MODELING EFFECTS ON FANTASY

by

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CHAPTER I

A. STATEMENT OF THE PROBLEM

The recognition of fantasy is no new discovery; it is as old as man. The most ancient stories demark the man of action from the man of thought and dreams.

The man of action is one who sees the present and immediate future and acts upon them; he achieves the ends he desires through realism, energy and ability.- Unlike the man of action, the dreamer is one who translates his thoughts into words and images; he shows a predominance of inner life which may not necessarily relate to objective reality nor possess integrative or adaptive value. His fantasy may even be beyond conscious control and he may behave as if his imaginative world and the real world are one.

The crucial matter in considering the adaptive value of imaginative thought is the achievement of an enriching life experience. When a point of balance between fantasy and realism is reached, it represents a thought mode toward which the individual can turn at will. He can entertain it, enjoy it and use it in the service of adaptation; he can expand his vision and extend the scope of competence. In this manner, fantasy becomes an integration which contributes to

the highest of man's achievements and is a skill which is differentially developed (Singer, 1966).

If imaginative behavior is a skill which follows cognitive development, what are the forces which are conducive to its growth? Books, plays and conversation stimulate imagination; parental acceptance and example may be powerful forces which affect its growth. Singer (1966) speculates that it can be learned under the influence of a parental model interacting with the child. The child may be induced to imitate or identify with the parent in fantasy or to exhibit similar kinds of behavior.

There is now little doubt concerning the power of models in influencing behavior. Investigators (Bandura & Walters, 1963) have been demonstrating that a variety of behaviors can be transmitted to subjects by models with three possible effects: (1) an <u>imitative</u> effect, consisting of a relatively precise mimicry pattern not previously in the observer's repertoire; (2) a <u>disinhibitory</u> effect, consisting of responses that are more or less similar to those exhibited by the model; and (3) an <u>eliciting</u> effect, consisting of responses that are latent in the observer and released by the appropriate cues. In addition, the research shows that when a model is provided, subjects acquire behavior patterns in their entirety, rapidly, rather than in small segments through a slow, gradual process.

The role of models in the transmission of response patterns has been used most extensively in studies of aggression (Bandura & Walters, 1963; Walters, Thomas & Acker, 1962); dependency received its share of exploration (Bandura & Walters, 1959; Bandura, 1960; Banks & Walters, 1959). Vicarious extinction of avoidance behavior can also be influenced by models (Bandura, Grusec & Menlove, 1967; Bandura & Menlove, 1968). Recently, Klinger (1967) has been studying modeling effects on achievement imagery. In these experiments, the models' effects on the observers were to elicit behavior rather than mold or disinhibit it; modeling serves as a cue to evoke individual response tendencies.

It appears then, that social variables are relatively important for the development and modification of a variety of human behavior. Although psychological researchers have directed their energies to the study of aggression, achievement and dependency, it appears important to extend investigatory efforts to creative and constructive social behaviors as well. If imaginative behavior is indeed a skill which follows cognitive development, then it is important to extend our knowledge of modeling impacts on fantasy processes. To the extent that spontaneously generated imagination can be viewed as an adaptive cognitive skill differentially developed in children, then increased tendencies to engage in this behavior may be a consequence of learning from suitable models.

To the extent that variation in imaginative expression represents a meaningful dimension of personality, the question can be raised whether this variation is related to developmental stages as well. This investigation, then, is specifically concerned with whether modeling of imaginative behavior bears a relationship to an ego function such as structuring ability, which increases with age.

The nature of the model, the developmental differences in responsiveness to the model and the role of interaction between stimulus characteristics and fantasy disposition in children will also be examined in this investigation.

Analysis of the structure and content of the fantasies will provide evidence concerning the nature of these processes, attempting to clarify the relationship between fantasy and motives. Finally, efforts will be made to distinguish between imitative effects, disinhibitory effects and eliciting effects. Clarification of such observer behavior has important implications for a theory of fantasy as well as for modeling phenomena.

B. BACKGROUND

The introduction suggests the usefulness of investigating the determinants of imaginative behavior, particularly insofar as observational learning affects the process. Before examining the questions directly, some preliminary view of the literature must be presented to orient the reader to the topic.

The study of children's imaginative abilities has received scant attention. History records many past failures of interest in measuring and development of these abilities as direct studies. Some interesting and valuable work was done around the turn of the century (Hall, 1891; Vostrovsky, 1894; Smith, 1904) with systematic observations of children's imaginative play. In the main, these contributions appear to have limited impact. In the 1920's and 1930's, there were a number of psychologists who developed tasks to measure various aspects of imagination in children (Simpson, 1922; Hargreaves, 1927; McCloy and Maier, 1939); they emphasized the structure of imagination but their instruments never caught the interest of educators. It was not until the work of Guilford (1950, 1959) and his associates was published that a beginning was made in the measurement of

imaginative abilities (Getzels & Jackson, 1958; Torrance and his associates, 1960). More recently, a variety of daydreaming scales have been developed (Singer & Antrobus, 1963; Singer & McCraven, 1961) as well as techniques to measure imaginativeness with more traditional clinical materials such as the Thematic Apperception Test and Rorschach's inkblot method. There appears to be some link between the questionnaire and clinical measures (Singer, 1960), lending credibility to the relationship between inhibition/delay and imaginativeness, and the feasibility of using clinical instruments quantitatively.

With regard to projective techniques, most clinical psychologists have assumed that the T.A.T. (Murray, 1937) or related story-telling methods evoke the ongoing daydream or fantasy life of an individual. Both global and counting techniques have been used and appear to give considerable evidence of imaginativeness (Singer, 1961; Singer & Streiner, 1966) as a dimension of personality.

Another technique for estimating imaginative potential is derived from the Rorschach (1942) and Holtzman (1961) inkblot series. The movement determinant (report of seeing action, especially human action on the inkblots) appears to reflect a direct relation to imagination, as demonstrated by

a series of important studies (Singer, 1960; King, 1960; Goldberger & Holt, 1961, Barron, 1955).

Both Rorschach and T.A.T. research findings reveal that there are specific stylistic differences in response to these instruments, suggesting bipolar dimensions. At one pole can be grouped those persons with extreme inclinations to accept inner stimuli, to daydream, to plan for the future, to postpone impulses. At the opposite pole can be grouped those persons with inclinations to respond to external stimuli, to act on impulses, to express emotions directly, to engage in motoric activity.

The evidence from these measures suggests that there is a dimension of personality which can be called "Imaginative" and that this is a skill or a predisposition that may have adaptive capacity.

In addition to the projective approach are the more recent questionnaire investigations of imagination (Singer, 1961; Singer, 1966). Evaluation of the contents of responses of the high groups reveals them to be more creative and original than the low groups. Another dimension, self-awareness rather than somatic preoccupation and fearful thinking was revealed in another study (Singer & Schonbar, 1961).

A study, utilizing several daydreaming scales together with interview and personality measures, sought to discover patterns or styles of daydreaming (Singer & Antrobus, 1963).

Of the seven patterns which emerged, of particular interest here is one characterized by a controlled, objective approach to inner experience, reflective but not fantasic. High scorers on this dimension might be designated "thinker," as opposed to "autistic," "chaotic" or "body-centered" types.

It would appear then that imaginativeness is measurable by both projective and direct approaches and that imagination as a quality of man is worthwhile investigating.

Aside from measurement considerations, some proposed theoretical formulations will be presented. In his discussion of the function of imagination, Freud (1908) emphasized its wish-fulfilling or need gratifying function. His view that art, music, myths, etc. are but infantile wishes and dreams which achieve their greatness by expression in acceptable form has since occupied a central position in psychoanalytic theory. Under certain circumstances then, the turning to fantasy reflects a process which serves both infantile needs and reality needs; the integration of these needs is seen as contributing to the highest of man's cultural achievements.

Modern psychoanalytic theory has been more explicit than Freud in acknowleding the constructive function of imagination. (Kris (1951), by introducting the concept, "regression in the service of the ego," refers to a regression which occurs under the control of the more mature or highly

differentiated structure of the personality....the reality function. This concept enables psychoanalytic theory to explain the apparent contradiction implied in viewing imaginative activity as simultaneously representing a mature and an infantile process. Thus, according to Kris, imaginative thought involves the conscious control of the primary process. The theory suggests the action of an alternating current motor, a volitional stepping in and pulling back. The individual uses primary process thought for his own purposes and there is a suggestion that imaginative thought is controlled by secondary process.

The viewpoints expressed point to the extremes as representing lower levels of cognitive development when contrasted with the integrated. These extremes represent early stages of development; infantile levels represent perceptualization, reality levels represent concretization. Although this study is not concerned with fantasy as an expression of primitiveness or extreme immaturity, clarification of the concepts used has to be considered. Here, imaginativeness represents differentiation, articulation of personality whereas extreme realism represents concreteness, poor anticipations. The latter is less advanced, in that it is organized around the object world which can be articulated only by avoiding or disregarding that which is not objective or perceptually mediated. In this sense the ultra-realistic person is rooted in the immediate, unable or afraid to transcend the concrete.

Wide differences appear to exist among people in terms of their willingness to accept or enjoy phenomena that belong to the general realm of the imaginary and there appears to be some justification for the assumption that the question of acceptance or rejection of the imaginary represents a dimension of personality differentiation. Utilizing a developmental frame of reference, Lewin (1951) and Werner (1957) approach the question of relationship to imagination as a function of differentiation and maturity. Both authors view the very young child as manifesting a poorly differentiated cognitive structure which Lewin regards as a paucity of fantasy life. Older children can develop elaborate fantasies; and the more elaborate, the more differentiation in the child.

Werner expands on this point of view by suggesting a division of two spheres of functioning in the adult: One sphere is that of objectivity, based primarily on perceptual processes; the other sphere is that of fantasy, based on imaginative processes. In the young child the division of the two spheres is not very marked; there is a relatively close connection between perception and imagery (Werner, 1957). With development, possibly during a "critical stage," the child begins to separate the two spheres. This occurs at the time when children begin to reject the fairy tale as something untrue or silly in favor of the adventure story, which satisfies imaginative needs without offending the sense of

the real. This is the beginning of differentiation of the cognitive skill of imagination and the description proposed by Werner offers itself as an interesting parallel to the various levels of differentiation postulated in this study. It also provides a point of departure for the study of modeling effects.

We can speculate as to what factors influence the development of fantasy. Children develop fantasy on the basis of a child-parent relationship as well as involvement in storytelling and fantasy games (Singer, 1961). If this is so, then one of the ways children learn this behavior might be through the observation of models.

What is meant by "modeling"? Bandura and Walters (1963) describe it as a tendency to reproduce the actions, attitudes or emotional responses exhibited by live or pictorial and verbal models. Modeling has been delineated further into three kinds of effects: (1) an imitative effect, consisting of a relatively precise mimicry pattern, directly aping the behavior of the model in an identical form; (2) a disinhibitory effect, which awakens responses already in the observer. They may not match precisely those made by the model but contain individual variation; here the child learns that some class of response is permissible and need not be suppressed;

and (3) eliciting effect, in which the model's behavior intercats with the predisposition of the child, bringing previously unassociated ideas into contiguity, thereby "releasing" or facilitating the behavior.

Early theories of observational learning regarded it as an innate propensity (Morgan, 1896; McDougall, 1908). Later, as instinct theories fell into disrepute, classical conditioning principles were applied (Humphrey, 1921; Allport, 1924). These were equally unsatisfactory, for they failed to account for the acquisition of novel responses. Most recently, a behaviorist framework has been imposed on this kind of learning with a decided cognitive ring (Mowrer, 1960). Constructs such as "transsituational," "satisfaction," "drive reduction," "secondary reinforcement," "mediation," have

been evoked but the situations as well as the behaviors involved in modeling are so complex that it is difficult to state with complete certainty which construct clearly applies.

However, the strongest evidence in relation to observational learning has been presented by Bandura & Walters (1963) and their colleagues. These researchers believe (Bandura, 1965) that sensory images aroused by the modeling stimuli become structured perceptual responses through association by contiguity. Associated with the perceptual images are verbal representations of the modeling behavior. In this way, verbalization of the matching responses may facilitate the later reproduction of the model's behavior through response-produced cues; these cues become discriminative stimuli for later overt reproduction of the model's behavior. More recently (Klinger, 1967), it has been demonstrated that modeling effects can be independent of verbal contents, visually perceived aspects of the model's expressive behavior having an impact.

Similarly, the role of reinforcement in observational learning is controversial. Attempts to clarify this issue were made in a recent study (Bandura & McDonald, 1963). Here the data suggest that immediate reinforcement is unnecessary for acquisition, serving merely to motivate the observer to attend to the modeling situation and providing the cue that performance of the model's behavior is permissible.

Many of the difficulties encountered appear to be caused more by lack of standardization of experimental manipulations and dependent measures than by controversy over reinforcement to the model or observer. Admittedly, antecedent conditions are the factors most difficult to control and reinforcement can be available from a host of sources, covert as well as overt. However, unification of basic procedures would do much to compare findings and arrive at sound understanding of the processes involved.

The process is conceived as occurring in two parts: First is the selection of others as models; second, is the adherence to the values, ideas, behaviors assumed to be mastered by those selected, presumably to recapture positive affects (Singer, 1966). The determinants of modeling influences on imaginative behavior seem to be fairly complex and diverse, and concepts such as superego, identification, reinforcement and verbalization are gratuitous or inconsistent with empirical evidence that behavior can be modified and that imitation and imagination are intimately connected.

It is Piaget's concepts (1924, 1945) of assimilation and accommodation that appear to provide a more useful link between modeling and imaginative behavior. Within this frame of reference, modeling begins to emerge during the second year of life, although it remains confined to the action aspects of the model, within the child's own schemas. There

is a selection and incorporation of stimuli in accordance with the dictates of this structure while adapting the structure to the stimuli. There is a waxing and waning of accommodation and assimilation, which when reconciled become cognitive skills.

As the child develops, his action schemas expand to a representative symbol of the action, the child remembering the model's characteristics. For Piaget, this ability depends upon the level of the child's intellectual development and the child's choice of the model is related to his interest in assimilating the model's behavior. When accommodation to external reality dominates over assimilation, the result is imitation; when assimilation dominates over accommodation, the result is imaginative behavior. Thus, imitation and imaginative behavior are explicable in terms of the same process, which process determines intellectual functioning.

Although there are overtones in the theory that imitation and imagination are opposites which are gradually reconciled in the expression of cognitive skill, this polarization need not detract from the usefulness of the idea. Although Piaget implies (1945) that imaginative behavior has no essential role in intellectual development whereas imitation does, observation belies this idea. Imagination is not displaced by realism with age but rather imagination becomes more elaborate and complex with age. With Werner (1957), fantasy is seen as

a positive illustration of the thinking process because it manipulates symbols to create new conceptual domains. Divergent thinking, originality, both require more than simple copies of external reality. Sutton-Smith (1966) has recently questioned Piaget's limited view of the adult utility of assimilative processes.

However, the criticism usually directed at Piaget that the developmental sequences he proposes are by no means predetermined or invariant does not necessarily eliminate the basic idea that modeling and imaginative behavior are prerequisites for the development of cognitive skills. Though imitation as an accommodation may begin as a photo negative of external reality, it may merely be a figural component that does not in itself constitute a copy but, with increasing age, more or less approximates reality, - is derived from imitation. Similarly, imaginative behavior as an assimilation may begin with active play and evolve, with increasing age, to rituals and symbols.

Not only are behaviors symbolized but capacities to select specific models of developmental significance are also involved. In this way, there are differing kinds of models for different age groups. The young child would be most likely to select adult models such as parents, teachers; the older child's transactions with the world are broader and, as a consequence, there are more numerous models for him than for the

younger child. In addition to parent and teacher models, there are films, heroes, TV charcters, all of which are involved in the emulating process and all of which are necessary for the growth of the cognitive skill of imaginativeness.

Though the experimental studies of modeling have made valuable contributions to understanding the conditions under which modeling may take place, they leave many questions unexplored. Model-mediated aggression occurs with the use of films, but would imaginative behavior be modeled? Would observers exposed to films interpreted by models in imaginative, though benign, ways produce similar fantasies to that of the model or would such motives as aggression or achievement persist? Under such circumstances, when do adults become less effective as midels? Are there personality differences in the tendency to model fantasy?

C. IMPLICATIONS OF THE ABOVE DISCUSSION FOR THE PRESENT STUDY

The above discussion points to a general consensus among theorists that imaginative ability can be viewed as an expression of a high level of personality organization. Therefore, it is expected that older children will be more likely than younger children to engage in fantasy. Further, those children who possess imaginative skills will be less likely to respond to the influence of the model; i.e., they will show greater conceptualization, differentiation and organization than their less imaginative peers. If imaginative behavior is positively related to

a complex personality organization, this should be reflected in indications of a higher level of articulation and integration of response, in a greater predominance of manifestation of the abstract as opposed to the concrete thought mode.

Contents, too, should reflect imagination as a cognitive skill, differentially developed. Younger children will respond with adventure stories, in accordance with Werner's concept of the "critical stage" whereas older children will express their imaginative thoughts in a manner that is less concerned with action and more concerned with achievement, romance and vocational planning.

Insofar as modeling impacts on fantasy are concerned, there has been relatively little study of adult influences on the imaginative predisposition of children. As Singer suggests (1966), there are many subtle ways that adults shape behavior and encourage or discourage the development of fantasy skills. The systematic presentation of fantasy and realistic models and the observation of responses to such models seem to be an important area for exploration. It is therefore offered as the basic hypothesis of this study that children who observe a model behaving in imaginative ways will tend to reproduce this behavior even when there is no direct reinforcement for it. Exposure to the model will either disinhibit or elicit the desired behavior. Eliciting effects will be expressed in terms of interactions of the modeling conditions and predisposition to imaginativeness.

D. OUTLINE OF THE PRESENT STUDY AND DEVELOPMENT OF HYPOTHESES

Independent Variables

1. Subject Variables

a. Imaginative Predisposition (Imag-Predisp)

In order to establish clear-cut indications of imaginativeness, three measures were used which purport to indicate ability to engage in fantasy, so that Highs, Moderates and Lows in this capacity could be separated from one another:

(1) Holtzman Inkblot Test (Holtzman et al., 1961): Movement (M) on the Holtzman is scored wherever movement or potential for movement is projected onto the blot material by subjects. As contrasted with the Rorschach scoring conventions (Rorschach, 1942) M is scored for any movement response regardless of the reported source of the movement, be it animal, human or inanimate. Among the various interpretations offered in attempts to understand the meaning of the movement responses in the Rorschach literature (Singer, 1960; Piotrowski, 1960), one thread runs through as a common theme. The movement responses are generally seen as reflecting inhibited overt motility and imaginative tendencies, regardless of the nature of content. They are associated with interpersonal awareness and inner life (King, 1960), as well as productive imagination and creative ability (Roe, 1953). These findings coincide closely with the empirical findings reported

by Holtzman (1961) resulting from the standardization studies performed in connection with the development of his Inkblot technique, referring to the implications in the M experience of a capacity for fantasy and creativity.

(2) The second instrument, "Just Suppose" (Torrance, 1966), has been used by its author to measure imagination by grounding the task theoretically in what is known about the imaginative process. Responses are evaluated on three criteria: Fluency, Flexibility and Originality, each yields a score. Studies of Torrance and his associates (1960) cover Kindergarten through graduate school. Developmental curves have been developed for grades one through twelve showing a gradual increase in imaginative abilities from first through third grade. There is a sharp decrease between the third and fourth grades followed by some recovery during the fifth and sixth grades. Test-Retest reliability was determined by the authors and is .87 for a three month period, which is adequate.

The idea for this test derives from descriptions of similar tests used by Guilford (1954) in his factor analytic studies of divergent thinking. In these studies, fluency, flexibility and originality purport to reflect imaginative skills. Thus, imaginative persons' abilities to employ adventurous thinking, to break out of the mold, to get off the main track, produce higher scores on this task than their less imaginative peers. The capacity to shift from more to

less regulated thinking with facility, the disposition to greet novel and unusual experiences without undue anxiety, without repression and with strength of ego are the characteristics of those who do well on this test.

Questions of validity have not yet been completely satisfied. There has been a variety of empirical studies (Stein & Heinze, 1960; Taylor, 1959; Wallace, 1960) in which individuals identified as being highly imaginative were compared with less imaginative ones. The former were characterized by the attributes listed by Guilford above. Torrance (1960) made use of teacher and peer nominations of imaginative children and found high correlations with those who are high scorers on his tests. Using fourth, fifth and sixth grade classes (Torrance & Arsan, 1960) divided heterogeneously on the basis of imaginativeness, it was found that those who scored high on such tests tended to initiate the most ideas and to demonstrate and explain the most principles.

(3) The third measure, Activity Preferences, was devised by the author and stems from the studies of Singer and his associates (1955, 1954, 1952). The results report a positive relationship between measures of inhibition of motor activity and measures of imagination, consistent with the basic postulate of sensory-tonic theory (Werner, 1957). The positive linkage between inhibition of motor activity and imaginative capacity suggested that an interest in ideational

recreation would differentiate "ideational" or "conceptual" children from "sensorimotor" personalities. Stein & Craik (1965) found that although children are interested in a variety of activities of both motoric and ideational types, one can predominate over the other or interest can be equal. Just as the physical-spatial environment is the sphere of activity that interests motoric types, so is the internal environment the sphere of activity that interests ideational types. Stein & Craik (1965) composed a list of 25 motoric and 25 ideational interests and asked their subjects to rate interest on a four-point scale. A difference score was used resulting in two groups, Motoric and Ideational. These subjects were then asked to make word choices which were related to both Motoric and Ideational interests. The relationship of activity interests with word choices was highly significant, with R=.81.

In order to simplify the task for the children in the present study who are considerably younger than Stein & Craik's subjects, the experimenter combined the two techniques described above. An equal number of ideational and motoric interests popular with the children were paired with one another through the method of paired comparisons. After eliminating those pairs which were both ideational or motoric, the fifty remaining pairs were presented with the instruction to choose between them. A high choice of ideational interests

over motoric interests should differentiate those who are imaginative from those who are sensorimotor (Werner, 1957) or rely on what Piaget calls the "stimulus nutriment" of the environment (Piaget, 1932). In other words, those whose interest lie in areas calling for checked motor actions (the high scorers in this study) would be most likely to find some vicarious reactions in imaginative behavior. Freed from the urgency of a direct motor response, the "ideational" child (on this instrument) should be most capable of symbolization and imagination; hence his interests lie in this sphere.

Each of these measures provides a score so that subjects can be considered "High," Moderate" or "Low" in Imaginative Predisposition.

b. Age

Two groups of children of Elementary and Junior High school ages of both sexes were studied. Elementary children, age 10½-12, included grades four, five and six; Junior High children, age 12½-14, were in the seventh and eighth grades.

c. Sex

Both boys and girls were studied and analyses of the data were made by sex to determine if any differences occurred.

2. Treatment Variables

The observers responded to the experimenter serving as model who interpreted a film in one of three conditions:

(1) Fantasy condition: Model interpreted an abstract film, "Short and Suite", by ascribing a story content to it.

(2) Realistic condition: Model interpreted an abstract film, "Short and Suite", in concrete, descriptive terms.

(3) Neutral condition: Model showed abstract film, "Short and Suite" without interpretation.

Dependent Variables

The effects of the treatment variables described above were made by analyzing the observers' responses to a second, similar, abstract film called, "A Phantasy." This film was shown immediately after the Model interpreted the first film. Method of analysis follows:

1. Transcendence Index

Since its use as a projective technique, the Thematic Apperception Test (Morgan & Murray, 1935) has proven a valuable clinical instrument. Not only has it been a successful diagnostic tool but also an excellent research tool. A technique has been developed to evaluate imaginativeness which has been made use of as a T.A.T.-like approach. It

measure the degree to which subjects produce contents in response to stimuli which transcends what is actually presented in a picture. For example: Card 1 of the T.A.T. presents a photograph of a boy seated before a violin. One response might be, "The boy is looking at the violin." Another might be, "The boy is looking at the violin and dreaming about becoming a great violinist, just like his teacher. He knows, if he practices as his parents tell him to, he will be famous one day." The latter is the kind of material that transcends the stimulus.

This method can also be applied to abstract forms without necessarily using standard T.A.T. pictures; i.e., colors and patterns, too, can evoke transcendences. Weisskopf (1950) has devised a scoring system whereby 11 categories of transcendence of pure observations are scored. That is, each time the subject's material transcends the stimulus characteristics of the picture or introduces emotions, persons, symbolism, atmosphere, etc., he receives a score. The categories represent deviations from observation per se, independent of what is shown on the picture and denote factors which would represent transcendence of observation in any pictorial material. This T.A.T. type tool was used to measure the number of transcendences in an ambiguous movie in order to arrive at the degree of imaginativeness shown.

Unlike the Rorschach or Holtzman responses, T.A.T. - type interpretations are based on additions to the stimulus. They are the imaginative creation of future and past events, the thoughts and emotions ascribed to figures which are not in the picture. Rorschach and Holtzman are based more on what and how the subject perceives than what he adds. Transcendencies of perception, in which thoughts and feelings are ascribed to ink blot figures rarely occur in these tests.

Although little experimental work has been done with this instrument, existing literature reveals its reliability and validity (Singer & Herman, 1954; Singer, Wilensky & McCraven, 1956). The evidence of these studies lends support to the notion of a common factor of introspection or introversion in Rorschach M, FM, M threshold and the Transcendence Index. Another factor, motor inhibition and planfulness, as measured by fantasy behavior and perception of M, was also uncovered. The high loadings on both motor inhibition and introspection suggest that Weisskopf's measure is a valid one for scoring imaginative responses.

Finally, a study comparing Wisskopf's measure with a Q array technique to evaluate imaginativeness of response showed a correlation of 0.64, which was significant at the .01 level (Kenny, 1954). In addition, the data clearly support Wisskopf's contention that the Transcendence Index is a reliable measure of fantasy, particularly when the stimuli are of intermediate ambiguity.

2. Level of Fantasy Classification

In the present study, one aspect of responsiveness to the stimulus, Level of Fantasy Classification, was used to evaluate stories written by subjects. This technique has been used by a number of investigators in studying imagination with both children and adults (Amen, 1941; Gerver, 1946; Coleman, 1947; Terry, 1952).

Amen (1941) studied 77 children between age two years three months and four years eleven months in order to assess the kinds of responses they made to T.A.T.-type pictures. She found developmental differences in interpretative ability; increases with age occurred for active over static responses; the children moved from literal to subjective responses as they got older. In addition, older children's recognition of concrete details as part of a whole differed from the youngest group's, which merely responded to the objective and concrete in the pictures. Finally, the older children tended to show identification and social interest and wishes in their responses whereas the youngest children were unable to reconstruct human relationships in their responses.

Based on this finding, Terry (1952) analyzed 600 T.A.T.-type stories on a 10 centimeter line with no subdivisions rather than insert the stories into predetermined categories. At the lowest point on the scale were responses that were merely descriptive or objects in the picture; at the upper

extreme were responses that described motives and emotional states. Taking another 200 stories, she followed the same technique but grouped the responses into five equal intervals. She found a reliability of .88 between the two scales, which supported the concept of "levels" used by Gerver (1946) and Coleman (1947) previously and provided evidence for the statistical continuity of the measure.

The levels used in the present study were those originally developed by Gerver (1946) as follows: (1) no response; (2) enumeration or the simple listing of objects or persons seen in the stimulus; (3) overt description of action, such as crying, hiding, waiting, etc.; (4) Interpretive Level I, or interpretation of kinship or type and (5) the highest level, or Interpretive Level II, a story with a complete plot, including a beginning, sequence of action and outcome.

Each subject's story was rated independently by experimenters and two judges. The numerical value of the level constituted the Level of Fantasy Classification score for each. This score was used, not only as an index of the tendency to engage in fantasy, but also to evaluate hypotheses relating to fantasy as a cognitive product.

3. Content Analysis

A content analysis measure was used, similar to Atkinson's (1956) usage of "thema" in assessing motives in fantasy. Two simple categories were formed, based upon theoretical notions regarding behavior of juvenile, pre-ado-

lescent and early adolescent children (Sullivan, 1953). Children 10½-12 are concerned with adventure and action within a same-sex group; children 12½-14 are concerned with problems of sex, achievement and vocational planning. These two prominent categories will serve to separate age groups: (1) action, or adventure themes and (2) romance, sex or achievement themes. A response was judged as (1) or (2) on the basis of the predominant concern of the response. All themes not classifiable as (1) or (2) were placed into a "none" category.

In addition to the independent and dependent measures, a description of the experimental material follows:

1. Film "A," "Short and Suite," by the Canadian film artist, Norman McLaren, translates into moving patterns of color and light the mood and rhythm of music. The film is 4 minutes, 47 seconds in length.

2. Film "B", "A Phantasy", by Norman McLaren, is an abstract art film, dream-like in quality. The film is in color and is 7 minutes, 15 seconds in length.

These films were chosen by the experimenter because they have great fantasy-evoking power. They meet Symond's (1939) selection criteria for the investigation of fantasies, in that they have (1) minimum detail, (2) vagueness of theme, and (3) incompleteness of content.

E. STATEMENT OF HYPOTHESES

On the basis of the foregoing discussion, the following hypotheses were examined in this study:

1. Modeling effects

Children who observe a model interpreting ambiguous material will tend to reproduce this behavior even when they are not directly reinforced for it. Modeling behaviors will produce shifts in observers in accordance with experimental conditions, evoking material that is "elicited," "disinhibited" or providing the opportunity for the subjects to directly imitate the model.

2. Imaginative Predisposition effects

a. Moderates will produce precise, imitative responses to the model because they are seen as a conforming group, most likely to be highly responsive to external stimulation.

b. Highs in Imag-Predisp will show evidence of greater differentiation in their personality organization than Moderates or Lows and will obtain better scores on the Level of Fantasy Classification.

c. Lows' responses to the stimulus will be relatively concrete, cliche-ridden, unsophisticated and lacking explication. They will obtain low scores on the Level of Fantasy Classification measure.

d. Highs and Lows will display disinhibitory and/or eliciting effects rather than imitative effects. Highs' responses will contain originals of already-organized fantasy response tendencies without regard to the model or in interaction with the model; Lows' responses will be sparse and constricted, with little regard to the model or in interaction with the model. These are anticipations based on the assumption that Highs' and Lows' propensities are sufficiently stable and powerful to overcome the effects of the model or, when appropriate, interact with the model.

3. Age Effects

Consistent with the assumption that fantasy is an adaptive, cognitive skill, differentially developed, responses of Junior High school children will be expected to show greater analysis and structuring than Elementary school children.

a. Elementary school children's fantasies will have contents that describe actions through the use of adventure stories with a team or group. Junior High age fantasies will be concerned with opposite sex romances, vocational planning and achievement.

b. Junior High school children should be more likely than Elementary school children to engage in fantasy because fantasy expression is assumed to be an adaptive cognitive skill, differentially developed.

4. Hypotheses relating to Interaction effects: Interaction between Imag-Predisp and modeling conditions is expressed in eliciting effects. In accordance with this view of modeling, the responses that are latent in the observer will be released by exposure to the model. In other words, modeling is a cue which acts together with the child's previously-developed disposition.

a. Moderates in Imag-Predisp should be at least likely to display eliciting effects (Interaction) but rather will respond to the model in terms of Main effects. Highs and Lows in Imag-Predisp will emulate the model only when cues feed into their own internal systems. In other words, when internal forces are very strong, either in the direction of constriction (Lows) or willingness to entertain the imaginary (Highs), the influence of models should diminish or exert less of an influence than upon those who are in moderate positions. Thus,

b. Highs and Lows in Imag-Predisp should display eliciting effects, the interaction of the model with their unique predisposition.

In summary, hypotheses were offered in terms of modeling, predispositional and age effects. They were tested in terms of a 3 x 3 factorial design for each age group as shown in Table 1 below:

TABLE 1

FACTORIAL DESIGN FOR BOTH ELEMENTARY AND JUNIOR HIGH SCHOOL CHILDREN OF HIGH, MODERATE AND LOW IMAG-PREDISP UNDER FANTASY, REALISTIC AND NEUTRAL MODELING

Modeling	Fantasy			Realistic			Neutral		
Imag-Predisp	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low
N-Elementary age	28	28	28	28	28	28	28	28	28
N-Junior High age	19	19	19	19	19	19	19	19	19

NOTE: These represent adjusted N's. In distributing subjects into the 18 categories, there was an overloading of 27 Elementary and 15 Junior High Moderates; they were randomly eliminated. A loss of 11 Highs and Lows among Elementary and 7 Junior High subjects due to attrition was handled in accordance with methodology described in Chapter III.

CHAPTER II

METHOD

The strategy of this investigation involved (A) the selection of subjects age 10½ to 12 within the Elementary school, and age 12½ to 14 within the Junior High school; (B) within each age group, the children were evaluated for their Predisposition to Imaginativeness and divided into High, Moderate and Low on this dimension. This division, to be described in detail later, was based on the children's tercile rank on the Holtzman Inkblot test, "M" determinant, (1963), Torrance test, "Just Suppose" (1966), and the Activity Preference scale constructed by the experimenter. Then, each subject was exposed to an experimental situation (C) in which the experimenter served as a model and interpreted a film in one of three conditions: Fantasy, Realistic or Neutral manner. After viewing a second film, subjects were asked to write their own interpretations.

A. SELECTION AND DESCRIPTION OF SUBJECTS

The population from which this sample was drawn consisted of random selections of Elementary and Junior High school classes of two Westchester County school districts. The residents of these districts are relatively homogeneous

as to educational background, income, age, class and color; and the 410 children who participated in the study are homogeneous in regard to intelligence as measured by the California Test of Mental Maturity (Thorndike & Hagen, 1955). The test is adequate as an overall measure of intelligence, the reported validity being a correlation of 0.88 with Stanford-Binet. No attempt was made to control for intelligence of the subjects because of the practice of heterogeneous groupings within the Home Room by both schools. That is, each Home Room classroom contains 25 to 30 children whose I.Q.'s distribute normally within the class; there is no grouping by intellectual ability. The experimenter relied upon prior knowledge of the method of grouping in selection of the subjects. A post hoc analysis of I.Q.'s, however, reveals no differences among the subjects. All subjects were of at least Average intelligence and scores ranged from 90 to 136 on the measure used.

Table 2 below has been organized to reveal the means and standard deviations for the I.Q.'s of subjects in the three modeling conditions, according to their Imaginative Predisposition. The average I.Q. is 115.4, Bright Normal, and there is no significant difference among the groups. A one-way analysis of variance applied to these data showed $F = 0.16$, as can be seen in Table 3:

TABLE 2

MEANS AND STANDARD DEVIATIONS OF I.Q.'S OF SUBJECTS IN THREE MODELING CONDITIONS, ACCORDING TO IMAGINATIVE PREDISPOSITION (IMAG-PREDISP)

	Fantasy			Reality			Neutral		
	High	Mod	Low	High	Mod	Low	High	Mod	Low
Mean	116	117	114	117	115	113	117	115	115
S.D.	15.6	10.3	11.0	11.0	15.3	12.1	12.8	12.7	11.5

TABLE 3

ANOVA OF SUBJECTS' I.Q.'S IN THREE MODELING CONDITIONS ACCORDING TO IMAGINATIVE PREDISPOSITION (IMAG-PREDISP)

Source	df	MS	F
I.Q.Scores, Modeling x Imag-Predisp	8	68	0.16 n.s.
Error	399	435	

Therefore, it was concluded that the three experimental groups were reasonably homogeneous in intelligence.

B. THE MEASUREMENT OF IMAGINATIVE PREDISPOSITION

To secure an estimate of Imaginative Predisposition, (Imag-Predisp), the scores of three instruments were used. These were Form A of the Holtzman Inkblot Test, Torrance's "Just Suppose" and an Activities Preference task. Subjects were divided into tercile rankings of High, Moderate and Low on each test score within each age group. An examination of the means and standard deviations in Table 4 leads to the conclusion that Highs, Moderates and Low scoring subjects of each test differ significantly from one another with respect to imaginative predisposition. Differences between the means of High and Moderate, Low and Moderate for all tests, both Elementary and Junior High school classes, were significant beyond the .001 level, leading to the conclusion drawn. A further division of the population was made on the basis of subjects falling into High, Moderate or Low on two out of three of these tasks. That is, subjects who were in the first tercile in two tests were designated High Imag-Predisp; those in the second tercile in two out of three tests were called Moderate Imag-Predisp; those in the third tercile or low in two out of three tests were Low Imag-Predisp. Where such differentiations were not possible, when subjects were Low,

TABLE 4

MEANS AND S.D. FOR HIGH, MODERATE AND LOW SUBJECTS AS MEASURED BY HOLTZMAN INKBLOT TEST, TORRANCE'S "JUST SUPPOSE" AND ACTIVITIES PREFERENCE TASK

Test	High		Moderate		Low		t's	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Low v. Mod.	Mod. v. High
Holtzman "M"								
Elementary	10.86	2.12	6.66	1.26	2.99	1.40	16.0	14.0
Junior High	10.05	2.14	7.24	0.89	2.60	1.58	14.0	16.5
Torrance's "Just Suppose"								
Elementary	32.20	9.50	19.80	6.10	8.96	4.75	17.2	13.0
Junior High	57.15	13.30	34.10	4.85	20.10	5.55	17.5	15.2
Activities Preferences								
Elementary	23.80	5.10	15.30	2.70	5.65	3.25	16.8	18.9
Junior High	21.30	5.76	11.20	1.82	5.07	3.05	16.4	16.8

All t's significant at less than .001 level

Moderate and High in each test, they were placed in the Moderate Imag-Predisp category.

The decision to use any two out of the three tasks to select subjects on the basis of Imag-Predisp was strengthened by the strong, very significant correlations among the three measures. As can be seen from Table 5 which follows, the values of Pearson r are significant at less than .01 level.

This evidence suggests that in selecting subjects from the upper, lower and middle terciles of the measures used, it was safe to conclude that there are three groups of subjects who differed significantly from one another with respect to their Imaginative Predisposition.

Both boys and girls were included in this study because they did not respond differentially to the three measures of Imag-Predisp. The mean scores for males and females are presented in Table 6 for each measure, together with Fisher's T's; none reach significance and, in the light of these findings, it was concluded that it was not necessary to control for sex.

The method of testing for Imag-Predisp was consistent with the procedures standardized by the test authors (Holtzman, 1964; Torrance, 1966) with some slight amendments which were deemed suitable for the specific circumstances encountered.

TABLE 5

INTERCORRELATIONS AMONG THREE MEASURES OF IMAGINATIVE PREDISPOSITION (IMAG-PRE) HOLTZMAN "M," TORRANCE "JUST SUPPOSE," ACTIVITIES

Source	N	Holtzman: Torrance	Holtzman: Activities	Torrance: Activities
Elementary School	245	0.60*	0.70*	0.38*
Junior High School	165	0.63*	0.66*	0.30*

All significant at .01 level.

TABLE 6

IMAGINATIVE PREDISPOSITION: DIFFERENCES BETWEEN BOYS AND GIRLS
HOLTZMAN'S "M," TORRANCE'S "JUST SUPPOSE,"
ACTIVITY PREFERENCES

	ELEMENTARY						JUNIOR HIGH					
	Means		SD				Means		SD			
	Boys	Girls	Boys	Girls	T		Boys	Girls	Boys	Girls	T	
Holtzman	6.47	6.91	4.13	3.39	0.25	n.s.	6.95	7.20	3.50	3.37	0.11	n.s.
Torrance	19.26	21.83	11.76	11.92	1.70	n.s.	35.8	38.5	12.56	17.35	1.50	n.s.
Activity Pref.	17.48	15.65	7.92	8.08	1.70	n.s.	13.35	12.31	10.35	7.10	1.30	n.s.
N	127	118					89	76				

Before testing began, the experimenter was introduced to the class by the Home Room teacher, who described her as a research person interested in how boys and girls their age think. The experimenter continued in this vein and informally told the children about research in a general fashion. She asked them for attention and cooperation and described, in detail, her procedures that would assure anonymity. Questions were encouraged and answers given that appeared to satisfy the children. When the experimenter felt she had gained the children's trust, testing began as follows:

1. Holtzman Inkblot Test, Form A

Subjects were administered one-half of Form A of the Holtzman Inkblot Test within the Home Room grouping. Twenty-two color slides were projected onto a standard $4\frac{1}{2}$ x 6 foot grainless screen in an adequately darkened room, using a Kodak Carousel projector. Administration was varied with alternate classes between odd and even numbered slides, to eliminate the possibility that one set might elicit more M than the other. Answer sheets were provided, labeled "Designs," on which the following verbal instructions were written as a heading:

> "You will be shown a series of designs, each of which will be projected on the screen before you for one minute or so. Using your imagination, write down a description of the first thing the design looks like or reminds you of. Include in your description what about the design is important in making it look the way it does and whether you use a part of the whole design.

> "None of these designs has been drawn to look like anything in particular. No two people see exactly the same things. There are no right or wrong answers."

The instructions were paraphrased and subjects were asked for questions.

The first 3 designs were each exposed for 120 seconds; the next three for 100 seconds; the next three for 90 seconds; and the remainder were each exposed for 75 seconds, in accordance with Holtzman's technique (1963).

Upon completion of administration, papers were collected and the children were thanked for their cooperation. They were told that their responses were held in the strictest of confidence and that neither their teacher nor the school administration would be informed of their responses on an individual basis. They were told that the experimenter would return in a few days for the next step of the study.

Holtzman records were scored for "M" in accordance with the scoring guide accompanying the test. Wherever the scoring of a response was not adequately covered in the guide or the intention of the subject was unclear, it was scored by an independent scorer who was experienced in the use of the test. This scorer, a clinical psychologist, was given no information in regard to the identity of the subject whose response was being scored and had no more than a vague idea of the nature of the study. Therefore, it was possible to

assume that the judgment was relatively unbiased, the final decision having been made after agreement between them.

The possible scores on the test ranged from 0 to 17 for Elementary school groups and 0 to 16 for Junior High school groups. The distribution of these scores tended to approach a normal distribution as indicated by an inspection of Figures 1 and 2. "M" responses included a wide range of potential movement. It includes empathic kinesthesia (e.g. "It looks like the boy wants to fly with the bird"), passive movement (e.g. "It looks like the girl is posing"), as well as active movement, the experience of bodily sensation (e.g. "It looks like the way your stomach feels when you have butterflies in it"), the sense of what it would be like to be in a certain position, to take an emotional stance or engage in activity, from lying still to glowering, whether human, animal or inanimate representation, all are movement responses and earned a score of "1."

Typical "M" responses are the following given by a seventh grade girl to the first three slides:

"It looks like two men killing two other people (Active "M")

"It looks like God with an aisle before Him and two knights on either side who are guarding Him. They're on rearing horses." (Both an emotional stance "M" and Active "M")

"Two dragons smoking a peace pipe (Passive "M")

These can be contrasted with the responses of another seventh grade girl to the same three slides:

"It looks like a dead limb from a tree because of the way it's shaped."
"An unfocused design. Because of the shading."
"A butterfly."

The above responses are marked by their absence of movement or conventional postures, expression; they appear to be determined solely by shape, color, shading, rather than affect and impulse which is being directed inward and lived out in fantasy.

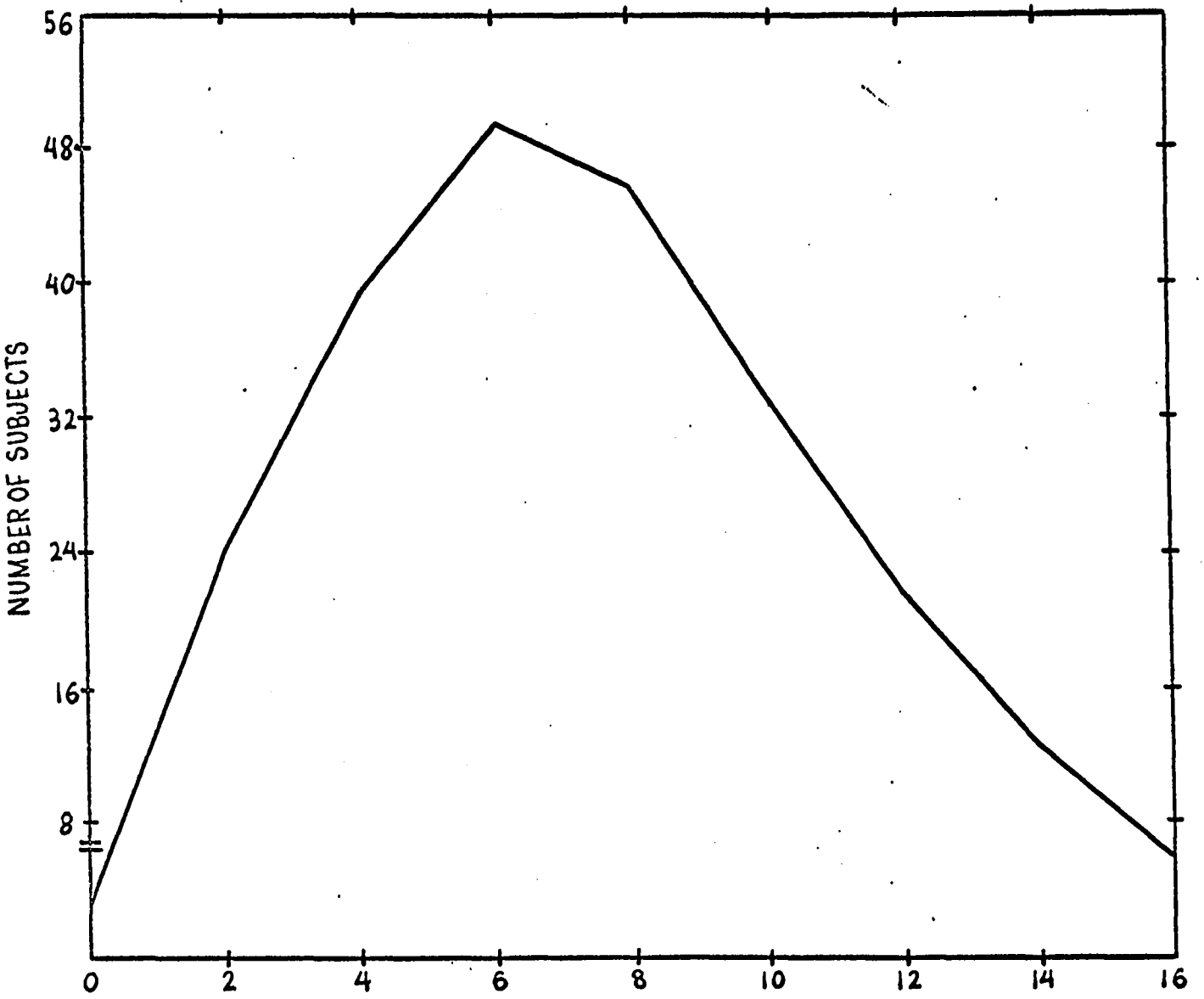

FIGURE 1

HOLTZMAN "M" SCORES FOR ELEMENTARY SCHOOLS
(M=6.69; n=245)

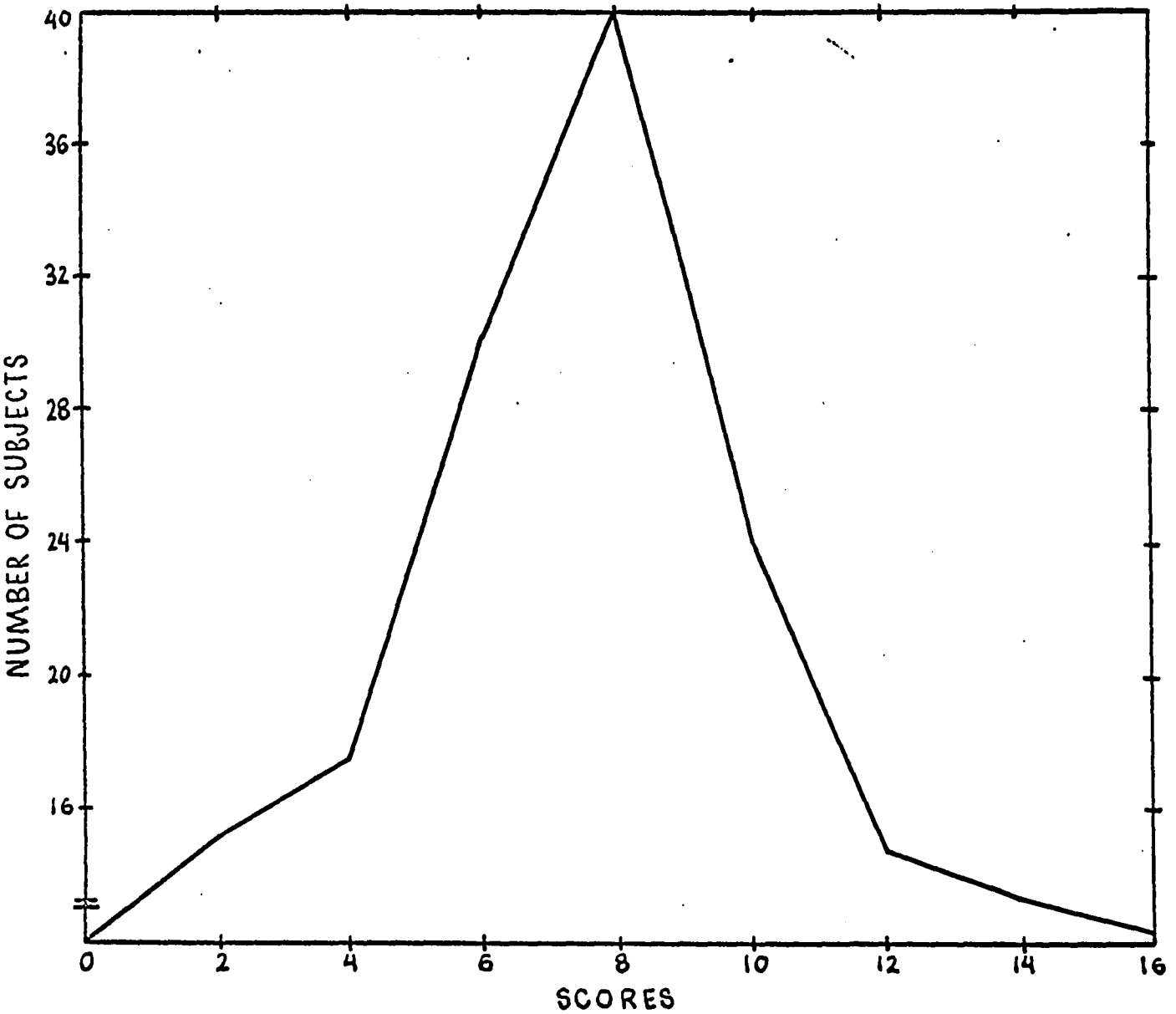

FIGURE 2
HOLTZMAN "M" SCORES FOR JUNIOR HIGH SCHOOLS
(M=7.08; n=165)

2. Torrance "Just Suppose"

Two to three days after administration of the Holtzman, Torrance's "Just Suppose" was given to the class. Test forms, labeled "Just Suppose" and bearing the verbal instructions which follow, were distributed, while the children were reminded of the confidentiality of their responses:

> "I think you will have a lot of fun doing this activity. This will give you a chance to think up new ideas. It calls for all of the imagination and thinking ability you have. So I hope you will put on your best thinking caps and that you will enjoy yourselves."
>
> "You will now be given an improbable situation - one that will probably never happen. You will have to JUST SUPPOSE that it has happened. This will give you a chance to use your imagination to think out all of the other exciting things that would happen IF this situation were to come true.
>
> "Just suppose that the situation described were to happen. Then think of all of the other things that would happen because of it. In other words, what would your ideas be? Make as many guesses as you can.
>
> "Just suppose clouds had strings attached to them which would hang down to earth. List your ideas and guesses.
>
> "When you finish the first page, go on to the second and continue until you complete each JUST SUPPOSE.
>
> "If you will look at the board, I have sketched what I think No. 1 and No. 2 might look like. Go ahead."

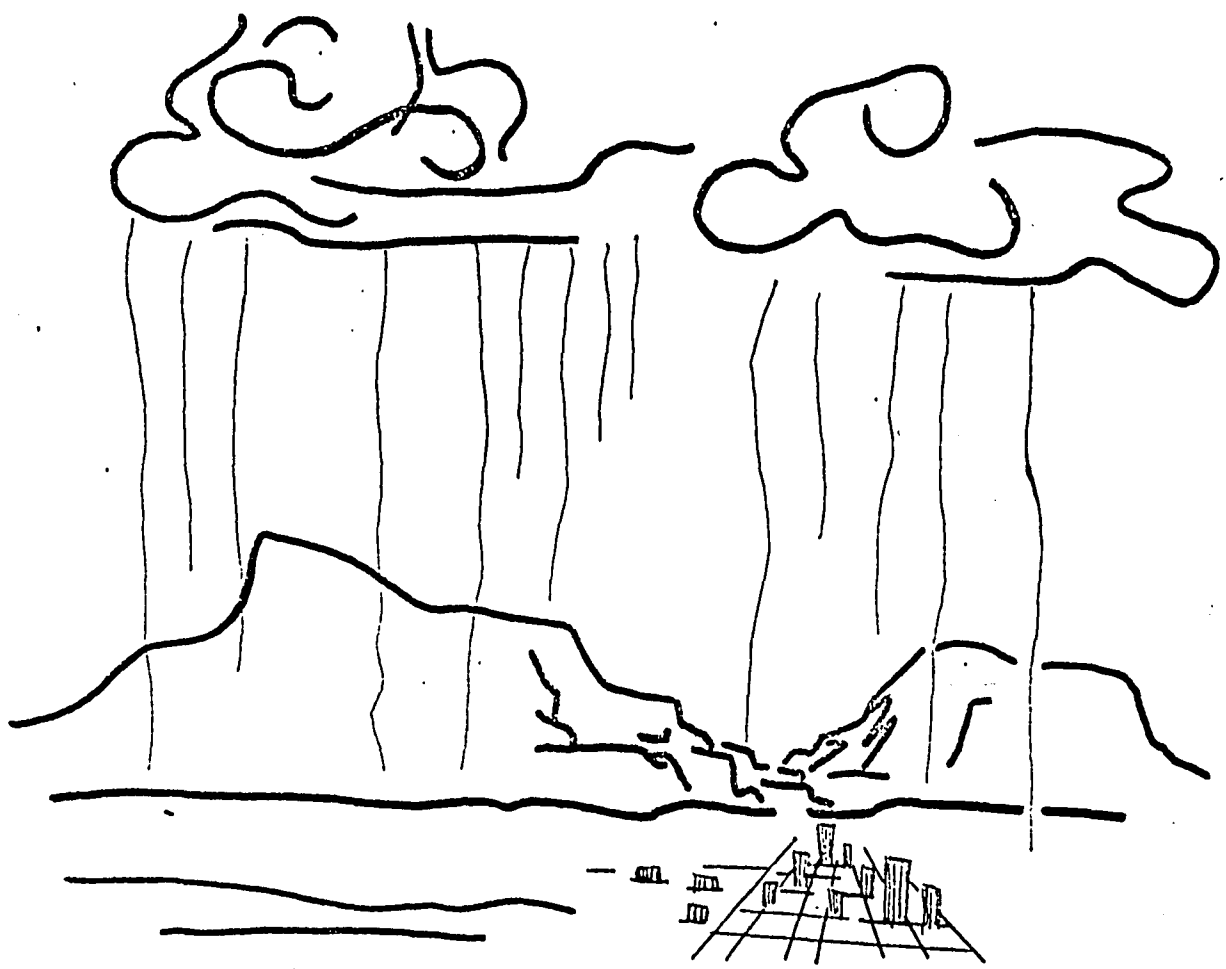

FIGURE 3

ILLUSTRATION FOR "JUST SUPPOSE" NO. 1

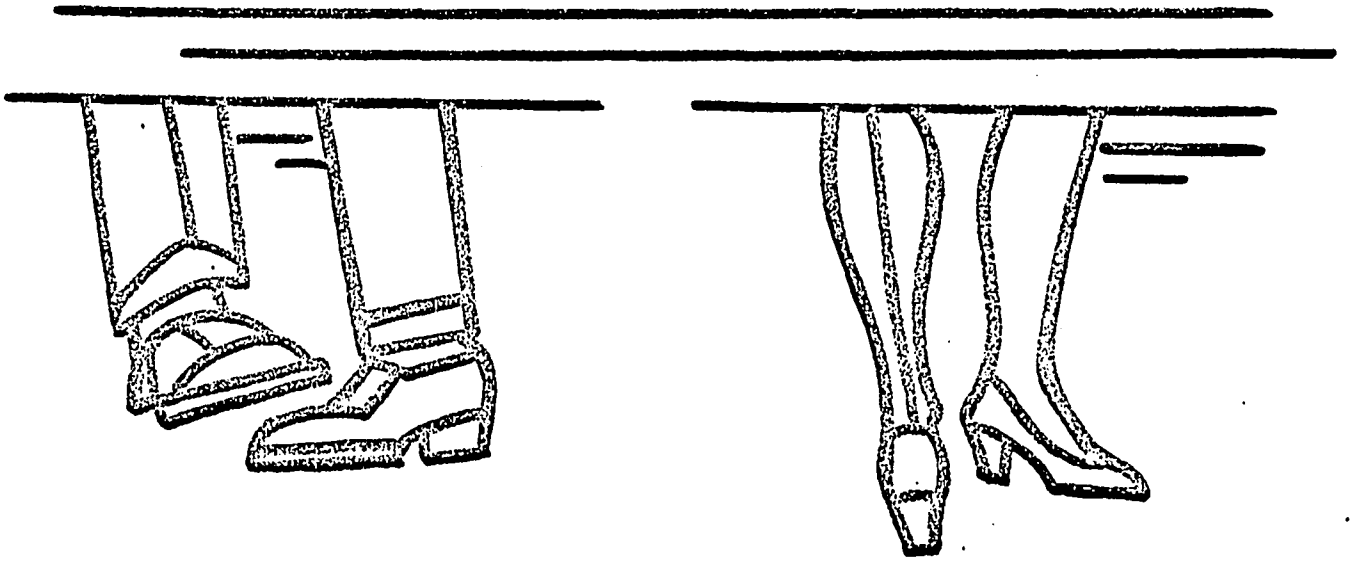

FIGURE 4

ILLUSTRATION FOR "JUST SUPPOSE" NO. 2

Ten minutes were allowed for the completion of the activity.

The test was scored in accordance with the Torrance Scoring Guide, as follows:

Fluency

The fluency score for the Just Suppose task was determined by counting the number of different consequences or possibilities listed. No credit was given for inappropriate and irrelevant responses such as "There would be a thick fog" or "You could not see people's faces," or responses that described conditions that already exist or have no direct relevance to the situation to be examined. Occasionally, respondents listed within one sentence a number of different consequences or ideas; under this circumstance, multiple scoring was made.

Flexibility

A score of 1 was given for each change or shift in attitude or focus. There was no credit given when there was no change in focus, no mental leap from one approach to another. The following set of responses would receive no credit:

> You could not see people's faces
> You could not see them smile or frown

Whereas the following received a score of 2: (Asterisks indicate shifts in attitude or focus)

> You could hardly breathe
> We would pay more attention to people's feet*
> People would wear fancier shoes
> Someone would invent a reverse periscope to see below fog*

Originality

Originality was judged primarily by the rarity of the response in accordance with Torrance's samples. Obvious responses which required little or no mental leap were not considered original, despite rarity. A list of both common, unoriginal and original responses is included in the appendix. Responses not included in this list and which were remote from the obvious received two credits. Those designated "Original" on the list received one credit.

Scoring was performed by experimenter and three graduate School Psychology students, who were specially trained by their professor in these techniques as part of an advanced seminar in testing. The mean Pearson product moment coefficients between experimenter and student scoring with Z' transformations are: fluency, 0.99; flexibility, 0.94 and originality, 0.91. These findings indicate that acceptance of the Torrance Scoring Guide as a basis for judgment assures reliable correlation with special training and that experimenter judgment can be accepted.

The actual scores on the test ranged from 0 to 60 for Elementary school subjects and 1 to 72 for Junior High school subjects. The distribution of these scores tended to approach a normal one, as indicated by an inspection of Figures 5 and 6 and is consistent with the finding of previous researchers.

Examples of highly original responses to the question, "Just suppose a great cloud fell over the earth and people were invisible except for their feet" follow:

"Rewards would be offered for the ten most wanted feet."
"Feet would make out."
"Senses of hearing and touch would be more important."
"Identification would be made by shoes."
"Someone would invent a reverse periscope."

Obvious responses to the same question are those given by sixth grade children as follows:

"We would bump into one another."
"Crime would increase."
"We would not know our mothers and fathers."
"School would close."
"There would be a lot of confusion."

The task appeared to grip the subjects' interest, permitting them to express themselves without discipline or orderliness in a meditative or reflective manner. Indeed, original responses seemed to be humorous, a quality which demands playfulness and imagination, as contrasted with the staid, rather pedestrian responses above.

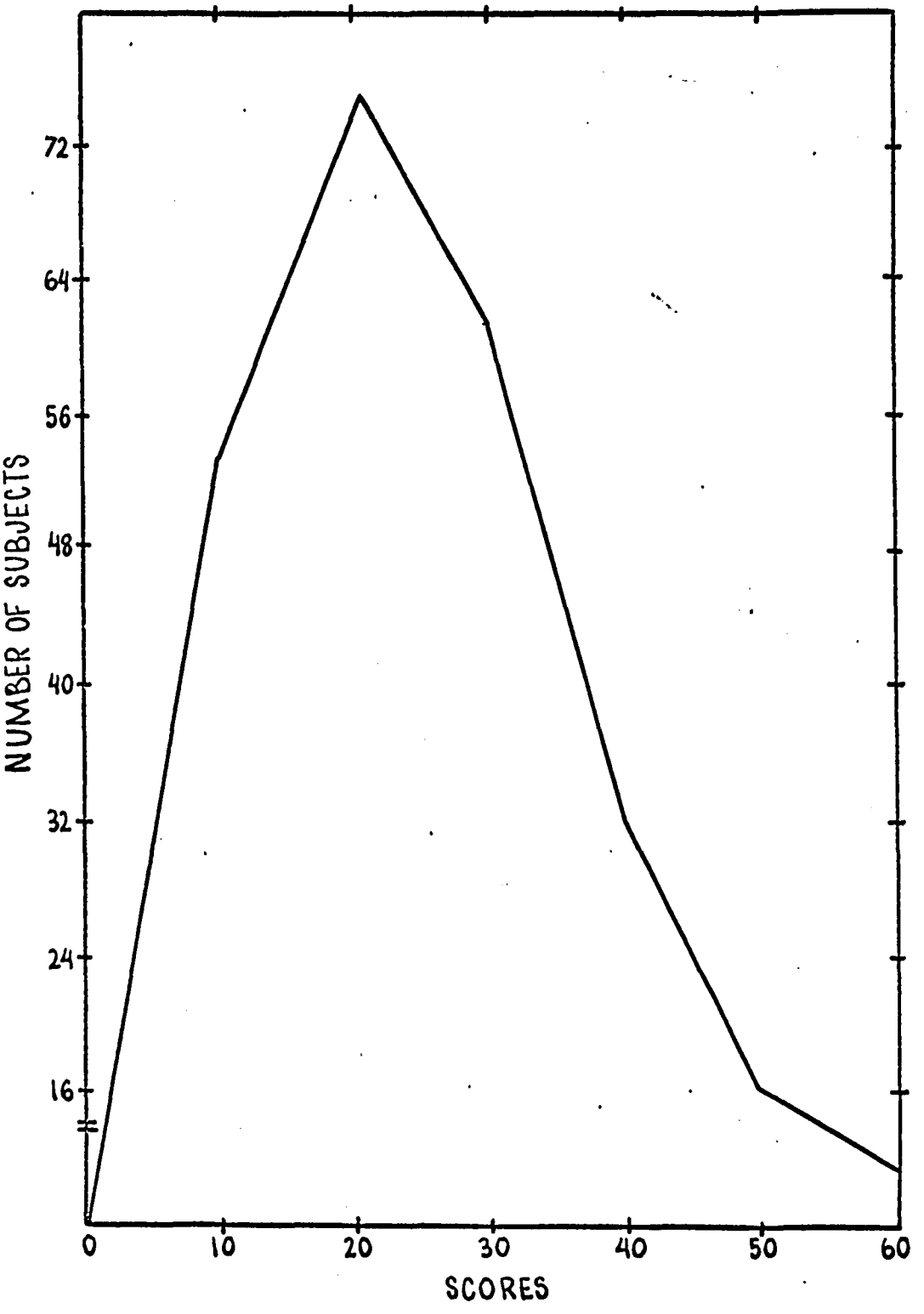

FIGURE 5

TORRANCE "JUST SUPPOSE" SCORES FOR
ELEMENTARY SCHOOLS
(M=20.55; n=245)

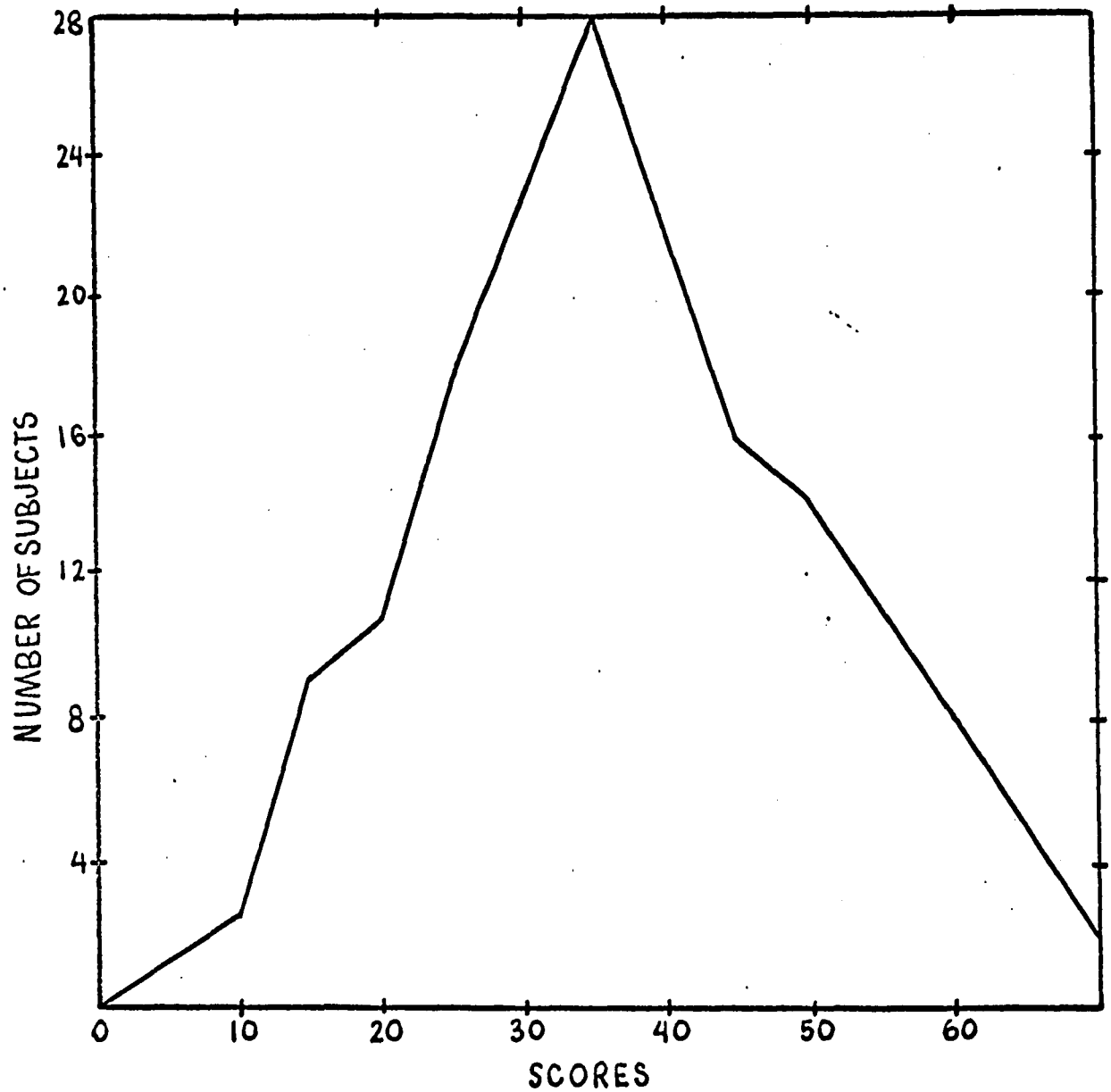

FIGURE 6

TORRANCE "JUST SUPPOSE" SCORES FOR
JUNIOR HIGH SCHOOLS
(M=37.15; n=165)

3. Activity Preferences

This test was administered within the Home Room immediately following the completion of the previously-described task. The following instructions were delivered verbally to the class after they had settled down after a brief stretch:

> "On the sheet before you are pairs of activities. I would like you to look at each pair and decide which one you prefer. Please underline the ONE activity of each pair which you prefer in general, NOT taking the frequency or the availability of the activity into consideration. To make this experiment valid, it is absolutely necessary not to omit any pair, even if it is difficult to make a choice. Don't forget; be sure to underline one activity of each pair."

In this two category task, a score was obtained which indicated how often the item for ideational interests won. Those who scored in the first tercile were designated Highs, those in the second tercile were Moderates and those in the third tercile were Lows in Activity Preferences.

The scores on the test ranged from 0 to 35 for Elementary school children and from 0-39 for Junior High school children. The distribution of these scores tended to approach normal, as can be seen from Figures 7 and 8.

It was of some interest to note that the youngest children tended to choose activities that seemed to rely on an adult for their execution. Thus, "Visiting a Museum" was one of the most popular fourth grade activities and one

of the least popular eighth grade activities. As such, it may be that ideational interests develop out of dependency needs and may dissipate with age.

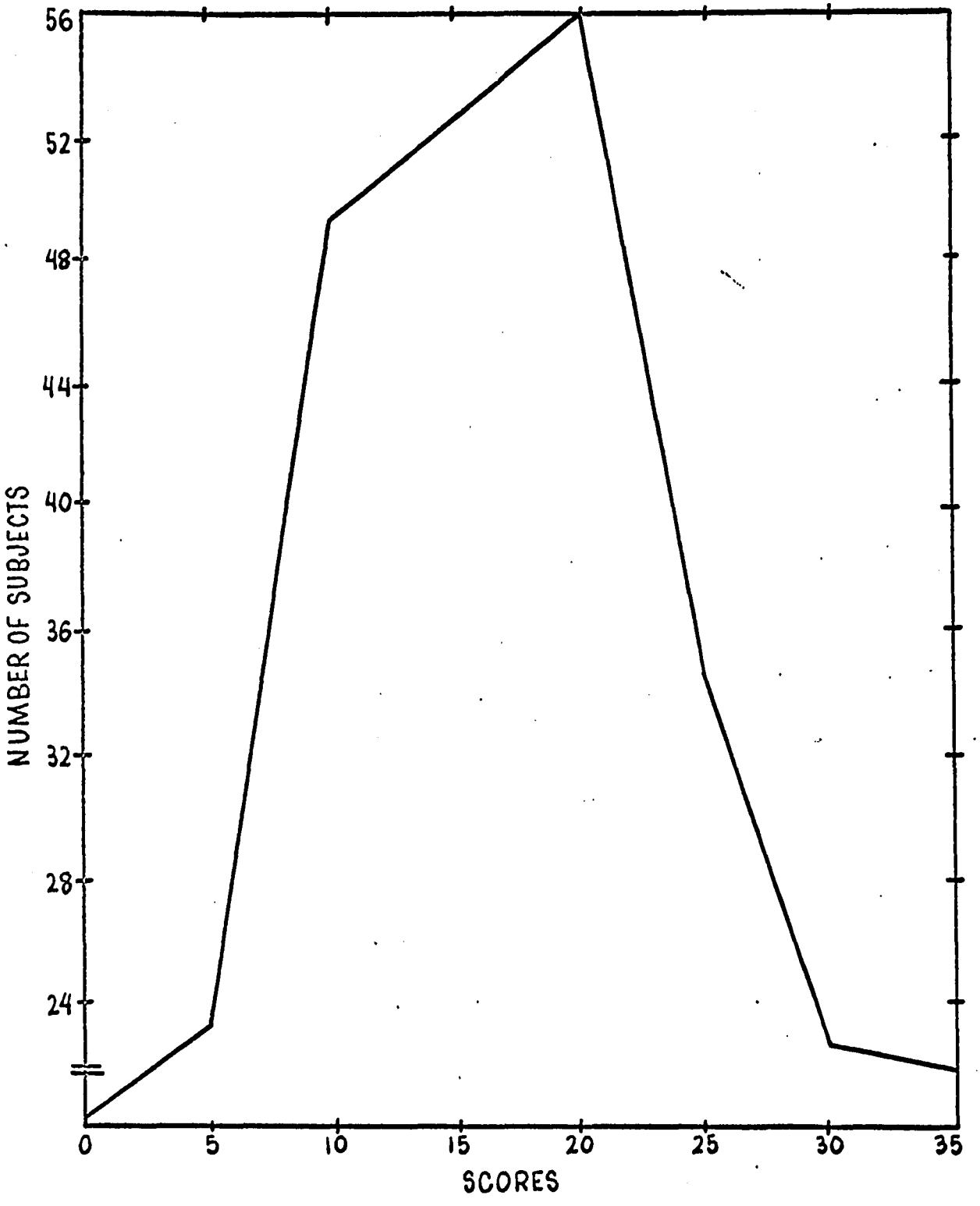

FIGURE 7

ACTIVITY PREFERENCE SCORES FOR
ELEMENTARY SCHOOLS
(M=16.57; n=245)

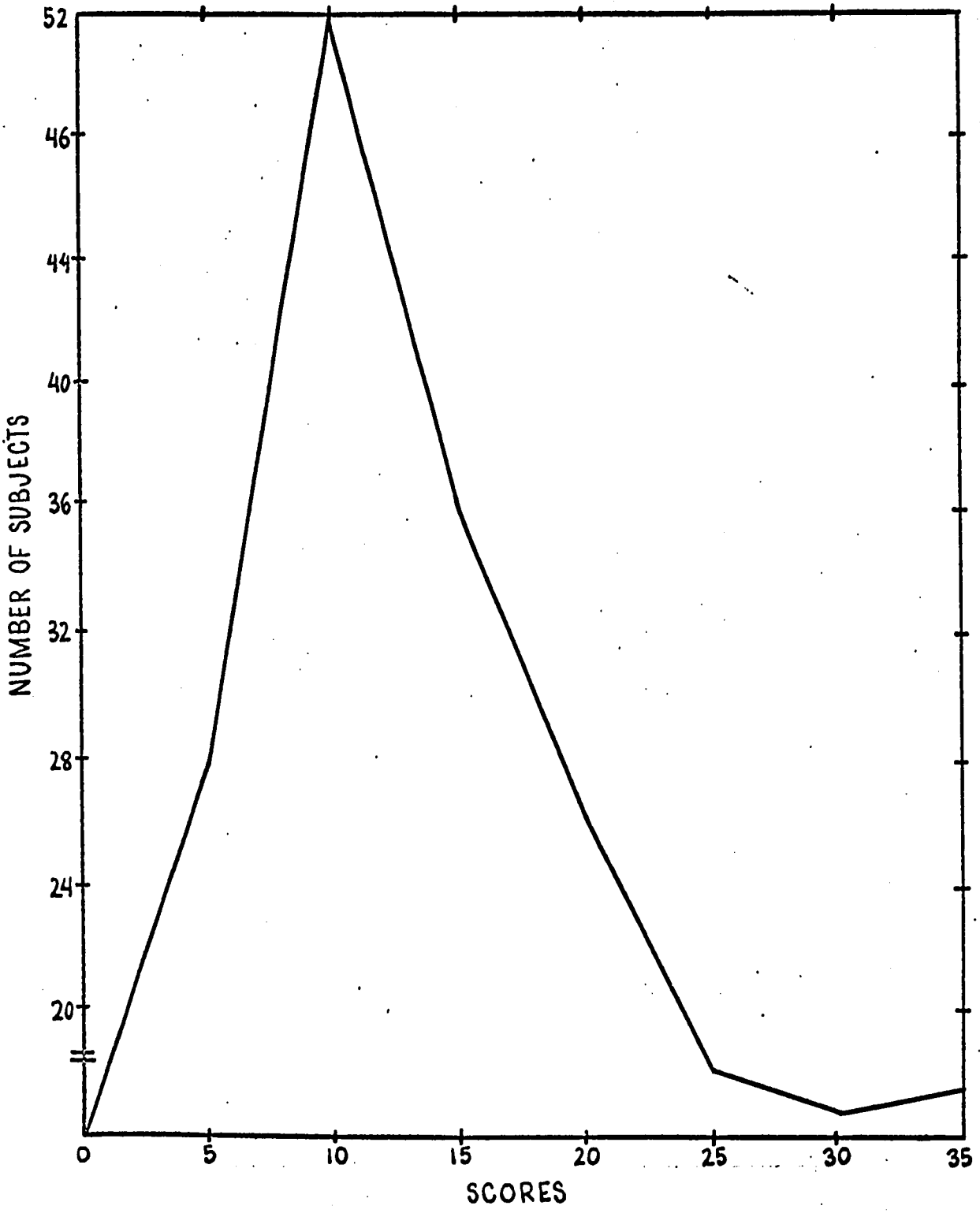

FIGURE 8

ACTIVITY PREFERENCE SCORES FOR
JUNIOR HIGH SCHOOLS
(M=12.85; n=165)

C. MODELING PROCEDURES

Seven to ten days after the Imag-Predisp measures were obtained, the experimenter began the modeling procedures. The time gap was necessary to permit scoring and distribution of subjects into their appropriate tercile ranks. Each grade level was completed before initial testing was begun with other grades within the same school building to forestall discussion of the experiment.

Six subjects, generally 3 boys and 3 girls, High, Moderate and Low in Imag-Predisp, were tested together in the experimental room under one of the three modeling conditions. This heterogeneous group was told that some interesting, short films would be shown. The first of these, Film "A," was a 16 millimeter sound color film by Norman McLaren called, "Short and Suite," and required 4 minutes, 47 seconds for viewing. All titles and credits were deleted, leaving only unexposed film and a "count-down," to permit the children to settle down. Indeed, the "count-down" was a rather fortuitous event, for most groups spontaneously called out the numbers, assuring attentiveness to the stimulus. The film was projected onto a 4-1/2 x 6 foot grainless screen with a Graflex 16 mm. projector in an adequately darkened room. The projector was an unusually fine one and was relatively insensitive to light, casting a clear, bright image onto the screen at all times. Upon its completion, the female experimenter

served as the model and interpreted it in one of the ways expressed below in accordance with either fantasy, realistic or neutral modeling, and depending upon the age of subjects (Elementary or Junior High) and the desired condition:

Realistic (To all age groups):

> "This is a film made by Norman McLaren, a Canadian film artist, who put moving patterns of color and light to the feeling and rhythms of music written for a jazz group by Eldon Rathburn. The film was made without a camera by the artist drawing and coloring directly on the narrow ribbon of film with pen and ink. It won an award at the International Film Festival, Venice, Italy. Now let's see another one."

Neutral (To all age groups):

> "That was an interesting film, wasn't it? None of it is meant to look like anything in particular and I am sure that all of you have different ideas as to what it is all about. But now, let's see another one."

Fantasy (Elementary School):

> "Once there was a little monkey who lived in a beautiful jungle full of flowers and birds. This monkey was different from the other monkeys because he could fly. Although he loved to fly with the pretty colored birds, he was lonely. None of the other monkeys would play with him because he could fly and they couldn't. One day, flying high over the jungle, he saw hunters collecting animals for a zoo. He rushed to the other monkeys and flew them all to safety. From that time on he was never lonely and all the other monkeys made him their friend. Now let's see another one."

Fantasy (Junior High School):

> "Bill and Jane were skindiving while on vacation in Bermuda. They enjoyed themselves looking at the beautiful coral, underwater plants and jewel-colored fishes. They entered the mouth of a cave,

> partially obscured by boulders. Before their eyes lay the remains of the sunken island of Nada, said to have disappeared hundreds of years ago. Their discovery made them famous and scientists from all over the world came to study there. Now let's see another one."

Upon completion of the modeling condition, Film "B," "A Phantasy," by Norman McLaren was shown with the following instructions:

> "What do you think this film was all about? I'm sure all of you have different ideas and I'd like you to write them down now. Remember, no two people will have seen exactly the same things. There are no right or wrong answers. Just write down your feelings of what this film is all about."

Subjects were given as much time as they required to write their interpretations, which varied from two to fifteen minutes. They were then dismissed with the admonition to refrain from discussing the film with their classmates or with other children in the school. Another group from the same classroom was taken immediately thereafter until all subjects in a class were used.

The foregoing utilization of subjects was followed for elementary children. There was a minor change with Junior High children, who had less flexibility in programming than the Elementary School children. With the Junior Highs, a schedule based on periods was established and notices were sent to the various teachers instructing them to excuse certain students at specified times. The children reported to the experimental room at the designated times during the day.

The system worked fairly well, minor lapses being overcome by the use of an aide who "collected" forgetful subjects.

D. SCORING TECHNIQUES

Interpretations of the Film "B" were scored as follows:

1. Weisskopf's Transcendence Index, the number of comments each subject makes about the film that fall into any of the following eleven categories:

a. Intraception refers to the ascribing of emotions, desires, thoughts, fantasies, needs, motives, feelings, attitudes, etc. to the figures in the film.

b. Temporal transcendence refers to the inclusion of time concepts and to the inclusion of events which occur prior to or after the events depicted in the film.

c. Spatial transcendence refers to the inclusion of persons, objects, events, etc., which are outside the field of vision represented by the film.

d. Relationship refers to the characterization of figures as related to other figures in the movie. The great majority of relationship scores refer to kinship, friend.

e. Content of speech refers to verbal statements made by film figures.

f. Evaluation refers to the characterization of figures or objects by a subjective value statement. It may refer to aesthetic evaluation or to moral evaluations.

g. Atmosphere refers to the characterization of the whole film or part of the film in terms of the emotional response which it elicits in the observer. Statements such as "the movie was uncanny" or "the scene was calm and peaceful" fall into this category.

h. Imperative refers to comments to the effect that a figure "should," "must," "is supposed to," act, feel or think in a certain manner.

i. Symbolism refers to the conscious and explicitly verbalized ascribing of symbolic meaning to the movie.

j. Emphasis refers to the singling out or stressing of a part of the movie. Statements such as, "The most important thing in the movie..." fall into this category.

k. Miscellaneous other categories account for a small minority of remaining transcendences.

These represent a composite score which indicates how far out the subject is capable of going when he departs from the stimulus.

Each response was read and re-read separately and each of the above categories was checked when it appeared in the protocol. A specific content was scored once, although it may have made more than one appearance in the response. A numerical count of "1" was given for each transcendence, the total score being the total number of transcendences that appeared.

Every response had been typed and numbered beforehand so that the experimenter and the two judges had no knowledge of either Imag-Predisp or experimental condition. Correlation between experimenter's scores and those of the two judges is .87 and .89 respectively.

2. Level of Fantasy Classification was made by placing the response into one of the five following categories:

a. First Level: The first and lowest level of response is one which the subject makes no response to the stimulus.

b. Second Level: The second level of response is at the enumerative level and consists of static listing of objects seen. An example of this level is, "Balls, butterfly, clock."

c. Third Level: The third level of response calls for ovart description of action such as crying, praying, hiding, dreaming, thinking. It calls for more action than the second level.

d. Fourth Level: The fourth level called Interpretation I, is not as complete as the fifth level requires. It includes an interpretation of kinship or type, such as occupational, religious or mythological characters as represented by people, animals, witches, saints, etc. Another kind of interpretation I would be of a psychological state of feeling or emotion, such as happy, sad, scared or angry. A third

evidence of interpretation I is the assigning of traits to characters, such as nice, mean, good or bad. A response is also scored at this level if it attributes thought to any of the characters.

e. Fifth Level: The fifth level is interpretation II and has two criteria: (1) Subject tells how he feels about others in the movie or (2) a story with a complete plot, including what led up to it, sequence of events and the outcome.

Each level was assigned a weighted score based on the actual level of interpretation. Thus, a First Level response received a score of "1," a Second Level response a score of "2," a Third Level response a score of "3," etc.

In addition to the blind scoring performed by the experimenter, two judges, both experienced in evaluating clinical material, were trained on several pilot stories. When they appeared to understand all the concepts fully and to be agreeing on nearly all of their judgments, they were given the material for scoring with the detailed instructions contained in the appendix. The task was performed independently and Pearson's product moment correlation between the experimenter and her agents was .91 and .90 respectively.

3. Content analysis of response was the measure used to judge the general topic of the written response to Film "B." Assessment was made by the experimenter and by one judge who were unaware of the condition under which protocols

were obtained. All means of identification were removed and protocols were mixed, both for age and Imag-Predisp as well. Responses were sorted into three groups: Action or adventure; Romance, sex or achievement; and None or ambiguous. Experimenter and judge agreements for the three categories were 89 per cent, 91 per cent and 86 per cent, which are adequate. Experimenter decisions were used in the statistical analysis.

CHAPTER III

RESULTS

All dependent variables were analyzed, wherever possible, by means of a 3 x 3 or 3 x 3 x 2 analysis of variance design. Results regarding hypotheses made in relation to the Modeling situation will appear in Tables 7-11; 13, 14 Section (A); findings for those hypotheses concerned with Imaginative Predisposition will appear in Tables 12-15; 8, 9 Section (B); those related to Age will appear in Tables 16-19 Section (C); Interactions will be discussed in Section (D) and miscellaneous results appear in Tables 20-26 Section (E).

This factorial design demands equal N's but this was not possible because of normal attrition. To compensate for this small inequality, a number of observations were inserted by using the average observation in the appropriate cell. For each observation inserted, one degree of freedom from total and within sum of squares was sacrificed, in accordance with the penalty procedure described by Lindquist (1953). An alternate technique (Snedecor, 1956) was performed by randomly eliminating data in excess of the smallest number of observations in a cell; here, 34 cases were removed

from the Elementary school data and 11 from Junior High school data. Both methods yielded the same results and, in order to avoid confusion, only the first method will be described herein.

The former procedure was followed for all 3 x 3 factorials. However, this technique (Lindquist, 1953) and the Snedecor (1956) method did not appear to be so satisfactory for the 3 x 3 x 2 design. If the former is used to compare Elementary school and Junior High school children, 72 observations must be inserted to equalize the cells; this is not the "small inequality" described by Lindquist. If the latter method is used, 72 Elementary school observations must be eliminated; again, this represents a fairly large part of information that the experimenter was loathe to lose.

Therefore, another method, an "approximation method," (Walker & Lev, 1953) was used which retained all of the data. Here, the mean square within subclasses was multiplied by a constant in order to obtain the mean square for error. The constant was obtained by using the reciprocal of the number of subclasses multiplied by the sum of the reciprocals of subclass frequencies. The sums of squares for rows, columns and interaction were then computed by treating each mean as a single observation.

Another difficulty was encountered in statistical analysis because of the number of cells in the design. Because there are nine and eighteen cells, mutually independent

comparisons are mathematically impossible. Even though all comparisons were planned beforehand, Scheffe's test is the appropriate one (Scheffe, 1959). This test is far more conservative than the procedures used for testing planned orthogonal comparisons; that is, larger differences are required for significance. Scheffe suggests takingaan alpha of .10 rather than .05 when using this test, and this was done when appropriate.

In accordance with Scheffe's formulae, F was not evaluated in the usual way. Rather, a value for F' was obtained, which varied with the number of degrees of freedom involved in each analysis. In each of the subsequent tables, Scheffe's technique was utilized whenever F' appears in place of F.

A. MODELING EFFECTS

This first hypothesis predicted that children who observed a model interpreting ambiguous material would tend to reproduce this behavior when they were not directly reinforced for it. Modeling behaviors were expected to produce shifts in observer responses in accordance with experimental conditions and elicit material that was conceptually similar and appropriate to the experimental conditions or provide the opportunity for the subjects to directly imitate or closely approximate the expression of the model.

Table 7 presents the mean scores achieved by both Elementary and Junior High school children under the three modeling conditions, using the Index of Transcendence as the measure. Differences in means among Fantasy, Realistic and Neutral conditions occurred as predicted for both age groups, although differences between Realistic and Neutral conditions failed to achieve a satisfactory level of significance.

Tables 8 and 9 present separate analyses of the Index of Transcendence for Elementary and Junior High school children. Both groups show a very strong modeling effect, although the degree of effect is different for the two age groups. Elementary school children expressed significantly more imaginative behavior under Fantasy conditions than they did under Realistic or Neutral conditions. Junior High school children did not display the same effects; differences between Fantasy and Realistic conditions do not reach significance whereas differences between Fantasy and Neutral conditions were significant at .05 level ($F'=16.43$). Generally, modeling effects were much more powerful among Elementary school children than among the Junior High school group. To indicate the power of the effect, when both groups are combined, modeling effects appear when comparisons are made between Fantasy and Realistic, Fantasy and Neutral conditions. Table 10 shows a summary of the main effects of modeling for Elementary grades, Junior High grades and all subjects combined.

TABLE 7

MEAN SCORES ON INDEX OF TRANSCENDENCE FOR MODELING CONDITION: ELEMENTARY AND JUNIOR HIGH GRADES

	Fantasy		Realistic		Neutral	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Elementary grades	5.55	3.00	3.43	2.06	3.29	1.78
N	84		84		84	
Junior High grades	7.89	2.70	5.86	3.10	5.42	3.10
N	57		57		57	

TABLE 8

SUMMARY OF ANOVA
INDEX OF TRANSCENDENCE FOR ELEMENTARY GRADES

Source	df	MS	F
Treatments	8	35.33	5.4*
Error	221	6.48	
			F'
Partitioning of 8 df			
Main Effects			
Modeling (A)			
Fantasy vs. Real.	1		29.93*
Rantasy vs. Neut.	1		33.39*
Imag-Predisp (B)	2		n.s.
Interaction (A X B)	4		nns. (Less than 1.00)

*.01 level of significance

TABLE 9

SUMMARY OF ANOVA
INDEX OF TRANSCENDENCE FOR JUNIOR HIGH GRADES

Source	df	MS	F
Treatment	8	65.36	6.85*
Error	148	9.45	
			F'
Partitioning of 8 df			
Main Effects			
Modeling (A)			
Fantasy vs. Real.	1		11.22 n.s.
Fantasy vs. Neut.	1		16.43**
Imag-Predisp (B)			
High vs. Low	1		28.04*
High vs. Mod.	1		13.68***
Interaction (A X B)	4		Less than 1.00

*.01 level of significance
**.05 level of significance
***.10 level of significance

TABLE 10

SUMMARY OF ANOVA
SIGNIFICANCE OF THE EFFECTS OF MODEL'S PERFORMANCES
ON SUBJECTS' INDEX OF TRANSCENDENCE

Response variable	N	Fantasy vs. Realistic		Fantasy vs. Neutral	
		F'	p	F'	p
Elementary grades	252	29.93	.01	33.39	.01
Junior High grades	171	11.22	n.s.	16.43	.05
All subjects combined	423	18.90	.01	24.10	.01

Because the modeling effects appeared to be largely disinhibitory effects, then subjects could be expected to follow the model's conceptual framework. Under these circumstances, it appeared wise to examine the Level of Fantasy Classification to ascertain if the concept "Story," with all of its ramifications, was the example followed in the Fantasy condition. Means and standard deviations for Level of Fantasy Classification scores for the three modeling conditions appear in Table 11. Differences among Fantasy, Realistic and Neutral conditions occurred as predicted for both age groups, although differences between Realistic and Neutral conditions do not reach a satisfactory level of significance.

Tables 13 and 14, in Section B, present separate analyses of the Level of Fantasy Classification for both Elementary and Junior High school groups. There is a very strong modeling effect, although this effect does differ between the two age groups. Elementary children's scores were affected in the Fantasy vs. Neutral and Fantasy vs. Realistic conditions and surpassed the .01 level of significance. The effect was less powerful with Junior High school children; orthogonal comparisons between Fantasy and Reality show significance at .10 level and between Fantasy and Neutral conditions at .01 level, leading to the conclusion that older children are somewhat less susceptible to the influence of models than are younger children.

TABLE 11

MEANS AND S.D.'S FOR LEVEL OF FANTASY CLASSIFICATION FOR MODELING CONDITIONS: ELEMENTARY AND JUNIOR HIGH GRADES

	Fantasy		Realistic		Neutral	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Elementary grades	4.18	0.73	2.95	0.71	3.07	1.25
N	84		84		84	
Junior High grades	4.04	1.67	3.81	0.82	3.65	0.82
N	57		57		57	

Some qualitative results follow, illustrating the Main effect, Modeling, as measured by the Transcendence Index:

A fourth grade girl, exposed to the Fantasy model, responded, "Once there was a church and the people of the church wanted to make it beautiful. So they took yards of ribbon; they used two of them to decorate. They decorated the rocks too. A butterfly came along and pushed the other yard of ribbon into the sky. And the balls of ribbon did a dance in the sky, fell to earth and made a beautiful tree." This response received a score of "9" on the Transcendence Index.

A fourth grade boy, exposed to the Realistic model, responded, "Colors running into each other forming a picture." This response received a score of "2" on the Index.

Another fourth grader, under Neutral conditions, wrote, "1. Atoms 2. Different colors." This response was scored "2" in Transcendence.

In all grades there was a consistent tendency for the children exposed to the Fantasy model to produce longer responses, more imaginative records and more clever or original responses than those in the Realistic or Neutral condition. It can be concluded that pupils can learn to behave imaginatively if they are exposed to a model who engages in imaginative behavior; this is particularly true among the elementary school years. In general, few precise imitative responses

or direct mimicry were observed; the responses were primarily in terms of disinhibitory effects.

Now, stressing Modeling in terms of the Level of Fantasy Classification, the differences among the groups can be illustrated by the following examples:

An eighth grade boy, exposed to the Fantasy model, responded, "It's John Brown running for his life. He had just blown up five enemy bridges all by himself. The Germans were after him with tanks, planes and dogs. John fled into the forest, not an ordinary forest but one filled with many legends, animals and a hideous monster who was believed to be a descendent of the two million year old Tyranasaurous Rex. He was never heard from again." This response received a score of "5" on the Level of Fantasy Classification, which is a high-level interpretation.

An eighth grade girl, exposed to the Realistic model, responded, "This film I'm talking about, the second part, is about birds, butterflies going around changing shape, size and color. A very weird film. Things moved to the beat of the music. I enjoyed this film only because it kept you wanting to see what would happen next to the different objects." This response was scored "3" on the Level of Fantasy Classification.

A sixth grader, under Neutral conditions, wrote, "Sea, men, bird, the body, cemetery, garden, colors." This response was scored "2," a relatively low level of interpretation.

In all grades there was a strong pull to the fifth level, or interpretative level, when the children were exposed to the Fantasy condition. Following the model, they tended to relate stories with a complete plot, described feelings and emotions which could best be designated "eliciting effects," and/or "disinhibitory effects."

B. IMAG-PREDISP EFFECTS

Hypotheses related to questions of personality integration, imaginative predisposition and cognitive differentiation were also investigated. The first of these stated that children who obtained a moderate score for Imaginative Predisposition (Imag-Predisp) would be ambivalently and anxiously motivated toward imitation and, as such, would produce a precise imitative response to the model. It was expected that this intermediate group would be strongly influenced by social reality and anxiety for approval and would produce the greatest imitative effects. However, direct imitation was almost unobservable in the population studied, there being no more than twenty cases in the entire experiment. Hence, statistical analysis was not performed and the hypothesis was rejected outright. Comparisons between those Lows and Moderates and Highs and Moderates in Imag-Predisp became irrelevent with this rejection.

The second hypothesis related to Imag-Predisp stated that those High in Imag-Predisp would show evidence of greater

differentiation in their personality organization than the Lows and Moderates. Such discriminating attributes as the complexity of thought units, articulation and integration of response, abstraction, were evaluated by the Level of Fantasy Classification of the responses written after the film stimulus. Contrasted with the Highs, Lows were expected to write responses that were relatively concrete, unsophisticated, lacking explication and development.

Table 12 presents the means and standard deviations of both Elementary and Junior High school children's scores for Level of Fantasy Classification according to Imag-Predisp.

There are no differences among the means of the Elementary school children insofar as Imag-Predisp is concerned; and for this group the hypothesis must be rejected. However, Junior High school children's scores reveal the differences predicted, although differences between Highs and Moderates failed to achieve a satisfactory level of significance.

Tables 13 and 14 present separate analyses of variance of the Level of Fantasy Classification for Elementary and Junior High school children. Although F is highly significant for both age groups, partitioning of the Main Effects reveals that differences lie primarily in Modeling effects rather than in Imag-Predisp effects. As stated above, Imag-Predisp affects Level of Fantasy Classification

TABLE 12

MEAN SCORES FOR LEVEL OF FANTASY CLASSIFICATION ACCORDING TO IMAG-PREDISP: ELEMENTARY AND JUNIOR HIGH SCHOOL GRADES

	High		Moderate		Low	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Elementary grades	3.43	1.14	3.41	0.89	3.37	0.97
N	84		84		84	
Junior High grades	4.20	1.16	3.87	0.47	3.71	1.13
N	57		57		57	

TABLE 13

SUMMARY OF ANOVA
LEVEL OF FANTASY CLASSIFICATION FOR ELEMENTARY GRADES
IMAGINATIVE PREDISPOSITION

Source	df	MS	F
Treatments	8	9.80	11.26*
Error	221	0.87	
			F'
Partitioning 8 df			
Main Effects			
Modeling (A)			
Fantasy vs. Real.	1		72.93*
Fantasy vs. Neut.	1		59.39*
Imag-Predisp (B)			
High vs. Low	1		less than 1.00)
High vs. Mod.	1		less than 1.00) n.s.
Interaction (A X B)	4		less than 1.00)

*.01 level of significance

TABLE 14

SUMMARY OF ANOVA
LEVEL OF FANTASY CLASSIFICATION FOR JUNIOR HIGH GRADES
IMAGINATIVE PREDISPOSITION

Source	df	MS	F
Treatments	8	65.36	6.85*
Error	148	9.45	
			F'
Partitioning 8 df			
Main Effects			
Modeling (A)			
Fantasy vs. Real.	1		14.95**
Fantasy vs. Neut.	1		24.18*
Imag-Predisp (B)			
High vs. Low	1		14.00**
High vs. Mod.	1		5.10
Interactions (A X B)	4		less than 1.00 n.s.

*.01 level of significance
**.10 level of significance

scores for Junior High school children; i.e., those who were High in Imag-Predisp showed greater evidence of complexity, abstraction, organization, as measured by Level of Fantasy Classification, than those Low in Imag-Predisp. ($F'=14.00$, $p < .10$).

The third hypothesis relating to Imag-Predisp stated that Highs and Lows would display disinhibitory effects, i.e., responses more or less similar to those exhibited by the model rather than precise, imitative responses. The disinhibitory responses of those High in Imag-Predisp would be conceptually similar to the model's but actually highly original response tendencies which transcend the stimulus; the responses of those Low in Imag-Predisp would be sparse and constricted, tending to show the strongest modeling effects in the Realistic condition. Moderates were expected to be directly imitative in their responses to the stimulus.

The Index of Transcendence was the measure utilized to evaluate this hypothesis. Table 15 presents the means and standard deviations of Elementary and Junior High school children's scores according to Imag-Predisp. It appears from this result that Imag-Predisp does affect Transcendence Index scores although the effect is stronger among Junior High groups. Reference to Tables 8 and 9, Section (A), which present summaries of analyses of variance for this variable, reveal that Elementary school children's scores did not reach

TABLE 15

TRANSCENDENCE INDEX: MEANS AND S.D.'S OF IMAG-PREDISP FOR ELEMENTARY AND JUNIOR HIGH GRADES

	N	High Mean	High S.D.	Moderate Mean	Moderate S.D.	Low Mean	Low S.D.
Elementary grades	252	4.60	3.00	3.94	2.34	3.72	2.04
Junior High grades	171	8.21	3.50	5.94	2.59	5.02	2.41

a significant level, although a trend is evident. On the other hand, differences in Imag-Predisp among Junior High school children affected Transcendence Index scores at a very significant level when Highs and Lows were compared ($F'=28.04$, $p < .01$). When Highs and Moderates are compared, $F'=13.68$, which is reliable beyond the .10 level of significance. However, this comparison was not planned beforehand and, as such, reliance on the .10 level must be viewed with caution.

In general, the effects noted above appear to be disinhibitory in nature rather than imitative or eliciting.

The expectation that Moderates would respond with imitative patterns was not supported to any degree and this hypothesis was rejected outright, without statistical analysis.

Examples of the various kinds of modeling effects obtained from the children follow:

The first of these are the direct, imitative responses previously described with an example of an eighth grade boy's response to the Realistic model:

> "I think the different objects moved as the sound of the music played. If the music was soft, the objects would move in a slow rhythm. If it was faster, they would move faster."

A sixth grader's direct, imitative response to the Realistic model follows:

> "It gave me an ideal picture about the different kinds of colors and it felt like the colors were being thrown at the screen."

A sixth grade boy's direct, imitative response to the Fantasy condition follows:

> "Once there was a lonely person. He never played with his friends because they didn't like him. He watched all his friends play all day long. They would make beautiful trees come out of the ground and flowers, too. He was lonely because he was odd. He just sat and watched. One day, when he was watching, he felt something strange. All of a sudden he was just like his friends. He would play and play. From then on he lived happily ever after. The end."

In each of these examples, the model's theme was directly imitated in all or part of the response. This was sharply contrasted with the majority of the responses, which were disinhibitory effects, or responses more or less similar to the model's but followed the models' conceptual frame of reference.

Examples of the kinds of responses made by those High, Moderate and Low in Imag-Predisp, together with Level of Fantasy Classification and Transcendence Index scores follow:

> "I think the film was about a boy and a girl who love each other. The boy has many friends and they persuade him to run for office. He wins and slowly forgets the girl he knew when he was poor. Slowly he becomes more and more powerful and forgets completely about the girl, who still loves him. He then builds a huge castle with more and more lands. He becomes a king. Soon after, a revolution comes and he is captured and about to be killed. When the poor girl hears of this, she plots and rescues him. Poor and powerless, he realizes he loves her and so they walk into the

> sunset. Oh! I forgot to say that when he becomes rich and famous, he goes with a girl, not because he loves her but for her money. At the end, however, he leaves this woman to go back to his real love."

This seventh grade boy, High in Imag-Predisp, scored "5," or Interpretative level II, on the Level of Fantasy Classification. His Transcendence Index Score is "12."

Another seventh grade boy, Moderate in Imag-Predisp, wrote,

> "Plants growing, making seeds, the seeds growing. Mother Nature. Birds and butterflies. One bird was killed."

This response was scored "3," the third Level of Fantasy Classification, or overt description of action. The Transcendence Index score is "7."

A seventh grade girl, Low in Imag-Predisp, responded,

> "Hi ya! I thought the second part of the film was very boring. It had very dull colors and the music was practically the same throughout the second part. I have no idea what the film was about. Sorry!"

This response was scored "2," the second Level of Fantasy Classification, and received "3" on the Index of Transcendence.

As reflected in the scores, the qualitative data also support the notion that Junior High school students reveal their Imag-Predisp regardless of the modeling condition. The effect is present on both measures, Level of Fantasy Classification and Transcendence Index. The same conclusion cannot

be drawn about Elementary school children, whose Imag-Predisp seemed to be submerged in the modeling condition.

C. AGE EFFECTS

Hypotheses dealing with Age will be considered next. Willingness to entertain the imaginary or to express fantasy was conceived to be an adaptive cognitive skill differentially developed. In relation to this, the first hypothesis stated that Junior High school children would be more likely than Elementary school children to engage in fantasy activity. Means and standard deviations for both dependent measures, based on Age, are presented in Table 16 which follows.

Junior High groups achieved higher scores on both Transcendence Index and Level of Fantasy Classification, as predicted. In order to determine whether differences were sufficiently large to be significant, data were analyzed by 3 x 3 x 2 factorials, summarized in Tables 17 and 18. Orthogonal Comparison between Elementary and Junior High school children's scores for Index of Transcendence reveals that differences surpass the .001 level of significance. Likewise, comparison between Age for Level of Fantasy Classification reveals differences which are significant at .01 level.

The second hypothesis concerned with Age effects stated that the contents of Elementary school children's fantasies would describe actions through the use of adventure stories

TABLE 16

MEANS AND S.D.'S OF INDEX OF TRANSCENDENCE AND LEVEL OF FANTASY CLASSIFICATION, ACCORDING TO AGE

	Elementary		Junior High	
	Mean	S.D.	Mean	S.D.
Transcendence Index	4.08	3.60	6.43	3.40
Level of Fantasy Classification	3.38	1.03	3.98	0.84
N	252		171	

TABLE 17

SUMMARY OF ANOVA, 3 x 3 x 2,
INDEX OF TRANSCENDENCE
ELEMENTARY AND JUNIOR HIGH
SCHOOL CHILDREN

Source	df	MS	F
Treatments	17	47.39	15.43**
Error	369	3.06	
			F', Means
Partitioning 17 df			
Main Effects			
Modeling (A)			
Fantasy vs. Real.	1		6.20*
Fantasy vs. Neut.	1		7.05*
Imag-Predisp (B)			
High vs. Low	1		6.07*
High vs. Mod.	1		4.37
Age (C)			
Elem. vs. JHS	1		8.28**
Interactions	12		All below 3.00, n.s.

* .01 level of significance
** .001 level of significance

TABLE 18

SUMMARY OF ANOVA, 3 x 3 x 2,
LEVEL OF FANTASY CLASSIFICATION
ELEMENTARY AND JUNIOR HIGH
SCHOOL CHILDREN

Source	df	MS	F
Treatments	17	.35	14.0**
Error	369	.03	
			F', Means
Partitioning 17 df			
Main Effects			
Modeling (A)			
Fantasy vs. Real.	1		7.86**
Fantasy vs. Neut.	1		8.05**
Imag-Predisp (B)			
High vs. Low	1		3.34
High vs. Mod.	1		1.88
Age (C)			
Elem. vs. JHS	11		5.78*
Interactions	12		All below 3.00, n.s.

* .01 level of significance
** .001 level of significance

with a team or group. These would differ from Junior High school children's fantasies, which were concerned with opposite sex romances, vocational planning and achievement.

This hypothesis is clearly supported by the data, which appears in Table 19. Elementary school children's responses are expressed through adventure stories; Junior High school children's responses are largely concerned with romance, sex and achievement. A positive association exists between age and contents with a probability of only about .005 in a distribution with 2 degrees of freedom. Sex differences are not significant for either age group, although boys show greater action and adventure responses than girls, and girls give more romance, sex, achievement responses than boys.

Examples of Elementary Action and Adventure responses follow:

> "The film was about 7 boys who are bored and wanted to do something exciting. One day, a fairy sent the boys into space, so far away they couldn't see or feel the sun. Then they got separated and wandered away. Later on, six of them found each other. About 5 days later, they found the seventh one and the fairy took them back to earth."
>
> "I thought the film was about invaders from another planet, who are coming to make more of their people. After they made more people, they invaded the planet. After that, they would go to another and invade that too. Until they found a planet to stay. It was a very colorful film and good."
>
> "Title: The Night Dancers. This looked like to me a film about certain little creatures that are produced by a certain object and dance all night until they fall down and sleep."

TABLE 19

CONTENT ANALYSIS OF RESPONSES ACCORDING TO SEX NUMBER OF CHILDREN OF JUNIOR HIGH AND ELEMENTARY AGE IN THREE CATEGORIES: ACTION OR ADVENTURE; ROMANCE, SEX, ACHIEVEMENT; NONE OR AMBIGUOUS

Responses	Junior High		Elementary		Total		Grand Total
	Boys	Girls	Boys	Girls	Boys	Girls	
Action or Adventure	29	21	67	48	96	69	165
Romance, Sex, Achievement	35	40	30	39	65	79	144
None	20	16	31	28	51	44	95
	84	77	128	115	212	192	404

Chi square, differences between Age - 11.40, significant at .005 level
Chi square, differences between Sex - 2.61, n.s. Junior High
Chi square, differences between Sex - 2.80, n.s. Elementary

Examples of Junior High responses with thema of Romance, Sex and Achievement follow:

> "I think that this movie was about a couple who went to a party. This party started late in the afternoon and ended around midnight. At the party there wasaa lot of drinking and eating. On the way home the couple was killed."

> "The film seemed to be the inside of the mind of a person trying to escape from the problems of life. He kept moving outward but was enclosed again. He was finally subdued and died."

> "I thought that was all about Creation. First there was life, then the sea, the planets, the sun, animals, trees and flowers. Then there was death. The flowers and stone were at a cemetery where someone had just died."

> "I think it is about the evolution of man. In the beginning he builds a glorious civilization. Then it crumbles. The bird symbolizes the evil of man. In the middle, man was trying to rebuild his civilization. Then the bird, Evil, again took hold. But then man destroyed Evil. In the end, he had a glorious height of civilization, higher than ever before."

Qualitative differences, as illustrated above, emphasize, not merely higher levels of expression from the older children, but also the projection of contents that are dependent upon stage of development.

It appears, then, that imaginative behavior increases with age and as such, it can be concluded that it is a skill that develops with differentiation, that there are age trends in ability to engage in fantasy and in contents as well.

D. INTERACTION EFFECTS

Hypotheses concerned with eliciting effects did not show statistical significance. That is, modeling operated independently of both Imag-Predisp and Age and Age was independent of Imag-Predisp. Eliciting effects would only be apparent when modeling interacts with the other Main Effects; with these unreliable interactions, the responses can only be called "disinhibitory."

E. A number of additional questions will be considered in this section; they are concerned with (1) sex differences in response measures, (2) with verbal expressiveness in relation to imagination, and (3) with response length.

1. It appeared desirable to investigate sex differences in response measures, Level of Fantasy Classification and Transcendence Index, particularly because the model-experimenter was female. As can be seen from Tables 20 and 21, there are no significant differences between boys and girls of either Elementary or Junior High ages for either measure. Using a two-tailed test for Fisher's t's, the values of .83, .88, .88 and 1.2 are considerably below the values indicated for the related degrees of freedom at .05 level. It would appear then that the sex of the model did not affect boys and girls differently.

2. Scales of the type used in this study are open to criticisms that response biases of one sort or another can

TABLE 20

SEX DIFFERENCES
INDEX OF TRANSCENDENCE

	Elementary		Junior High	
	Boys	Girls	Boys	Girls
Mean	4.07	4.10	6.38	6.48
S.D.	1.66	2.13	2.51	1.97
t	1.2		.88	
N	128	124	89	82

TABLE 21

SEX DIFFERENCES
LEVEL OF FANTASY CLASSIFICATION

	Elementary		Junior High	
	Boys	Girls	Boys	Girls
Mean	3.36	3.43	4.00	3.90
S.D.	.88	.98	.85	.89
t	.83		.88	
N	128	124	89	82

occur. One might be in terms of verbal expressiveness. Is imaginativeness being measured or merely verbal skill, the ability to give extended fluent verbal accounts?

As a first step indicating that the experimental conditions rather than fluency accounted for verbal expressiveness, an analysis of the number of words in responses was performed. This was done by randomly selecting 90 Elementary protocols and 90 Junior High protocols, by consulting a table of random numbers. Means and standard deviations are in Table 22 and analyses of Variance performed independently on the word counts of Elementary and Junior High subjects appear in Tables 23 and 24. For Elementary subjects, the word count reveals a significant difference between experimental conditions. That is, $F' = 11.47$ when the Fantasy condition is compared with Neutral modeling and is significant at the .01 level. When Fantasy modeling is compared with Realistic modeling, $F' = 5.04$, which is significant at the .10 level.

Junior High subjects do not follow this pattern, the word count revealing no significant differences among the modeling conditions. When data for both age groups are combined, no significant differences appear, as per Table 25.

Thus, a word count might be a useful predictor of Stimulus-bound vs. Stimulus-free for Elementary school subjects only. That is, when young children depart from

TABLE 22

MEANS AND S.D.'S FOR AVERAGE NUMBER OF WORDS IN RESPONSE FOR ELEMENTARY AND JUNIOR HIGH SCHOOL CHILDREN

	Fantasy		Realistic		Neutral	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Elementary school	44.7	18.6	31.4	25.1	24.9	13.7
Junior High school	63.3	36.1	67.8	36.1	55.5	25.7
N	30		30		30	

TABLE 23

NUMBER OF WORDS IN RESPONSE
RANDOM SAMPLE OF NINETY ELEMENTARY
SCHOOL CHILDREN IN THREE
MODELING CONDITIONS

Source	df	MS	F
Treatments	2	3058	5.98*
Error	87	511	
			F'
Partitioning 2 df			
Modeling			
Fantasy vs. Real.	1		5.04**
Fantasy vs. Neut.	1		11.47*

* .01 level of significance
** .10 level of significance, Scheffe's F' = 4.78

TABLE 24

NUMBER OF WORDS IN RESPONSE
RANDOM SAMPLE OF NINETY JUNIOR HIGH
SCHOOL CHILDREN IN THREE
MODELING CONDITIONS

Source	df	MS	F
Treatments	2	565.0	.4 n.s.
Error	87	1155.0	
Partitioning 2 df			
Modeling			
Fantasy vs. Real.	1		less than 1.00
Fantasy vs. Neut.	1		less than 1.00

TABLE 25

NUMBER OF WORDS IN RESPONSE
RANDOM SAMPLE OF 180 ELEMENTARY AND
JUNIOR HIGH SCHOOL CHILDREN IN
THREE MODELING CONDITIONS

Source	df	MS	F
Treatments	2	78.5	less than 1.00
Error	177	1067.0	
Partitioning 2 df			
Modeling			
Fantasy vs. Real.	1		less than 1.00
Fantasy vs. Neut.	1		less than 1.00

literal, realistic interpretations, they tend to use more words for self-expression. This does not appear to hold for older children, where the extensiveness of their verbal accounts was not influenced by experimental conditions.

In order to examine this question further, another analysis was deemed important. Transcendence Index is a measure which, in part, is dependent upon verbal fluency for a high score. On the other hand, Level of Fantasy Classification depends less on fluency and more on organization of thought. Thus, a score of "5" on this instrument can be obtained with relatively few transcendences. Pearson's r's between Transcendence Index and Level of Fantasy Classification for the two age groups are .55 and .57 respectively, significant beyond the .01 level, as noted in Table 26 below.

It appears, then, that verbal expressiveness per se is not responsible for high scores and that there is a strong relationship between imaginative and cognitive expression.

3. An examination of modeling procedures might lead to questions regarding the relationship between the number of words used by the experimenter and the number of words produced by the subjects. Are the effects obtained the result of the modeling of Fantasy, Realistic or Neutral conditions, or are they merely the result of the modeling of various word counts?

TABLE 26

CORRELATION BETWEEN TRANSCENDENCE INDEX AND LEVEL OF FANTASY CLASSIFICATION FOR ELEMENTARY AND JUNIOR HIGH SCHOOL CHILDREN

	Elementary School	Junior High School
Pearson's R	.55	.57

Table 27 shows the means and standard deviations for both age groups together with the actual number of words used by the experimenter. The relative length of the Elementary school children's responses seems modeled after the experimenter's and, as such, appears to be another expression of modeling. However, this is far from likely. First, it does not seem possible that the length of experimenter's remarks could be internalized and retained in memory with an intervening time of ten minutes. What could be retained would be a general impression of how the model behaved but scarcely response length.

Furthermore, this question of verbal expressiveness has already been discussed in (2) above. To repeat: If Transcendence Index is a measure which is dependent upon verbal fluency, then high scores in the Fantasy condition could be attributed to the influence of the length of model's statement rather than to experimental condition. This is not the case for the Level of Fantasy Classification, where number of words does not affect the score. Because these two measures correlate so well, number of words in the Fantasy condition cannot have influenced the findings.

In summary, results of this study appear to support the notion that imaginative behavior can be learned through modeling, although modeling effects are stronger among Elementary than among Junior High school children. For the

TABLE 27

AVERAGE NUMBER OF WORDS OF NINETY RANDOMLY SELECTED ELEMENTARY SCHOOL AND NINETY RANDOMLY SELECTED JUNIOR HIGH SCHOOL CHILDREN IN RESPONSE TO MOVIE "B" AS COMPARED TO NUMBER OF WORDS USED BY MODEL

	Fantasy		Realistic		Neutral	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Model, Elementary	107.0		75.0		42.0	
Elementary Subjects	44.7	18.6	31.4	25.1	24.9	13.7
Model, Junior High	77.0		75.0		42.0	
Junior High Subjects	63.3	36.1	67.8	36.1	55.5	25.7

older children their Imaginative Predispositions yield the greater effects on response to the films, while for the younger children the predisposition has less clearcut impact on their story-telling.

CHAPTER IV

DISCUSSION

There are several ways in which the meaning and implication of these findings can be examined; but an attempt will be made to follow the general organization of the study even though a certain amount of overlapping must be present. That is, a discussion of Main Effects (Modeling, Imag-Predisp, Age) will be presented first; this will be followed by implications of the findings for a theory of fantasy and child development; limitations of the study and implications for further research will be the topics that close the section.

The strategy of this experiment was designed to assess the impact of modeling on free fantasy as well as its effects on predisposition to imaginativeness for children of two age groups.

Modeling

That susceptibility of children to expression of fantasy was enhanced by exposure to an adult model was clearly supported by the finding that children who observed a model behave imaginatively were able to engage in similar behavior

to a greater degree than those who had observed a model behave realistically or in a neutral manner. This is consistent with previous experimental demonstrations of the effectiveness of models in altering children's behavior in general and in altering imaginative behavior in particular (Bandura et al., 1963; Klinger, 1968). However, very little direct imitation has been noted except with children of preschool age. In early forms of modeling, the child reacts at the same time or in the same place as the presented content. Later, there are delays or deferments. Such delays presuppose a regulation by some kind of internal model or schema (Werner, 1957; Piaget, 1951), to which the model must enter as a discriminating cue; in this way, the response varies in a manner that becomes more and more autonomous with experience. In other words, the increased differentiation of context of execution from context of presentation implies an increasing ability to transform patterns of observed behavior into personal symbols. This would explain why children did not engage in direct imitation as had been predicted; rather, the children reflected the important cognitive strides they have made from their four year old status by their present capability of regulation by schemas rather than by simple pictorial or iconic representations. As such, the modeling that occurred must be defined as "disinhibiting" rather than the direct imitation illustrated by Bandura's subjects.

It can also be argued that the use of schemas is a source of pleasure in its own right, providing the "reward" that was inherent in this experiment. As cognitive creatures, the children appeared to be attempting to order their world in spite of the confusing stimulus, attentive to every available cue that might lead them to such ordering. By "matching" the model to existing schemas, learning was facilitated as well as rewarded, thereby permitting the "disinhibitory effect" evoked in the Fantasy or Realistic condition.

When such cues were not accessible or when the model did not provide an opportunity to make discriminations, as in the Neutral condition, another picture emerged. Under this circumstance, the children appeared confused by the model's "interpretation" of the film, finding it difficult to know what was expected of them. Their responses reflected this confusion in their concreteness; many of the observers resorted to previously-learned behaviors from Imag-Predisp instructions and listed a series of objects in response to the film. Without regard to the quality of the film and without regard to Imag-Predisp, the children behaved least imaginatively when the model engaged in a Neutral way.

This lends support to the notion that exposure to imaginative models enhances imaginative behavior; that exposure to training in realism or the absence of clarification of demands leads to factualism and usefulness in the socialization process.

As Schachtel (1959) has formulated it, there are pressures on the developing child to accept the codes and views of society in explicit and implicit ways. Some parents and teachers foster explorative curiosity and imaginative behavior implicitly by their own divergence, openness to experience and enthusiasm for the less conventional aspects of life. Other adults become models of studiousness, conformity and convergent thinking for their children. In some respects, the experimenter may have provided a microcosm of these learning situations, "disinhibiting" either the imaginative or conservative components of the children.

When the imaginative component of the children was cued or called to attention by the model, this was the self they revealed; when the realistic component was stimulated, they responded in kind; the neutral model, on the other hand, presented no distinctive cues and the children rushed to the safety of the conventional and conservative.

This responsiveness to the modeling procedures was over and above the general positive responsiveness to the experimenter. The children in every grade expressed interest and excitement in all of the tasks, which culminated in the highest enthusiasm for the films themselves. During the period experimenter was in the various school buildings, children greeted her in hallways with requests to help, to view the movies again, to ask for other, similar movies. Verbal

communications with the children after completion evoked questions which revealed the strength of the learning that took place. Children in the Fantasy condition reported new ideas on the meaning of the film; children in the Realistic condition said they planned to try the techniques the film creator used.

Both qualitatively and quantitatively, then, it appeared that imaginative behavior was an emergent phenomenon, resulting from the cueing or modeling of such behavior so that observers demonstrated that aspect of self. With children of Elementary school age in particular, modeling effects were most powerful, superseding predispositional tendencies.

Imag-Predisp

Hypotheses dealing with Imag-Predisp are as interesting as those concerned with experimental-modeling hypotheses and will be discussed here.

Those hypotheses dealing with Moderates in Imag-Predisp were not satisfied and some speculation is now offered to explain why this group did not engage in direct imitation. If Moderates can be conceived as less responsive to outer and inner promptings than Highs, yet less cut off from stimulation than Lows, perhaps their uncertain position represents a midpoint where the defense of choice is Repression. It is possible that the highly ambiguous stimulus set off anxiety-producing cues which lead to a narrowness of response, a

diminished utilization of cues "out there." In this way their low responsiveness could be attributed to the fact that the material was "too hot to handle" in some cases. In others, repression may have slowed responsiveness to the film and the children could not utilize the model in any way. Hence, their anticipated responsiveness to the model as an expression of their dependent, uncertain position was not expressed, leading to the rejection of the hypothesis.

The Highs in Imag-Predisp were expected to demonstrate responses that were both imaginative as well as complex, integrated, abstract when compared with the Lows, whose responses were hypothesized as being concrete, unsophisticated, lacking explication and development and generally unimaginative.

This hypothesis received support among Junior High school children only; Elementary school children's responsiveness was not affected by their imaginative predisposition.

The Junior High children tended to structure the task in their own terms rather than comply with the model's structure. The Highs seemed willing to risk using their imagination, to express divergent modes of behavior without sacrificing organization and thought. The Lows, too, were intent on expressing themselves. However, this expressiveness to the form of literalness and detail, the fancifulness, playfulness and story-telling aspects of Highs' productions being absent among this group.

The responses of the High adolescents demonstrated, not merely divergent modes of thinking, but also a depth and intensity of affect that was missing among the responses of the Lows. It would seem that feelings and emotions depended upon the cognitive awareness of the film stimulus and that cognitive skill was the prerequisite for the rich, imaginative response to the film. There appeared to be a two-way path between both aspects of functioning in the Highs which was also present in the Lows; and for both groups, this presence or absence of affect and cognitive skill were interrelated, leading to expressiveness as High or Low in Imag-Predisp. The ability lay within the individual observer rather than within the stimulus or the model.

Age

As was indicated in the section relating to Imag-Predisp, Age plays an important role in imaginative behavior. Hypotheses dealing with age were supported; Junior High school children were more capable of fantasy activity than Elementary school children. This older group showed relatively weak modeling effects. Instead, their response preferences appeared to show little need to mold experiences in terms of external reality. They defied external conventional reality and used internal cues to respond to the film. In this respect, Highs demonstrated a tolerance for nonconfirmable experiences of the kind found in the Holtzman and Lows showed

a preference for confirmable responses. It is as if the Low Junior High school subjects responded like the younger children, that their stage of development had not yet reached the same level of the Highs.

This powerful difference between Elementary and Junior High school children in both response measures insofar as modeling is concerned suggests that the external event is more distinctive for the younger child whereas the internal event is more distinctive for the older and that this difference is developmentally determined.

There is little consistency in findings concerning the developmental process, particularly because investigators have been unable to devise tasks suited to a wide range of ages. Different tasks result in different developmental curves. Torrance and his associates (1962) report a steady increase in imaginative behavior from first through third grade. There is a sharp decrease between third and fourth grades followed by recovery during the fifth and sixth grades. Wilt (1959) has written about the decline in imagination which occurs during what she calls the "stage of realism." At about the fourth grade, symbols become stiff and free-wheeling thinking and action-packed art disappears, largely on the basis of conformity to peer group standards.

On the other hand, Vernon (1948) reported that "constructive imagination" did not occur until age eleven, rising

slowly and gradually throughout the school years; not before age eleven (our fifth and sixth graders) could the child invent explanations in terms of thoughts, emotions and activities of characters.

Piaget (1950), too, sees the adolescent relying on symbolism and acquiring the capacity to think and reason beyond his own realistic world. He sees youth's justification of dreams as instruments of thought representing advanced cognitive behavior. In general, all of development reflects change from the simple to the complex, from concrete experience to abstract, from physical to the social to ideational worlds.

In this study, all of the above were evident, some measures reflecting Torrances's findings, others appearing similar to Piaget's and Vernon's. All measures of Imag-Predisp showed a regular increase from fourther grade through seventh grade; during the eighth grade, there was a sharp decline in the level of the Holtzman, Torrance and Activities Preference. On the other hand, this curve was not evident with both dependent variables. Level of Response Classification increased with age with gradual inclements, and Transcendence Index followed predispositional measures.

This finding leads to some speculation concerning the nature of eighth grade responsiveness. They may have shown the caution, the evasive approach to the Imag-Predisp

tasks because of a desire to avoid involvement or because of lack of trust in the examiner in initial contacts. With extended contact as well as the growth of trust in the nature of the experiment, by the time they viewed the films they may have become interested or positively disposed to the idea. Perhaps, the very nature of a film stimulus in itself aroused positive affect whereas initial measures may have appeared more in the nature of "testing." In any event, the power of the inhibiting effects of peer pressures to conformity is obvious and widespread and cannot be overlooked, particularly among fourteen year olds. By the time a child reaches eighth grade, his need for peer approval is intensified and he becomes almost afraid to think until he finds out what his peers are thinking (Sullivan, 1953). Unusual or original ideas, outstanding performance and almost any kind of divergent behavior become the targets of peer pressures; and this may have occurred initially with this group. There is a strong need for a climate which will permit a divergence and permissiveness for imagination; and it may be that this climate can be introduced by a peer or by an outside individual or agent with prestige or power.

There were differences in contents of responses between both age groups as well, supporting the hypothesis that Elementary school fantasies would describe actions through the use of adventure stories with a team or group whereas

Junior High school children's fantasies would describe opposite sex romance, vocational planning and achievement.

This is not surprising if the projective hypothesis is to be accepted--that is, an individual's needs, feelings, drives, sentiments are externalized onto a vague stimulus. In the present study, there were no controllable cues in a particular picture, as in research in Achievement (McClelland et al., 1953), nor were there experimentally introduced cues for motive arousal. Rather, experimenter sought the relatively autonomous thought processes of the subjects. The lack of effect of conditions on the motive expressed lends support to the notion that subjects wove their themes in accordance with their individual response tendencies, which were consistent with their age. Investigators of imaginative thought (White, 1964; Singer, 1966) have pointed out the adaptive role of such activity. They have agreed that daydreaming behavior, e.g., serves to enhance an individual's self-perception, to reflect age and sex-appropriate cultural stereotypes. In this respect, young children's fantasies would be expected to reflect their actual level of development--one in which themes of motor activity and socialization with a peer group are prominent. Adolescent themes reflect their level of development; and this expectation was borne out, not only in this study, but also in a previous study (Symonds & Jensen, 1961). In this study, adolescents tended

to use time concepts more frequently than the younger children and particularly referred to time in terms of a distant past or future. The older group's transcendences seemed to stress evaluative statements as well. Although evaluation and temporal transcendences were not scored, they appear to be additional dimensions that would differentiate the two age groups insofar as contents are concerned.

In general, the findings support the notion of dynamic and structural differences between Elementary and Junior High school children. Younger children appeared responsive to demands from the external world; adolescents' behavior was internally determined, to a large degree. Internal conflicts appear to be related to growing awareness of sexual development, moral commitments and future goals of living, adult role possibilities.

The study suggests that, in the continuum of development, each child is dealing with his own responsiveness to his environment and to his inner experiences. Which experience takes precedence over the other is a function of stage of development. Hopefully, the integration and interaction between the two will come with maturity and the balance between external and internal will free the child to express the power within him.

Theoretical implications

Conceptions of fantasy as drive discharge products which closely approximate regressive or psychopathological phenomena cannot be accepted (Freud, 1949). Support for this notion is gained from the outcome of this study where, for the most part, imaginative behavior appeared to be subject to the influence of learning and reward. Observation enhanced responsiveness rather than diminish it. Imaginative behavior of elementary age children appeared to be tied to external experiences, attention to cues and anticipations of approval from the adult model. The older children did not attend to the model, but rather to internal cues which probably contained the intrinsic reward provided by self-stimulation, intellectual activity. As such, the capacity to be imaginative reflected diversity and differentiation for both age groups, seemingly demanding learning and experience, from simple to complex. Rather than blind forces of drive discharge operating, openness of the individual to the world about him was the compelling energy which mobilized imagination. In the study presented here, this openness to experience for the Elementary school child was the openness to the cues provided by the experimenter; the openness to experience for the Junior High school child was the openness to internal cues. The highest form of openness, hopefully

reached in maturity, is the openess for both outer and inner stimulation and, if this is the case, it is tension-seeking and not drive-reducing.

If this is so, the ability to engage in fantasy must have two components: A cignitive component, possibly learned externally from models and measurable by the Level of Fantasy Classification, and an affective component, a responsiveness to internal signals, possibly measurable by the Index of Transcendence.

The data suggest that the activity of the model led some subjects to create imagery corresponding to the thematic categories they observed, much like cognitive tuning, without further influencing the details of the stories. Once the cognitive sets have been established, subjects wove their themes in accordance with their individual response tendencies. It is as though the stimulation of the model acted upon the schema of subjects have developed that resembled the model's before exposure. In this view, the model's effect on the children served to either elicit or to disinhibit behavior rather than to mimic it.

This action upon existing schemas might lead to the creation of new schemas through accommodation; and as a consequence of practice through imagination, a new richness and a new freedom of associations can develop.

In this way, fantasy can be viewed as a continuing process in which both assimilation and accommodation (Piaget, 1926) eventually integrate so that creative inner activity combines with an awareness of the demands of the outer world. This process does not cease with the advent of adulthood but continues throughout life. The continuation of assimilative activity is essential for the development of creative thought while accommodation results in the rehearsal or modeling of what is appopriate in a social situation.

In terms of development, imaginative behavior may be learned in three stages described by Bandura (1963). The first of these, direct imitation, is the one in which the model exhibits highly novel responses and the observer reproduces these responses in a substantially identical form. The young child, engaging in direct imitation of the actions of the caretaker, would be embarking on the first step necessary for incorporating the positive effects associated with the caretaker. Direct imitation would be the simplest form of fantasy.

The second stage, disinhibition, is the one in which the model's behavior weakens existing responses already existing in the observer. These responses may not match precisely those made by the model but contain individual variation. Here, a somewhat older child has developed beyond the first stage and can allow himself some variation from the model's behavior; what he learns from the model is that some class of events is permissible and need not be suppressed. The child can use the implicit cue "be imaginative" without the need to concretely and motorically follow the model; it is externally motivated.

The third stage, eliciting, is the one in which the model's behavior interacts with observer's perception of acts and serves as a "releaser" for responses of that same class. This interaction of Imag-Predisp with modeling would represent the highest level of learning of imaginative behavior. The interaction of internal and external cues would set off highly imaginative thought, serving the best interest of the individual. This last stage is reached by integrated adults and was not achieved by the children studied in this experiment; as such, it remains highly speculative.

Implications for further research

This reaearch was conducted by a female experimenter with middle-class children of two age groups. The findings

of this study must be limited to the model-observers studied and questions relating to broader issues must be raised.

The first of these relates to the model and the necessity for conducting the experiment with different models. This model probably was able to achieve the greatest attention from the observers in terms of novelty. With the exception of the fourth grade, all Elementary school children had male teachers. It would be worth while to replicate the study using a male model or using observers whose teachers are the same sex as model.

Of equal importance is the question of age of the model. Would Junior High school children be more likely to respond to peers as models rather than adult models? In view of what we know about adolescents and American children's influence by the peer group in particular, an investigation of this sort should be made.

Socioeconomic status should also be studied within this context, with particular emphasis on differing contents of fantasies within various subcultural groups. In one study, (Singer & McCraven, 1961) Negro and Jewish groups showed the highest daydream frequencies and Anglo-Saxons the lowest. The exposure to models might alter this pattern and much might depend upon the age, sex, color and position of the model.

Teachers, too, appear to be unaware of their roles as models of imaginative behavior. The experimenter noted teacher differences on this dimension and what appeared to be class room differences in responsiveness to measures of Imag-Predisp. It would be interesting to see which teachers permit and encourage their children to manipulate, to play with ideas and to engage in divergent thinking and how this affects responsiveness to the stimuli used in this study.

More work deserves to be done on individual differences as well. Clinical work with highly disturbed individuals suggests that the extremes in Imag-Predisp are unlikely to be influenced by models. If this is so, perhaps repeated exposures will prove more effective, serving to direct imaginative behavior into the service of the ego.

Finally, in this kind of study as well as in all types of modeling studies, it would be well to examine the effects of the model on imaginative behavior after some time interval. It is important to ascertain if modeling effects are merely one-performance effects or whether the influence of the models is more durable.

Implications for education and treatment of emotional disorders

Little is known about the qualities in a teacher that make for imaginative behavior. The old idea that imaginative teachers make for imaginative pupils appears oversimplified. Yet classroom observation fairly cries out that this is so, to

some extent. Procedures and programs must be designed to evaluate this aspect of learning as well as explorations of parent attitudes and interests. If, as this study implies, imaginative behavior may be learned from models, then it behooves us to demonstrate boldness in thinking not only in the school but in the community and culture as a whole.

Questions of homogeneous and heterogeneous groupings in the classroom should also be raised and perhaps some divisions could be made on the basis of imaginativeness...particularly among adolescents. If, indeed, adolescents are likely to learn this skill from peers, then positive, productive interaction should occur among the children.

The implications for therapy are manifold and the observations of the transactions in therapy are the true beginnings of this study. It is in the therapeutic encounter that modeling and imagination can best be demonstrated. The patient, in a dependent relationship with the therapist, learns to behave in certain prescribed ways through the observation of the model, or therapist. In subtle ways, the patient adopts the values of the therapist as well as learns to attend to the same internal cues that the therapist does. Therapeutic work with adolescents might prove more rewarding than it now does if dichotomized dyads were established: Two patients, one constricted, one highly imaginative, who become attentive to one another as models through the

interventions of a third person, the therapist. In this way, both patients would develop in the direction of the internal-external attentiveness to imaginative ideas presented above.

Further, therapy based on modeling techniques may be able to shape prosocial responses. Thus, seriously disturbed children can receive training or demonstrations of how to cope with tasks of varying degrees of difficulty for them. Experimenter/therapist can discuss a problem in a demonstration with the patient and they can jointly reach a decision concerning the appropriateness of the social response made. In this way, the goals of therapy, either to interpret reality or encourage fantasy, can be reached with greater efficiency and effectiveness than with the traditional "insight" methods.

Finally, the level of imaginative thought attained by children of various ages may inform us where they are developmentally and at which point we must start to take them forward. Thus, if twelve year old slum children are behaving imaginatively on an imitative level, the teacher might use her own behavior and demonstration of imaginativeness to encourage the children's growth. The evaluation of changes from direct imitation to greater self-expression would be measures of growth and teaching techniques would be likely to engage the children's attention and interest.

It appears important, then, to support and encourage imaginative behavior in the general population and in the

schools. Trends in early training in realism, which are so marked in recent years, may have to be reversed. If imaginative behavior is related to environmental effects or to training rather than to internal systems independent of such influences, then education can do much to promote this behavior. As yet, it is not clear as to how to educate for such an ability. If indeed, modeling plays an important role, then adults must start early in life by demonstrating to their children that such behavior is desirable and acceptable. Changes in the attitudes of parents and teachers should not be oriented toward "don't do as I do, do as I preach" but "dod as I do." The doing should demonstrate that openness and imaginativeness are desirable qualities, valued and rewarded by the community.

CHAPTER V

SUMMARY

A group of 245 Elementary school children (age 10½-12) and 165 Junior High school children (age 12½-14) was designated High, Moderate or Low in Imaginative Predisposition on the basis of scores on the Holtzman Inkblot Test, Torrance's "Just Suppose" and Activities Preference. The three groups were exposed to three experimental conditions using a film technique: Modeling of Fantasy, Modeling of Realistic and Modeling of Neutral interpretation of a film. Hypotheses relating to modeling, imaginative predisposition and age were as follows:

A. Modeling effects

1. Children who observe a model interpreting ambiguous material will show either imitative (direct mimicry), disinhibiting (similar responses to model's) or eliciting (latent responses released by modeling cues) effects, tending to reproduce model's behavior, regardless of whether model behaves imaginatively or not.

B. Imaginative-Predisposition effects

1. Moderates should produce imitative responses

2. Highs should show greater differentiation in personality organization than Moderates or Lows.

3. Highs and Lows should display disinhibitory or eliciting effects rather than imitative effects.

C. Age effects

1. Junior High school children should be more likely than Elementary school children to engage in fantasy.

2. Elementary school children's fantasies should describe actions whereas Junior High school children's fantasies should describe romance, achievement and vocational planning.

D. Interaction effects

1. Moderates should not show interaction effects (eliciting effects). Highs and Lows in imaginative predisposition should be most likely to show the effects.

The overall findings supported the basic hypotheses; that is, Elementary school children showed strong modeling effects, particularly insofar as disinhibitory effects are concerned. This was not the case for Junior High school subjects, who tended to show Imaginative Predisposition effects more strongly than responses to the model. Both hypotheses regarding Age were strongly supported whereas those concerned with the Interaction between modeling and Imagination Predisposition failed to reach an adequate level of significance.

Primary explanations of the failure of hypotheses were considered as follows:

1. Junior High school children were more attentive to inner stimuli than to external stimuli because of the onset of adolescence and possibly because this age group tends to respond more to peers than to authorities.

2. Imitative responses were not evoked because such responses are more primitive than the disinhibitory and are likely to be found among a younger population than the children studied. Eliciting effects, conversely, represent more advanced levels of development, viewed as a balance between internal and external attention, and would be found among older subjects than these. Disinhibitory effects, those found here, are appropriate to the age of these subjects.

All of these explanations offer elements of credibility and represent avenues for further research.

Finally, a proposed theory of fantasy was offered in which it was linked with cognitive development. The view that imagination develops in stages from the concrete to the abstract and that it interacts with internal and external sources of stimulation was presented.

APPENDIX A: JUST SUPPOSE

EXAMPLES OF ORIGINAL RESPONSES (ONE POINT CREDIT)

We could go there on vacations.
We could have an upstairs Minneapolis and a downstairs.
There would be people who would climb the strings and catch airplanes.
If you couldn't get a ride hitchhiking you could take a string and hop on a car or truck.
There would be races to see who would get to the clouds first.
You could climb up and play hide-and-seek in the clouds.
People would buy clouds just like balloons.
You could use the strings for music.
Animals will all die out.
Bad, people would be bad.
Someone would invent beams to see through fog.
Climate would change.
Would not need clothes.
We would all go crazy.
Earaches would increase.
Hearing would become more important than now.
It would be easier to kiss pretty girls.
Mirrors would be unnecessary.
Could not tell the time.
Water would increase.
Could not work.W
Would have to lay down in order to see

EXAMPLES OF COMMON RESPONSES (ZERO POINT CREDIT)

There would be many more accidents than now.
You could not do anything.
People would bump into things.
Businesses would close up.
There would be confusion
Crimes would increase.
Could not drive.
Could not eat or drink.
Life would stop.
Hair and clothes would be messy.
Could not read or write.
Transportation would stop.
It would terrorize the world.
Cars would have traffic jams, wrecks, etc.
Kids would pull them down.
You could swing from the strings, ride on them, etc.
We would get wet from the rain.
We could use the clouds for kites.
We would never see sunshine.
You could climb up the strings.

Name_____Grade_____

JUST SUPPOSE

You will be given an improbable situation - one that will probably never happen. You will have to just suppose that it has happened. This will give you a chance to use your imagination to think out all of the other exciting things that would happen IF this were to come true.

In your imagination, just suppose that the situation described were to happen. THEN think of all of the other things that would happen because of it. In other words, what would your ideas be? Make as many guesses as you can.

JUST SUPPOSE - CLOUDS HAD STRINGS ATTACHED TO THEM WHICH WOULD HANG DOWN TO EARTH. What would happen? List your ideas and guesses below:

1.....

2.....

3.....

4.....

5.....

6.....

7.....

8.....

9.....

10.....

11.....

12.....

13.....

14.....

15.....

16.....

17.....

18.....

JUST SUPPOSE NO. 2

In your imagination, just suppose that the situation described were to happen. THEN think of all of the other things that would happen because of it. In other words, what would your ideas be? Make as many guesses as you can.

A GREAT CLOUD FELL OVER THE EARTH AND

JUST SUPPOSE - PEOPLE WERE INVISIBLE EXCEPT FOR THEIR FEET. What would happen? List your ideas and guesses below:

1.....

2.....

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12.....

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16.....

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18.....

19.....

20.....

JUST SUPPOSE NO. 3

In your imagination, just suppose that the situation described were to happen. THEN think of all of the other things that would happen because of it. In other words, what would your ideas be? Make as many guesses as you can.

JUST SUPPOSE - A HOLE COULD BE BORED THROUGH THE EARTH. What would happen? List your ideas and guesses below:

1.....

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19.....

20.....

JUST SUPPOSE NO. 4

In your imagination, just suppose that the situation described were to happen. THEN think of all of the other things that would happen because of it. In other words, what would your ideas be? Make as many guesses as you can.

JUST SUPPOSE - THE LANGUAGE OF BIRDS AND ANIMALS COULD BE UNDERSTOOD BY MAN. What would happen? List your ideas and guesses below:

1.....

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15.....

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19.....

20.....

Name_____ Grade_____

ACTIVITY PREFERENCES

Please underline the ONE activity of each pair which you prefer in general, not taking the frequency or the availability of the activity into consideration. To make this experiment valid, it is absolutely necessary not to omit any pair, even if it is difficult to make a choice. Don't forget; be sure to underline one activity of each pair.

1. Playing chess
   Making pottery

2. Acting in the school play
   Working on puzzles

3. Swimming
   Collecting stamps, shells, coins or butterflies

4. Reading biography
   Playing hide-and-go-seek

5. Playing chess
   Riding a bicycle

6. Playing on a school team
   Collecting stamps, shells, coins or butterflies

7. Browsing in bookstores and libraries
   Teaching a dog tricks

8.
8. Visiting a museum
   Playing on a school team

9. Making pottery
   Visiting a museum

10. Visiting a museum
    Sailing a boat

19. Sailing a boat
    Writing stories

20. Visiting a museum
    Playing hide-and-go-seek

21. Browsing in bookstores and libraries
    Playing on a school team

22. Collecting stamps, seashells, coins or butterflies
    Sailing a boat

23. Playing chess
    Teaching a dog tricks

24. Sailing a boat
    Working on puzzles

25. Working on puzzles
    Swimming

26. Making pottery
    Reading biography

27. Riding a bicycle
    Collecting stamps, seashells, coins or butterflies

28. Acting in the school play
    Collecting stamps, seashells, coins or butterflies

36. Collecting stamps, seashells, coins or butterflies
Playing hide-and-go-seek

37. Browsing in bookstores and libraries
Sailing a boat

38. Teaching a dog tricks
Collecting stamps, seashells, coins or butterflies

39. Acting in the school play
Playing chess

40. Working on puzzles
Acting in the school play

41. Reading biography
Swimming

42. Playing on a school team
Reading biography

43. Riding a bicycle
Working on puzzles

44. Making pottery
Collecting stamps, seashells, coins or butterflies

45. Browsing in bookstores and libraries
Acting in the school play

46. Teaching a dog tricks
Writing stories

47. Playing chess
Sailing boats

48. Swimming
Browsing in bookstores and libraries

49. Reading biography
Teaching a dog trickx

50. Reading biography
Riding a bicycle

APPENDIX C

INSTRUCTIONS TO JUDGES FOR LEVEL OF RESPONSE CLASSIFICATION

1. Set out on table the six categories marked on the attached cards, I, II, III, IV, R, "Not readily classifiable."

2. Read each story completely and separately. Place it in one of category I/V before you. If you cannot readily classify it according to the category definition on the card, place it in the pile called "Not readily classifiable."

3. After having categorized all the stories, go to Category I and decide whether each story should remain in that category or should be shifted to another. Make any change necessary.

4. Go to category II and follow instructions in No. 2 above.

5. Go to category III and follow instructions in No. 2 above.

6. Go to category IV and carry on operation.

7. Go to category V and carry on operation.

8. After the above operations have been performed, you will have a better basis for re-examining the stories you have placed in the "Not readily classifiable" category. Now go through these and categorize them.

9. Enter the value of the level of response on the scoring sheet attached.

REFERENCES

Allport, F. H. Social psychology. Cambridge, Mass.: Riverside Press, 1924.

Amen, E. Individual differences in apperceptive reactions: A study of responses of preschool children to pictures. Genetic Psychology Monographs, 1941, 23, Pp. 319-385.

Atkinson, J. W. (Ed.) Motives in fantasy, action and society. Princeton, N. J.: N. J. Van Nostrand, 1958.

Bandura, A. Vicarious processes: A case of no-trial learning. In L. Berkowitz (Ed.), Advances in experimental social psychology. Vol. 2. New York: Academic Press, 1965, Pp. 1-55.

Bandura, A. Behavioral modification through modeling procedures. In L. Krasner and L. P. Ullman (Eds.), Research in behavior modification. New York: Holt, Rinehart & Winston, 1965, Pp. 310-340.

Bandura, A., Grusec, J. E. & Menlove, F. L. Self-monitoring reinforcement systems. Journal of Personality & Social Psychology, 1967, 5, Pp. 449-455.

Bandura, A. & McDonald, F. J. The influence of social reinforcement and the behavior of models in shaping children's moral judgments. Journal of Abnormal Social Psychology, 1963.

Bandura, A., & Menlove, F. L. Factors determining vicarious extinction of avoidance behavior through symbolic modeling. Journal of Personality & Social Psychology, 1968, 8, Pp. 99-108.

Bandura, A. & Walters, R. H. Social learning and personality development. New York: Holt, Rinehart & Winston, 1963.

Banks, R. I. & Walters, R. H. Prior reinforcement as a determinant of visual recognition thresholds. Perceptual & Motor Skills, 1959, 9, Pp. 51-54.

Barron, F. Threshold for the perception of human movement in inkblots. Journal of Consulting Psychology, 1955, 19, Pp. 33-38.

Coleman, W. The Thematic Apperception Test: I. Effect of recent experience, some qualitative observations. Journal of Clinical Psychology, 1947, 3, Pp. 257-264.

Freud, S. An outline of psychoanalysis. New York, W.W. Norton & Co., 1949.

Freud, S. Formulations regarding the two principles in mental functioning. (1911). Collected Papers. London: Hogarth Press, 1949, V. IV, Pp. 13-21

Freud, S. The relation of the poet to daydreaming. (1908). Collected Papers. London: Hogarth Press, 1959, V, IV. Pp. 173-183.

Gerver, Joan M. Level of interpretation of children on the Thematic Apperception Test. Unpublished M.A. dissertation. Ohio State University, 1946.

Getzels, J.W. & Jackson, P.W. Creativity and Intelligence New York: John Wiley & Sons, Inc., 1962

Goldberger, L. & Holt, R.R. A comparison of isolation effects and their personality correlates in two divergent samples. WADD Technical Report, Wright Air Development Division, Wright Patterson Air Force Base, Ohio, March 1961.

Guilford, J. P. Creativity. American Psychologist, 1950, 5, Pp. 444-454.

Guilford, J. P. et al. A factor analytic study across the domains of reasoning, creativity, and evaluation I: hypotheses and description of tests. Reports from the psychological laboratory, Los Angeles: University of Southern California, 1954, No. 11.

Guilford, J. P. Three faces of intellect. American Psychologist, 1959, 14, Pp. 469-479.

Hall, G. S. Children's lies. Pedagogical Seminary, 1891 1. Pp. 211-218.

Holtzman, W. Holtzman inkblot technique: Group administration by slide projection. Journal of Clinical Psychology, 1963, 19, Pp. 433-453.

Holtzman, W., Thorpe, J. S., Swartz, J. D., & Herron, W. Inkblot perception and personality. Austin, Texas: University of Texas Press, 1961

Humphrey, G. Imitation and the conditioned reflex. Pedagogical Seminary, 1921, 8, Pp. 1-21.

Kenny, D. T. Transcendence indices, extent of personality factors in fantasy responses and the ambiguity of T.A.T. cards. Journal of Consulting Psychology, 1954, 18, Pp. 345-348.

King, G. F. An interpersonal conception of Rorschach human movement and delusional content. Journal of Projective Techniques, 1960, 4, Pp.161-1963.

Klinger, E. Modeling effects on achievement imagery. Journal of Personality and Social Psychology, 1967, 7, Pp. 49-63.

Kris, E. On preconscious mental processes. In D. Rapaport (Ed.), Organization and Pathology of Thought. New York: Columbia University Press, 1951, Pp. 474-493.

Lewin, Kurt. Field theory in social science. New York: Harper, 1951.

Lindquist, E. F. Design and analysis of experiments in psychology and education. Boston: Houghton Mifflin, 1953.

McCloy, W. & Meier, N. C. Re-creative imagination. Psychological Monographs, 1939, 51, Pp. 108-116.

McClelland, D. C., Atkinson, J. W., Clark, R. A. & Lowell, E. L. The achievement motive. New York: Appleton, 1953.

McDougall, W. An introduction to social psychology. London: Methuen, 1908.

Morgan, C. D. & Murray, H. A. A method for investigating fantasies: The thematic apperception test. Archives of Neurological Psychiatry, 1935, 34, Pp. 289-306.

Mowrer, O. H. Learning theory and personality dynamics. New York: Wiley, 1960.

Murray, H. A. Techniques for a systematic investigation of fantasy. Journal of Psychology, 1937, 3, Pp. 115-143.

Page, H. A. Studies in fantasy-daydreaming frequency and Rorschach scoring categories. Journal of Consulting Psychology, 1957, 21, Pp. 111-114.

Piaget, J. The language and thought of the child. New York: Harcourt, Brace & World, 1926.

Piaget, J. The moral judgement of the child. New York: Macmillan, 1955.

Piaget, J. Play, dreams and imitation in childhood. London: Heineman, 1955.

Piotrowski, Z. The movement score. In Rickers-Ovsiankina (Ed.), Rorschach Psychology. New York: John Wiley & Sons, Inc., 1960.

Roe, A. The making of a scientist. New York, Dodd, Mead, 1952.

Rorschach, H. Psychodiagnostics. Bern: Hans Huber, 1942.

Schachtel, E. G. Metamorphosis: On the development of affect, perception, attention and memory. New York: Basic Books, 1959.

Scheffe, H. The analysis of variance. New York: John Wiley & Sons, Inc., 1959.

Singer, J. L. The experience-type: some behavioral correlates and theoretical implications. In Rickers-Ovsiankina (Ed.), Rorschach Psychology. New York John Wiley & Sons, Inc., 1960.

Singer, J. L. Imagination and waiting ability in young children. Journal of Personality, 1961, 29, Pp. 396-413.

Singer, J. L. Recent research on dreams and daydreams. In Abt. L. & Reiss, B. (Eds.), Progress in clinical psychology. New York: Grune & Stratton, 1963.

Singer, J. L. Daydreaming. New York: Random House, 1966.

Singer, J. L. & Antrobus, J. S. A factory-analytic study of daydreaming and conceptually-related cognitive and personality variables. Perceptual & Motor Skills, Monograph Supplement 3-V17, 1963.

Singer, J. L. & McCraven, V. Some characteristics of adult daydreaming. Journal of Psychology, 1961, 51, Pp. 151-164.

Singer, J. L. & McCraven, V. Patterns of daydreaming in American subcultural groups. International Journal of Social Psychiatry, 1962, 8, Pp. 272-282.

Singer, J. L. & Schonbar, R. Correlates of daydreaming: a dimension of self-awareness. Journal of Consulting Psychology, 1961, 25, Pp. 1-6.

Singer, J. L. & Streiner, B. Imaginative content in the dream and fantasy play of blind and sighted children. Perceptual & Motor Skills, 1966, 22, Pp. 475-482.

Singer, J. L. & Sugarman, D. Some Thematic Apperception Test correlates of Rorschach human movement responses. Journal of Consulting Psychology, 1955, 19, Pp. 117-119.

Singer, J. L., Wilensky, H. & McCraven, V. Delaying capacity, fantasy, and planning ability: A factorial study of some basic ego functions. Journal of Consulting Psychology, 1956, 20, Pp. 375-383.

Snedecor, G. W. Statistical methods. Ames, Iowa: Iowa State College Press, 1956.

Stein, K. B. & Craik, K. H. Relationship between motoric and ideational activity preference and time perspective in neurotics and schizophrenics. Journal of Consulting Psychology, 1965, 26, Pp. 460-467.

Stein, M. I. & Heinze, S. J. Creativity and the individual. Glencoe, Illinois: Free Press, 1960.

Sullivan, H. S. Clinical studies in psychiatry. New York: W. W. Norton, 1953.

Sutton-Smith, Brian. Piaget on play: A critique. Psychological Review, 1966, 173, Pp. 104-110.

Symonds, P. M. Adolescent fantasy. New York: Columbia University Press, 1949.

Symonds, P. M. & Jensen, A. R. From adolescent to adult. New York: Columbia University Press, 1961.

Taylor, I. A. The nature of the creative process. In P. Smith (Ed.), Creativity. New York: Hastings House, 1959.

Terry, D. The use of a rating scale of level of response in T.A.T. stories. Journal of Abnormal & Social Psychology, 1952, 47, Pp. 507-511.

Thorndike, R. L. & Hagen, E. Measurement and evaluation in psychology and education. New York: John Wiley & Sons, Inc., 1961.

Torrance, E. P. (Ed.) Education and Talent. Minneapolis: University of Minnesota Press, 1960.

Torrance, E. P. & Arsan, K. Effects of homogeneous and heterogeneous grouping on individual behavior in small groups. Paper presented to Third Minnesota Conference on Gifted Children, Center for Continuation Study, University of Minnesota, October 10-12, 1960.

Torrance, E. P. Torrance Tests of Creative Thinking, Verbal, Forms A and B. Princeton, N. J.: Personnel Press, Inc., 1966.

Vernon, M. D. The development of imaginative construction in children. British Journal of Psychology, 1948, 39, Pp. 102-111.

Walker, H. M. & Lev, J. Statistical inference. New York: Holt, Rinehart & Winston, 1953.

Wallace, H. Tests of creative thinking and sales performance in a large department store. In Torrance, E. P. (Ed.), Creativity: Proceedings of the Second Minnesota Conference on Gifted Children. Minneapolis: Center for Continuation Study, University of Minn., 1960.

Walters, R. H., Thomas, L. & Acker, C. W. Enhancement of punitive behavior by audiovisual displays. Science, 1962, 136, Pp. 872-873.

Weisskopf, E.A. A transcendence index as a proposed measure in the T.A.T. Journal of Psychology, 1950, 29, Pp. 379-390.

Werner, H. Comparative Psychology of mental development. (Rev. Ed.) New York: International Universities Press, 1957.

White, R. W. Ego and reality in psychoanalytic theory. Psychological Issues, 1964, 3, Monograph 11.

Wilt, M. E. Creativity in the elementary school. New York: Appleton-Century-Crofts, 1959.

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