CREATIVITY, SEX, AND FAMILY CONSTELLATION
AMONG PRESCHOOL CHILDREN

by

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STATEMENT BY AUTHOR

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This study focused on the creative performance of preschool children including the assessment of creativity and its analysis in terms of each subject's sex and family constellation.

The sample consisted of thirty four- and five-year-old children attending the Western Washington State College Preschool Laboratory. Information regarding the subjects and their families was gathered by a questionnaire. A battery of six creativity tasks, using verbal and visual techniques, was used to assess creativity in terms of fluency (number of responses) and uniqueness (number of original responses). The characteristics of the sample observed included sex, age, birth order, family size, ages and sex of siblings, occupations and education of parents, and nursery school experience. Characteristics common to the subjects with the ten highest creativity scores were discussed.

No significant differences in creative performance were associated with birth order and family size. The performance of females, however, was superior to that of males. The results suggest that differences between the sexes, whether developmental, cultural, or social, at the preschool level favor females when verbal creativity tasks are used. They further imply that differential treatment according to sex be discreet and that alternative aspects of creativity, such as nonverbal abilities, be investigated and encouraged.
CHAPTER 1

INTRODUCTION

A recognition that creativity is essential to the development of an individual and to the growth of his society has produced a widening interest in creativity in early childhood during the past two decades. While investigators have reached agreement in some areas, there still remain problems in defining, identifying, and fostering creativity.

Rhodes (1961) reports little research on creative ability until 1950 when J. P. Guilford, then president of the American Psychological Association, pointed out the dearth of research. He later noted, according to Parnes (1962) that before 1955 there was no research on programs for the deliberate development of creative imagination. International events, such as the Russian development of Sputnik, prompted concern for the ability of American youth to compete internationally. Educators began questioning their own aims and methods, and psychologists stimulated research into creative abilities.

In recent years, the necessity to stimulate creativity has been generally accepted among persons concerned with human behavior. Taylor (1964, p. 2) observes, "Creativity at its highest level has probably been as important as any human quality in changing history and reshaping the world."
For the individual, according to Henle (1964), creative thinking brings self-knowledge, an increased understanding of human problems, and the ability to examine goals and overcome obstacles. He says it aids the development of inner resources arising from meditation on one's own life, and produces increased freedom of choice and action.

Torrance (1965a) says that nothing can contribute more to the mental health and general welfare of a nation than raising the level of creativity, an effort, he stresses, that must be guided from birth.

For the preschool child, Smith (1968) says creative behavior is a safety valve allowing for the expression of feelings. She says creative behavior provides a worthwhile use for leisure time, gives satisfaction in work, and aids in learning.

Investigators have also stressed the crucial role environments play in motivating creativity. Following extensive studies, Rhodes (1961) concluded that environment always forms a "psychological press" that may stimulate or destroy creativity.

Commenting on environments which he says destroy creativity, Rogers (1962) asserts that schools tend to produce conformists and stereotypes. He says also that leisure activities are passive and regimented, that few scientific technicians have creative work, and that only top industrial executives are involved with creation. In individual and family life, Rogers believes, it is often considered "dangerous" to be original or different. He says the lack of creativity contributes to the maladjustment of the individual, tension within the group, and the perishing of a culture.
An environment designed to enhance creative thinking is described by Parnes (1962). In his extensive investigation, 350 students taking a creative problem-solving course at the University of Buffalo showed a 125 percent superiority over students who did not take the course. It was concluded that creative imagination can be deliberately developed, and that persons of average intelligence can benefit from such a course. Students also were reported to have gained in such personality traits as confidence and initiative.

Investigators agree that creativity is a personality trait which changes and which is facilitated or inhibited by some life circumstances which relate to creative behavior. This discrepancy demands research to determine which situations most significantly inspire creativity in each individual.

The Problem

Purpose

The purpose of the study was:

1. to assess modes of creative thinking among preschool children and

2. to investigate possible correlates of individual differences in creativity within the family constellation.

Null Hypotheses Tested

1. There is no significant difference in creative performance between first-, second-, and later-born children in the sample.
2. There is no significant difference in creative performance between male and female subjects.
3. There is no significant difference in creative performance corresponding to the differences in family size in the sample.

Assumptions
1. With few exceptions, creativity is a human quality possessed to some degree by every person of normal intelligence, not just by a chosen few, and can be increased through motivation and training.
2. Creativity is an attitude toward life, not just a new idea or product.
3. Creativity is of vital importance in a world characterized by rapid change and expanding knowledge.
4. Creativity occurs to some degree in all fields of work.
5. Creativity is manifested early in the life cycle. Its development depends on experiences in the social and physical world and the values of the cultural environment. (Torrance, 1962a).
6. The actual creative productivity of almost every individual falls short of his own level of creative capacity.

Definition of Terms
1. **Creativity** is the process of forming ideas or hypotheses, testing hypotheses, and communicating the results; the creation of something new, something which has never existed (Torrance, 1962a). Creativity is the forming of associative elements into new combinations which either meet specified requirements or
are in some way useful (Wallach and Kogan as cited in Smith, 1968). Creativity is the emergence of a new product growing out of the uniqueness of the individual on one hand, and the materials, events, people, or circumstances of his life on the other (Rogers, 1962).

2. **Family constellation** is the characteristic relationship of each member of a family to each other with different personalities emerging in the interchange of responses and influences among family members (Dreikurs, 1964). The specific variables determining this relationship include the sex, age, and ordinal position of each sibling.

3. **Ordinal position**, or **birth order**, is the position of the individual within his family constellation (Dreikurs, 1964). In the present study it is a discrete variable which classifies each child as first-, second-, or later-born in relation to his siblings.

4. **Separation** is the difference in age between the child and his sibling closest in age (Cicirelli, 1967). In the present study, separation is a discrete variable which classifies each child as separate, if there are more than five years, or close, if there are less than five years in age between himself and his sibling closest in age.
Questions Considered

1. Are there any differences in creative performance corresponding to the ordinal positions considered in this study, and, if so, what are these differences?

2. Does the sex of the subjects seem to make a difference?

3. Are there any differences in creative performance corresponding to the family sizes of the subjects, and, if so, what are these differences?

4. Are there any characteristics of the subjects' siblings, including separation and sex of siblings, which correspond to differences in creative performance?

5. Do related factors such as persons other than parents and siblings in the home, the subjects' preschool experiences, ages of subjects, occupations of parents, and educations of parents seem to make a difference?

6. Do the ten subjects with the highest scores in creative performance seem to have characteristics in common?
CHAPTER 2

REVIEW OF LITERATURE

The three areas to be covered are:

1. Creativity in early childhood—the nature of creative thinking, its early manifestations, environmental conditions which inhibit or facilitate creative thinking, and characteristics of creative persons;

2. Family constellation and the child—the impact of birth order, sex and ages of siblings, and family size on the intellectual and psychological development of the child; and

3. Creativity, family constellation, and sex of the child.

Creativity in Early Childhood

The Nature of Creative Thinking

The complexity of individuals and their environments has given rise to many approaches to defining and understanding creative behavior. Taylor (1962) says creativity depends upon many variables, each accounting for only a small part of the total variation in creative performance.

Rhodes (1961) defines creativity in terms of the "four P's", the person involved, the creative process, the press or relationship between the person and his environment, and the product being created. Bruner (1964) describes creativity as a placing of things in a new perspective. Harmon, according to Golann (1963), adds that the new creation must contribute to the solution of a problem. Gutman (1967)
stresses the influence of emotion in the creative process and says also that creativity involves spontaneous or automatic behavior as well as subconscious and non-verbal activity.

Detailing the creative process, Torrance (1962a, p. 32) defines it as "the process of forming ideas or hypotheses, testing hypotheses, and communicating the results." Initially, the individual senses difficulties. Then he forms ideas concerning the difficulties, tests his ideas, communicates the test results, and may modify and retest his hypotheses. This definition places creativity in the realm of daily living.

Several concepts or processes have been related to creative behavior. Torrance (1962b and cited by Arasteh, 1968) considers imagination synonymous with creativity. Arasteh says fantasy may be equated with imagination and that it involves day dreams and imaginative play in early childhood. Henle (1964) believes freedom from common meanings attached to objects, methods, and ideas is essential to creativity. According to Crutchfield (1964), creativity is nonconformity, being open to full reality, and breaking free from habitual thought and pressures to conform. Curiosity, says Arasteh (1968) is a motivating factor for the exploratory behavior which is part of creativity, and Thomas and Crescimbeni (1967) see creativity as a stage of sensitivity.

Early Manifestations of Creative Thinking

The earliest manifestations of creative thinking, says Torrance (1964), are the infant's manipulations of objects. Beginnings of creative thinking are seen in his facial expressions and his ways of
interpreting the facial expressions of others. Torrance believes that since the infant has no use of vocabulary, he learns mostly through creative behavior instead of authority.

In his observations of the imaginary play of children between two and six, Andrews (1930) found consistent behaviors such as imitation, experimentation, transformation of objects and animals, sympathetic acts, dramatizations, imaginary playmates, fanciful explanations, fantastic stories, new uses of stories, constructions, new games, extensions of language, leadership with plannings, and esthetic appreciation.

Smith (1968), in her study of creativity among preschool children, found a high correlation between the total originality and total fluency scores and discovered that children with imaginary friends scored significantly higher on creativity.

Analysts have pointed out the ambiguity in recognizing manifestations of creative behavior. Arasteh (1968) suggests many creative children are not seen as "gifted" because of low performance on IQ tests.

Environmental Conditions of Creative Thinking

Torrance (1967) comments that although heredity may determine creative abilities, the way in which these abilities develop is strongly influenced by environmental responses to a person's curiosity and creative needs. Torrance (1964, 1967) has observed cultural factors in the United States which he says tend to inhibit creativity. These factors are:
-sanctions against questioning and exploration;
-premature attempts to eliminate fantasy in young children;
-preventing very young children from learning what they are ready to learn;
-the separation of sensitivity and independent thinking into feminine and masculine virtues, causing children to shut out certain areas of awareness;
-the work-play dichotomy: work is not supposed to be enjoyable, yet learning is attained through work;
-an overemphasis on success which hinders the creative process of experimenting, making mistakes, and correcting them;
-peer pressures which encourage conformity; and
-the tendency to regard highly creative persons as abnormal.

Anderson (1965) also says creative behaviors occur in the absence of environmental threat or coercion. He says creativity is to live truthfully as one himself sees the truth, while to live according to how others see the truth is conformity. Jaqueline and Murray Straus (1968), in a study comparing creativity among children of India and the United States, concluded that a person can be creative only if his culture's rules permit originality, independence, and nonconformity. These views are supported by Guilford (1967) and are cited in "The Future Implications of Creativity Research" (1962), Torrance (1962a), Arasteh (1968), and others.

Parent-child relationships seem to be the most instrumental factor in fostering or hindering creative talents in children. Investigators have listed certain parental attitudes and characteristics which correlate with children's high creative performance.
Dreyer and Wells (1966) assert that parents of creative children respect and have confidence in children, sanction divergence of attitude and behavior, and avoid sex stereotypes. Weisberg and Springer (1967) favor encouraging a strong self-image in the child and not insisting that the child accept parental values. Arasteh (1968), on the other hand, says that freeing the child to create should be accompanied by definite standards of conduct and values.

There is some disagreement over the relation of criticism and creativity. Dreyer and Wells (1966) favor minimal criticism, while Paris (1940) says the greatest failures often come from families in which love and sympathy eliminate the criticism needed to improve performance. Getzels and Jackson, as cited in Sears (1969), concluded from their 1962 study that creative children's parents treated them with quiet affection rather than strong involvement and protection. Still another view is presented by Mole, as described in Sears (1969), whose 1966 study indicated that pressure toward achievement and independence had a positive influence on boys, but creativity and parental restriction were positively correlated in girls.

Characteristics of parents of creative children include, according to Dreyer and Wells (1966), open expression of feelings, emphasis on an active and manipulative approach to problem solving, and a concern for place in the community, every day interests, and emotional security. Weisberg and Springer (1967) say that creative children's parents fully express feelings, including hostility, toward each other and children, that neither parent dominates the other, and that the father is likely to have an autonomous occupation.
Researchers and educators have also suggested methods for stimulating creativity in the classroom. Torrance (1962a) encourages the following teacher attitudes and behaviors:

- Teach a child to value his own creative thinking and imagination.
- Develop a classroom atmosphere of "relaxed control."
- Make children more sensitive to environmental stimuli.
- Dispel the sense of awe of masterpieces.
- Provide for active and quiet periods, both of which aid creativity.
- Help the child to find answers to his questions, no matter how ridiculous or impossible they may seem.
- Create problems which necessitate creative thinking.

Thomas and Crescimbeni (1967) suggest teachers can promote creativity by helping children to find their own styles and methods of self-expression, to react to ideas or situations, to work without frustration, and to evaluate their own work.

Characteristics of the Creative Person

Along with defining creativity and environments which influence it, investigators have been concerned with personality, motivational characteristics, and intellectual characteristics that tend to identify the creative person.

C. W. Taylor (1962, 1964) found the creative person to be autonomous, self-sufficient, independent in judgement, open to the irrational in himself, stable, less sociable than average, interested in uncommon careers, dominant and self-assertive, complex as a person,
self-accepting, resourceful and adventurous, more radical (Bohemian), controlling of his behavior, and introverted but bold. Guilford, as cited in "The Future Implications of Creativity Research" (1962), has found that the creative person has an inquiring nature, broad interests, above average aesthetic and intellectual interests, and a high energy level; Medinnus and Johnson (1969) say creative persons are less anxious or defensive than others and are sensitive to others' feelings. A creative person, according to Rhodes (1961), is likely to be a late maturer and to have a quick humor.

In terms of motivational characteristics, Rogers (1962) suggests that a primary motivation for creative thinking is man's own tendency to actualize himself--to expand, develop, and mature. Taylor (1962, 1964) says the creative person is tolerant of ambiguity, likes to manipulate ideas, prefers complex order, wants to improve accepted systems, is willing to take long-range risks, is dedicated to work, and needs recognition. Creativity is at a high level, Crutchfield (1964) says, when creation itself is a pleasurable end rather than a means to an end.

Looking specifically at the characteristics of the creative child, Torrance (1962a) found creative second graders showed unpleasant behavior, little consideration for the group, little or no goal orientation or group identification, and little heed to less creative peers' leadership attempts. In the fifth grade, he shows more leadership attempts, but others see him as too scientific and domineering. Arasteh (1968) describes the creative child as an original thinker who is curious, playful, and honest in perception.
Considering the intellectual characteristics of the creative person, Taylor and Holland (1964) say researchers have found a low correlation between measures of creativity and measures of intelligence in young children. Terman, according to Rhodes (1961), found in a study that many children with high IQ's were not high in creativity. Torrance, as quoted in Arasteh (1968), has found correlations between creativity (using the Minnesota Test of Creative Thinking) and measures of intelligence to be low or moderately positive. Some investigators, Arasteh says, question whether creativity as measured by the MTCT is actually independent of intelligence.

**Family Constellation and the Child**

Dreikurs (1964) says the role of each individual in the family constellation influences family patterns and other siblings' personalities. Dreikurs (1968) suggests that the oldest child, threatened by the arrival of a sibling, may consider his position as the oldest to be his prime objective and feel secure only when he is first in what he does. The youngest child may compensate for his weak position by getting service from older family members. Dreikurs adds that there are many challenges between siblings, especially between first- and second-borns.

Birth order has long been considered an influence on human development, and discrimination in treatment between children of different birth orders has been observed. Yet, Jones (1933) says, it is likely that such treatment arises from economic and political
considerations rather than from beliefs that a member of any birth rank is superior.

A number of studies indicate first-borns are more likely to achieve eminence or have superior intelligence to younger siblings. In 1953, Anne Roe, as cited by Altus (1966), found that of the eminent scientists she studied, 72 percent were oldest sons. Altus (1966), Cicirelli (1967), and Jones (1933) report studies beginning at least 100 years ago which indicate that eminent persons and persons with high IQ's are most likely to be first-borns and next most likely to be last-borns. In his own study of University of California students, Altus (1966) found that first-borns scored higher on verbal intelligence tests, and first-borns from two-child families scored higher if the siblings were male.

Altus suggests that the superior intelligence of first-borns may be due to early differential treatment--greater dependence on adult norms and higher expectations. He adds that research has shown that birth order may be associated with aptitude if the population studied is quite bright; and there is some evidence that the sex of the sibling, if there is only one, may affect aptitude.

This relationship between a particular ordinal position and eminence or intelligence is not supported by other studies cited in Jones (1933) and Datta (1967, 1968). In her study of 536 male high school science students, Datta concluded that attainment was not associated with being first born. She also found no significant differences relating to family size, sex of siblings, separation from next
oldest sibling, and ordinal position of the subject. The only significant interaction was between position and separation—scores of subjects who were distant younger brothers were significantly lower than those of subjects who were distant older brothers, close older brothers, and close younger brothers. Datta suggests that earlier evidence of high achievement among first-borns is due to a lack of appropriate control groups. She also states that evidence from recent research comparing eminent and less eminent men is inconsistent.

In personality, Altus (1966) says first-borns are more verbal, curious, cooperative, and affiliative seeking. Medinnus and Johnson (1969) observe that recent research has indicated that first-borns are more susceptible to social pressures, more apprehensive in anxious situations, and exhibit a higher need for achievement. They say first-borns also possess stronger and more demanding superegos, identify and internalize parental authority, and may be more self-disciplined and inner directed.

Creativity, Family Constellation, and Sex of the Child

The results from research on the nature of the creative child as well as the nature of a child of a particular family position are inconsistent, yet they contribute to the understanding of early human development. Particular studies might associate certain characteristics of creative persons with environmental effects which are, in turn, found to typify a particular family constellation of a child. For example, some characteristics reported in creative persons, such as curiosity, giftedness, intelligence, independence, and self-discipline
have been said to typify first-born children. Other research might dispute this relationship or imply others.

There has been little research on relationships between creativity and family constellation particularly among young children. Cicirelli (1967) found no studies relating creativity to family size and age difference between siblings and only a few studies relating creativity to birth order.

As noted above, several investigators have found that "giftedness" in broad terms tends to appear more in only or first-born children while others have associated "giftedness" with creativity. However, research on creativity and birth order has produced inconsistent evidence. Eisenman, as cited in Cicirelli (1967), using a Creative Design Test, found first-born college art students less creative than later-born students. Koch, according to Cicirelli (1967), found originality to be unrelated to birth order among kindergarten children. Datta (1968) reports that first-borns tend to be over-represented among highly creative architects but not among creative industrial research chemists.

Cicirelli (1967) in a study of two-child families, found various interactions between sibling constellation factors and measures of creativity and achievement. On NVE (nonverbal elaboration), first-born children with brothers scored highest, second-borns were next, and first-borns with sisters had lowest scores. On IQ, first-born girls and second-born boys scored higher than second-born girls and first-born boys. Cicirelli concluded birth order is not related to creativity or achievement and that family size is not a significant variable.
Cicirelli also found in his study of two-child families that subjects with siblings of like sex scored higher on VFFO (verbal fluency-flexibility-originality) and VE (verbal elaboration) than subjects with siblings of like sex separate in age or subjects with siblings of opposite sex no matter what their ages. He notes, however, that Koch found no relation between sibling sex and teacher rating of originality among kindergarten children from two-child families. In three-child families, Cicirelli said children with brothers scored lower than those with at least one sister. He suggests the presence of more than one brother increases pressure toward non-intellectual activity.

Regarding creativity in terms of the sex of the child, Starkweather and Cowlings, as reported by Arasteh (1968), found preschool girls tend to conform to adult behavior, whereas boys may be either conformists or non-conformists. Torrance (1965a, 1967, and quoted in Arasteh, 1968) has found little difference in ability between boys and girls until age five. Thereafter, boys acquire ability in manipulating and experimenting, whereas girls excel in fluency of response. Torrance's third grade male subjects scored higher than girls on creative tests. After age ten, he said, girls consistently performed better than boys on almost every kind of verbal test of creative thinking.

The studies relating creativity to family constellation and sex of the child, however inconclusive, have revealed some statistically significant relationships which cannot be overlooked. It is intended herein, then, to investigate some of these relationships further by
looking at the nature of creative behavior in terms of a child's sex and family constellation within a sample of preschool children.
CHAPTER 3

PROCEDURE

Subjects

The subjects were 30 preschool children attending three sessions of the Western Washington State College Nursery School. The sample included only those four- and five-year-old children whose parents were both living at home, who were born in the United States, and who agreed to participate in the Creativity Tasks. Excluded from the sample were all only children and children determined incapable of responding to the tasks due to emotional or mental handicaps.

The following characteristics of the sample were taken under consideration:

- ages represented in the sample,
- sexes represented in the sample,
- birth orders represented in the sample,
- number of children excluded and reasons for their exclusion,
- occupations of parents represented,
- education completed by parents represented,
- nursery school or day care experiences of subjects,
- size of families represented in the sample,
- ages and sexes of the subjects' siblings, and
- other persons living in the subjects' homes.
The instrument, Creativity Tasks, used in this study to assess creative thinking was designed and used at the fifth grade level by Michael Wallach and Nathan Kogan in 1965 and adapted in 1968 for the kindergarten level by William Ward and for the preschool level by Linda Smith. Operationalizing creativity as the ability to produce many and many unique ideas, i.e., fluency and uniqueness, appropriate to a simple problem, they were concerned with measuring the number of unique responses and the total responses.

Wallach and Kogan's task battery consists of three verbal and two visual techniques. These are: instances--naming things that are round, square, make a noise, and move on wheels; alternate uses--naming ways to use common objects; similarities--telling likenesses between paired objects; and pattern and line meanings--naming things drawings and lines could be.

A selection of these tasks designed by Wallach and Kogan and related tasks adapted by Ward and Smith were used as the instrument in the present study. This instrument consisted of six verbal tasks using verbal and nonverbal stimuli and scored for uniqueness and fluency. The first two were verbal tasks, the second two were pattern meanings which were visual tasks, and the last two were alternate uses, also visual tasks.

1. In the first task the child was asked to name all the different things he could think of that are red.
2. In the second task the child was asked to name all the different things he could think of that make a noise.

3. In the third task the child was asked to name all the different things he could think of that the first drawing could be (Appendix C).

4. In the fourth task the child was asked to name all the different things he could think of that the second drawing could be (Appendix C).

5. In the fifth task the child was asked to name all the different ways he could think of to use the paper plate he was shown.

6. In the sixth task the child was asked to name all the different ways he could think of to use the cylindrical natural wood block he was shown.

The following criteria defined the setting for the administration of the tasks:

1. Each subject was familiar with the investigator and rapport was established between subject and investigator prior to testing.

2. The tasks were approached as a game.

3. All testing was on an individual basis.

4. Each child was familiar with the physical environment, and the location of the testing was constant.

5. The testing atmosphere was free of any time pressure or evaluation.

6. All communication was oral, and the tasks were open-ended with the child continuing to offer ideas as long as he could.
7. Each child was encouraged to continue with responses to a given task as long as he seemed motivated to do so. Only if a child indicated clearly that he was finished with a given question or the entire "game" did the experimenter turn to the next question or terminate the "game."

8. The administration of the tasks was completed in one sitting.

Collection of Data

In May, 1972, a pretest of the Creativity Tasks was conducted using seventeen children in a kindergarten class of Sunnyland School in Bellingham. The teacher of this class worked closely with the investigator in conducting the practice study.

The purpose of the pretest was to consider the following questions:

1. How will children of this age react to the investigator and the set of Creativity Tasks?

2. How important is the child's familiarity with the investigator and the environment?

3. What surroundings are most appropriate for the testing?

4. What characteristics of the children and what stimuli in the environment appear to influence their response?

5. How long should the instrument be, and what items should be included?

6. What language should be used by the investigator in administering the tasks?

7. What and how much reinforcement should be used?
8. How should the questions be varied, and what memorized and consistent statements should be used?

9. What non-evaluative statements should be used by the investigator to encourage participation?

10. How should the tape recorder be used?

The responses of the children in the pretest indicated that testing should be conducted in an area where distractions would be minimal, that the test should be cut from nine to six items, that the tester should be well known by the subjects, that the subjects should be encouraged to verbalize responses, and that the tester should use consistent, non-evaluating statements to encourage subjects' expression of ideas.

After the completion of the pretest, the present study was arranged in the following manner. Children from the three sessions of the College Nursery School participated in the study. As the director of two sessions, the investigator was well known by the children in these groups. An assistant from the third session was trained to test her children.

Before the study began, parents were asked permission for the participation of their children, and the study was explained to them. Relevant data regarding the child and his family was gathered by a questionnaire (Appendix B).

Testing took place when other children were not present. Before testing, the investigator established rapport through relaxed interaction with the child. She then suggested a game. Upon his
consent, the child was invited into the music area of the nursery school where game materials, a tape recorder, and instructional note cards were arranged.

Throughout the game, the investigator maintained a relaxed atmosphere free from time pressure. Unless in response to a specific question, she did not use language other than that in the instrument. At any point, the game was ended if the child requested it.

The investigator began the game as follows:

"(Name of child), this game that we're going to play is a talking game. Your part in the game is to think real hard and tell me all the ideas you can think of."

"Are you ready to start the game?"

Only when the child agreed to start the game did the investigator continue:

"OK, let's go!"

"In the first part of the game, I want you to think real hard and tell me all the things you can think of that are red. What can you think of that's red?"

The investigator asked only the following questions to stimulate responses:

"Tell me what you can think of that's red."

"What else can you think of that's red?"

The investigator responded to the child's ideas with the following statements:

"A (repeated the child's idea) is red."

"(Investigator simply repeated exactly what the child said)."

"That's an idea."

"That's another idea."
"You have some ideas."

"I can tell you are thinking."

The investigator used only these eight questions and statements to respond to the child's ideas prior to the termination of the task. The task was only terminated when the child indicated that he could think of nothing else that was red. To terminate the task, the investigator first asked:

"What else can you think of that's red?"

Only if she received a negative response from the child did she ask:

"Can you think of anything else that's red?"

Only if she received a negative response from the child did she ask:

"Shall we go on to the next part of the game?"

Only if she received a positive response from the child did she proceed to the next task. If the child indicated he had more ideas during the termination of the task, the investigator returned to the eight original questions and responses and the termination process had to be repeated in order to complete the first task and go on to the next task.

A negative response was defined as a nonverbal response indicating "no" (such as shaking of the head), a verbal response indicating "no", or no response at all to a question that was asked twice. For example, if the investigator began to terminate a task by asking, "What else can you think of that's red?", and there was no response, she repeated the question. If there was still no response, this was
interpreted as a negative response, and she continued to terminate the
task.

A positive response was defined as a verbal or nonverbal
response indicating "yes."

The remaining five tasks were administered in the same manner
with the investigator using specific questions and statements to stimu­
late the child's ideas. When the child indicated he had no ideas for
each task, the investigator began the termination process for that
task. When the sixth task was terminated, the game was completed.

The entire game was recorded on tape. If the child was inter­
ested, he listened to the tape when the game was over.

Reliability and Validity

The Creativity Tasks have acceptable measures of validity and
reliability based on reports of previous investigations by Wallach and
Kogan (1965), Ward (1968), and Smith (1968).

The reliability of the investigator's interpretation of the
data was determined by evaluations of independent judges who are
professionals in the field.

Treatment of Data

Responses to the Creativity Tasks were recorded on cassette
tape, then each response was printed verbatim on a card. The only
responses excluded were repetitions by the same child for the same task
and indefinite responses. The latter included responses which could not
be understood or when a child pointed to or indicated an object for an
answer without naming it.
To assure that creativity scores were not due to bizarre or inappropriate responses, cards with unique responses (any response to an item that was given by only one child) were given to two independent judges. Cards judged as inappropriate responses by both judges were eliminated from the data.

Tasks were scored for fluency (total number of responses) and uniqueness. A subject's total score is the sum of his total fluency and uniqueness scores.

Dependent variables are fluency, uniqueness, and total creativity. Independent variables are birth order, sex of the child, and family size.

Descriptive statistics were employed for the analysis and interpretation of the data. The central tendency of the creativity data, the variability of the scores, and the relationships between creativity, family constellation, and sex were considered. Since findings in which conditions were varied in more than two ways (as in birth order and number of children) were analyzed, the F-test was used in the analysis of variance. The characteristics of the sample based on the statistical analysis were examined. The null hypotheses were tested, and the answers to the questions asked in Chapter 1 were determined.
CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Out of the total enrollment of thirty-nine children in the three nursery school sessions used for the study, nine children were not included, according to the procedures prescribed for subject selection in Chapter 3. Of the nine, three were only children, two came from one-parent families, and one was a three-year-old. Three children were determined by their teachers to be incapable of responding to the Creativity Tasks due to language, emotional, or mental handicaps.

The raw data for the entire sample is listed in Appendix A in order beginning with the subject with the highest score. The characteristics of the sample are listed in Table 1 and averages for the sample are included in Tables 2 and 3.

Fifteen male and fifteen female children were included in the sample. The average age was four years, eleven months with an age range of one year, eight months. The average order of birth was 2.3 and the average family size was 2.6 children.

Only one child in the sample was separate in age from his sibling closest in age (see definitions Chapter 1); consequently, the question (page 6) concerning separation was not considered. Similarly, the question concerning the presence of other persons in the home was not considered since this applied to only one family.
### TABLE 1
CHARACTERISTICS OF SAMPLE AND TEN MOST CREATIVE SUBJECTS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Characteristic</th>
<th>% of Sample</th>
<th>% of Top Ten Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth Order</td>
<td>First-born</td>
<td>33.3</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Second-born</td>
<td>40.0</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Third-born</td>
<td>23.3</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Fourth-born</td>
<td>3.3</td>
<td>10.0</td>
</tr>
<tr>
<td>Family Size</td>
<td>Two-child</td>
<td>53.3</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Three-child</td>
<td>33.3</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Four-child</td>
<td>13.3</td>
<td>30.0</td>
</tr>
<tr>
<td>Sex of Sibling</td>
<td>Male</td>
<td>26.6</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>70.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Sibling</td>
<td>Same</td>
<td>50.0</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>Opposite</td>
<td>46.6</td>
<td>30.0</td>
</tr>
<tr>
<td>Father's Occupation</td>
<td>W.W.S.C. Faculty, Staff, &amp; Admin.</td>
<td>33.3</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Professional-Community &amp; College</td>
<td>53.3</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Professional-Community Only</td>
<td>26.6</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>Business &amp; Managerial</td>
<td>20.0</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Skilled &amp; Semi-skilled Labor</td>
<td>20.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Mother's Occupation</td>
<td>Housewife</td>
<td>90.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>10.0</td>
<td>-</td>
</tr>
<tr>
<td>Education</td>
<td>High School</td>
<td>6.6</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1-2 Years College</td>
<td>20.0</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>Completed</td>
<td>23.3</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>by Father</td>
<td>Grad. School or 5th Year</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Other (Ph.D.)</td>
<td>36.6</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>High School</td>
<td>23.3</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>1-2 Years College</td>
<td>20.0</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>Completed</td>
<td>43.3</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>by Mother</td>
<td>Grad. School or 5th Year</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>Other (beauty, art, nursing, tech. schools, etc.)</td>
<td>16.3</td>
<td>20.0</td>
</tr>
<tr>
<td>Preschool</td>
<td>0-1 Year</td>
<td>70.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Experience</td>
<td>1-2 Years</td>
<td>23.3</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>2 or More Years</td>
<td>3.3</td>
<td>-</td>
</tr>
</tbody>
</table>
TABLE 2
SEX REPRESENTATION
AND AVERAGE SAMPLE CHARACTERISTICS
BY SESSION

<table>
<thead>
<tr>
<th>Session(s)</th>
<th># of Males</th>
<th># of Females</th>
<th>Average Age (yr./mo.)</th>
<th>Average Birth Order</th>
<th>Average Family Size</th>
<th>Creativity Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6</td>
<td>6</td>
<td>5/4.7</td>
<td>1.80</td>
<td>2.6</td>
<td>73.17</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>4</td>
<td>4/3.4</td>
<td>2.10</td>
<td>2.9</td>
<td>98.86</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>5</td>
<td>4/11.7</td>
<td>2.00</td>
<td>2.5</td>
<td>56.55</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>15</td>
<td>4/11.8</td>
<td>1.97</td>
<td>2.6</td>
<td>73.07</td>
</tr>
</tbody>
</table>

TABLE 3
MEAN CREATIVITY SCORES FOR MALES, FEMALES, AND TOTAL SAMPLE

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td>36.07</td>
<td>69.27</td>
<td>52.67</td>
</tr>
<tr>
<td>Uniqueness</td>
<td>13.67</td>
<td>27.13</td>
<td>20.40</td>
</tr>
<tr>
<td>Total Creativity</td>
<td>49.73</td>
<td>96.40</td>
<td>73.07</td>
</tr>
</tbody>
</table>
Most of the subjects were first- or second-born and came from families with two or three children. Most of the subjects had female siblings closest in age. The tendency was for fathers to have professional occupations, mothers to be housewives, and both to have college educations. Most of the children had attended preschool or day-care programs for one year or less.

Data Analysis

The creativity scores for each subject from highest to lowest are listed in the raw data in Appendix A and mean scores are included in Tables 2 and 3. The mean creativity score for the entire sample was 73.07 with a range of 210 points. The mean score for females (96.40) was nearly twice that for males (49.73). The mean scores for sessions A and B are higher and the mean score for session C is considerably lower than the total mean.

The F values computed in the analysis of variance are listed in Table 4. The null hypotheses were tested against values of F at the 5% significance level.

Null hypothesis #1: There was no significant difference in creative performance between first-, second-, and later- (third and fourth) born children in the sample. Further computation showed no significant difference between first- and later- (second, third, and fourth) born children in the sample. No significant differences, then, correspond to birth order, and null hypothesis #1 was accepted.

Null hypothesis #2: An F value of 10.60, significant at both 5% and 1% levels, indicates a significant difference in creative
TABLE 4
VALUES OF F
FOR EACH NULL HYPOTHESIS TESTED

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>Significance at 5% Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth Order (first-born)(second-born)(later-born)</td>
<td>0.53</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Birth Order (first-born)(later-born)</td>
<td>1.025</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Sex (male)(female)</td>
<td>10.60</td>
<td>Significant</td>
</tr>
<tr>
<td>Family Size (two-child)(three-child)(four-child)</td>
<td>1.48</td>
<td>Not Significant</td>
</tr>
</tbody>
</table>

performance between males and females favoring female subjects. Null hypothesis #2 was rejected.

Null hypothesis #3: There was no significant difference in creative performance corresponding to the differences in family size (two-child, three-child, and four-child) in the sample and null hypothesis #3 was accepted.

In the sample studied, the only variable corresponding with creative performance was that of the sex of the subject. The creative performance of females was significantly higher than that of males. Ordinal position and family size made no difference in this sample.

Raw data for the ten subjects with the highest creativity scores can be seen in the Appendix and the characteristics of this group are shown in Table 1. The mean creativity score for the top ten
subjects was 120.2 (versus 73.07 for the sample). Seventy percent of this group (versus 50% of the sample) were female. The average age was four years, 10.7 months, close to that of the sample. The average birth order, 2.2, and the average family size, 2.8 children, were both slightly higher than the averages for the sample.

As compared to the total sample, the top ten subjects were more likely to be female, to have female (and same-sexed) siblings closest in age, to be from slightly larger families, and to be slightly later in birth order. They were more likely than the total sample to have fathers with business and managerial positions, to have housewives only as mothers, and to have no more than one year of preschool experience.

**Interpretations**

The interpretations of these results must be made with discretion due to the relatively small size of the sample. The obvious observation is the significance of sex in creative performance. The superior performance of female subjects on the creativity tasks suggests either that female subjects were, in fact, more creative than male subjects, or that the behaviors observed favored females over males.

The first suggestion, that the female subjects studied possess more creative qualities than the males, implies, according to our understanding of creativity, that the females were more independent, curious, imaginative, sensitive, and original than their male counterparts. If this is the case, it may be that creative abilities are related to the early development of females or to feminine
characteristics and behaviors in general. Differential treatment of children according to sex may also encourage more creative behavior in females than in males at an early age. Cultural influences such as success orientation, peer pressure to conform, the association of creative abilities with femininity or abnormality, sanctions against questioning and exploration, and misplaced sex roles may inhibit the creativity of male children more than female children. On the other hand, differential treatment of females may result in their efforts being valued more and their mistakes being more readily accepted while encouraging cooperation and verbal ability.

Before totally accepting this interpretation, it must be considered that these sex differences may be attributed to the nature of the creative acts used in assessment. Since each task was verbal, a more accurate conclusion would be to recognize the superior performance of females in verbal situations. As mentioned previously, Torrance as cited in Arasteh (1968) has observed that, after age five, boys acquire ability in manipulating and experimenting, whereas girls excel only in fluency of response. This, along with our emphasis that creative expression has many manifestations, suggests that our results might be different in other creative situations including non-verbal and manipulative behaviors.

Our results, then, suggest that female subjects were significantly more creative than males in verbal situations, which may indicate further, due to cultural and developmental influences and differential treatment of the sexes, that language skills and verbal
behavior are developed more in females than in males at the preschool level.

**Limitations**

Based on the observations of the investigator, there were several limitations to the procedures and the results of the study.

**Individual Differences Between Testers**

The mean creativity scores for sessions A and B, where the creativity tasks were given by the investigator, were both higher than the mean creativity score for session C, where the creativity tasks were given by an assistant (see Table 2). Although these differences may well be attributed to other factors, it is possible that individual differences between administrators of the tasks may have affected the responses of the children without being obvious or easily controlled. Subtle differences as in mood and enthusiasm, the occurrence of encouraging smiles, the pace established, basic personality, and overall eagerness to solicit responses may have encouraged responses of greater fluency and uniqueness from the first two sessions. In the same manner, such differences in the performance of one tester may have occurred from one testing situation to the next.

**Individual Differences Between Subjects**

Other variables difficult to control arise from the individual reactions of children to the testing situation which may have influenced their scores. It is predicted, for example, that a shy, low-verbal, unaggressive child might score much lower on creativity tasks
of this nature than a relaxed, highly-verbal, aggressive child, regardless of creative ability.

One child, who finished with a low creativity score, appeared uninterested in giving ideas while responding to the tasks. "I give up," he sighed after giving several responses to a task, as if we were looking for one "right" answer. When the tasks were terminated, he instigated his own "game" using the flannel board and demonstrating spontaneous and imaginative behavior in an uncontrolled situation. He was much more eager to play his own "game."

Another child, who appeared very verbal and enthusiastic toward teachers in the nursery school, was less comfortable during the tasks and said that the game was hard. His responses were few in number yet reflected his own ideas. He seemed more likely than the others to think hard about each answer.

The child with the highest score seemed to be one of the most talkative children and occasionally took ideas from objects observed in the room. The youngest subject was restless, needing to keep his hands and feet busy, and seemed to have a short attention span. He asked to stop the game after the second task.

It is suggested that other factors such as the sex of the investigator, time of day, distractions within or outside the room, the child's physical health and alertness, his mood, and his anticipation of parents or siblings may have influenced his responses to the tasks.
Limited Vocabulary of Preschool Children

The language development of four- and five-year-old children may have affected their creativity scores. A common response was for a child to point to objects in the room saying, "that (this) is red (makes a noise, etc.)." While some of these responses indicated careful forethought, others appeared random and irrelevant, mere pointing to objects in sight. Without the subject naming the object required that the investigator probe with further questions, intervene with her own interpretations (name the object), or eliminate the response. In order to maintain consistency in procedure, these ambiguous responses were eliminated. This likely affected the score of one subject who, for the first task tended to point to objects in the room saying, "that's red, part of this is red, this looks like it's red, this is pinkish-red, so is this... etc."

Occasionally, a subject gave responses for a task that was similar yet worded differently, thus increasing his creativity score. For example, one child gave the following similar responses to the red task: "a flag," "the flag at Bellingham," "a red maple leaf flag."

A child on occasion gave a unique response simply by wording it differently than another child. For example, several subjects named "fireplace" while only one child named "chimney" in response to the red task. Thus, "chimney" became a unique response while "fireplace" did not, although it is suggested that both responses were stimulated by the existence of a fireplace in the room. Similarly, a child having difficulty naming or describing something might word it differently than another, with chances of gaining a unique response. For example,
several children named the tape recorder button in response to the red task, while another child, gazing at the same button, said, "a thing you push down." Other examples are:

"If you take this chair to somebody's house and this was the lid, you could put it over here" (block task),

"This very top thing that goes down here looks like the bottom part, here looks like the head" (drawing #1 task),

"A point to show where there's not a dead end" (drawing #2 task), and

"Taking off something that you don't want it there" (noise task).

Since there is risk in influencing the data with the interpretations of the investigator, some responses were not creditable. One limitation, then, to the verbal testing of preschool children is the extent to which we may be measuring their language development.

Definitions of Frequency and Uniqueness

Evident in the preceding limitation, the operational definitions of frequency and uniqueness provide no measures of the quality of a response. A series of closely related responses (flowers, tulips, roses, etc.) to a single task carries the same weight as a series of distinct responses (apple, drum, chair, shirt, etc.) Similarly, some responses given by only one child to a task appeared more unique than others. There was no assurance that a child whose responses were more original, distinct, and deliberate would receive a higher creativity score.
CHAPTER 5

SUMMARY AND CONCLUSIONS

The purpose of this study was to assess the creativity abilities of fifteen male and fifteen female preschool children attending the W.W.S.C. Preschool Laboratory and to investigate possible correlates of individual differences in creativity within family constellation. The sex, age, birth order, family size, sex of sibling closest in age, occupations and educations of parents, and preschool experience were considered.

Creativity was assessed in terms of the ability to produce many, and many unique, ideas in response to a battery of six verbal creativity tasks used by Wallach and Kogan, Ward, and Smith. Relevant data regarding the child and his family was gathered by a questionnaire.

Conclusions

Two of the null hypotheses tested were supported when no significant differences in creative performance were associated with birth order and family size. One null hypotheses was rejected when significant differences in creative performance were found between male and female subjects. The creative performance on verbal creativity tasks for females was significantly superior to that of the males.

As compared to the total sample, the ten subjects with the highest creativity scores were more likely to be female and to have
female siblings closest in age. They were more likely to have fathers with business and managerial positions, to have housewives only as mothers, and to have no more than one year of preschool experience.

It is suggested that developmental and cultural influences and the differential treatment of young children according to sex, or the use of verbal tasks, may have favored female subjects in this study.

These results agree with the research findings of the following investigators:

- Andrews, as cited in Arasteh (1968), who found that girls reach a high point of imagination one year earlier than boys at the preschool level;

- Torrance (1967, and cited in Arasteh, 1968) who found sex differences in creativity particularly after age five, with girls excelling in fluency of response; and that after age ten, girls in the U. S. performed consistently better than boys on almost every kind of verbal task of creative thinking;

- Datta (1967 and 1968), who found no correlation between family constellation, including birth order and family size, and both early scientific attainment and potential scientific creativity;

- Koch, as cited in Cicirelli (1967), who found teacher ratings of originality unrelated to birth order at the kindergarten level;

- Cicirelli (1967), who observed that recent studies do not support the superiority in creativity of first-borns as was suggested in earlier studies of eminence, and who found that no studies relate creativity to family size.

Although his investigation found differences in creativity related to some combinations of birth order and sibling sex in two-child families, Cicirelli (1967) concluded that birth order did not appear to be an important factor in affecting creative ability and achievement.
The results of this study are not compatible with earlier investigations that relate birth order, particularly first-borns, to such traits as intelligence, achievement, and "giftedness" in broad terms (Altus, 1966; Cicirelli, 1967; Jones, 1933).

**Recommendations**

Based on the results of this study, it is suggested that the following questions be considered in further studies related to creativity, sex, and family constellation.

1. Are there differences in creative performance among preschool children corresponding with these factors:
   - sex of the investigator -- male versus female administrator of tasks,
   - sex of siblings -- all male versus all female,
   - birth order in one- and two-child families -- only child versus first-born versus second-born,
   - birth order in large families -- first- or second-born versus fifth- or sixth-born,
   - family size -- small (1-2 children) versus large (6-10 children),
   - separation of siblings -- close versus distant,
   - occupation of father -- professional versus business and managerial versus skilled and semi-skilled labor,
   - occupation of mother -- working mother versus housewife only,
   - experience in preschool programs -- no experience versus a year or more?

2. How is the creative performance of preschool children assessed in non-verbal and manipulative situations and how does it differ from verbal situations?
3. Does the differential treatment of preschool children according to sex correspond with creative performance?

Following the experience of assessing creativity at the preschool level and the subsequent results, the following recommendations are made for parents, teachers, and all who have an impact on young children.

Avoid misplaced emphasis on sex roles: We need to discourage in ourselves and in children the sex-related peer group and social pressures which inhibit creative expression in children. Both the creative traits associated with masculinity, such as independence, dominance, confidence, risk-taking, and tolerance of ambiguity, and the creativity traits associated with femininity, such as sensitivity, fantasy, verbal expression, and aesthetic appreciation, should be recognized and supported in all children.

Encourage all manifestations of creativity: We need to provide many more opportunities and ways for children to explore, express themselves, ask questions, and solve problems without limiting them to one or few forms (such as verbal or visual) of creative expression. We must be cautious in interpreting manipulation, exploration, and imagination as mess-making, silliness, or discipline problems.

Use discretion in assessing and labeling creativity in children: Since it is observed that sex typing can occur at the preschool level, it is important not to limit our analysis of creativity
to the usual activities such as painting, drawing, dramatic play, and music, which may be favored by females or at least avoided by some children. Our measures of creativity must recognize that each creative expression is as unique as its creator.
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APPENDIX B

QUESTIONNAIRE

This questionnaire concerns your child presently enrolled in the Western Washington State College Nursery School. It will be used as confidential material in the investigator's graduate research. Please answer all the items as accurately as possible and return the questionnaire to Kathleen Rhea at the Nursery School. If you do not wish to complete the questionnaire, its return with comments would be appreciated. Thank you.

PLEASE FILL IN THE APPROPRIATE INFORMATION FOR THE FOLLOWING:

Name of child __________________________________________________

Sex ______________________

Birth Date ______________________

Country of Birth ______________________

Name(s) of Parent(s) __________________________________________

Phone ______________________

Father's Occupation ______________________

Mother's Occupation ______________________

PLEASE CHECK THE APPROPRIATE RESPONSE FOR EACH OF THE FOLLOWING:

Highest Education Completed by Father:

_____ eighth grade or less
_____ two years of high school
_____ high school
_____ one or two years of college
_____ college
_____ graduate school
_____ other: ______________________
Highest Education Completed by Mother:

_______eighth grade or less
_______two years of high school
_______high school
_______one to two years of college
_______college
_______graduate school
_______other: _______________________________________

Are both parents living in the home?  yes  no

For how long has your child been attending nursery school or day care programs?

_______years  _______months

PLEASE CHECK OR FILL IN THE APPROPRIATE RESPONSES FOR THE FOLLOWING:

List all your children in order of birth. Indicate sex, age, and birth date of each child and whether he is presently living at home.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Birth Date</th>
<th>Living at Home?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First born</td>
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<td></td>
</tr>
<tr>
<td>Second born</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Third born</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth born</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fifth born</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sixth born</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List all persons other than above mentioned parents and children living in your home. Indicate the relationship to the nursery school child, sex, and age of each person.

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Sex</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
APPENDIX C

DRAWINGS FOR TASKS 3 AND 4

Drawing #1 (for Task 3)
Drawing #2 (for Task 4)
SELECTED BIBLIOGRAPHY


"The Future Implications of Creativity Research." (From a one-day symposium co-sponsored by Los Angeles State College and the Chouinard Art Institute, Huntington Sheraton Hotel) Pasadena, March, 1962.


