

THE RELATIONSHIP OF CREATIVE EXPRESSION IN  
EARLY CHILDHOOD TO SOCIAL ACCEPTANCE  
BY PEER GROUPS

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## CHAPTER I

### INTRODUCTION

This study is a small part of an on-going investigation which is seeking ways to discover creatively promising persons at an early age. It is also part of the attempt to promote the development of creative potential and to preserve those qualities which are precious to the individual and to the health of society.

That our society needs to broaden its encouragement of creative behavior is generally accepted, for man requires flexibility and originality in problem solving in an environment that grows more complex, that is changing rapidly, that offers more choices for the individual on the one hand, and paradoxically, for some, less choice in a world of specialization.

The particular purpose of this study is to investigate the relationship between the social acceptance of the preschool child in his peer group and certain characteristics usually associated with creative behavior, namely, flexibility and originality. The basic assumption of this study is that creative behavior or potential creativity is related to and influenced by social interaction.

## Characteristics of Creative Personalities

Because of the complicated nature of the subject, there is no such thing as an entirely accurate description of the characteristics possessed by the creative person, just as there is no rigidly adhered to definition of creativity itself. However, it is possible to collect from the literature a compilation of characteristics which are referred to by a majority of the writers as essentially common to human beings who are considered creative. The present study does not attempt to describe creativity per se, but in a narrow sense, it does describe a large part of creativity when it describes creative personalities.

Sensitivity to potentially creative children is sometimes difficult, inasmuch as so-called non-creative children may possess many of the same characteristics. Nevertheless, descriptions of characteristics possessed by the creative person do provide important clues for recognizing these children and their problems as well as for understanding some of the reasons behind their personalities and their behavior. This understanding enables us to provide more effectively for the unfolding of their abilities. (Torrance, 1962).

From the theoretical discussions concerning creativity comes this observation, either directly or indirectly, that the infant's reaction to his environment is also a basic reaction of those persons who behave creatively. From the beginning, given the intelligence and opportunity to do so, the infant explores, manipulates, and



experiences his environment freely and without fear of the unknown. Schachtel (1959) speaks of the infant as not only possessing the capacities for active searching for satisfaction, and active discovery and exploration, but asserts that the infant enjoys these active capacities. Both Maslow (1959) and Barron (1963a), when speaking of creative adults, use the term naive, meaning the child-likeness that permits the person to remain free from stereotyped or cliché responses in thought or action. Maslow's use of the term second naiveté, which he attributes to Santayana, involves a combination of innocence of perception and expressiveness with sophistication of mind. Rogers says, similarly, that the creative genius may be at once naive and knowledgeable. He also maintains that the human organism exhibits an actualizing tendency that "involves movement toward new experiences for its own sake, which is so evident in the infant . . . It is a trend toward autonomy, the increased control of events, and away from heteronomy, the control by events." (Rogers, 1965, page 22).

Other writers use phrases such as "openness to environment" in describing the characteristics of creatively functioning persons. Originality has been thought of as being the broad base for creative behavior, but the suggestion frequently appears that originality itself rests upon an even broader base, namely, openness to environment and experience. It is assumed that in order to express originality and display flexibility one has to be open to his environment. (Guilford, 1950; Maslow, 1959; Rogers, 1959; Getzels and Jackson, 1962;

Barron, 1963b, 1963c; Kneller, 1965; Torrance, 1967).

From the broad base of openness to environment and experience, the original thinker does not reject new ideas, and he is able to tolerate ambiguities when they exist. These ambiguities may act as thesis and antithesis, combining to form synthesis, perhaps as an artist may combine supposedly clashing colors, forms, and textures to create a new art form. Originality enables a person to by-pass the obvious, the ordinary, or the conventional and to make remote associations. Guilford (1950) has speculated that originality is an unconventionality that predisposes the individual not to perform in the usual or the popular manner, but to prefer idiosyncratic ways of behaving.

The creative person, in his search for truth, does not have a compulsive-obsessive need for certainty, safety, definiteness, and order. Maslow (1959) speaks of the creative person (self-actualizing), as being positively attracted by the unknown, the mysterious, and the puzzling, and if the situation calls for it, as being "comfortably" disorderly, sloppy, vague, or inaccurate. These latter traits have been noted in the creative school-age child who is often known to submit work that is slapdash and untidy. (Kneller, 1965). For the world of work and school, this presents a problem. For practical reasons, the comfortably disorderly person is not easily accepted. The person who is recognized as truly creative does not particularly mean to offend others around him, but is generally known to possess more

confidence and independence of ideas and attitudes than those who defer to the ideas of the group. He is less rigid in personality and has less need to seek the security and acceptance of either the teacher or the group. Kneller (1965), who has compiled a consensus of opinions concerning creative behavior, feels positively that the creative person maintains a balance between group-centeredness and self-centeredness. In speaking of the non-conforming behavior which may be exhibited by such a person, he states:

Unlike the counter-conformist, he is unconventional, not for his own sake, but sufficiently attuned to the ideas of others so he does not lose touch with the thinking of his society. (Kneller, 1965, page 67).

In school, the creative student apparently is less adjusted to his peers than is the average pupil because he is more interested in ideas than in popularity. (Torrance, 1962; Getzels and Jackson, 1962; Guilford, 1967). He is more critical of others and is often considered moody, largely because of another characteristic creative people are said to possess, which is the ability to have easy access to his own emotions. (Rogers, 1959; Barron, 1963a; Kneller, 1965). The creative student can afford to "regress" and yet return quite rapidly to a high degree of rationality, "bringing with him the fruits of his regression to primitive and fantastic modes of thought." (Barron, 1963a, page 223). In addition to other descriptions of dichotomous thinking and behavior exhibited by the creative person, Barron adds that he is "both more primitive and more cultured, more destructive

and more constructive, occasionally crazier and yet adamantly saner than the average person." (Barron, 1963a, page 224). Kneller seems to sum up these ideas when he states that "even today men of learning are apt unthinkingly to characterize certain persons of marked creative ability as just a little 'touched', a little 'queer', so greatly do these persons deviate from accepted norms of human behavior." (Kneller, 1965, page 21).

The so-called dichotomous behavior and thought of the creative person is directly related to his ability to be flexible. Flexibility is a vital part of being open to one's environment. There are any number of descriptions of flexibility. (Goins, 1962). For the sake of brevity, the writer will say that, functionally, flexibility may be described as being free to change and being free from sluggishness of response in any given situation. This is very much related to openness to environment. Guilford (1950) describes this quality when he says the creative person has the freedom "to roam around in thinking from category to category," and to restructure interpretations and approaches to problem solving.

Guilford (1950) holds that the creative person is highly sensitive to problems, whether it be an appliance or a social custom that he notices as defective. The creative person is not satisfied with things as they are, and his sensitivity to problems has as its function that of getting the creative thinker started. This is in contrast to those people who do not notice defects or are content with the status quo.

Similarly, Maslow (1959), when describing what he calls self-actualizing creativeness, speaks of a special kind of perceptiveness, exemplified by the child in the fable who saw that the king had no clothes on.

In his awareness, the creative person notices more possibilities of cause and consequence. This enables him to have a better sense of humor than other people. (Getzels and Jackson, 1962; Kneller, 1965). In combination with the characteristic of humor is the characteristic of fluency, which is described by Guilford (1950) as verbal, associational, expressional, and ideational. In social interactions, fluency is especially important if one is to communicate with others effectively.

In discussions concerning the creative school age child, other problems are noted. The creative child fails to fit the average American teacher's conception of the ideal student. It is commonly felt that teachers tend to prefer high IQ students, and this group may or may not include the creative child. (Schachtel, 1959; Getzels and Jackson, 1962; Torrance, 1967). Probably the reason for the teachers' preference is that the creative student's "tentative and spontaneous ideas are frequently harder to assess than the less original but also more finished work of less creative students." (Kneller, 1965, page 70). Another disturbing factor is that the unconventionalities of this independent spirit are at times carried out without official permission. He may prefer to work alone, insist upon setting his own pace, and may become restless in school routine. His unpredictability

makes others uneasy. In short, it can be more difficult for the teacher to control a creative student, if this is the nature of her relationship to her students.

As implied earlier, one of the major problems concerned with expressions of originality lies in the reaction or feedback of one's society or peers. "To be original or different is felt to be 'dangerous.'" (Rogers, 1959, page 70). Evidence of this feeling can be found in the simplest aboriginal society where the introduction of new ideas has been extremely rare because of the fear of deviation from "tried and true" millenia held beliefs and customs. Stronger evidence of this fearfulness can be seen when one considers the Capone and Hitler eras, when creative genius flowered in quite different directions from that which we are seeking when we speak of creative behavior.

The human being, by virtue of his social nature, is oriented toward the judgements of others regarding his personal and social worth. He depends on these judgements. He cannot form a conception of himself independent of these judgements. And when he fails to be concerned with such judgements, he tends to become marginal and deviant, often with considerable harm to his own sanity. (Tumin, 1962, page 107).

### Social Relations

Social relations has been succinctly defined by Adams (1967) as essentially a descriptive concept referring either to the interaction of two or more individuals or to the influence of one individual upon another.

Traditionally, the concept has been subdivided into fairly major categories of behavior. Four categories are frequently used: (1) behavior that is influenced by the presence and/or the behavior of other persons (e. g. , various forms of behavior subsumed under the label of "social reinforcement"); (2) behavior that is aimed at influencing other people (e. g. , a child's dominant behavior in a free-play situation, or "showing off" antics when company visits the home); (3) behavior associated with and peculiar to membership in identifiable groups (e. g. , interaction patterns as affected by group size, group composition, use of materials, physical facilities, and the like); and (4) behavior that is directed or controlled by organized society and its institutions (e. g. , family, church, school). (Adams, 1967, page 397).

### Social Relations and Creativity

The goal of social development has been one of allowing the child to move as gracefully and as unobtrusively as possible in relation to others. For self-preservation alone, good social relations can be stressed as a practical matter and as vital to the emotional health of the individual. To function well in society is a basic need of the creative person just as it is of others. Other people are an integral part of the creative person's environment; and if this environment suffocates his creative impulses and gives him a feedback of poor self-conception, it will guide him toward poor mental health. (Rogers, 1965).

The way in which an individual experiences social relationships is an essential factor in the nurturance or stifling of creative behavior. Some writers, e. g. , Maslow (1959) and Erikson (1963), believe the basic needs for physical care, affection, security, and

self-esteem must be met before creative behavior can emerge. Disagreement with this belief occurs when creative behavior is thought of narrowly in terms of creative genius and creative product-producing. For instance, Haimowitz (1966) points out that an enormous number of outstandingly creative persons in science, art, and politics did not have their needs cared for in childhood. He cites examples of creative genius which flowered in spite of the damage of broken homes, poverty, and lack of parental love. This evidence gives rise to the belief that some individuals are creative in order to compensate for their losses. This writer maintains that such creativity does not occur in a vacuum, but that in order for the creative person to be able to function as he does, other people must recognize and react to him at crucial times, and also that unless the creative person communicates with others, he is not recognized as being creative.

The present research is concerned with the creatively functioning, self-actualizing person and not with the person whose special-talent creativity manages to emerge from incredible circumstances.



## CHAPTER II

### REVIEW OF LITERATURE

In the review of literature for this study, the discussion of social relations is confined to the following sections: (1) research emphasis, a discussion of studies which focus upon social development and popularity; (2) research techniques, a discussion of observation methods and sociometric testing; (3) criteria for sociometric tests; and (4) implications for the present research.

#### Research Emphasis

##### Social Development

In the bulk of the early studies of social relationships, the emphasis centered upon the sequence of social perceptions and responses as related to the chronological age, mental maturity, and sex of the child. A common finding of these studies was that increases in age, experience, and mental maturity produced more varied and complicated social interactions.

In a study of children ranging in age from six to 25 months, Maudry and Nekula (1939) observed that as age and experience increased, types of play changed from the impersonal and socially blind to the more social. The shift from impersonal to social play was observed in the children's responses to play materials and play

partners. The youngest of those who were studied treated play partners in much the same manner as they treated play materials. At ages nine to 13 months, each child responded to play materials first and then responded negatively to his play partner, who represented an obstacle. At ages 14 to 18 months, with less conflict than previously, the child gave attention to the play partner when the desire to play with materials was satisfied. Finally, at ages 19 to 25 months, the child's play interest centered on personal play with the partner. In this last phase, play materials became the means for establishing positive social relations rather than being the source of conflict.

Changes in play activity and in orientation to peers have been observed as children grow older. Parten (1933) studied children between the ages of two and five years, and found that more time was spent in associative and cooperative forms of activity as age increased. Hagman (1933) found that as children grew older, there was a decrease in dependence upon adults for emotional and social support and a corresponding increase in peer orientation. Heathers (1955) supported these findings.

There is general agreement that social relations are affected strongly by emotional behavior, and that the reverse is also true. The expression of emotion is not limited to verbal ability. It is shown physically as well, by such important indicators as facial expressions and gestures. Smiling, as an example, serves a universal function as a positive greeting, while frowns, quarrelsomeness and

aggressive behavior are generally perceived negatively.

Several investigators have been interested in the effects of anger and aggression on social relations. In a study of quarrelling among preschool children, Green (1933) found that boys had more conflicts than girls, and that close friends were the most quarrelsome. The investigator surmised that close friends probably quarrelled most because the amount of time they spent together provided more opportunities for conflict. Boy-boy friendships were more quarrelsome than were boy-girl friendships; and girl-girl friendships were the least quarrelsome. An age difference noted by Green was that children under 30 months of age were least often the aggressors and tended to rely upon physical behavior rather than using verbal behavior in their disputes.

In another analysis of the quarrels of preschool children, Dawe (1934) found that boys had more social conflicts than girls. This sex difference was attributed to the tendency in our culture to reinforce assertiveness in males and passivity in females. This study revealed that the number of conflicts between children declined with increases in age, but that the duration of conflicts increased. The decrease in conflicts was accounted for by the increase in the child's verbal ability, by his ability to delay gratification, and by the negative reinforcement he was given for quarrelsomeness. Dawe also found that younger children initiated more quarrels, but that older children became more aggressive during their quarrels. She accounted for

these differences by the cross purposes displayed by older children in their planning more elaborate play activities and by the more complicated nature of their differences of opinion.

Dunnington (1957) found that highly aggressive children had low peer status. She also discovered that aggression shown by popular children was accepted by peers, largely because it was felt to be appropriate and understandable in the context of a given situation, and therefore, was less threatening.

In a longitudinal study of four semesters' duration, Emmerich (1964) found that the nursery school children had learned by the fourth semester that assertiveness was better than aggression. The average age of the children at the beginning of this study was 37 months. As the children became older and more experienced, they showed greater awareness of the reactions of others, and they became primarily oriented toward other persons and groups.

These studies of preschool children's conflicts and aggressive behavior have shown that with greater command of language, a child has substitute ways of channeling or redirecting hostile and aggressive behavior.

### Popularity

Popularity, or social acceptance by one's peers, has been the concern of many researchers. Their studies have focused upon the problem of locating the popular and the unpopular or unnoticed child within the peer group; and logically, their next concern has been to

discover why the child occupies a certain social position. There appears to be a relationship between popularity and friendliness. A positive relationship has been found between nurturance-giving and social status within a peer group. The child who is nurturant is high in social status, while the child who is socially dependent upon adults is rated low in social status and social participation. (Waring and Knowles, 1954; Marshall and McCandless, 1957; Moore and Updegraff, 1964.)

In an extremely detailed and careful study of kindergarten children's social relations, Waring and Knowles (1954) discovered that the children who were high in social acceptance were of a nurturant nature. These children cared about their peers, knew what would please them, tried to make others happy and were able to share more readily than other children. The children who were moderate in social acceptance were neutral about their peers, but happy to be with them. As long as these moderates were happy, they were glad to have others be happy as well. These children were described as easy going and busy with their own activities, offering little help or hinderance to their peers. When interfered with, these moderate children displayed little defensiveness. In sharp contrast to these two categories were the children considered low in acceptance. Low-acceptance children looked upon their peers as opponents. They kept their peers from doing what they wanted to do, and did whatever they could to make their peers unhappy. They got peers into trouble, hurt

them, and generally took pleasure in the unhappiness of others.

Most studies of peer acceptance suggest that the adults in a child's life play a crucial part in his social relations, and support the view of Waring and Knowles that a child who does not like others cannot get along with others. Beyond this belief, Waring and Knowles hold that with enough planning and help from their adults, children can learn to like others.

Underwood (1962) was concerned with the social value of a child rather than merely his popularity. She compared two sociometric tests in order to measure two aspects of the social value of a child to his peer group. One test was designed to measure a child's desire to benefit others, and the second test was designed to measure a child's desire to associate with others. Underwood concluded that individuals may want to benefit others they do not wish to be near or with whom they do not wish to associate; that is to say, a child's social value for another does not necessarily indicate his desirability as a companion or a playmate.

The investigations of Curd (1967) and Ferguson (1967) were also concerned with more than just popularity. Both studied the relationship between reciprocated social choices in peer groups and personal and social adjustment. No relationship was found in either study.

## Research Techniques

### Observations during Free Play

The most commonly used observation method in studies of the social relations of preschool children is time-sampling in which social interactions are observed and recorded during free play time. The observations are made at brief intervals over a time span of days or weeks or longer. The samples of behavior are recorded in either diary or anecdotal fashion, or they may be coded according to predetermined categories at the time the observation is made.

Dawe (1934) used a time-sampling technique in her study of preschool children's quarrels. She recorded the observations in diary form and then coded the data according to the nature, frequency, and intensity of the conflicts. She then analyzed the conflicts by age, sex, IQ, height, weight, and national background of the children, by nursery school group differences, and by the role of the adult in each conflict.

In a study of the development of social behavior, Emmerich (1964) observed a group of nursery school children during free play situations. He used five-minute time samples of social relations in the group. These were recorded throughout the investigation over a period of approximately two years.

In a study of the social play of preschool children, Parten (1933) coded all aspects of the children's behavior on a predetermined scale of social involvement, defined as follows: (1) unoccupied,

(2) solitary, (3) onlooker, (4) parallel, (5) associative, and (6) cooperative. Each dimension was coded in degrees from minimum to maximum. These data were then analyzed for the relationship between age and degree of social involvement.

#### Observations in Structured Situations

In contrast to time-sampling during free play, some investigators have studied children's interactions in structured situations which were designed to elicit specific kinds of behavior. As an example, Maudry and Nekula (1939) studied the sequence of social development in early childhood by pairing children of approximately the same age in a playpen and then observing their responses to specific situations. Each observation was four minutes in duration. During the first four-minute session, the children were left alone with each other without play materials in order that their reactions to each other could be observed. During the next four-minute session, each child was given a hollow cube, while a third cube was placed between them. In subsequent four-minute sessions, various other play materials were introduced in order to observe the behavior of the children when one had a toy and the partner did not, or when the play material called for cooperative behavior. These structured situations provided for responses of competition, frustration, and cooperation. The responses of the children were recorded in diary fashion and coded according to the type of contact and the positive or negative quality of the social interaction. The analysis of these data showed



the relationship between age and experience and play, as it developed from individual play to the more social.

Sympathetic responses of children were studied by Murphy (1937). In one structured situation, a two-year-old was placed in a playpen without toys. Another child, the subject-child, was brought into the room, and if, within a few minutes, he did not respond sympathetically to the toyless child in the playpen, he was asked questions which were intended to elicit sympathy for the other child. Sympathetic responses were also noted when the investigator pretended to have difficulty lifting the first child out of the playpen. If the subject-child did not respond, the investigator then asked him to help. The data were analyzed for the relationship of sympathetic responsiveness to maturity.

Projective techniques have occasionally been used to determine the quality of the relationships of preschool children. This technique may employ the use of picture stories or doll games in which a child may respond to situations suggested by pictures of two children engaged in an activity or by play with dolls which represent two children.

In a study of kindergarten children, Waring and Knowles (1954) included projective techniques in their multiple measures of children's attitudes of control and acceptance toward peers of the same sex and toward younger siblings. These measures were based upon what the children said or did when they responded to stories

about children, stories which were told with pictures or dolls. It was noted that the children put themselves in the place of the children in the stories, and through role-playing, revealed more about how they actually felt than they did when being observed with each other. In this study, each of the children played ten picture games and eleven doll games. For each game, there was a set for boys and a set for girls; and in each game, there were two playmates.

In the picture games, each child was shown one pair of pictures at a time and was asked to choose which one he liked best. He was then asked to tell why he liked it. The paired pictures depicted playmates sharing (and not sharing) food, toys, pets, and other items. For example, a picture which showed the play partners sharing responsibility was paired with one in which a playmate could be said to be blaming his peer; and a picture depicting a child helping a peer in distress was paired with one in which a child ignored the distress or left his peer. In some, a picture of children playing happily was paired with a picture in which one child could be fighting, hurting, or having bad things happen to his peer.

The projective technique using doll-play also included a set of dolls for boys and a set for girls. In this game, the investigator told only a part of a story to the child and then let him finish the story while acting it out with the dolls. The data gathered by these projective measures were later compared to teacher, investigator, and parent judgments.

### Sociograms

A sociogram is a technique in which a child's interactions with others and the structure of the interpersonal relations of the entire group are recorded diagrammatically. This technique has been used primarily in studies of older children and adults. An example of its use in a study of preschool children is provided by Dunnington (1957a), who used a sociogram to diagram the results of a sociometric test which she gave.

### Sociometric Tests

A sociometric test is a technique used by investigators to determine the social relations in a group or to determine the social value a child may have to his peers. On the basis of specific criteria, each child is asked to select one or more children from his peer group. The number of times a child is chosen by his peers indicates his relative position in the group. Sociometric tests used with preschool children have been verbal interviews with and without visual aids, gift-giving to selected peers, and the choice of companions for special activities.

A more complete discussion of sociometric tests as they relate to requirements set forth by Lindzey and Borgatta (1954) follows in the next section.

### Criteria for Sociometric Tests

Lindzey and Borgatta (1954), in their discussion of sociometric

literature, clearly stated the requirements for a sociometric test. Such a test should (1) define the limits of the group, (2) permit an unlimited number of choices and rejections, (3) provide for the indication of choices and rejections in terms of specific criteria, (4) provide opportunity for some course of action related to the choices, (5) permit the choices to be made privately, and (6) gauge the questions to the subjects' level of understanding.

#### Defining the Limits of the Group

Some investigators have relied upon the memory of the child when asking him to respond with choices from his peer group. (Dunnington, 1957; Curd, 1967; Ferguson, 1967). When a young child is questioned, there is the possibility that this method may be unreliable because of the child's inability to remember all the children in his particular group. To solve this problem, some researchers have used a pictorial technique in which photographs of all members of the group are presented to the child as he makes his choices. The pictorial technique helps the child to remember the other children in his group and permits him to indicate each choice by pointing to a picture or by naming another child. (McCandless and Marshall, 1957; Starkweather, 1962; Underwood, 1962; Sims, 1963; Moore and Updegraff, 1964).

#### Inclusion of Rejections

The inclusion of rejections in sociometric testing has caused some disagreement among researchers. It is felt by some that open

discussion of disliked peers or the forcing of negative choices is unethical and contrary to good child development practices. There is also a fear that a child may later announce his rejection choices to his group or to the rejected children themselves, and that this could lead to still more rejection of children who are already low in social status.

In a discussion of the negative elements of rejection choices, Moore (1967) justified the use of negative choices by making the observation that nursery school children in her study did not discuss either their negative or positive choices when they returned to the group. She further stated that "as a compensation for its risks, one obvious advantage to the sociometric involving negative as well as positive choices is the increased likelihood of identifying the truly unpopular child." Another who believes exclusion of rejection choices seriously limits accurate measures of sociometric data is Dunnington (1957a). For each of the children who were overlooked or not volunteered in a testing situation, Dunnington included elicited or forced negative responses in order to satisfy a need to differentiate between children who were actively disliked and those who were unnoticed. The opposite point of view has been expressed by Northway (1967), who stated that negative choices have been deleted from most sociometric tests because it was found to cause resentment and comment in the group.

In order to avoid any possible harmful effects which rejections

might have upon the group, some investigators have used a paired-comparisons method of sociometric testing. (Koch, 1933; Lippitt, 1941; Starkweather, 1962; Underwood, 1962). In this method, the inclusion of rejections is felt to be inherent in the test. In the method used by Starkweather (1962) and Underwood (1962), photographs of the children are presented in pairs, one photograph beside the other, and every child is paired with every other child in the group. As one child in each pair is chosen, the other child is, in effect, rejected, and no child can be overlooked. In order to avoid the possibility that choices might be influenced by the position of the photographs, each child's picture was placed on the right one-half the time and on the left one-half the time in pairs in which it appeared. The sequence of the pairs was also prearranged so that no child's photograph appeared in two consecutive pairs.

#### Responses Indicated in Terms of Specific Criteria

There are two common assumptions underlying sociometric techniques: (1) that subjects wish to benefit other individuals in the group, and (2) that subjects wish to be near or be benefited by certain individuals in the group. The particular relationship which the investigator wishes to study should influence his selection of the test criteria. Beyond this, as Lindzey and Borgatta (1954) have stated, the activity or criteria used as the basis for the sociometric test, should be meaningful to the subjects, and careful selection of criteria is necessary if the tests are to be valid. The word meaningful, as it

is used here, insists that the criteria should be familiar, of interest, and easy for the child to imagine in instances where the criteria are hypothetical.

Some investigators merely ask each child to indicate his liked and disliked peers in the group. (Koch, 1933; Lippitt, 1941; Moore and Updegraff, 1964). Similarly, Dunnington (1957b) merely asked each child with whom he would like to play and with whom he would not like to play.

In some sociometric tests the children have made their choices by benefiting other members of the group. In these tests, each child was a participant in a real situation by actually giving small gifts to other children. (Hagman, 1933; Starkweather, 1962; Underwood, 1962; Sims, 1963). In other studies each child has chosen peers who were to share in activities immediately following the test situation. (Moreno, 1942; McCandless and Marshall, 1957; Underwood, 1962; Sims, 1963). Activities such as listening to stories, playing with special materials, and going on excursions were used in these studies because of their motivating appeal to children.

#### Opportunity for a Course of Action

Honest disclosure of a subject's preferences is essential for the validity of a sociometric test. Many investigators believe that a child is motivated to respond more accurately when his sociometric responses result in immediate consequences. These consequences have included the giving of gifts and participation in special activities

with the chosen child. (Moreno, 1942; McCandless and Marshall, 1957; Starkweather, 1962; Underwood, 1962; Sims, 1963).

Curd (1967) found that with preschool children, the gift-giving method was more reliable than the question method, possibly because the consequences were obvious when a gift was given. Byrd (1951) found that with school age children there was a high correlation between hypothetical choices and choices made in real situations in which there were immediate consequences. Indications are that as a child matures, as he is able to think more abstractly, and as his relationships with others in the group become more stable, he is better able to make choices on an hypothetical basis.

#### Privacy of Choice

In most research, it has been a standard practice for socio-metric choices to be made privately. The choices remain private unless the child himself happens to disclose them to others in the group or unless the group is restructured for participation in special activities for which the choices were made. The gift-giving method of choice-making appears to have the potential for the most privacy and honesty. The choices are made in private and the gifts are distributed without identifying the giver.

#### Gauging Questions to the Child's Level of Understanding

Lippitt (1941) has suggested that the criteria used by teachers in judging children's popularity are different from the criteria used by the children themselves. This points to the fact that one of the



problems in studying the sociometric status of young children is that of gauging the test criteria to the child's point of view and level of understanding. If test results are to be valid, the criteria must have the same meaning for all members of the child's group, and this requires that the criteria be simple, specific, and free from adult bias.

### Implications for the Present Research

There is a scarcity of research in the literature which indicates the relationship between peer acceptance and behavior which is considered creative. Literature which does discuss this information is largely theoretical and is confined to studies of older children. In theory, creative expression is influenced by social relations, and the reverse is also true.

In the study of creativity as it relates to preschool children, various factors which may influence creative expression must be studied. The focus of the present study is on the relationship between the social acceptance of the preschool child in his peer group and certain characteristics usually associated with creative behavior.

Originality is frequently accepted as one valid indicator of creative ability. Flexibility is a characteristic which is considered necessary for creativity. In the present study, the relationship between these characteristics and the social acceptance of the preschool child in his peer group are studied.

In studies of preschool children, indications are that differences in social behavior are related to age, sex, experience, and mental maturity. These variables are included in the present study.

Sociometric studies of preschool children have suggested that certain precautions must be taken if the test results are to be valid. In the present research, a social relations test is used in which photographs of the peer group clearly show each child the limits of the group, and in which the criteria which provide the basis for the children's selection of peers is gift-giving in order that the sociometric responses result in obvious consequences.

## CHAPTER III

### METHOD AND PROCEDURE

The purpose of this study was to investigate the relationship between the social acceptance of the preschool child in his peer group and certain characteristics usually associated with creative behavior, specifically, flexibility and originality. Other variables in the study were verbal intelligence, age, and sex.

Data on flexibility had been gathered previously for another study, and the specific children for whom these data were available were chosen as the subjects for the present research. The additional data needed were gathered cooperatively with other researchers as part of a larger creativity research program at Oklahoma State University.

#### Subjects

The subjects who participated in this study were 34 preschool children, 17 girls and 17 boys. The ages of the children ranged from three years six months to five years six months. The three-year-old and four-year-old children were enrolled in two Oklahoma State University Child Development Laboratories, and the five-year-old

children were enrolled in a church-sponsored kindergarten in Stillwater, Oklahoma. The distribution of subjects by sex and age is presented in Table I.

### Research Instruments

#### Social Relations Test

The social relations test used in the present study combined the picture-board interview technique with gift-giving. The test was more than a measure of a child's popularity. It was designed so that each child's value in his peer group was measured in terms of the extent to which his gift-giving was reciprocated by the children whom he chose within the group. A detailed description of the tests, its administration and scoring, is presented in the next section of this chapter.

#### Originality Test

The Originality Test for preschool children, designed by Starkweather (1966), consists of three-dimensional plastic abstract forms. These are presented to the child one at a time, and he is asked to tell what each piece might be. There are ten different forms, and each is presented four times, making a total of 40 responses. The scoring is a simple numerical count of the number of different responses each child gives; and the high scores then indicate the more original children. A complete description of this test, its administration and scoring, is presented in Appendix B.

TABLE I  
 DISTRIBUTION OF SUBJECTS BY AGE AND SEX  
 (N=34)

	N	Age in Months	
		Median	Range
Group II			
Boys	5	51	50 - 54
Girls	7	48	42 - 51
Total	12	50	42 - 54
Group III			
Boys	6	55	49 - 58
Girls	5	56	53 - 58
Total	11	55	49 - 58
Kindergarten			
Boys	6	63	61 - 65
Girls	5	62	61 - 66
Total	11	62	61 - 66
Total			
Boys	17	55	49 - 65
Girls	17	54	42 - 61
Total	34	55	42 - 65

### Verbal Intelligence Test

A verbal intelligence test was used as a part of this study in order to be certain that the Originality Test was not merely another measure of intelligence. Inasmuch as the Originality Test is dependent upon verbal responses, an intelligence test was chosen which required no verbal responses, namely, the Peabody Picture Vocabulary Test (PPVT). In this test, which is interesting to children and requires only a few minutes to administer, the child merely points to pictures as the examiner says the vocabulary words. The scoring of the test is a simple numerical count of the correct responses. Mental age and IQ equivalents can be figured from the test scores, but for the purpose of the present research, the raw scores were adequate and these conversions were not made.

### Flexibility Test

The Flexibility Test, developed as a part of the creativity research program at Oklahoma State University, is a complex instrument which requires that the child understand the concepts of size, shape, and brightness. The test is designed to measure the child's ability to adapt to a reversal shift, that is, to adapt to new situations when a change in behavior is required. For example, when the child learns that "light" is the correct response in the game he is playing, a new game is introduced in which "dark" is the correct response, and his ability to make the reversal shift is then measured. A complete description of this test, its administration and scoring, is

presented in Appendix C.

### Social Relations Test

The social relations test used in the present study combined a picture-board interview technique with gift-giving. The test was more than a measure of a child's popularity. It was designed so that each child's value in his peer group was measured in terms of the extent to which his gift-giving was reciprocated by the children whom he chose within the group.

#### Picture Board

The social relations test was given to all of the children in each peer group. This was necessary in order that an accurate social relations score be obtained for the specific children who participated in the study as a whole.

Photographs of each entire group were mounted on heavy mat board. For the two peer groups which included the three-year-old and four-year-old children, individual head and shoulder view photographs were mounted on a board, approximately 9" x 12" in size. The photographs were arranged so that boy and girl pictures were alternated. (See Figure 1.) For the kindergarten children, a single photograph of the entire group was mounted in a similar manner. (See Figure 2.)

#### Gifts

Two types of gifts were used in the social relations test, small

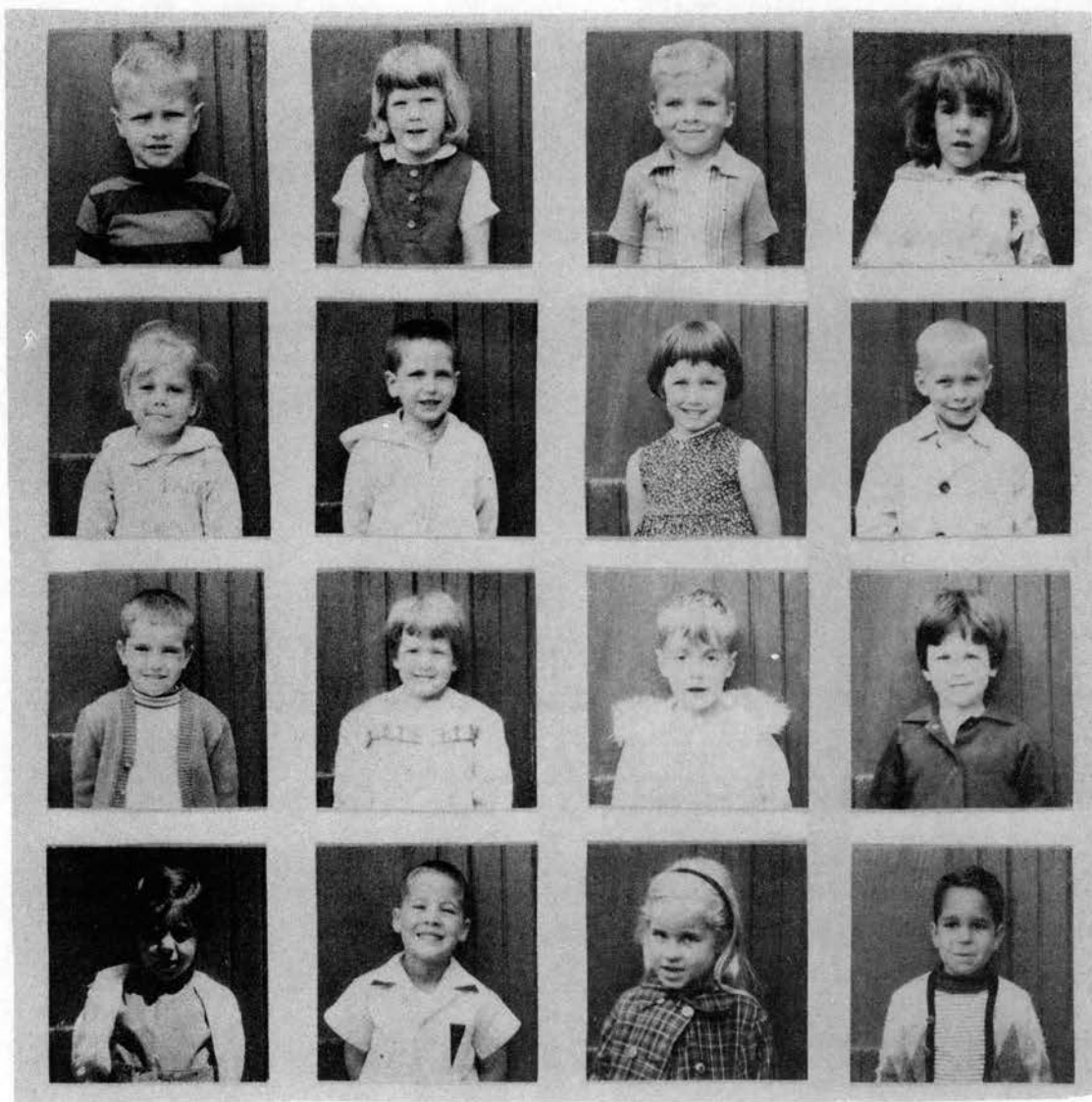


Figure 1. Picture-board photographs of individual three-year-old children





Figure 2. Picture-board photograph of one group of kindergarten children

plastic toys and stickers or gummed seals. The toys were a variety of inexpensive miniature plastic automobiles, cowboys, and indians. The stickers were shiny colored discs and brightly colored pictures of different subjects, such as animals, birds, flowers, vehicles, and costumed individuals. Inasmuch as each child kept one gift for himself and gave identical gifts to three other children, no stickers or toys were used which did not have three other duplicates.

#### Administration

The social relations test was given late in the spring semester when the children were well acquainted with each other and sociometric choices could be considered stable. To insure privacy, the test was given to each child individually, away from the activities of the other children. The test was administered in two sessions, with approximately a one-month time interval between the two.

In the first session, each child was given a choice of brightly colored stickers, and the sticker he chose was placed on the table before him. The investigator then placed three identical stickers slightly apart from the child's sticker. It was felt that proximity to the child's choice made it evident to him immediately that all of the stickers were exactly alike. The photograph of the child's peer group was then shown to him and he was asked to name or point to three friends to whom he would prefer the three extra stickers be given. The child made his choices and then helped to place the gifts in pre-labelled envelopes designated as belonging to the children he had

chosen. Next, the child was given his choice of several small plastic automobiles, and the same procedure of gift-giving was repeated with three automobiles identical to his.

After the lapse in time of one month, the child participated in the second session of the social relations test. He again selected gifts and chose friends to whom the gifts should be given. The only difference in the test was in the choice of toys and stickers offered by the investigator. The stickers were pictures of flowers, animals, and other figures, and the toys were small plastic cowboys and indians of which there was a variety of colors and poses.

At the conclusion of the testing in each peer group, care was taken to add to the toys and stickers in each scant envelope in order that the distribution of gifts be made approximately equal for each child in the entire peer group.

### Scoring

The scoring of the social relations test is designed to show the relationship between the child's choices of other children and their choice of him. For example, Child F-1316 was chosen by five of the children whom she chose. Each of these relationships is expressed as a weighted score to show the return that this child received on her investment, and the sum of these weighted scores is then divided by the total number of children chosen by her. Using the data shown in Table II, the reciprocal choice score for Child F-1316 is figured as follows:

$$\frac{(1/1) + (1/1) + (1/3) + (2/1) + (2/3)}{7} =$$

$$\frac{1.00 + 1.00 + 0.33 + 2.00 + 0.67}{7} = \frac{5.00}{7} = 0.71$$

In Table II, the scores of these children are presented for the purpose of illustrating the meaning of the reciprocal choice score. The first child, F-1316 chose seven of the other children; and in turn, five of them chose her. She chose these children a total of twelve times, but she was chosen by them only nine times and did not receive a complete return on her investment in them. Her R-C Score was 0.71. The second child, M-1337, was a child who liked nearly everybody and was very popular. He spread himself in his gift-giving and was frequently chosen by the other children. His R-C Score of 1.25 shows that he received a large return on his investment in the other children. The last child, M-1318, chose seven of the others, but only two of them chose him. His R-C Score of 0.12 shows clearly that he received little return on his investment in the other children.

TABLE II  
 SOCIAL RELATIONS TEST: DATA FOR THE CALCULATION  
 OF RECIPROCAL CHOICE SCORES

	Other Children								R-C Score*
	A	B	C	D	E	F	G	H	
F-1316 is chosen	0	1	1	1	2	2	0	2	
F-1316 chooses	2	1	1	3	1	3	1	0	0.71
M-1337 is chosen	1	4	2	2	1	1	1	1	
M-1337 chooses	1	1	2	2	1	2	2	1	1.25
M-1318 is chosen	0	0	1	1	0	0	0	0	
M-1318 chooses	1	1	2	3	1	2	2	0	0.12

\*The R-C Score is the Reciprocal Choice Score which indicates the return which a child receives on his "investment" in others.

## CHAPTER IV

### RESULTS

The data analyses presented in this chapter include an analysis of sex and age differences for each variable (social relations, flexibility, originality, and verbal intelligence), and an analysis of the relationships among these variables with particular emphasis on social relations. Data for individual children are presented in Appendix A, Table VIII.

#### Sex Differences

The Mann-Whitney U Test was used to analyze all data for sex differences. The distribution of the responses of boys and those of girls was comparable for all variables. No sex differences were significant. (See Table III.)

#### Age Differences

The Kruskal-Wallis analysis of variance and the Mann-Whitney U Test were used for the analysis of age differences. Significant differences were found for two variables, verbal intelligence and flexibility. (See Table IV.)

TABLE III  
 TEST RESULTS FOR BOYS AND GIRLS: MEDIAN SCORES,  
 RANGES, AND AVERAGE RANKS  
 (Boys, N = 17; Girls, N = 17)

Test and Sex Group	Median	Range	Average Rank
Social Relations			
Boys	0.67	0.14-1.27	16.97
Girls	0.60	0.06-1.25	18.03
Flexibility			
Boys	.812	.500-1.000	17.12
Girls	.750	.187-1.000	18.59
Originality			
Boys	15	07-28	16.23
Girls	17	10-34	18.78
PPVT			
Boys	52	38-63	18.20
Girls	49	42-63	17.30

TABLE IV  
 TEST RESULTS FOR THREE AGE GROUPS: MEDIAN SCORES,  
 RANGES, AND AVERAGE RANKS  
 (N\* = 34)

Test and Sex Group	Median	Range	Average Rank
Social Relations			
Group II	0.59	0.19-1.27	15.46
Group III	0.71	0.12-1.13	17.18
Kindergarten	0.55	0.06-1.11	20.05
Flexibility			
Group II	.687	.187-0.937	13.04
Group III	.750	.500-0.937	16.05
Kindergarten	.812	.500-1.000	23.82
Originality			
Group II	15	10-29	16.25
Group III	16	10-24	15.18
Kindergarten	22	07-34	21.18
PPVT			
Group II	47	38-63	12.96
Group III	49	43-63	18.05
Kindergarten	55	43-63	21.91

\* Group II, N = 12; Group III, N = 11; Kindergarten, N = 11.



On the Flexibility Test, the kindergarten children scored significantly higher than the children in Group II ( $z = 2.429$ ;  $p < .01$ ), and significantly higher than the children in Group III ( $z = 2.035$ ;  $p < .03$ ). The older children were better able to adapt to new situations when a change in behavior was required.

On the verbal intelligence test (PPVT), the kindergarten children scored significantly higher than the children in Group II ( $z = 2.189$ ;  $p < .02$ ). This finding was in the expected direction, inasmuch as one expects older children to have larger vocabularies.

#### Relationships among Variables

Spearman rank order correlations were used in the analysis of the relationships among variables. (See Table V.) Age was positively related to flexibility ( $\rho = +0.444$ ;  $p < .01$ ) and to verbal ability ( $\rho = +0.461$ ;  $p < .01$ ). Other than this, only one correlation was significant, and that indicated a negative relationship between flexibility and social relations. Children who scored high in flexibility scored low in social relations; and children who scored low in flexibility scored high in social relations ( $\rho = -0.505$ ;  $p < .01$ ). (See Table VI.) An analysis of the three age groups suggested that the younger children, the three-year-olds and the four-year-olds in Groups II and III, were responsible for the negative relationship between flexibility and social relations. (See Table VII.)

The fact that no other significant relationships were found among

TABLE V

SPEARMAN RANK ORDER CORRELATIONS AMONG THE  
VARIABLES INCLUDED IN A STUDY OF PRESCHOOL  
CHILDREN'S SOCIAL RELATIONS  
(N=34)

	Social Relations	Flexibility	Originality	PPVT
Age	-0.103 n. s.	+0.461 $p < .01$	+0.237 n. s.	+0.444 $p < .01$
PPVT	-0.311 $p < .10$	+0.188 n. s.	+0.200 n. s.	
Originality	+0.068 n. s.	-0.005 n. s.		
Flexibility	-0.505 $p < .01$			

TABLE VI

SPEARMAN RANK ORDER CORRELATIONS BETWEEN  
SOCIAL RELATIONS SCORES AND OTHER VARIABLES  
(N=34)

	rho	p
Age	-0.103	n. s.
PPVT	-0.331	$< .10$
Flexibility	-0.505	$< .01$
Originality	+0.068	n. s.

TABLE VII  
 SPEARMAN RANK ORDER CORRELATIONS BETWEEN SOCIAL  
 RELATIONS SCORES AND FLEXIBILITY SCORES  
 BY AGE GROUPS

Age Group	N	rho	P
Group II	12	-0.538	< .10
Group III	11	-0.600	< .10
Kindergarten	11	-0.351	n. s.

the variables measured in this study, indicates that the various tests are measuring different characteristics; for example, originality as measured is a characteristic independent of social acceptance, flexibility, and verbal intelligence.

#### Summary

The major findings related to the purpose of this research are as follows:

1. There were no sex differences in social relations, flexibility, originality, or verbal ability.
2. The older children showed significantly greater verbal ability than did the younger children.
3. The older children showed significantly greater flexibility than did the younger children.
4. The relationship between flexibility and social relations

was negative. Children who scored high in flexibility scored low in social relations, and children who scored low in flexibility scored high in social relations.

5. Originality as measured in this research is a characteristic independent of social acceptance, flexibility, and verbal intelligence.

## CHAPTER V

### SUMMARY AND IMPLICATIONS

The purpose of this study was to investigate the relationship between the social acceptance of the preschool child in his peer group and certain characteristics usually associated with creative behavior, namely, flexibility and originality. These characteristics were analyzed in relation to age, sex, and verbal intelligence. A social relations test which was designed for use with preschool children was administered to children in three age groups.

The subjects who participated in this study were 34 preschool children, 17 boys and 17 girls. The ages of the children ranged from three years six months to five years six months. The three-year-old and four-year-old children were enrolled in two Child Development Laboratories at Oklahoma State University, and the five-year-old children were enrolled in a church-sponsored kindergarten in Stillwater, Oklahoma.

Tests were administered for each of the variables, social acceptance, flexibility, originality, and verbal intelligence. (1) The Social Relations Test adapted for use in this study was designed so that each child's value in his peer group was measured in terms of

the extent to which his gift-giving was reciprocated by the children whom he chose within the group. (2) A Flexibility Test was used which measured each child's ability to adapt to new situations when a change in behavior was required. This instrument required that a child understand the concepts of size, shape, and brightness. The test consisted of training tasks during which the child learned certain "correct" responses based on these concepts, and reversal shift tasks in which he was required to abandon the learned responses in order to adapt to new situations. Flexibility was indicated by the ease with which the child was able to adapt. (3) The Originality Test consisted of three-dimensional plastic abstract forms, which were presented to the child one at a time as he was asked to tell what each piece might be. The scoring of this test was a simple numerical count of the number of different responses each child gave. The high scores indicated the more original children. (4) A verbal intelligence test was used as a part of this study in order to be certain that the Originality Test was not merely another measure of intelligence. The Peabody Picture Vocabulary Test (PPVT) was used.

The data gathered with the above instruments were analyzed for age and sex differences and for the relationship among the variables, with particular emphasis on social relations. The major findings were as follows: (1) There were no sex differences in social relations, flexibility, originality, or verbal ability. (2) The older children showed significantly greater verbal ability than did the

younger children. (4) The relationship between flexibility and social relations was negative. Children who scored high in flexibility scored low in social relations, and children who scored low in flexibility scored high in social relations. (5) Originality as measured in this research is a characteristic independent of social acceptance, flexibility, and verbal intelligence.

#### Implications for Future Research

If it is true, as theory and research suggest, that one's social relations affect his creative expression, and that one's emotional behavior and social behavior directly influence one another, a study should be initiated to investigate the relationships among these factors. Ideally, this proposed research should have a multiple approach, such as that which may be seen in the study made by Waring and Knowles (1954). The study should be undertaken by an investigator and teachers who are very closely in agreement regarding identification and coding of observed behavior. This was a major strength in the Waring and Knowles research. In order to further investigate reciprocal social value, or return on social investment, the instruments used should include a social relations test similar to that which was used in the present study, and should include tests designed for use with preschool children in the measurement of characteristics related to creative expression.

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APPENDIX A

TABLE VIII

DATA FOR INDIVIDUAL CHILDREN PARTICIPATING IN A STUDY  
OF THE RELATIONSHIP OF CREATIVE EXPRESSION IN EARLY  
CHILDHOOD TO SOCIAL ACCEPTANCE BY PEER GROUPS  
(N = 34)

Sex and Code No.	Group	Age	Test Scores				
			PPVT	Originality	Flexibility	Social Relations	Independence
F-1287	II	3:6	49	29	0.187	0.60	46
F-1310	II	3:10	52	19	0.687	0.19	05
F-1338	II	3:11	44	10	0.312	0.61	71
F-1307	II	4:0	44	14	0.500	0.81	18
F-1308	II	4:1	42	13	0.875	0.56	43
M-1312	II	4:2	49	15	0.812	0.40	18
M-1313	II	4:2	42	14	0.750	0.43	73
F-1286	II	4:3	45	20	0.937	0.58	26
M-1311	II	4:3	38	15	0.500	1.06	31
F-1306	II	4:3	50	18	0.375	1.27	31
M-1337	II	4:5	63	15	0.687	1.25	80
M-1291	II	4:6	53	15	0.812	0.45	20
M-1277	III	4:1	52	11	0.750	0.39	32
F-1314	III	4:5	49	10	0.875	0.25	76
F-1316	III	4:6	45	12	0.500	0.71	68
M- 772	III	4:7	44	24	0.812	1.00	33
M-1289	III	4:7	49	22	0.625	0.90	17
M-1317	III	4:7	43	21	0.500	1.13	71
F-1315	III	4:8	51	17	0.750	0.42	59
M-1318	III	4:9	57	10	0.812	0.12	62
F-1290	III	4:10	63	16	0.937	0.20	35
M- 777	III	4:10	63	12	0.625	0.72	35
F-1265	III	4:10	47	16	0.750	0.95	59
F-1321	Kgn.	5:1	61	28	0.750	0.96	66
M-1322	Kgn.	5:1	46	7	0.937	0.19	28
F-1332	kgn.	5:1	46	20	0.937	0.88	31
M-1328	Kgn.	5:2	57	22	0.812	0.06	41
M-1329	Kgn.	5:2	55	28	1.000	0.18	52
F-1330	Kgn.	5:2	52	32	0.812	0.35	31
F-1335	Kgn.	5:2	56	10	1.000	0.55	77
M-1336	Kgn.	5:4	63	27	0.812	0.80	80
M-1324	Kgn.	5:5	43	11	0.812	1.11	32
M-1326	Kgn.	5:5	56	15	0.500	0.67	68
F-1333	Kgn.	5:6	53	34	0.875	0.14	48

APPENDIX B

## AN ORIGINALITY TEST FOR PRESCHOOL CHILDREN

developed by

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### Recommended Age Range

Approximately 3 years 6 months to 6 years 6 months.

The originality test depends on the child's ability to communicate verbally, and therefore, it should only be administered to children who are able to give at least four different ideas during the pretest or warm-up session.

Older children obtain higher originality scores than younger children. When the test is administered to older children (e.g., seven year olds), it cannot identify the more original children inasmuch as the median score for such a group is apt to be near the ceiling of the test.

### Pretest or Warm-up Session

Six white styrofoam pieces, each a different shape, are placed on the table before the child. The child is encouraged to manipulate them and to talk about them. He may be asked a question such as, "Do you see a piece that looks like something?" When the child responds, the experimenter agrees with his comment, whatever it is, and encourages him to talk about another piece. If the child does not respond, the experimenter picks up the rectangular piece and asks, "What could this be?" If the child still does not respond, the experimenter makes a suggestion in the form of a question, e.g., "Do you think it could be a window?" The experimenter may then move this piece a little to one side, if necessary, in order to focus the child's attention on the other pieces.

If the child gives the same response for different pieces, his response is accepted, but he is asked to think of something else that the piece might be. For example, if the child said that two different pieces could be a door, the experimenter would accept his response and at the same time encourage him to think of something different. "Yes, it certainly could be a door, but we already have one door. Can you think of something else that it could be?"

After the child has responded to the six forms, the experimenter praises him by saying, "Good, you thought of something different for all these." In this way, during the warm-up session, the experimenter encourages the child to think of different responses for the various forms. (During the test proper, the child's responses are accepted without question even though he may repeat the same idea several times.)

### Originality Test

The originality test is administered by showing the child one pair of identically shaped styrofoam pieces at a time. When he is shown the first pair, he is given his choice of the color he prefers. (The colors in Form-A are red and blue; and the colors in Form-B are green and yellow.) The color the child chooses is then placed on the table before him and the other is placed in front of the experimenter. The child is then asked what his piece could be or what it could be made into. After he responds, he is asked what the experimenter's piece could be. For the first pair, and occasionally during the remainder of the test, the experimenter includes the child's response in his next question. "If yours is a (caboose), then what could mine be?" Approval of each response is given by saying something such as, "All right," or "It certainly could be." Whether or not a child gives different responses for the various shapes, his efforts are approved in the same manner.

When all ten pair of styrofoam forms have been shown to the child, the entire set is again presented. This time the child is given the other color, i.e., the one he had not chosen when they were first presented. During this second administration, each piece is placed before the child in an alternate position, e.g., sideways or up-side-down.

### Scoring

The combination of the two administrations of the research instrument offers four opportunities for a child to respond to each form, making a total of 40 responses. Each child's score is a numerical count of the number of different responses he gives. The responses are scored in the order in which the child has given them, and credit is given for each response which is different from all previous responses. Credit is given for objects which might be in the same category, such as a golf ball and a baseball. Credit is not given for an object which is named a second time and altered only by a minor adjective, such as a ball and a big ball. No credit is given for a play on words, such as kigless, pigless, and sigless.

Occasionally children respond by naming objects which they can see in the room. This is noted on the score sheet, and in these instances, credit is given only if the experimenter can see some relationship between the responses and the styrofoam form which the child is holding.

No norms have been developed for the Originality Test, nor will they be developed. The value of the test lies in its ability to identify the more original and the less original children within a given group and to compare different groups of children, e.g., age groups, cultural groups, etc.

### Evaluation of the Originality Test

Inter-judge reliability in scoring was determined by a comparison of two sets of scores. (1) The responses of individual children were scored jointly by two judges who participated in the development of the test; and (2) the same responses were scored by another person, trained in child development, but who had no experience with the test and who had no instructions other than the written directions for scoring. The coefficient of correlation



(Pearson product-moment) between the two sets of judges' scores was +0.989, significant beyond the .01 level. In view of these findings, the directions for scoring were accepted as adequate. Their use should assure reliable scoring.

The internal consistency of the instrument was demonstrated by means of a split-half correlation (Spearman-Brown formula). A coefficient of +0.932 ( $p < .01$ ) indicated that the test was reliable.

The validity of the instrument was demonstrated by comparing teachers' judgments with children's scores. Each child who scored high in originality was paired with each child who scored low, and teachers were then asked to indicate the child who was the more original in each pair. Teachers' judgments were in the direction of the originality scores in 106 pairs out of a total of 153. A Chi-square analysis indicated this extent of agreement to be statistically significant. ( $\chi^2 = 22.752$ ;  $p < .001$ ).

Test results indicate age differences in originality, but not sex differences. In a group of 80 children ranging in age from 3 years 6 months to 5 years 11 months, the older children earned the higher scores in originality. ( $\chi^2 = 17.39$ ;  $p < .01$ ).

Forms A and B of the originality test and the Peabody Picture Vocabulary test were administered to 18 children ranging in age from 3 years 4 months to 5 years 11 months. Half of these children were given the originality tests in an A-B sequence and the other half in a B-A sequence. A comparison of the scores obtained on the originality tests indicated that the two forms, A and B, were comparable. The product-moment correlation coefficient for the scores obtained on the two forms was +0.904 ( $p < .01$ ), and for the scores obtained on the first and second tests was +0.892 ( $p < .01$ ).

The originality test requires verbal responses; nevertheless, the originality scores are independent of verbal ability. This was demonstrated by a correlation of the PPVT scores (verbal ability) and the originality scores. The product-moment correlation coefficients for these two sets of scores were +0.192 for Form-A and +0.162 for Form-B, neither of which was statistically significant.

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APPENDIX C

## A FLEXIBILITY TEST FOR PRESCHOOL CHILDREN\*

developed by

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The Flexibility Test is designed to measure a young child's ability to adapt to new situations when a change in behavior is required. The test consists of three training tasks during which the child learns certain "correct" responses (based on the concepts of shape, size, and brightness) and two reversal shift tasks in which he is required to abandon the learned responses in order to adapt to new situations. The child's flexibility is indicated by the ease with which he is able to adapt.

### The Research Instrument

The research instrument is a green turntable one foot square, divided in half by a partition five inches high. On each side of the partition are two holes in which a reward object (a beaded peg) can be placed. The holes, two inches square and three inches apart, have removeable lids to which the stimulus objects are fastened. Thus, when the child makes his choice between two stimulus objects, he removes a lid and uncovers one of the holes. If he makes a "correct" choice, he finds a reward; and if he makes an "incorrect" choice, he finds nothing.

The stimulus objects are 16 paired objects differing in shape (round and square), 16 paired objects differing in size (large and small), and 16 paired objects differing in brightness (light and dark). For the training tasks, the round, the large, and the light objects of the pairs are the correct responses, i.e., the responses for which the child is rewarded. For the two reversal shift tasks, the correct responses are the small and the dark objects.

The reward objects are beaded pegs. Pegs of several different colors are used so that the child can choose a new color each time a new game (training task or reversal shift task) is introduced during the testing period. This choice of a new color serves to emphasize the fact that a new and different game is starting.

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\*The Flexibility Test was developed as a part of the creativity research supported by the Oklahoma State University Research Foundation (State Project No. 329). Acknowledgement is given to Linda Guerink and Janice Bowling, who assisted in the development of the instrument and in its adaptation for use in measuring flexibility.

### Administration

The green turntable, the boxes of different colored pegs and a small peg board are on the table when the child is introduced to the Flexibility Test. He is asked to choose the color of the pegs he wants to play with first. Then, as the child watches, the experimenter drops a peg into one of the turntable holes and says, "This is how we play the game. I'll put a peg in one of the holes and then cover both holes, like this, so that you can't see the peg. Then you'll show me which hole you think the peg is in. You take this peg and put it in the peg board, and we'll start the game."

The five tasks which constitute the Flexibility Test are presented in the following order: (1) the training task for shape, which serves as a demonstration, (2) the training task for size, (3) the reversal shift for size, (4) the training task for brightness, and (5) the reversal shift for brightness.

Before each training task, the child is given an opportunity to show that he understands the concepts involved in the game. For example, a round and a square object are placed before him and he is asked to point to the round one and then to the square one. Then, during the training task, the stimulus objects are named as the child is asked to make his choice. For example, the child is asked, "Is it under the round one or the square one?" In this question the correct response is always stated first; but throughout the test, the correct response object is placed over the right or the left hole in a prearranged random order.

During the training tasks, when the child makes a correct response, the experimenter says, "Yes, it is under the (round) one." If his response is incorrect, the experimenter lifts the other lid and says, "No. See, it is under the (round) one." In this way the correct response is always reinforced by the experimenter. Also, at the beginning of each training task, when the child has made two consecutive correct responses, the experimenter says, "It is always under the (round) one, isn't it?"

Each training task is taught to the criterion of learning, 10 correct responses out of 12. If a child has not reached the criterion of learning after 32 presentations, the Flexibility Test is considered too difficult for him and he is eliminated from the study.

Before each reversal shift task, the child is asked to select a different colored peg for a new game. The experimenter carefully explains, "We are going to play a new game with these (blue) pegs. It is not the same as the last game. You'll have to think very hard. This is a different game." For each reversal shift task, only eight paired objects are presented.

### Scoring

The Flexibility Test is scored by dividing the number of correct responses by the total number of responses. This formula yields a range of scores from 0.125 to 1.000. The latter is a perfect score and indicates that the child was able to adapt to the reversal shift with no difficulty whatsoever.

### Implications

The Flexibility Test is a cumbersome instrument. It is in its infancy and neither reliability nor validity has been established. However, use of the test thus far has been promising and refinement is warranted.

Results obtained with the Flexibility Test, in a study of 54 young children, do have theoretical implications. (1) The children who had difficulty with the training tasks also had difficulty with the reversal shift tasks. Flexibility demands a degree of maturity. (2) Children who did well on the training tasks were not necessarily able to do well on the reversal shift tasks. Maturity is necessary for a child to be flexible, but maturity is not sufficient to insure flexibility.

The relationship which apparently exists between maturity and flexibility suggests a pattern of development which is presented schematically in Figure 1. This figure can be used to illustrate the changes in the flexibility of a single child as he matures; and it can also be used to illustrate the difference in flexibility that exists among children of the same age.

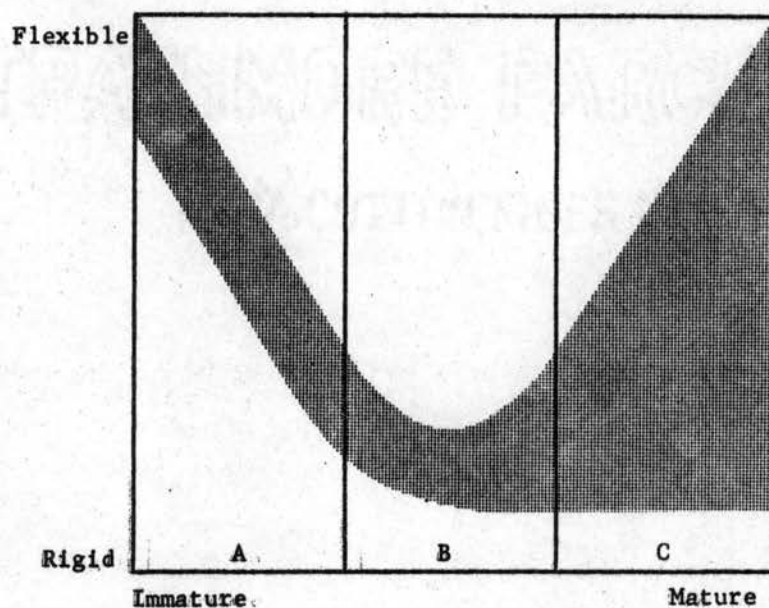


Figure 1. Schematic representation of the relationship between maturity and flexibility.



Theoretically, the development of a single child begins with behavior that is pseudo-flexible (Section A in Figure 1). At this stage, the immaturity of the child prevents him from generalizing or from seeing the similarity between tasks; therefore, he approaches a training task and a reversal shift task as though they were unrelated, and he performs equally well or poorly on both. His behavior, which in reality is immature, suggests flexibility because of the ease with which he shifts from the one task to the other.

As the child matures (Section B), his ability to generalize enables him to see the relationship between two similar tasks, but because of his egocentricity, he has difficulty shifting to a new point of view; therefore, he responds to the reversal shift just as he had learned to respond to the training task. At this stage, the child's behavior suggests rigidity because he continues to respond in a manner which was appropriate in a previously learned and similar situation.

With increased maturity (Section C), the child has become less egocentric. He is able to generalize and he is able to view a problem from more than one point of view. True rigidity and true flexibility now appear, i.e., rigidity and flexibility which are not merely a reflection of the child's level of maturity. At this level, the rigid child continues to show the behavior that he demonstrated when he was somewhat less mature (as in Section B). Rigidity has apparently become a compulsive characteristic and can no longer be explained as merely a sign of immaturity. On the other hand, with this increased maturity, the flexible child is able to adapt to the demands of the new situation. He recognizes the similarity of the tasks and he is able to profit from his understanding of the concepts he has learned, with the result that he is able to respond readily and correctly to the reversal shift tasks.

Theoretically, a group of children would show a range of behavior from rigid to flexible such as illustrated and described above. The youngest and most immature children would behave in a pseudo-flexible manner (Section A); those somewhat more mature would behave in a pseudo-rigid manner (Section B); and among the most mature children, behavior would range from compulsively rigid to freely flexible (Section C).

The Flexibility Test needs refinement and warrants extended use. The theoretical implications described above provide a framework which may help to guide future research.

VITA |

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