	38	3	6	7	3	5	6	30	68
5d	3	2	3	4	1	1	14	2	0	4	4	1	3	14	28
6a	8	3	5	5	5	6	32	9	13	6	7	12	7	54	86
6b	2	4	3	6	4	1	20	2	1	4	4	2	4	17	37
6c	4	4	5	2	6	4	25	3	1	2	1	1	2	10	35
6d	1	4	2	2	0	4	13	1	0	3	3	0	2	9	22
7a	5	6	7	4	13	8	43	7	6	9	9	3	6	40	83
7b	5	2	1	3	1	2	14	1	4	1	0	2	1	9	23
7c	4	5	2	4	0	4	19	7	2	4	4	7	4	28	47
7d	1	2	5	4	1	1	14	0	3	1	2	3	4	13	27
8a	3	3	1	4	3	2	16	2	1	4	1	4	2	14	30

Table 13 (Cont.)

No.	Boys							Girls							Combined Total
	C	SIS	U	CO	AA	PA	Total	C	SIS	U	CO	AA	PA	Total	
8b	9	4	2	3	7	5	30	7	7	6	8	5	5	38	68
8c	0	0	2	2	1	2	7	1	3	2	4	2	1	13	20
8d	3	8	10	6	4	6	37	5	4	3	2	4	7	25	62
9a	5	5	6	8	7	8	39	7	6	5	8	6	5	37	76
9b	3	4	3	2	6	2	20	3	4	4	2	2	5	20	40
9c	2	3	0	3	0	2	10	3	4	1	3	3	4	18	28
9d	5	3	6	2	2	3	21	2	1	5	2	4	1	15	36
10a	4	6	6	4	6	6	32	5	3	8	7	4	6	33	65
10b	3	3	2	5	3	2	18	5	3	4	3	3	1	19	37
10c	3	3	5	6	2	4	23	3	7	2	3	5	4	24	47
10d	5	3	2	0	4	3	17	2	2	1	2	3	4	14	31
11a	3	1	3	4	6	1	18	1	1	4	4	1	4	15	33
11b	5	3	1	4	6	5	24	8	6	4	3	8	4	33	57
11c	0	4	3	2	0	6	15	1	1	5	3	1	5	16	31

Table 13 (Cont.)

No.	Boys							Girls							Combined Total
	C	SIS	U	CO	AA	PA	Total	C	SIS	U	CO	AA	PA	Total	
11d	7	7	8	5	3	3	33	5	7	2	5	5	2	26	59
12a	2	5	3	5	5	5	25	6	4	5	6	5	3	29	54
12b	4	2	6	4	0	4	20	3	0	2	3	0	2	10	30
12c	4	5	3	4	7	2	25	3	4	6	2	4	6	25	50
12d	5	3	3	2	3	4	20	3	7	2	4	6	4	26	46
13a	2	1	6	2	3	4	18	2	2	2	2	2	2	12	30
13b	5	4	4	11	5	4	33	4	1	6	6	3	6	26	59
13c	2	3	2	1	2	1	11	6	3	2	2	4	2	19	30
13d	6	7	3	1	5	6	28	3	9	5	5	6	5	33	61
14a	2	7	4	7	5	2	27	4	0	3	4	6	6	23	50
14b	3	2	2	2	5	5	19	3	10	3	5	2	3	26	45
14c	5	4	5	3	3	4	24	7	4	4	4	5	2	26	50
14d	5	2	4	3	2	4	20	1	1	5	2	2	4	15	35
15a	1	4	3	6	8	7	29	7	4	5	8	5	5	34	63



Table 13 (Cont.)

No.	Boys							Girls							Combined Total
	C	SIS	U	CO	AA	PA	Total	C	SIS	U	CO	AA	PA	Total	
15b	6	2	3	4	6	3	24	4	4	5	4	2	4	23	47
15c	2	6	7	5	0	2	22	2	2	1	0	6	3	14	36
15d	6	3	2	0	1	3	15	2	5	4	3	2	3	19	34
16a	2	3	3	3	1	2	14	4	0	3	0	4	2	13	27
16b	4	3	5	4	7	5	28	6	9	2	9	4	4	34	62
16c	8	3	3	4	5	4	27	2	4	5	5	5	7	28	55
16d	1	6	4	4	2	4	21	3	2	5	1	2	2	15	36
17a	6	5	6	5	8	6	36	6	7	4	8	10	7	42	78
17b	3	5	3	4	2	2	19	4	0	5	1	0	5	15	34
17c	2	1	3	3	3	2	14	2	2	2	3	3	1	13	27
17d	4	4	3	3	2	5	21	3	6	4	3	2	2	20	41
18a	4	4	5	5	6	6	30	3	3	2	3	3	6	20	50
18b	2	3	3	3	2	1	14	3	4	2	1	3	0	13	27
18c	3	4	1	2	4	2	16	5	2	6	5	4	5	27	43

Table 13 (Cont.)

No.	Boys							Girls							Combined Total
	C	SIS	U	CO	AA	PA	Total	C	SIS	U	CO	AA	PA	Total	
18d	6	4	6	5	3	6	30	4	6	5	6	5	4	30	60
19a	4	3	2	6	5	4	24	4	3	3	6	2	4	22	46
19b	2	3	4	3	2	2	16	3	1	1	0	1	3	9	25
19c	1	3	2	1	3	1	11	2	4	2	1	1	2	12	23
19d	8	7	7	5	5	8	40	6	7	9	8	11	6	47	87
20a	1	2	1	3	2	1	10	5	1	1	2	3	2	14	24
20b	1	1	5	2	3	6	18	1	3	1	1	1	4	11	29
20c	7	7	2	3	5	2	26	6	9	4	8	9	4	40	66
20d	6	5	7	7	5	6	36	3	2	9	4	2	5	25	61

APPENDIX E

DIFFERENCES IN PERCENTAGE OF BOYS AND PERCENTAGE  
OF GIRLS WHO ASSIGNED A RANK OF 1  
TO ANY GIVEN ITEM

Table 14

Differences in Percentage of Boys and Percentage of Girls  
Who Assigned a Rank of 1 to Any Given Item

Item Number	Percentage of Boys	Percentage of Girls	Percentage of Boys Minus Percentage of Girls
1a	24.4	14.4	10.0
1b	32.2	34.4	- 2.2
1c	11.1	12.2	- 1.1
1d	32.2	38.9	- 6.7
2a	12.2	8.9	3.3
2b	28.9	51.1	-22.2*
2c	37.8	27.8	10.0
2d	21.1	12.2	8.9
3a	42.2	44.4	- 2.2
3b	12.2	11.1	1.1
3c	16.7	16.7	0.0
3d	28.9	27.8	1.1
4a	23.3	35.6	-12.3
4b	34.4	31.1	3.3
4c	31.1	31.1	0.0
4d	11.1	2.2	8.9*
5a	21.1	33.3	-12.2
5b	21.1	17.8	3.3
5c	42.2	33.3	8.9
5d	15.6	15.6	0.0

\*Significant at or beyond the .05 level of significance.

Table 14 (Cont.)

Item Number	Percentage of Boys	Percentage of Girls	Percentage of Boys Minus Percentage of Girls
6a	35.6	60.0	-24.4*
6b	22.2	18.9	3.3
6c	27.8	11.1	16.7*
6d	14.4	10.0	4.4
7a	47.8	44.4	3.4
7b	15.6	10.0	5.6
7c	21.1	31.1	-10.0
7d	15.6	14.4	1.2
8a	17.8	15.6	2.2
8b	33.3	42.2	- 8.9
8c	7.8	14.4	- 6.6
8d	41.1	27.8	13.3
9a	43.3	41.1	2.2
9b	22.2	22.2	0.0
9c	11.1	20.0	- 8.9
9d	23.3	16.7	6.6
10a	35.6	36.7	- 1.1
10b	20.0	21.1	- 1.1
10c	25.6	26.7	- 1.1
10d	18.9	15.6	3.3
11a	20.0	16.7	3.3
11b	26.7	36.7	-10.0
11c	16.7	17.8	- 1.1
11d	36.7	28.9	7.8

Table 14 (Cont.)

Item Number	Percentage of Boys	Percentage of Girls	Percentage of Boys Minus Percentage of Girls
12a	27.8	32.2	- 4.4
12b	22.2	11.1	11.1*
12c	27.8	27.8	0.0
12d	22.2	28.9	- 6.7
13a	20.0	13.3	6.7
13b	36.7	28.9	7.8
13c	12.2	21.1	- 8.9
13d	31.1	36.7	- 5.6
14a	30.0	25.6	4.4
14b	21.1	28.9	- 7.8
14c	26.7	28.9	- 2.2
14d	22.2	16.7	5.5
15a	32.2	37.8	- 5.6
15b	26.7	25.6	1.1
15c	24.4	15.6	8.8
15d	16.7	21.1	- 4.4
16a	15.6	14.4	1.2
16b	31.1	37.8	- 6.7
16c	30.0	31.1	- 1.1
16d	23.3	16.7	6.6
17a	40.0	46.7	- 6.7
17b	21.1	16.7	4.4
17c	15.6	14.4	1.2
17d	23.3	22.2	1.1

Table 14 (Cont.)

Item Number	Percentage of Boys	Percentage of Girls	Percentage of Boys Minus Percentage of Girls
18a	33.3	22.2	11.1
18b	15.6	14.4	1.2
18c	17.8	30.0	-12.2
18d	33.3	33.3	0.0
19a	26.7	24.4	2.3
19b	17.8	10.0	7.8
19c	12.2	13.3	- 1.1
19d	44.4	52.2	- 7.8
20a	11.1	15.6	- 4.5
20b	20.0	12.2	7.8
20c	28.9	44.4	-15.5*
20d	40.0	27.8	12.2

APPENDIX F

DIFFERENCES IN PERCENTAGE OF SUBJECTS ASSIGNING A  
RANK OF 1 TO ITEMS BY CRITERION GROUPS



Table 15

Differences in Percentage of Subjects Assigning a  
Rank of 1 to Items by Criterion Groups

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
1a	C	13.33	3.33	10.00	0.00	- 3.33
	SIS		-10.00	- 3.33	-13.33	-16.67
	U			6.67	- 3.33	- 6.67
	CO				-10.00	-13.33
	AA					- 3.33
1b	C	- 3.33	10.00	3.33	- 6.67	16.67
	SIS		13.33	6.67	- 3.33	20.00
	U			- 6.67	-16.67	6.67
	CO				-10.00	13.33
	AA					23.33
1c	C	- 6.67	- 6.67	-10.00	-10.00	-16.67*
	SIS		0.00	- 3.33	- 3.33	-10.00
	U			- 3.33	- 3.33	-10.00
	CO				0.00	- 6.67
	AA					- 6.67
1d	C	- 3.33	- 6.67	- 3.33	16.67	3.33
	SIS		- 3.33	0.00	20.00	6.67
	U			3.33	23.33	10.00
	CO				20.00	6.67
	AA					-13.33

\* Significant at or beyond the .05 level of significance.  
Positive differences favor criterion group at left.

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
2a	C	0.00	- 3.33	3.33	- 6.67	-13.33
	SIS		- 3.33	3.33	- 6.67	-13.33
	U			0.00	- 3.33	- 6.67
	CO				- 3.33	- 6.67
	AA					- 3.33
2b	C	13.33	20.00	- 3.33	- 3.33	13.33
	SIS		6.67	-16.67	-16.67	0.00
	U			-23.33	-23.33	- 6.67
	CO				0.00	16.67
	AA					16.67
2c	C	-10.00	-10.00	13.33	10.00	0.00
	SIS		0.00	23.33	20.00	10.00
	U			23.33	20.00	10.00
	CO				- 3.33	-13.33
	AA					-10.00
2d	C	- 3.33	- 6.67	- 6.67	0.00	- 3.33
	SIS		- 3.33	- 3.33	3.33	0.00
	U			0.00	6.67	3.33
	CO				6.67	3.33
	AA					- 3.33

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
3a	C	0.00	16.67	- 3.33	-20.00	6.67
	SIS		16.67	- 3.33	-20.00	6.67
	U			-20.00	-36.67*	-10.00
	CO				-16.67	10.00
	AA					26.67*
3b	C	- 3.33	3.33	3.33	- 6.67	- 6.67
	SIS		6.67	6.67	- 3.33	- 3.33
	U			0.00	-10.00	-10.00
	CO				-10.00	-10.00
	AA					0.00
3c	C	3.33	6.67	3.33	6.67	0.00
	SIS		3.33	0.00	3.33	- 3.33
	U			- 3.33	0.00	- 6.67
	CO				3.33	- 3.33
	AA					- 6.67
3d	C	0.00	-26.67*	- 3.33	20.00*	0.00
	SIS		-26.67*	- 3.33	20.00*	0.00
	U			23.33	46.67*	26.67*
	CO				23.33*	3.33
	AA					-20.00*

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
4a	C	10.00	6.67	6.67	6.67	13.33
	SIS		- 3.33	- 3.33	- 3.33	3.33
	U			0.00	0.00	6.67
	CO				0.00	6.67
	AA					6.67
4b	C	0.00	- 3.33	- 6.67	- 6.67	-20.00
	SIS		- 3.33	- 6.67	- 6.67	-20.00
	U			- 3.33	- 3.33	-16.67
	CO				0.00	-13.33
	AA					-13.33
4c	C	-10.00	13.33	3.33	3.33	10.00
	SIS		23.33	13.33	6.67	20.00
	U			-10.00	-16.67	- 3.33
	CO				- 6.67	6.67
	AA					13.33
4d	C	0.00	-16.67*	- 3.33	3.33	- 3.33
	SIS		-16.67*	- 3.33	3.33	- 3.33
	U			-13.33	20.00*	13.33
	CO				6.67	0.00
	AA					- 6.67

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
5a	C	6.67	26.67*	6.67	0.00	16.67
	SIS		20.00	0.00	- 6.67	10.00
	U			-20.00	-26.67*	10.00
	CO				- 6.67	10.00
	AA					16.67
5b	C	0.00	3.33	10.00	- 3.33	- 6.67
	SIS		3.33	10.00	- 3.33	- 6.67
	U			6.67	- 6.67	-10.00
	CO				-13.33	-16.67
	AA					- 3.33
5c	C	-16.67	-23.33	- 6.67	- 6.67	-13.33
	SIS		- 6.67	10.00	10.00	3.33
	U			16.67	16.67	10.00
	CO				0.00	- 6.67
	AA					- 6.67
5d	C	10.00	- 6.67	-10.00	10.00	3.33
	SIS		-16.67	-20.00*	0.00	- 6.67
	U			- 3.33	16.67	10.00
	CO				20.00*	13.33
	AA					- 6.67

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
6a	C	3.33	20.00	16.67	0.00	13.33
	SIS		16.67	13.33	- 3.33	10.00
	U			- 3.33	-20.00	- 6.67
	CO				-16.67	- 3.33
	AA					13.33
6b	C	- 3.33	-10.00	-20.00	- 6.67	- 3.33
	SIS		- 6.67	-16.67	- 3.33	0.00
	U			-10.00	3.33	6.67
	CO				13.33	16.67
	AA					3.33
6c	C	6.67	0.00	13.33	0.00	3.33
	SIS		- 6.67	6.67	- 6.67	- 3.33
	U			13.33	0.00	3.33
	CO				-13.33	-10.00
	AA					3.33
6d	C	- 6.67	-10.00	-10.00	6.67	-13.33
	SIS		- 3.33	- 3.33	13.33	- 6.67
	U			0.00	16.67*	- 3.33
	CO				16.67*	- 3.33
	AA					-20.00*

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
7a	C	0.00	-13.33	- 3.33	-13.33	- 6.67
	SIS		-13.33	- 3.33	-13.33	- 6.67
	U			10.00	0.00	6.67
	CO				-10.00	- 3.33
	AA					6.67
7b	C	0.00	13.33	10.00	10.00	10.00
	SIS		13.33	10.00	10.00	10.00
	U			- 3.33	- 3.33	- 3.33
	CO				0.00	0.00
	AA					0.00
7c	C	13.33	16.67	10.00	13.33	10.00
	SIS		3.33	- 3.33	0.00	- 3.33
	U			- 6.67	- 3.33	- 6.67
	CO				3.33	0.00
	AA					- 3.33
7d	C	-13.33	-16.67*	-16.67*	-10.00	-13.33
	SIS		- 3.33	- 3.33	3.33	0.00
	U			0.00	6.67	3.33
	CO				6.67	3.33
	AA					- 3.33

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
8a	C	3.33	0.00	0.00	- 6.67	3.33
	SIS		- 3.33	- 3.33	-10.00	0.00
	U			0.00	- 6.67	3.33
	CO				- 6.67	3.33
	AA					10.00
8b	C	16.67	26.67*	16.67	13.33	20.00
	SIS		10.00	0.00	- 3.33	3.33
	U			-10.00	-13.33	- 6.67
	CO				- 3.33	3.33
	AA					6.67
8c	C	- 6.67	-10.00	-16.67*	- 6.67	- 6.67
	SIS		- 3.33	-10.00	0.00	0.00
	U			- 6.67	3.33	3.33
	CO				10.00	10.00
	AA					0.00
8d	C	-13.33	-16.67	0.00	0.00	-16.67
	SIS		- 3.33	13.33	13.33	- 3.33
	U			16.67	16.67	0.00
	CO				0.00	-16.67
	AA					-16.67



Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
9a	C	3.33	3.33	-13.33	- 3.33	- 3.33
	SIS		0.00	-16.67	- 6.67	- 6.67
	U			-16.67	- 6.67	- 6.67
	CO				10.00	10.00
	AA					0.00
	PA					
9b	C	- 6.67	- 3.33	6.67	- 6.67	- 3.33
	SIS		3.33	13.33	0.00	3.33
	U			10.00	- 3.33	0.00
	CO				-13.33	-10.00
	AA					3.33
	PA					
9c	C	- 6.67	13.33	- 3.33	10.00	- 3.33
	SIS		20.00*	3.33	13.33	3.33
	U			-16.67*	-10.00	-16.67*
	CO				10.00	0.00
	AA					-10.00
	PA					
9d	C	10.00	-13.33	10.00	3.33	10.00
	SIS		-23.33*	0.00	-16.67	0.00
	U			23.33*	16.67	23.33*
	CO				- 6.67	0.00
	AA					6.67
	PA					

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
10a	C	0.00	-16.67	- 6.67	- 3.33	-10.00
	SIS		-16.67	- 6.67	- 3.33	-10.00
	U			10.00	13.33	6.67
	CO				3.33	- 3.33
	AA					- 6.67
10b	C	6.67	6.67	0.00	6.67	16.67
	SIS		0.00	- 6.67	0.00	10.00
	U			- 6.67	0.00	10.00
	CO				6.67	16.67
	AA					10.00
10c	C	-13.33	- 3.33	-10.00	- 3.33	- 6.67
	SIS		10.00	3.33	10.00	6.67
	U			- 6.67	0.00	- 3.33
	CO				6.67	3.33
	AA					- 3.33
10d	C	6.67	13.33	16.67	0.00	0.00
	SIS		6.67	10.00	- 6.67	- 6.67
	U			3.33	-13.33	-13.33
	CO				-16.67	-16.67
	AA					0.00

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
11a	C	6.67	-10.00	-13.33	-10.00	- 3.33
	SIS		-16.67	-20.00*	-16.67	-10.00
	U			- 3.33	0.00	6.67
	CO				3.33	10.00
	AA					6.67
11b	C	13.33	26.67*	20.00	- 3.33	13.33
	SIS		13.33	6.67	-16.67	0.00
	U			- 6.67	-30.00*	-13.33
	CO				-23.33	- 6.67
	AA					16.67
11c	C	-13.33	-23.33*	-13.33	0.00	-33.33*
	SIS		-10.00	0.00	13.33	-20.00
	U			10.00	23.33*	-10.00
	CO				13.33	-20.00
	AA					-33.33*
11d	C	- 6.67	6.67	6.67	13.33	23.33*
	SIS		6.67	6.67	20.00	30.00*
	U			0.00	6.67	16.67
	CO				6.67	16.67
	AA					10.00

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
12a	C	- 3.33	0.00	-10.00	- 6.67	0.00
	SIS		3.33	- 6.67	- 3.33	3.33
	U			-10.00	- 6.67	0.00
	CO				3.33	10.00
	AA					6.67
12b	C	16.67	- 3.33	0.00	23.33*	3.33
	SIS		-20.00*	-16.67	6.67	- 6.67
	U			3.33	26.67*	6.67
	CO				23.33*	3.33
	AA					-20.00*
12c	C	- 6.67	- 6.67	3.33	-13.33	- 3.33
	SIS		0.00	10.00	- 6.67	3.33
	U			10.00	- 6.67	3.33
	CO				-16.67	- 6.67
	AA					10.00
12d	C	- 6.67	10.00	6.67	- 3.33	0.00
	SIS		16.67	13.33	3.33	6.67
	U			- 3.33	-13.33	-10.00
	CO				-10.00	- 6.67
	AA					3.33

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
13a	C	3.33	-13.33	0.00	- 3.33	- 6.67
	SIS		-16.67	- 3.33	- 6.67	-10.00
	U			13.33	10.00	6.67
	CO				- 3.33	- 6.67
	AA					- 3.33
13b	C	13.33	- 3.33	-26.67*	3.33	- 3.33
	SIS		-16.67	-40.00*	-10.00	-16.67
	U			-23.33*	6.67	0.00
	CO				30.00*	23.33
	AA					- 6.67
13c	A	6.67	13.33	16.67	6.67	16.67
	SIS		6.67	10.00	0.00	10.00
	U			3.33	- 6.67	3.33
	CO				-10.00	0.00
	AA					10.00
13d	C	-23.33	3.33	10.00	- 6.67	- 6.67
	SIS		26.67*	33.33*	16.67	16.67
	U			6.67	-10.00	-10.00
	CO				-16.67	-16.67
	AA					0.00

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
14a	C	- 3.33	- 3.33	-16.67	-16.67	- 6.67
	SIS		0.00	-13.33	-13.33	- 3.33
	U			-13.33	-13.33	- 3.33
	CO				0.00	10.00
	AA					10.00
14b	C	-20.00	3.33	- 3.33	- 3.33	- 6.67
	SIS		23.33*	16.67	16.67	13.33
	U			- 6.67	- 6.67	-10.00
	CO				0.00	- 3.33
	AA					- 3.33
14c	C	13.33	10.00	16.67	13.33	20.00
	SIS		- 3.33	3.33	0.00	6.67
	U			6.67	3.33	10.00
	CO				- 3.33	3.33
	AA					6.67
14d	C	10.00	-10.00	3.33	6.67	- 6.67
	SIS		-20.00	- 6.67	- 3.33	-16.67
	U			13.33	16.67	3.33
	CO				3.33	-10.00
	AA					-13.33

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
15a	C	0.00	0.00	-20.00	-16.67	-13.33
	SIS		0.00	-20.00	-16.67	-13.33
	U			-20.00	-16.67	-13.33
	CO				3.33	6.67
	AA					3.33
	PA					
15b	C	13.33	6.67	6.67	6.67	10.00
	SIS		- 6.67	- 6.67	- 6.67	- 3.33
	U			0.00	0.00	3.33
	CO				0.00	3.33
	AA					3.33
	PA					
15c	C	-13.33	-13.33	- 3.33	- 6.67	- 3.33
	SIS		0.00	10.00	6.67	10.00
	U			10.00	6.67	10.00
	CO				- 3.33	0.00
	AA					3.33
	PA					
15d	C	0.00	6.67	16.67	16.67	6.67
	SIS		6.67	16.67	16.67	6.67
	U			10.00	10.00	0.00
	CO				0.00	-10.00
	AA					-10.00
	PA					

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
16a	C	10.00	0.00	10.00	3.33	6.67
	SIS		-10.00	0.00	- 6.67	- 3.33
	U			10.00	3.33	6.67
	CO				- 6.67	- 3.33
	AA					3.33
16b	C	- 6.67	10.00	-10.00	- 3.33	3.33
	SIS		16.67	- 3.33	3.33	10.00
	U			-20.00	-13.33	- 6.67
	CO				6.67	13.33
	AA					6.67
16c	C	10.00	6.67	3.33	0.00	- 3.33
	SIS		- 3.33	- 6.67	-10.00	-13.33
	U			- 3.33	- 6.67	-10.00
	CO				- 3.33	- 6.67
	AA					- 3.33
16d	C	-13.33	-16.67	- 3.33	0.00	- 6.67
	SIS		- 3.33	10.00	13.33	6.67
	U			13.33	16.67	10.00
	CO				3.33	3.33
	AA					- 6.67



Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
17a	C	0.00	6.67	- 3.33	-20.00	- 3.33
	SIS		6.67	- 3.33	-20.00	- 3.33
	U			-10.00	-26.67*	-10.00
	CO				-16.67	0.00
	AA					16.67
17b	C	6.67	- 3.33	6.67	16.67	0.00
	SIS		-10.00	0.00	10.00	- 6.67
	U			10.00	20.00*	3.33
	CO				10.00	- 6.67
	AA					-16.67
17c	C	3.33	- 3.33	- 6.67	- 6.67	3.33
	SIS		- 6.67	-10.00	-10.00	0.00
	U			- 3.33	- 3.33	6.67
	CO				0.00	10.00
	AA					10.00
17d	C	-10.00	0.00	3.33	10.00	0.00
	SIS		10.00	13.33	20.00	10.00
	U			3.33	10.00	0.00
	CO				6.67	- 3.33
	AA					-10.00

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
18a	C	0.00	0.00	- 3.33	- 6.67	-16.67
	SIS		0.00	- 3.33	- 6.67	-16.67
	U			- 3.33	- 6.67	-16.67
	CO				- 3.33	-13.33
	AA					-10.00
18b	C	- 6.67	0.00	3.33	0.00	13.33
	SIS		6.67	10.00	6.67	20.00*
	U			3.33	0.00	13.33
	CO				- 3.33	10.00
	AA					13.33
18c	C	6.67	3.33	3.33	0.00	3.33
	SIS		- 3.33	- 3.33	- 6.67	- 3.33
	U			0.00	- 3.33	0.00
	CO				- 3.33	0.00
	AA					3.33
18d	C	0.00	- 3.33	- 3.33	6.67	0.00
	SIS		- 3.33	- 3.33	6.67	0.00
	U			0.00	10.00	3.33
	CO				10.00	3.33
	AA					- 6.67

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
19a	C	6.67	10.00	-13.33	3.33	0.00
	SIS		- 3.33	-16.67	- 3.33	- 6.67
	U			-23.33*	- 6.67	-10.00
	CO				16.67	13.33
	AA					- 3.33
	PA					
19b	C	3.33	0.00	6.67	6.67	0.00
	SIS		- 3.33	3.33	3.33	- 3.33
	U			6.67	6.67	0.00
	CO				0.00	- 6.67
	AA					- 6.67
	PA					
19c	C	-13.33	- 3.33	3.33	- 3.33	0.00
	SIS		10.00	16.67	10.00	13.33
	U			6.67	0.00	3.33
	CO				- 6.67	- 3.33
	AA					3.33
	PA					
19d	C	0.00	- 6.67	3.33	- 6.67	0.00
	SIS		- 6.67	3.33	- 6.67	0.00
	U			10.00	0.00	6.67
	CO				-10.00	- 3.33
	AA					6.67
	PA					

Table 15 (Cont.)

Item	Groups	Differences in Percentage				
		SIS	U	CO	AA	PA
20a	C	10.00	13.33	3.33	3.33	10.00
	SIS		3.33	- 6.67	- 6.67	0.00
	U			-10.00	-10.00	- 3.33
	CO				0.00	6.67
	AA					6.67
20b	C	- 6.67	-13.33	- 3.33	- 6.67	-26.67*
	SIS		- 6.67	3.33	0.00	-20.00
	U			10.00	6.67	-13.33
	CO				- 3.33	-23.33*
	AA					-20.00
20c	C	-10.00	23.33	6.67	- 3.33	23.33
	SIS		33.33*	16.67	6.67	33.33*
	U			-16.67	-26.67*	0.00
	CO				-10.00	16.67
	AA					26.67*
20d	C	6.67	-23.33	- 6.67	6.67	- 6.67
	SIS		-30.00*	-13.33	0.00	-13.33
	U			16.67	30.00*	16.67
	CO				13.33	0.00
	AA					-13.33

## APPENDIX G

SUMS OF RANKS FOR EACH SUBJECT FOR THE COMPOSITE OF  
ITEMS RELATED TO EACH OF THE MOTIVE CATEGORIES

Table 16

Sums of Ranks for High Curiosity Boys for the Composite  
of Items Related to Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GB 10	25	33	24	33	26	25	34
GB 16	32	20	21	26	17	21	63
GB 18	18	25	23	26	29	31	48
GB 34	17	20	24	34	24	25	56
GB 66	15	21	32	26	22	21	63
RB 12	20	29	34	27	28	21	41
RB 25	28	23	36	30	27	23	33
RB 58	27	27	28	34	25	25	34
RB 61	22	22	33	25	29	24	45
RB 74	22	25	21	21	25	24	62
TB 5	20	24	36	27	33	23	37
TB 8	29	24	30	19	27	25	46
TB 31	20	29	23	19	22	27	60
TB 58	25	25	27	20	27	27	49
TB 71	32	30	29	27	21	28	33

Table 17

Sums of Ranks for High Curiosity Girls for the Composite  
of Items Related to Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GG 4	25	21	27	22	32	28	45
GG 20	23	28	33	30	31	28	27
GG 25	23	27	26	23	29	22	50
GG 34	21	23	22	31	23	23	57
GG 59	23	24	34	35	28	20	36
RG 9	17	26	34	28	18	31	46
RG 29	33	27	21	26	22	27	44
RG 39	25	25	26	23	25	23	53
RG 71	25	20	34	33	27	29	32
RG 78	26	29	21	21	30	21	52
TG 23	26	29	24	20	23	21	57
TG 30	18	27	31	32	23	26	43
TG 60	32	20	25	30	20	21	52
TG 68	24	21	37	31	26	24	37
TG 72	18	28	29	29	26	24	46

Table 18

Sums of Ranks for High Self-Imposed Standard of Excellence  
Boys for the Composite of Items Related to  
Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GB 20	26	24	32	23	32	27	36
GB 25	23	27	26	21	25	25	53
GB 28	26	28	34	31	22	29	30
GB 35	19	25	24	20	35	22	55
GB 45	23	26	30	24	24	24	49
RB 7	24	27	32	21	29	21	46
RB 15	21	23	25	28	30	27	46
RB 18	22	25	30	29	25	25	44
RB 37	22	21	28	31	21	23	54
RB 51	24	26	32	17	16	19	66
TB 6	21	30	25	18	28	20	58
TB 10	24	32	27	31	19	21	46
TB 18	24	23	33	30	28	29	33
TB 43	22	27	28	29	24	25	45
TB 52	24	23	21	23	26	30	53



Table 19.

Sums of Ranks for High Self-Imposed Standard of Excellence  
Girls for the Composite of Items Related to  
Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GG 9	23	25	34	32	23	29	34
GG 16	27	25	31	31	18	25	43
GG 58	24	23	31	30	27	30	35
GG 73	20	24	23	30	26	27	50
GG 75	27	30	24	33	24	25	37
RG 3	21	22	30	31	24	27	45
RG 12	23	26	30	30	24	32	35
RG 17	21	24	33	35	32	27	28
RG 44	20	19	27	32	23	33	46
RG 84	19	32	26	31	27	22	43
TG 7	20	27	21	36	26	25	45
TG 20	16	28	26	33	18	25	54
TG 31	28	22	28	36	26	31	29
TG 41	28	25	28	19	27	25	48
TG 65	27	15	29	27	20	16	66

Table 20

Sums of Ranks for High Unique Accomplishment Boys  
for the Composite of Items Related  
to Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GB 13	25	27	25	18	25	28	52
GB 27	25	28	22	21	25	21	58
GB 37	21	25	16	27	29	21	61
GB 44	29	27	22	25	28	25	44
GB 52	20	23	25	25	22	35	50
RB 3	21	23	25	30	25	27	49
RB 23	25	22	30	30	23	27	43
RB 48	21	23	29	27	24	25	51
RB 54	25	26	22	22	23	21	61
RB 81	22	24	31	16	23	33	51
TB 23	20	24	26	22	25	24	59
TB 28	19	23	30	21	28	23	56
TB 48	20	23	32	21	29	21	54
TB 51	20	28	30	30	29	29	34
TB 60	19	24	25	27	23	19	63

Table 21

Sums of Ranks for High Unique Accomplishment Girls  
for the Composite of Items Related to  
Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GG 13	29	29	29	24	26	11	52
GG 17	25	22	33	28	25	29	38
GG 54	20	24	27	21	19	24	65
GG 66	21	21	23	40	20	32	43
GG 80	20	24	21	34	24	30	47
RG 19	25	23	38	26	30	26	32
RG 87	19	26	27	14	27	18	69
RG 88	24	29	23	23	20	24	57
RG 92	24	25	34	26	19	19	53
RG 93	26	28	30	27	28	26	35
TG 17	28	22	34	25	18	32	41
TG 19	27	26	34	30	25	26	32
TG 21	24	25	27	13	25	22	64
TG 42	25	19	30	25	21	29	51
TG 51	24	32	23	23	22	21	55

Table 22

Sums of Ranks for High Competition with Others Boys for  
the Composite of Items Related to  
Each of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GB 8	24	32	16	16	25	24	63
GB 23	18	25	28	29	20	26	54
GB 39	17	23	26	23	26	23	62
GB 60	29	32	32	26	25	28	28
GB 63	24	26	23	24	28	26	49
RB 5	22	29	30	20	25	19	55
RB 11	24	23	22	21	24	21	65
RB 55	25	22	27	33	28	17	48
RB 57	16	21	26	34	24	22	57
RB 62	23	27	20	21	30	28	51
TB 21	28	23	31	19	21	17	61
TB 35	24	25	29	26	28	26	42
TB 42	27	30	26	25	23	20	49
TB 76	16	25	25	21	23	29	61
TB 81	31	26	24	27	27	21	44

Table 23

Sums of Ranks for High Competition with Others Girls for  
the Composite of Items Related to Each  
of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GG 14	25	25	33	25	19	24	49
GG 21	25	27	29	28	24	27	40
GG 40	25	24	22	23	24	27	55
GG 49	28	22	36	32	20	24	38
GG 64	27	33	33	28	30	20	29
RG 5	25	26	34	24	24	25	42
RG 11	23	23	33	34	23	25	39
RG 26	27	29	26	32	25	19	42
RG 56	26	24	28	27	27	24	44
RG 64	32	27	29	29	25	27	31
TG 35	27	21	34	28	28	21	41
TG 48	22	18	29	27	29	28	47
TG 50	33	24	25	20	19	17	62
TG 71	23	30	19	20	23	30	55
TG 77	19	16	31	24	25	34	51

Table 24

Sums of Ranks for High Adult Affiliation Boys for the  
Composite of Items Related to Each  
of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GB 11	26	22	34	30	22	24	42
GB 31	28	27	32	22	26	27	38
GB 42	29	15	28	29	29	28	42
GB 47	19	24	31	32	19	26	49
GB 55	25	24	29	20	29	31	42
RB 4	21	20	29	29	25	29	47
RB 10	26	28	33	28	25	22	38
RB 69	26	24	24	30	27	21	48
RB 79	20	16	37	34	19	29	45
RB 83	28	22	29	32	18	20	51
TB 12	24	22	30	29	26	22	47
TB 36	24	27	26	30	23	28	42
TB 39	22	30	25	28	27	26	42
TB 45	16	26	30	29	22	31	46
TB 57	32	25	23	27	24	25	44

Table 25

Sums of Ranks for High Adult Affiliation Girls for the  
Composite of Items Related to Each  
of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GG 2	28	26	17	27	27	19	56
GG 27	20	21	26	31	26	22	54
GG 52	17	27	33	36	27	22	38
GG 78	28	25	23	25	22	25	52
GG 79	25	18	22	31	26	25	53
RG 6	24	25	27	28	31	24	41
RG 28	24	28	30	33	24	29	32
RG 30	19	27	26	25	20	26	57
RG 42	25	27	32	26	20	17	53
RG 70	25	26	35	30	28	25	31
TG 9	24	24	27	21	25	21	58
TG 12	21	27	36	25	19	25	47
TG 46	26	26	33	23	22	22	48
TG 53	26	33	19	28	23	26	45
TG 64	30	32	27	26	20	18	47

Table 26

Sums of Ranks for High Peer Affiliation Boys for the  
Composite of Items Related to Each  
of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GB 1	18	21	29	37	22	28	45
GB 2	20	27	25	25	28	25	50
GB 3	31	21	34	28	18	24	44
GB 14	28	20	23	29	22	21	57
GB 36	23	20	28	30	23	25	51
RB 19	23	17	27	27	18	26	62
RB 26	23	25	25	23	27	23	54
RB 29	28	23	31	34	26	29	29
RB 53	20	27	20	15	28	24	66
RB 84	18	23	24	30	22	25	58
TB 11	21	25	21	25	24	35	49
TB 15	23	24	30	28	27	27	41
TB 38	21	19	36	24	23	27	50
TB 54	23	26	35	19	22	21	54
TB 83	17	31	20	25	23	27	57



Table 27

Sums of Ranks for High Peer Affiliation Girls for the  
Composite of Items Related to Each  
of the Motive Categories

Subject	C	SIS	U	CO	AA	PA	D
GG 3	21	24	28	22	17	22	66
GG 11	20	28	33	28	29	18	44
GG 33	27	24	31	29	22	23	44
GG 43	21	23	27	29	31	22	47
GG 72	21	26	36	32	20	26	39
RG 15	18	22	26	33	19	30	52
RG 46	22	22	25	22	21	20	68
RG 55	17	25	28	35	22	28	45
RG 58	25	27	24	18	18	28	60
RG 72	23	24	33	32	26	23	39
TG 3	25	24	25	19	26	23	58
TG 6	25	20	25	18	29	22	61
TG 8	22	24	22	39	27	27	39
TG 33	26	24	33	33	21	22	41
TG 66	25	24	35	30	26	28	32