

THE EFFECT OF SPECIALLY DESIGNED GARMENTS ON
THE OBSERVABLE MAKE-BELIEVE PLAY BEHAVIOR
OF FOUR- TO SIX-YEAR-OLD FEMALES

by

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Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY
in
Clothing and Textiles

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December, 1983

Blacksburg, Virginia

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(ABSTRACT)

The nonverbal messages conveyed by dress are learned earlier by today's children than they have been at any time in the past. Yet, little empirical research has examined the effect of clothing on the behavioral development of the preschool child. Dress is a medium for carrying out the serious roles of life, but it is also a medium for play. Although numerous studies have investigated play, an important element of child development, few have included dress as a factor.

Research has shown that not all children participate in all forms of play behavior, particularly dramatic play, which contains the element of make-believe. Furthermore, research has shown that increased associative fluency in preschool children is dependent specifically on the occurrence of make-believe play. A child, deficient in such divergent-thinking skills, would seem somewhat disadvantaged and less able to cope with a problematic environment.

The present study asks the question: Can the wearing of specially designed clothing raise levels of observable make-believe behavior for preschool children? Two research hypotheses were formulated to address this question: 1) There

will be a difference in player/nonplayer imaginativeness scores while wearing control and experimental garments.

2) There will be a difference in player/nonplayer imaginativeness scores while wearing Experimental Garment I or II.

Two experimental garments were designed for the research based on separate principles. The Make-believe Concept Garment was designed to directly encourage make-believe play, while the manipulative concept garment was designed to approach make-believe in a purely associative context.

Subjects for the study were 36 females, age 4 to 6. The subjects attended two 1 1/2-hour free-play sessions with a maximum of three other children. Minimally structured toys were provided in a defined play area and all sessions were video-taped. After the first session in which a control garment was worn, the subjects were given tasks from a measure of divergent-thinking. For the second session, each child wore one of the two experimental garments.

Video-tape assessment by two independent judges yielded both quantitative and qualitative assessment of make-believe behavior. From tapes of the first session, the subjects were assigned player or nonplayer status based on the percentage of time spent in make-believe play.

The null hypotheses were tested using the analysis of covariance, controlling for the divergent-thinking score, fluency, and age. The first hypothesis was accepted: There was

a significant difference between the imaginativeness scores of players and nonplayers as well as between the control and experimental garments. The second hypothesis was rejected: The difference between the two experimental garments did not approach significance.

Although primarily exploratory, the present research has contributed some empirical evidence as to the effect of dress on preschool females, and leads one to believe that specially designed clothing increases levels of divergent-thinking through make-believe behavior. Nevertheless, it is clear that other studies are needed before practical application of this finding is possible.

ACKNOWLEDGMENTS

The author would like to express sincere gratitude to the many individuals who contributed in both thought and deed to this research. Without their help, the research could indeed not have taken place. First, appreciation is owed to Dr. Joann Boles, committee chairman and Assistant Professor of Clothing and Textiles. Dr. Boles was mentor, colleague, psychiatrist and most importantly, friend. Her encouragement, excitement and faith were at time the only things to keep the researcher's feet on the degree path--Heartfelt thanks for the many hours both in and out of the office.

Appreciation is expressed to the committee members Dr. Barbara Densmore and Dr. Mary Ann Zentner for their helpful suggestions, to Dr. Dennis Hinkle who assisted with the technical aspects of data analysis, and to Dr. Janet Sawyers, Assistant Professor of Family and Child Development who helped with the technical aspects of data collection as well as helping to fit concepts of clothing with concepts of child development into a logical and sensible research study.

Appreciation is extended to the parents of the 36 subjects for their cooperation and willness to have their children participate in the study and to the many graduate students and friends who gave of their time to come babysit:

, and

And last but certainly not least, sincere love and a special note of appreciation are offered to _____, the weary and bedraggled husband who has had to put up with so much for so long.

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CHAPTER I
INTRODUCTION

The nonverbal messages conveyed by dress are learned earlier by today's children than they have been at any time in the past. Although it was not until the latter eighteenth century that children began to be recognized as other than miniature adults, knowledge of their growth and development has expanded in this century to include all areas of the physical and social being. From the last quarter century alone, one is able to find research in most any area of child development, whether it be physical, cognitive, social or emotional.

With increased knowledge and understanding of children, has come realization that certain environmental cues provide direction to growth and development. One major area of interest seems to be creativity, or the development of divergent-thinking skills. Certain individuals have long been recognized as possessing more creative ability than others, and regardless of the way in which the creativity manifests itself, those possessing it are generally admired and emulated. Although the capacity for creativity may be hereditary, the notion that it can be learned or refined with exercise is commonly accepted.

The study of creativity has been approached from many directions. Recently, creativity in young children has been

studied in relation to forms of play. The research has shown that increased scores on measures of divergent-thinking are dependent specifically on the occurrence of make-believe play. Other researchers have demonstrated that make-believe play does not occur universally as a matter of course, leading some researchers to experiment successfully with various types of play-training sessions.

Clothing research concerning the preschool child is an area that has been largely ignored, despite the wealth of information concerning the effect of clothing on the individual. Research has shown that dress affects not only those with whom the wearer comes in contact, but the attitude and behavior of the wearer himself. Although at present, no empirical studies exist to show that this applies to preschool children, the question of whether clothes might be used as effective tools for behavior modification in young children might still be asked.

The present study has been designed to provide some insight into the above question. Specifically, it is exploratory research formulated to investigate the effect of specially designed clothing on the observable make-believe behavior of 4- to 6-year-old females.

CHAPTER II

REVIEW OF LITERATURE

The review of literature encompasses several topics of a broad and far-reaching nature for which application differs with change in age. For this reason, discussion will be, for the most part, limited to that pertaining to young children. The topics will be discussed in the following order:

1. Creativity
2. Play
3. Play and Creativity
4. Clothing

Creativity

Creativity is a topic which has received considerable interest and study over the years; however, it has often been under the guise of another name--terms such as divergent-thinking, insight, imagination, intuition, and even intelligence. A notable feature of the literature on creativity is the diversity of interests, motives and approaches of the many researchers. In reviewing this literature, three general areas of emphasis are apparent: 1) studies related to products, 2) studies related to personsonality attributes, and 3) studies related to processes. Due to the nature of the topics under

investigation, those related to products and the lifestyles of creative persons, generally concern adults. Children cannot be expected to produce products which are original or valuable in an adult sense, nor can lifestyles or personality be studied reliably at very young ages. It is the study of the process of creativity with which the present study deals primarily, for it is on processes that most research which studies creativity in children is concentrated. Even so, the work with young children has remained relatively sparse.

Work by J. P. Guilford

The major work on creative processes began in the early 1950's with the work of J. P. Guilford. At the core of Guilford's analysis of the process of thinking is the distinction between convergent-thinking--arriving at a precisely implied answer from the information at hand--and divergent-thinking--searching for answers that are only loosely related to what is known, providing a much broader range of possibilities. Guilford (1957) proposed that it was divergent-thinking which showed the most obvious indications of creativity. Through factor analysis, Guilford (1959) identified the following divergent-thinking subprocesses:

- 1) Word fluency--the number of words generated to fulfill particular structural requirements.
- 2) Associational fluency--the number of words which are rapidly generated to fulfill specific meaning requirements.
- 3) Ideational fluency--the number of ideas generated within a given time to fulfill specific requirements.
- 4) Expressional fluency--the ability to reorganize words that meet specific requirements of sentence structure.
- 5) Spontaneous flexibility--the ability to think of one's idea as fitting under a wide range of categories when not specifically called for.
- 6) Adaptive flexibility--the ability to vary categorization of ideas when called for.
- 7) Redefinition--the ability to look beyond the traditional ways of using familiar objects to use them for new purposes.
- 8) Originality--the ability to make responses that are statistically unique.

The Guilford notion of the distinction between the two thinking processes, convergent-thinking (intelligence) and divergent-thinking (creativity), has caused some controversy in the field. At present, it is generally accepted that while intelligence contributes to general problem solving, creativity, defined as original problem solving, can be

considered to be relatively independent of I.Q. (Wallach, 1970, 1971).

Guilford's factors of divergent-thinking (listed above), fall into three categories, four concerned with fluency, three with flexibility, and one with originality. In the 1957 study by Guilford et al., only the ideational fluency factor was found and it showed a .01 correlation with convergent-thinking. Thorndike (1963) points out that in other Guilford studies, the word fluency factor was shown to correlate more strongly with the convergent-thinking domain than the divergent-thinking domain with the implication that if word fluency is deleted, the fluency factors would correlate more strongly among themselves. In the studies by Guilford and associates, the flexibility factors do not seem more strongly related among themselves than with convergent-thinking, nor does originality seem distinguishable from convergent-thinking (Wallach, 1970). Although the divergent-thinking domain as a whole does not seem distinguishable from convergent-thinking, there is a chance that fluency with word fluency deleted may show a larger degree of distinguishability.

Wallach (1970) reported that Barron (1955, 1957), using a Guilford test of originality, found that when the effects of intelligence were partialled out "the major cognitive dimension that remained in terms of partial correlations with the originality composite appeared to be best definable as

something like ideational fluency". Wallach concluded that "part of the tendency to give unusual or original responses, then, seems to arise as a function of greater response fluency or productivity; and this part, along with fluency or productivity itself, seems to be separable from convergent-thinking" (p. 1219). Garwood (1964) and Christensen, Guilford, and Wilson (1957) support Barron's finding that there is an aspect of originality which is tied to fluency of output.

In studies using Guilford's measures with children and young adults, no different findings have been reported. Wherever there was any indication that any of the divergent-thinking factors were separate from the convergent-thinking domain, the evidence, once again, pointed toward ideational fluency (Wallach, 1970).

Wallach and Kogan (1965) have pointed out that although Guilford and associates have defined divergent-thinking as opposed to searching for a "correct" answer, the tests they have conducted take place in an evaluative manner, often with stringent time limits. They contend that such conditions may not be conducive to maximal display of divergent-thinking and had the tests been less evaluative and time limits more lenient or nonexistent, the independence of ideational fluency and related forms of originality from intelligence may have been even stronger.

Association

Mednick's approach to creativity uses the associative gradient suggested by Maltzman, Bogartz, and Breger (1958) as its starting point. Mednick has proposed (1962), that the creative person will show a rather flat associative gradient regarding the response possibilities as he contemplates a task, and therefore be more likely to reach distant, less likely associations. Mednick (1962) cites findings by Blousfield, Sedgewick and Cohen (1954) of high negative correlation between rate of association and total number of associations. Mednick (1962) has shown in a 1958 study that the highly creative individual responds relatively slowly and steadily, emitting many responses while the low creative individual responds at a higher rate but with fewer responses. The greater the concentration of associative strength in a small number of common associative responses, the less likely it is that the individual will attain a creative solution.

Ward (1969) tested Mednick's theory of associative hierarchies in a study involving 7- and 8-year-old boys. The research supported Mednick on two counts: response rate decreased with time and uncommonness of responses increased over successive response positions, but instead of uncreative individuals initially responding at a higher rate as Mednick predicted, the subjects who eventually produced more ideas, tended to produce them at a greater average rate throughout the task. Ward, however, considered this to be a function of

the methodology. Group comparisons were made only while both the high- and low-creative subjects continued to respond and thereby failed to consider all responses of high-creative subjects who continued to respond far longer than the low-creative subjects.

Mednick also suggested ways in which creative and uncreative individuals might differ in response uncommonness. Ward's research examined, but did not support two of them: Creative subjects did not produce a generally higher proportion of unique responses throughout the task, nor did they increase their proportion of unique responses over successive opportunities more rapidly than did uncreative subjects. Ward notes that the different operationalizations of 'response strength' change the appearance of the hierarchical curve. When creative strength is interpreted as rapidity of response generation, the hierarchies would be parallel, but would be higher for creatives and continue for a longer period before reaching the zero value. When creative strength is interpreted as commonness of response, the hierarchies are identical, but creative subjects continue with low response strength beyond the point where the uncreatives have ceased.

Moran, Milgram, Sawyers, and Fu (1983) have demonstrated that Mednick's hierarchy is applicable to preschool (age 4) children as well as older children. They also found that for high-creative subjects, the order effect was stronger, popular responses occurring earlier and original responses occurring

later in the response sequence.

Research by Milgram and associates has also supported and extended the Mednick hypothesis of an associative basis for creative thought. Milgram, Milgram, Rosenbloom, and Rabkin (1978) investigated the quantity and quality of ideational output finding support for Mednick's position that production of many conventional responses is a prerequisite for the production of unusual responses of high quality.

Milgram and Rabkin (1980), in a later study, supported and extended Mednick's hypothesis by demonstrating that the number of unusual responses increased and the number of common responses decreased in the course of sequential responding. This was particularly true for high quality responses in particular and not merely for unusual responses regardless of quality.

The work of Wallach and Kogan (1965) was primarily concerned with defining creativity as a unitary dimension independent of intelligence. Although their assessment procedures originated in Guilford's work, Wallach and Kogan measured only productivity and uniqueness of ideational associates. In addition, the tasks were administered without time limits in a game-like atmosphere. With these points in mind, Wallach and Kogan developed five creativity tasks; three concerned verbally presented and two concerned visually presented material. The research which involved 70 male and 81 female fifth graders, showed clear evidence for a unitary

dimension concerned with associative productivity and uniqueness which stands quite apart from the convergent thinking domain. This outcome is especially striking in light of the fact that procedures called upon the children's verbal ability to some degree.

Ward (1968, 1969) supported these findings in studies utilizing adapted associative tasks from Wallach and Kogan. Ward also found the tasks to cohere significantly and to be essentially independent of intelligence.

Summary of Creativity

It appears that ideational fluency defines the type of cognitive functioning most clearly independent of convergent-thinking. Work by Guilford and associates provides little evidence to support the idea that any of the flexibility factors are more closely correlated with each other than they are to general intelligence while originality seems to be at times more related to convergent thinking and at other times, less so. It seems likely that originality measures that correlate highly with ideational fluency measures, may turn out to be independent of intelligence, and more related to intelligence to the extent they are independent of ideational fluency measures.

Associative research involving children has shown that response rate decreases with time and uncommonness of response increases over successive response positions. Those who

eventually produce more ideas, tend to produce them at a greater average rate throughout the task. Using associative tasks constructed especially for children, research has shown clear evidence for a unitary dimension concerned with associative productivity and uniqueness which stands quite apart from the convergent-thinking domain.

Play

Play has become a topic of intense interest as is evidenced by the mass of empirical studies, volumes, conferences, and newsletters addressing the subject which have been published over the last decade (Fein, 1981). One major difficulty related to the study of play is "the fuzziness of the concept and the lack of precise behavioral definition" (Fein, 1981, p. 1095). Tyler (1976, p. 225) has said that play like love, defies description. There are as many different kinds of and situations for play as there are for love. "Play appears in so many guises and a great variety of forms. Its results are so subtle and far reaching that any one definition or explanation will of necessity be partial and incomplete" (Perryman, 1962, p. 146). Fein points out and concurs with Berlyne's (1969) suggestion that categories of play must necessarily be either narrower or broader since play "as a general concept" was difficult to define operationally with any precision.

Various theoretical play concepts have been proposed dating from Schiller (1875) and Spencer (1897) in the late nineteenth century, Groos (1901), Hall (1907), Isaacs (1933), Buhler (1935) and Valentine (1942) in the early part of this century, to Piaget (1962, 1968), Erikson (1963) and Vygotsky (1967) more recently.

From the numerous concepts of play, much has been gained, for they have formed a base for the formation of empirical research questions. One such concept, initially offered by Piaget (1962), describes three general stages of play through which a child passes, graduating from one stage to the next in keeping with his biological development. These stages are: functional and constructive play (called sensorimotor play by Piaget), dramatic or symbolic play, and 'games-with-rules'.

Functional play begins in the first few months of life and continues until about 2-years-of-age as the predominant play form. It consists of simple muscular activities including exploration, manipulation, and repetition.

Constructive play is so named because the child learns the uses for his play materials and begins to build, construct and create. He shows more concentration and play lasts for longer periods of time. The child does not abandon functional play for constructive play. Rather, it is a progression from manipulation to formation and creation.

Symbolic or dramatic play begins sometime after the age of 2, but does not become fully developed until age 3 or 4.

This stage begins when the child can remember objects and pretend they are present in play. In dramatic play, the child assumes the role of someone or something else. In his imitation of action and/or speech, the child may use real or imagined objects. The highest form of dramatic play is called sociodramatic play which involves development of the dramatic theme in cooperation with at least one other child.

In "games-with-rules", the child must accept a set of prearranged rules. He learns to keep his behavior within certain defined limits. This form of play tends to stay with the child through adulthood.

Although more recent empirical research has shown that all children do not necessarily follow this sequence of play behavior, the four types of play are generally recognized.

A Definition

In accordance with Berlyne's (1969) suggestion that categories for the study of play be narrower or broader, this review will deal with pretend play. A number of terms have been used to refer to this type of play behavior: symbolic play, imaginative play, make-believe play, fantasy play, and dramatic play. Although each of these terms elicit slightly different operational definitions, for the most part, they are used interchangeably (Fein, 1981). In the present research, the term make-believe play will be used.

Make-believe can be defined as pretense, a simulative,

nonliteral form of behavior (Fein, 1981) in either a solitary or social mode. This form of behavior is relatively easy to identify.

Smilansky (1968) has identified two essential aspects which must be present in what she calls dramatic play. The most central element is the imitative one, based on reality. The child takes on the role of a person or thing in looks and behavior, trying to recreate the situation as it would occur in real life. The second element is nonreality, the imaginative element which occurs because as the child attempts to imitate reality, his perception of his surroundings does not make exact imitation possible. Smilansky considers the following to be necessary for make-believe play:

- 1) Imitative role play
- 2) Pretense in regard to objects
- 3) Pretense in regard to actions and situations
- 4) Persistence
- 5) Interaction
- 6) Verbal Communication

The first four apply to make-believe play in general and the last two only to social make-believe play.

The imaginative element appears to rely heavily on verbalization, with words serving as a replacement for reality. Smilansky (1968, p. 8) suggests four forms in which this replacement occurs: 1) To change personal identity--'I am the daddy, you be the mommy.' 2) To change the identity of

objects--"This is a T.V." (pointing to a cardboard box). 3) To substitute for action--"Pretend I have just come from the grocery store." 4) To describe situations--"Let's pretend the baby is sick and the mother is not at home." In social make-believe play, speech has an additional function. In order to achieve harmonious play between children, cooperation is necessary which is achieved by verbal explanations, discussions and commands--"Only one person can be Superman. You be Spiderman."

Fein (1981, p. 1096) has suggested several criteria to more precisely define make-believe behavior:

- (1) Familiar activities may be performed in the absence of necessary materials or customary social context.
- (2) The activities may not be carried to their usual outcome.
- (3) Inanimate objects may be treated as animate.
- (4) One object (or gesture) may be substituted for another.
- (5) The child may perform an activity usually done by someone or something else.

The criteria used to define make-believe play behavior in the present study were formulated by Dansky and Silverman (J. Dansky, personal communication, September 2, 1983). These criteria was selected because they had already been used by the authors in direct observation of preschool age children

and were stated in a manner that was directly applicable to this research. They are as follows:

1. **Role Play.** The child pretends to be someone or something he is not. Role play can be expressed by means of an imitative action and/or verbalization. Imitations of people, animals, and objects are included in this category.
2. **Verbal Communication.** There is some verbal interaction related to a make-believe play episode. The child directs a verbal communication to another player and/or responds to a verbal communication with a verbalization or motoric gesture.
3. **Nonverbal Interaction.** There are at least two children interacting within the framework of a dramatic play episode, but there is no verbal communication (e.g. two children sit on a bench with wheels in hand, turning them, beeping, and pushing the bench).
4. **Pretend Action or Situation.** The child substitutes verbal descriptions for actions or situations (e.g. the child states, "Pretend that I am the Daddy and I just came home from work.>").
5. **Object Substitution.** The child pretends that an object is something other than what it really is. This may be indicated by verbalization and/or gesture.
6. **Object Acts.** This category is similar to role playing except that, rather than assuming the role himself, the child pretends that some inanimate object is performing the action. In this case, the object might be object-appropriate (e.g. the child pretends that a doll is eating or talking) or object-inappropriate (e.g. the child pretends that a wooden block is a barking dog).

Developmental Changes in Make-Believe Play

According to the aforementioned theory of play stages, make-believe play begins sometime in the second year of life

and continues to increase through ages 3 and 4, eventually declining by age 6. Recent research has pushed back the appearance of make-believe behavior to 12- or 13-months-of-age (Fein, 1981). Although make-believe behavior increases during preschool years, its frequency in relation to other types of play is still only 10% to 17% in preschool groups (Rubin, Maioni, & Hornung, 1976, Rubin, Watson, & Jambor, 1978, Singer, 1973) and 33% in kindergarten groups (Rubin, et. al., 1978).

Several researchers have investigated the distribution of make-believe behaviors within age groups. Similansky (1968) found that only 3% of the middle-class kindergarteners of European origin did not engage in make-believe play, however, of the children from low sociocultural background and middle eastern immigrant parentage, 69% did not participate in make-believe play. That low sociocultural background children play very little and do not engage in social make-believe play at all is a finding that has been reported in the United States by Feitelson and Ross (1973) and Dansky (1980a).

The discovery that all children do not participate in make-believe play is particularly important because it tends to dispell the long held belief that make-believe play is a characteristic activity of all normal preschoolers and that the development stages of play occur universally. Many of the early play studies were conducted among upper-middle class children raised in industrialized and technologically

developed societies (Feitelson & Ross, 1973) and some utilized the researcher's own child (e.g. Buhler, 1935, Piaget, 1962, Valentine, 1942). Despite the previous general trend to view play as a universal given, Feitelson and Ross (1973) have pointed out that as early as 1920, Gulick observed the absence of play among lower-class children in crowded metropolitan areas of the United States.

Smilansky (1968) noted that a large percentage of underprivileged children between the ages of five and seven engaged in simple, uncomplicated "games-with-rules" without first having participated in sociodramatic play. From such observations, she suggests that an environment which merely provides equipment and opportunity for play, is not enough to stimulate sociodramatic play and that sociodramatic play is not necessary for the next stage in play behavior. Dansky (1980a) also found that some children did not spontaneously engage in make-believe when given the opportunity to do so.

When a child first engages in make-believe play around one-year-of-age, his behavior is self-referenced but appears with development to become other-referenced. In such behaviors, the child is the active agent and "other" refers to a passive recipient or object of action. At a more advanced level, the child attempts to treat the "other" as if it were an active agent. Not only do these behaviors occur in a developmental sequence, but as new forms appear, the less mature forms are left out of the child's repertoire (Watson &

Fischer, 1977). Although other-referenced, make-believe behaviors at first occur singly, they soon become coordinated into sequences of behavior resembling activities from the child's environment.

Another factor of make-believe play which appears to be age-related is object substitution. By the age of two, 70% to 75% of children are able to demonstrate substitution behavior (Watson & Fischer, 1977, Fein 1975). Studies indicate that the ability for object substitution continues to improve during preschool years (Elder & Pederson, 1978, Golomb, 1977, Matthews, 1977). At the age of four, approximately 50% of children's pretend acts are not dependent on the presence of a physical object (McLoyd, 1980, Matthews, 1977). Children's dependence on an object that is a clear example of a general category decreases with age, however preschool children may refuse to substitute such objects across categories such as a hairbrush for food (Golomb, 1977).

Children under the age of 2 1/2-years have shown higher levels of make-believe behavior with highly prototypical objects than with less prototypical objects (Jeffree & McConkey, 1976). Children in this age group, when given a choice, prefer more realistic toys. Research indicates, however, that the relationship of make-believe behavior to realism or prototypicality changes with age.

After 4-years-of-age, fantasy play themes are of greater variety and richness when materials are less realistic

(Phillips, 1945, Pulaski, 1973, Olszewski & Fuson, 1982). McLoyd (1983) found that 3 1/2-year-olds engaged in significantly more noninteractive make-believe play with high-structure play objects than low-structure objects but found the high-structure toys had no effect on 5-year-olds. The structure did not significantly affect cooperative make-believe play for either 5-year-olds or 3 1/2-year-olds, but for 5-year-olds, the high structure play objects elicited significantly more associative make-believe play than the low-structure objects. Over all, high-structure objects were found to elicit significantly more make-believe play as well as more pretend themes. Female subjects were found to make significantly more substitutions with low-structure objects.

McLoyd reports that while her findings do not support the claim that low-structure objects are greater facilitators of make-believe play than high-structure objects, neither do they indicate that all components of make-believe play (i.e. object substitutions) flourish in the presence of high structure objects.

The Importance of Make-believe Play

Children's predisposition to participate in make-believe play appears to be related to several aspects of social behavior and social functioning. Smilansky (1968) has suggested that the following abilities may be exercised in the make-believe play situation: redefinition, selectivity,

evaluation, concentration, self-control, self-discipline, flexibility, creativity, abstract thought, and generality. Other researchers have provided empirical support for a relationship between make-believe play and social functioning.

Rubin (1976) has reported that in a free-play setting, correlations were found between make-believe play and performance on role-taking tasks. Jennings (1975) found correlations between make-believe play and general people orientation, while Singer (1979) found make-believe behavior led to increased cooperation with adults and peers. It has also been found to be related to friendliness and popularity with peers (Marshall 1961, Marshall & Doshi, 1965), general adjustment (Bach, 1945), and the use of language in play (Marshall, 1961, Singer, 1979). Singer and Singer (1976) found that children who participate in make-believe play may be less aggressive in non-play social interactions while Biblow (1973) and Marshall (1961) failed to find a relationship between pretend play and overt aggression. Vandenburg (1980), basing his ideas on research with chimpanzees and monkeys, proposed that play is an important factor in both the generation of novel, adaptive behaviors as well as the cultural propagation of established skills.

Several researchers have shown that children's skills in make-believe play can be enhanced through play training sessions. Feitelson and Ross (1973) report that training in solitary dramatic play enhances performance on tasks related

to creativity, although the trends were not found to be statistically significant. Saltz, Dixon and Johnson (1977) have shown that training in social make-believe play can increase both I.Q. scores and the ability to distinguish fantasy from reality. Dansky (1980a) demonstrated that play training enhanced sociodramatic activity, imaginativeness, and comprehension and production of sequentially organized information.

Summary of Play

Make-believe play, a simulative, nonliteral form of behavior, can be identified by the presence of role play, verbal communication, nonverbal interaction, a pretend action or situation, object substitution, or object acts.

By the age of 4, the child participates in make-believe play that is other-referenced and is able to achieve object substitution while 50% of his pretend acts are not dependent on the presence of a physical object. Early studies indicated that young children may have a preference for or be dependent on realistic or high structure play materials for make-believe play, but that by 4-years-of-age, play themes are of greater variety and richness when materials are less realistic. However, this is unconfirmed by recent findings.

Children's participation in make-believe play appears to be related to several aspects of social behavior and social functioning. Research has shown that not all children exhibit

this type of play behavior, but that it can be enhanced through play training sessions.

A number of the abilities the child may learn through participation in make-believe play have also been noted by researchers as characteristic of individuals judged to be highly creative (i.e. redefinition, selectivity, flexibility). The next section will discuss the relation of play and creativity.

Play and Creativity

Numerous researchers have suggested a theoretical and empirical relationship between play and creativity. Vandenburg (1980) suggests that play and creativity seem to be related intuitively. "Both activities share a healthy disregard for the familiar and involve the creation of novelty from the commonplace." (p. 60).

Lieberman (1965) was one of the first to empirically study the relationship between play and creativity. In her study of kindergarten children, she found a significant relationship between playfulness and divergent thinking. Children who were rated as most playful were also most creative as judged on tasks such as suggesting novel uses for familiar toys. However, as Li (1978) points out, because intelligence loaded heavily on Lieberman's playfulness scales, it is difficult to know the exact relationship between

playfulness and divergent-thinking from this study. The study also examined only teacher ratings of playfulness and not the actual behavioral features of the play (Vandenburg, 1980).

Empirical evidence is growing to support the belief that more playful individuals are more creative; however, more evidence seems to be available concerning the question of whether play can stimulate creativity. Wallach and Kogan (1965) suggest that play and creativity are joined through a playful attitude or "set" which enhances the process of generating abundant and unique associative responses.

The "Playful Set"

Dansky and Silverman (1973) showed that children in a play condition gave significantly more nonstandard uses for objects on an alternate-uses task than children who used the objects in an imitative context or children without prior exposure to the objects. In a later study Dansky and Silverman (1975) examined the question of whether children's play can have a general facilitating effect on associative responding; specifically, would playful activity increase the number of alternate uses for objects not involved in the activity? Results showed that children in the play condition produced both more standard and nonstandard uses than the

children in either imitation or intellectual task conditions.¹

The Dansky and Silverman findings are supported by Li (1978) who found that both the free play and make-believe play conditions produced significantly more nonstandard responses than a control condition, but that only make-believe play subjects produced more nonstandard responses for a screwdriver, the only object not present in the treatment conditions.

Vandenburg (1980) suggests the idea that a "playful set" can produce significant creative responses regardless of the task. It is possible that a playful attitude toward creativity tasks is responsible for the differentiation from intelligence in which case it would not be due to the specific features of the tasks themselves. The studies by Dansky (1973, 1980b) and Vandenburg (1978) seem to suggest play develops a general attitude which predisposes one to create and use novelty.

Make-believe Play, a Necessity for Creative Behavior

In their 1973 study, Dansky and Silverman hypothesized that the relationship between play and fluency depends on the

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¹The use of the terms standard and nonstandard appears to parallel the use of common and unique or unusual responses in other studies to some degree. However, the same response is often counted more than once when given later in the response sequence and the standard response designation is a somewhat arbitrary decision as nonstandard is not based on statistical infrequency as are the unique and unusual responses (Goodnow, 1969).

occurrence of symbolic make-believe during the free-play session. This hypothesis was examined by Dansky (1980b) in a study involving 96 preschoolers. It was predicted: 1) that children who displayed make-believe in a free-play situation (players) would also engage in make-believe during experimental free-play situations, and 2) that experimental opportunities for free-play would enhance fluency for players but not for nonplayers (children who did not display make-believe behavior in a free-play situation). Both players and nonplayers were given opportunities to participate in free-play, imitation, or problem solving. As in prior studies, only the free-play subjects displayed increased associative fluency. However, the significant player-nonplayer interaction with the three treatment conditions showed that providing children with play materials and encouraging them to play will not necessarily enhance fluency. The result of observations made during the experimental free-play sessions supported the conclusion that the observed relationship between play opportunities and increased fluency is dependent specifically on the occurrence of make-believe regardless of its form (e.g. solitary, sociodramatic, etc.).

Play Training

The idea that free-play settings designed to enhance make-believe play are not enough for all children has led other researchers to experiment with play training sessions.

As discussed previously, Smilansky (1968) found that culturally disadvantaged 3- to 6-year-old children did not often participate in dramatic play, the play stage which involves the element of make-believe. She implemented three different play training sessions to observe their effect on the 420 children. Those in Group A were not "taught" sociodramatic play but were provided with meaningful impressions and experiences. Children in Group B were "taught" sociodramatic play but were not provided with the meaningful impressions and experiences. Group C received the benefit of both the "teaching" and the experiences. Both Groups B and C showed improvement in all of six factors, although the improvement for Group B was marked on only four factors while for Group C the degree of improvement was large on all six.

Feitelson (1972) examined the amount and quality of play in economically disadvantaged 2- to 4-year-old Israeli children. Through the use of play teaching sessions, she was able to observe dramatic changes in both the amount and quality of the children's play. Children who had not previously participated in imaginative play, were able to initiate such play at the close of the nine teaching sessions. Imaginative play was defined in terms of a situation in which the child had ample opportunity in terms of time, space and materials at his disposal to engage in undisturbed and uncriticized play during the course of which he exhibited flexibility, originality and ability to transform.

Fantasy Research

In a study involving 6- to 9-year-old children (Singer, 1961), the spontaneous fantasy measure was found to be independent of intelligence, age, and sex, but was strongly related to novelty of storytelling productions, an elicited form of fantasy. The degree of spontaneous fantasy was defined in terms of answers to four interview questions, two concerning play and two concerning daydreaming.

Johnson (1976) reported high correlations between divergent-thinking (Uses Test and Story Completion) and social fantasy play among 63 children, age 3 to 5. Moreover, the relationship between fanciful uses and social fantasy play was significantly higher than the relationship between common uses and social fantasy play. Johnson suggests these findings indicate that divergent-thinking ability may be a stronger predictor of make-believe play than convergent-thinking ability.

Visual Imagery

A finding reported by Singer and McCraven (1961) was that most of the daydream reports involved visual imagery. Maupin (1965) also reported that the level of involvement in meditation correlated with the amount of visual imagery in a free association task. In a study which matched blind and sighted children for intelligence, sex and socioeconomic

background, Singer and Streiner (1966) found that the sighted group far exceeded the blind group on incidence of spontaneous fantasy and novelty of elicited fantasy productions. From this research it would seem that varied visual experience is likely to enhance fantasy development, a proposal made by Singer (1966) who suggests that fantasy may constitute the internalization of play.

Summary of Play and Creativity

Research seems to point to a relationship between play and creativity, but the studies often reveal only further research questions. Various studies have shown some indication of the relationship between divergent-thinking and playfulness, novelty of storytelling productions, and social fantasy play. It has been demonstrated that a period of free-play leads to increased responses on associative tasks, but more specifically, the observed relationship between play opportunities and enhanced fluency is dependent primarily on the occurrence of make-believe. Play research with economically and socially disadvantaged children of Middle Eastern parentage has shown that play training sessions dramatically improve both amount and quality of make-believe play. There is also some indication that fantasy development might be in some way tied to varied visual experiences.

Clothing

Behavioral Implications of Clothing

Clothing plays an important part in the world today, as indeed it is important to the microcosmic world of the preschool child. Clothes form the transition between what is self and what is not. They are noticed and admired, touched and caressed, shown off, and scoffed at. Clothes can be the source of joy and pride or embarrassment and resentment. They can be warmed by the body, fondled, grown into, grown out of, and are imbued with meaning from infancy on. Hillstead (1974) notes that as a child is born into a culture and becomes a participating member, he learns a variety of communication skills that help him function effectively. Although language is the most formally organized skill he will learn, "prior to his involvement with language he learns to exemplify a variety of nonverbal skills such as facial expressions, gestures and manipulation of objects" (Hillstead, p. 163).

Although attitudes concerning the importance of clothes may vary from person to person, for all they are a form of nonverbal communication (Douty, 1963, Hillstead, 1974, Horn, 1975, Rosenfeld & Plax, 1977), a term generally used in reference to all types of communication other than language (Hillstead, 1974). Ruesch and Kees (1972) group nonverbal forms of codification into three categories--"sign language", "action language", and "object language", the category which

includes dress. Object language is the intentional or unintentional display of material things, and just as forms of action language may relay messages while being used to perform functions, so object language is both communicative and functional.

Objects function as content in numerous ways among which are providing information, representing ideas, indicating preferences and illustrating stands or positions. Hillstead (1974) notes that objects are often used to convey content because of their appeal to sensory receptors.

The body itself, without dress, provides a means of communication. Facial expressions, gestures and stance are only a few categories of nonverbal communication which work with the physical body characteristics to send messages. When different materials and techniques of dress are used to alter the body form, its potential for communication increases (Hillstead, 1974). Dress is a way to send messages about one's basic values (Conrad & Densmore, 1977, Frost, 1968, Lapitsky, 1961) whether they be theoretical, economic, esthetic, social, political or religious (Allport, Vernon, Lindzey, 1960). Often the messages are sent purposely because the wearer wants to influence the reaction of others, but just as often, the messages are sent without the wearer's awareness. These messages may reflect one's self concept (Bush & London, 1960, Dickey, 1967, Feather, 1979, Friend, 1970, Humphrey, Klaasen, & Creekmore, 1971, Tyrchniewicz & Gonzoles, 1978), how the

individual perceives himself as well as personalities (Aiken, 1963, Brett, 1975, Buckley & Roach, 1974, Conner, Peters, & Nagasawa, 1975, Compton, 1964), the typical behaviors or roles he most frequently assumes (Ryan, 1966).

The nonverbal messages one sends through manner or style of dress are powerful, for they can influence the behavior of others as well as the behavior of the wearer. Shaw (1973) has said "Dress is both a symbol and a defense. Clothing serves as a filter and a barrier, communicating to others nonverbally who we are or would like to be and the kind of world we would like to live in..." (p. 415). Shaw contends that clothing influences feelings, expectations and behavior of both the wearer and the people with whom he interacts.

Tenzel, Storms, and Sweetwood (1976), have reported a study in which the uniforms of police officers in Menlo Park, California were altered from the traditional blue militaristic uniforms to green blazers with pocket insignia. It was found that once the new uniforms, devoid of reminders of authority, were instituted, communication between members of the police force became more informal and thus more open. In addition to the behavior modification of the officers themselves, they found that they received less resistance from the general public in performance of duties. Injuries to citizens also decreased due to the new professional attitude held by the officers.

Clothing has also been used as a means of therapy for the

behavior modification of mental patients. Fashion therapy is usually aimed at helping patients improve their appearance and thereby their self-concept, self-esteem or self-worth. Newton (1976) has reported the use of successful fashion therapy by the San Francisco Association for Mental Health. They have used fashion shows, classes and individual instruction in grooming and appearance to help increase patient self-esteem and confidence. Newton also reports that patient uniforms have been eliminated at the Napa State Hospital, allowing the individuals to feel more a part of society.

Children and Clothing Research

As early as 1929, Macaulay reported the interest and attitudes of children toward dress. Ryan (1966) demonstrated the impact of clothing on young children through adult recollections of childhood years. "Listen to any group of adults reminiscing about the years when they were children and you will find that many of their most vivid memories concern clothing" (p. 190).

Prior to the eighteenth century, male and female children were dressed alike in the same full-length bell-shaped skirts as their mothers. This practice would seem to contradict the fact that every effort was made to turn the child into an adult as soon as possible. At about the age of 6, the male child was "breeched" or taken out of skirts. At this point, children became miniature replicas of their same sex parent, a

fact which is in itself proof of the limited amount of attention given to children's needs. Until the latter part of the eighteenth century, there was little evidence of children being recognized in their own right or the need for comfort and ease in their clothing. "The doctrine of original sin, the appalling severity of punishments and the pressure of intensive schooling...prevailed for centuries, inhibiting the idea of freedom for the young" (Ewing, 1977, p. 19).

Change in children's dress was a long time in coming; in the end it took centuries to have practical effect. Ewing proposed that the impetus behind the liberation of children's dress lay outside the fashion world. "It was the result of the efforts of enlightened teachers and educationalists who for generations had been inveighing against repressive attitudes to children, reflected in, among other things, their clothes" (p. 41). Efforts by men such as Erasmus (1466-1536), Edward Mulcaster and Dr. Almond of Loretto during the seventeenth century, Komensky (1592-1671), Locke and Rousseau had often little immediate effect, but they bore fruit eventually.

The revolution in children's clothes is generally dated from around 1770, four years after Jean Jacques Rousseau, a fugitive from France because of his religious views, had spent some months in England (Ewing, 1977). Although in his book Emile, Rousseau reversed the common puritanical view that a child was born a sinner, it was over a century before any changes in the status of children became apparent. The

twentieth century or "The Century of the Child" (Ewing, 1977), did not begin punctually in 1900, but got off to a rather slow start. Innovations such as the Buster Brown suit for small boys (1908) did begin in the early part of the twentieth century, but it was not until the 1920's or the flapper era that 'kids' clothes took on new meaning: "a carefree, gay, comfortable way of dressing that was to affect all fashion" (Ewing, p. 135). Children began to be recognized as individuals with needs and abilities different from those of adults, a recognition which was reflected in the clothes they wore.

Scott and Smith in a 1937 bulletin, stressed the importance of comfortable children's garments that are properly cut and fitted. They contend that roomy garments which allow extreme body movements, encourage play and aid in the development of motor skills. Scott and Smith also stress the importance of clothes which make allowance for growth and self-help features to train the child in self-reliance in addition to training motor skills. Over the years, various authors have stressed these same features in children's clothes (Johnson, 1949, Scott, 1948). Scott (1949) suggested dresses for little girls with no belt, roomy armholes and short sleeves without cuffs, collarless necklines that were low in front, and a length short enough to not be underfoot during play. She felt children's clothes should be styled simply without fancy trimmings and bows to untie and hamper

movement.

Read (1950) noted the symbolic value clothes often have for children; pants that are "just like Dad's" or a dress that provides security, confidence, or satisfaction. Rea (1950) emphasized the importance of children's clothes for personality development in addition to learning physical skills. She noted a child's need to be dressed in a manner similar to friends and playmates to encourage development of social skills.

The bulletins and articles by Read and Rea are primarily addressed to parents concerning the child's well being. There is little empirical research which addresses the contribution of clothing to the developing child. Child psychologists have added little to the area and only a few of the numerous psychology or child development texts even mention "clothing" or "dress". Texts in the area of children's clothing do pay some "lip service" to the area of the psychological meaning of clothing, primarily stressing neat, comfortable, attractive and appropriate clothing as have the previously mentioned publications. The assumption is generally made, however, that these factors are the same for the child as they are for the adult. The effect of clothing on behavior is usually stressed with implications such as "the well-dressed child is better behaved than the poorly-dressed child" and "the child who learns to dress himself early is more advanced in other areas as well".

Much of the empirical research concerning children and clothes has dealt with improving manual dexterity through the use of self-help garments, particularly in the handicapped child (Boettke & Zook, 1956, Edgar, Maser, & Haring, 1977, Ford, 1975, Key, White, Honzik, Heiney & Erwin, 1936, Lamb, 1977, Tyykila & Finnel, 1978) and clothing inventories of children and mother's opinions related to their children's clothes (Blake, Glisson & Tate, 1953, Kenally, 1950, Ulton, 1936). Several studies have investigated children's clothing preferences related to color and texture (Hunt, 1959, Burton, 1961). Marks (1977) studied the effect of clothing on the growth of low birthweight infants.

Considering the copious research concerning clothing as a nonverbal communicator and source of behavior modification in school age children and adults, one might expect to see similar research involving younger children. The preschool years are the years of a child's greatest growth and development. It would seem likely that clothing could be used to great advantage in fostering desired growth characteristics and modes of behavior.

Clothing and the Preschool Child

The world of the preschool child is constantly widening. As his egocentric nature lessens, he begins to be aware of others. Although his main contacts are still within the family, the preschooler begins to meet other children in

nursery school or the neighborhood. Because the child experiences insecurities in his ever-widening world, he often desires to be the focus of attention. Gradually the child becomes aware that this is not always possible and learns ways to make others notice him. One way is through the use of his clothing. When an adult confronts a child, some comment is generally made about what the child is wearing. Ryan (1966) says this happens because there are so few avenues of communication between adults and the preschool child; it is difficult to speak of usual topics such as the weather, politics, or a good book. A child is quick to pick up on the fact that clothes, especially new ones, command attention.

As an infant, the child does not know the limits of his body and makes no distinction between body and clothing, but as the normal child develops, the boundary is made clearer. Hurlock (1943) says that "the reason the child's clothing has such a pronounced effect on his behavior is that he identifies himself with his clothes and looks upon them as part of himself" (p. 302). As the child learns to distinguish his body from his clothing, he also begins to distinguish between other people; some are big; some are small; some are boys; some are girls, etc. Clothes help him to make these distinctions.

Beginning at an early age, much of the child's social behavior is imitative. The first objects of imitation are within the family--"mommy", "daddy", or an older sibling, but this soon widens to include television characters or perhaps

an admired playmate. Clothing serves as an aid to the imitation process--high heels for mom, a hat for dad or towel tied around the neck for superman.

Ryan (1966) asserts that the preschool child is not especially interested in whether what he is wearing conforms to what other children are wearing. She claims that the desire for conformity begins once the child enters school. In a pilot study this author carried out during the fall of 1979, children who attended a daily nursery school displayed a desire for conformity regarding such items as Underoos and certain types of T-shirts.

As previously noted, there is little research concerning the actual effect of clothing on preschool children, so many commonly accepted "truths" are really only hypotheses. Statements such as "she's dressed like a lady, she'll act like a lady" or "red makes the child excitable" are usually based on casual observations; such statements need empirical evidence for support .

Designing for Preschool Children

Function. Jaffe (1972) considers functionalism to be, theoretically, the best inspiration for children's clothes. "[Functionalism] is the modern approach. The garments are designed to answer the needs created by the activities of the child" (p. 42). The 4-year-old child is very energetic in his daily activities. Play clothes should be made from sturdy,

colorful easy-care fabrics which are comfortable and absorbent as well as loose enough to allow for strenuous activity. Children should not be overly concerned about stains or keeping clothes clean for this may keep him from having normal social interaction with other children.

Comfort. For the infant and toddler, physical comfort is the most important aspect of clothing, but for the preschooler, it is only one of several factors (Ryan, 1966). As the child gets older and begins to understand some of the psychological implications of dress, he may be willing to trade some of the physical comfort factors for such things as security and admiration. The physical comfort aspect is important, yet it must go hand in hand with factors that provide psychological comfort as well.

Self-help Features. As discussed, the preschool child is learning to be independent. "Let me--I can do it" or "I know how" are common phrases. Dressing himself is a way for the child to exert feelings of independence and feel satisfied with his accomplishment. Studies have shown that learning independence in one area promotes independence in other areas as well, so clothes that provide the child with an opportunity to dress himself may be beneficial beyond the basic skill of dressing.

Color. Preschool children are sensitive to color which may stem from the fact that they are learning to name them and that adults are constantly quizzing them "what color is

this?". Brian and Goodenough (1929) found that between the age of 3 and 6, color was accorded greater significance than at any other age. Hunt (1959) found that children enjoy saturated colors, red in particular. The preference carried over both sexes and all ages three through ten. McCutchen (1962) who investigated preschool children's color preferences by watching them paint did not reach the same conclusion. She found that in her sample of 18, 3- to 5-year- old children preferred brown, yellow and red in that order.

Decoration. Ryan (1966) asserts that the preschool child loves detail, particularly if it is tiny. Frequently such trim as a small applique which resembles a familiar toy or animal will rank a garment as a favorite with a child. In the 1979 pilot study by the author, children also indicated a preference for fabrics with pictures or appliques.

Current Fashion. Although to the preschool child, current fashion is not as important as physical function and comfort, it does have some influence on clothing preferences. This is due to the fact that much of the young child's behavior is developed by imitation. Increased periods of television viewing and visual media aimed specifically at children have also served to increase preschool awareness of fashion.

Summary of Children and Clothing

Although there is little empirical research concerning the social and psychological impact of clothing on the

preschool child, the copious research investigating all manner of clothing effects on older children and adults has provided a reference point. Because of this, many commonly accepted truths are in fact merely hypotheses. A large portion of the empirical research concerning preschool children and clothing deals with improving manual dexterity, clothing inventories or mother's opinions regarding their children's clothes.

For a young child, clothing is often a common ground for communication with adults. Clothing helps the child learn body-image boundaries as well as to distinguish among individuals.

Many factors need to be considered when designing for young children. Some of the most important include physical function and comfort, self-help features, color, decoration, and current fashion.

Summary of the Review of Literature

Cognitive functioning seems to be best defined in terms of two domains, the convergent-thinking domain and the divergent-thinking domain of which the latter is most clearly aligned with the concept of creativity. Ideational fluency defines the type of cognitive functioning most clearly independent of convergent-thinking while originality seems to be related to divergent-thinking to the extent that it correlates with ideational fluency. Research involving

associative tasks constructed especially for children has shown clear evidence for a unitary dimension concerned with associative productivity and uniqueness which stands quite apart from the convergent-thinking domain.

Make-believe play, a simulative, nonliteral form of behavior can be identified by the presence of role play, verbal communication, nonverbal interaction, a pretend action or situation, object substitution or object acts. This behavior first appears sometime after one year of age and continues to increase in quantity and quality throughout the preschool years, declining around the age of six. Recent findings that all children do not participate in make-believe play are significant because children's predisposition for make-believe play appears to be related to several aspects of social behavior and functioning:

Research seems to point to a relationship between play and creativity. It has been demonstrated that a period of free-play leads to increased responses on associative tasks, but more specifically, increased fluency is dependent on the occurrence of make-believe. It has been suggested that a 'playful set' also leads to increased associative responding and there is some evidence to support this.

Clothing plays an important part in the microcosmic world of the preschool child. Research concerning older children and adults has demonstrated dramatically the profound effect of clothing on an individual both socially and psychologically.

It is often assumed that young children are affected similarly, but little empirical research exists to support the supposition.

As a part of the young child's world, clothing plays a role in both physical and mental development on an individual and social basis. Empirical evidence is needed to demonstrate how and in what areas of behavior clothing has an effect. The present research deals precisely with this problem by addressing the question of clothing and its influence on the creative growth of the preschool child.

CHAPTER III

PROBLEM STATEMENT

Little empirical research has examined the effect of clothing on the behavioral development of the preschool child, even though a great deal of research has shown clothing in school-age children and adults to communicate such concepts as role, values, self-concept, and personality. Clothing is often presumed to affect preschool children in a like manner, but studies are needed to demonstrate this empirically.

The lack of empirical evidence on the child-clothing relationship is due in part, to the difficulty of conducting research. A major difficulty involving young children is the problem of verbalization. Even after children are old enough to talk, their vocabularies are often limited and difficult to understand. Other problems involve difficulty in controlling motivation and the child's limited attention span.

Early work in child psychology primarily involved descriptive or biographical studies. Controlled observation, a type of descriptive study, has been used frequently in recent years as well as tests and measures. Both research methods have child-related problems, however. In controlled observation, the child is generally unaware of the experimenter's presence, but data is restricted to what can be observed objectively. Tests and measures, which do allow for subjective response, are dependent on engaging the child's

cooperation, which at times may seem to be a nearly insurmountable task. The experimental method is another method which has been used with children and clothing, however there is a problem of trying to keep the experimental situation from becoming too artificial and thereby losing a large part of normal behavior.

The present study has incorporated procedures from both controlled observation and tests and measures. The subject's play behavior was recorded on video tape on two separate occasions, initially while the child wore a control garment and then again while one of two experimental designs was worn. The play behaviors were scored using two different scales. During the first session, each child was given tasks in a measure designed to assess level of divergent-thinking.

It was hoped that a combination of procedures would result in a more reliable and complete picture of the children's behaviors. The question addressed by the research was: Can the wearing of make-believe or manipulative clothing designs raise levels of observable make-believe behavior? The remainder of this chapter deals with the formulation of this question and is presented in the following manner:

1. Theoretical Framework
2. Definition of Terms
3. Objectives and Hypotheses
4. Assumptions

Theoretical Framework

The clothing theory of nonverbal communication forms the general concept on which the present research is based. As an intentional or unintentional display of material things (Ruesch & Kees, 1972), clothing communicates to not only the people with whom the wearer interacts, but to the wearer himself. Although dress is a medium for carrying out the serious roles of life, it is also a medium for play. 'The use of nonverbal communication offers so much potential as a means of sending messages about play that it often becomes play' (Hillstead, 1974, p. 83). It is that message which becomes the instrument for behavior modification. More precisely, the research is based on the concept proposed by Dansky and Silverman (1973, Dansky, 1980b) that increased associative fluency in preschool children is dependent specifically on the occurrence of make-believe behavior and not merely the act of play. When this theory is combined with the theory of nonverbal communication, clothing becomes the instrument by which make-believe play might be encouraged, thereby leading to an increased capacity for divergent-thinking.

Since Smilansky (1968) and Feitelson (1972) have found that make-believe play is not a universal given, it would seem that those whose behavioral repertoire does not include make-believe are at a distinct disadvantage both individually and socially. Children without make-believe play experience

are less able to achieve the basic skills necessary for survival in a problematic world.

Based on these theories, clothing designed to encourage make-believe play behavior in preschool children should, in fact, lead to increased associative fluency, ultimately allowing the children to live fuller, more creative lives.

Definition of Terms

MAKE-BELIEVE BEHAVIOR--Pretense, a simulative nonliteral form of behavior in either a solitary or social mode. It includes all pretend activities, fantasy, or otherwise.

IMAGINATIVENESS SCALE--A five point measure of the quality of observable make-believe play (See Appendix A, Item II).

PLAYER--Children who display make-believe behavior during more than 25% of the time they are observed.

NONPLAYER--Children who display make-believe behavior less than 25% of the time they are observed.

INSTANCES TEST--A measure of divergent-thinking in which the subject is asked to name objects which fit in a given category.

PATTERNS TEST--A measure of divergent-thinking, in which subject is asked to give as many interpretations as

possible for the styrofoam shapes developed by Starkweather (1971).

USES TEST--A measure of divergent-thinking in which multiple uses are given for specified objects.

Objectives and Hypotheses

The purpose of this study was to demonstrate that specially designed clothing can be used effectively as a tool for shaping behavior patterns in preschool children. The following objectives and hypotheses was formulated to achieve this end. The hypotheses are presented as research hypotheses and as such, were tested in the null form.

Objective I:

To demonstrate that for 4- to 6-year-old preschool females, the wearing of specially designed clothing will increase the level of observable make-believe behavior.

Research Hypothesis I:

There will be a difference in player/nonplayer imaginativeness scores while wearing control and experimental garments.

Research Hypothesis I-A:

Those subjects found to be nonplayers during the initial play session in which control garments are worn, will show a difference in imaginativeness scores during the second session when experimental garments are worn.

Research Hypothesis I-B:

Those subjects found to be players during the initial play session in which control garments are worn, will show a difference in imaginativeness scores during the second session when experimental garments are worn.

Objective II:

To demonstrate a difference in observable make-believe play between and among subjects wearing specially designed clothing.

Research Hypothesis II:

There will be a difference in player/nonplayer imaginativeness scores while wearing Experimental Garment I (make-believe) or Experimental Garment II (manipulative).

Research Hypothesis II-A:

For the subjects found to be nonplayers during the initial play session, the make-believe garment will be shown to be more effective in increasing imaginativeness scores.

Research Hypothesis II-B:

For the subjects found to be players during the initial play session, the make-believe garment will be shown to be more effective in increasing imaginativeness scores.

Assumptions

The following assumptions are the foundation on which this research is based:

1. Children's behavior observed during periods of data collection is representative of their normal behavior.
2. Overt behavior is a direct reflection of internal thought processes.
3. Make-believe play is an important aspect of childhood development.
4. Items used from the Starkweather Originality Test, the Instances Test and the Uses Test are suitable for assessing divergent-thinking.

CHAPTER IV

EXPERIMENTAL PROCEDURE

The procedure designed to achieve the research objectives previously stated will be presented in the following manner:

1. Garment Design
2. Selection of Tests and Scales
3. Subjects
4. Materials
5. Procedure
6. Analysis of Data

Garment Design

Two design concepts were tested in the research. The first, called the make-believe concept, was represented by an abstract design, intended to inspire person related make-believe play. The manipulative concept was represented in a garment which contained elements intended to inspire creative play through a close association with the divergent-thinking tasks, but was not designed to specifically elicit make-believe behavior. The garments were structurally alike; differences were in color, accessories and surface design. The two experimental as well as the control garments consisted of a simple overall with bib, crossover straps and elasticized back.

A major factor in designing the two experimental garments other than the desire to create clothes that would inspire make-believe play, was to design clothes that would be commonly accepted as "school" or "play" clothes versus a "costume". In striving for this, several factors were involved, above and beyond simply designing a garment pleasing to the child. A garment that pleased the parent was equally as important as the child's own attraction to it. In this study, parent approval of the garments was crucial because the parent came to the lab sessions with the children who often required encouragement or approval before the garment was worn. In addition, as the provider, the parent is largely responsible for the preschool child's clothing depending on the amount of freedom they feel the child should be given. Often a parent dresses a child as an extension of himself, thereby enhancing his own self-concept as well as communicating the desired value messages to others.

A second consideration, which was again directed to the parent involved the fabric. The experimental garments were constructed of a medium weight, easy-care cotton-polyester blend that was washer and dryer safe. Although the straps did not need to be undone for the garment to be put on, they featured back buttons and buttonholes to provide for growth. Both garments had elasticized ankles to help adjust for length.

In addition to designing a fun garment for the children to wear, their developmental stage was also taken into account. The garments were designed to foster independence with self-help features and could be put on without assistance. The straps and bib folded down and the elastic back allowed them to be pulled on as simple trousers.

Make-believe Concept Garment

A major source of children's fantasy involves pretending to be another person, whether that person is human or supernatural. This behavior is evident in early attempts at imitation such as playing house, "becoming" mother, dad, or other family members. From their person-related make-believe behavior one might notice personalities and superheros largely influenced by television.

The garment designed for the make-believe concept, was purple with pink and white satin stars applied to the front and stitched in silver thread. The garment was accessorized by a purple rope belt and scarf printed with blue and white stars. With this garment, the child could possibly "become" such figures as a movie star, a superhero, a clown or a cowgirl.

Manipulative Concept Garment

The preschool child is constantly learning ways to manipulate his hands, by buttoning, unbuttoning, zipping,

learning to tie, and by learning to control a pencil or crayon. The manipulative garment was not designed to inspire make-believe play directly, but was related to creativity in a more associative context than the make-believe concept garment.

The garment designed for the manipulative design concept was striped with purple, blue, pink and green appearing in the front and repeated again in the back. An apron pocket attached to the front with three buttons and could be removed and unzipped to lay out flat. One side was checkerboard using the four colors of the garment while the other was solid medium blue. Numerous shapes cut out of felt were contained in the pocket to be used for making pictures or playing simple games.

Activities inspired by the manipulative garment design could possibly serve as practice for the tasks used as measures of divergent-thinking. Research involving 7- and 8-year-old boys has shown that the Uses Test, the Patterns Test and the Instances Test correlate significantly with creativity showing a clear separation from IQ (Ward, 1968). These measures of creativity, especially the Patterns Test are similar to the manipulative design concept in that the children are provided with a variety of abstract shapes that may represent any number of different objects. Other research has shown that practice on associative tasks has increased scores on measures of divergent-thinking (Gall, & Mendelsohn,

1967), while others have found periods of play prior to testing to enhance scores on divergent-thinking tasks as well (Dansky & Silverman, 1975, Li, 1978, Liberman, 1965). If practice on associative tasks increases scores on divergent-thinking measures as well as incidence of make-believe play, both designs could have the same effect, approaching from different directions.

Control Garment

A control garment was designed to be worn when the children were initially assigned player or nonplayer status. This was to insure against uneven effects due to the various types and styles of the children's normal clothing. The control garment was the same style as the other test garments, but was constructed of 100% cotton denim which was navy blue on one side and red on the other. The overalls had two front pockets stitched in red with a tiny red heart applique in the lower corner of one pocket. The control garment was intended to closely approximate the children's normal play clothes, which generally have some decorative trim, while allowing the participants equal opportunity for play inspiration.

Instruments

The Divergent-thinking Measures

The major factor influencing the choice of the divergent-thinking measure was the age of the subjects. No

test involving reading or letters was possible and the level of complexity had to be within the 4-year-old range. Creativity research involving children under kindergarten-age is limited as are the measures which might be used.

Busse, Blum, and Gutridge (1972) investigated the effects of three test conditions (play-like, verbal-feedback, nonverbal feedback) on selected measures of preschool children's creative abilities. The measures originally considered included the Construction Test² (Savoca, 1965), the Starkweather Originality Test³ (Starkweather, 1964), the Pattern Meanings Test⁴ (Wallach & Kogan, 1965, Ward, 1968) and the Unusual Uses Test⁵ (Torrance, 1962, Ward, 1968). In the final analysis, two forms of the Construction Test, the Starkweather Originality Test and the Patterns Meanings Test were administered about two months apart and scored for

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2In form A of the Construction Test, the child was asked to build four structures with a set of blocks. The structures were built one at a time and upon completion, the child was asked to name them. Form B was similar with the substitution of tinker toys for the blocks.

3Each form of the Starkweather Originality Test consisted of 40 styrofoam forms. The forms consisted of 10 shaped repeated four times in four different colors.

4In the Pattern Meanings Test, the child was asked to suggest different meanings for a series of line drawings. Form A and B each contained eight figures drawn in a variety of colors.

5In the version of the Unusual Uses Test which was used, the child was asked to think of unusual and different uses for a brick, a string, a tin can, a pencil, a toy dog, a toy monkey, a book and a piece of paper.

fluency, flexibility and originality. The experimental design was a 2 (race) x 2 (sex) x 3 (testing condition) multivariate analysis of variance. Of the 18 scores obtained for each subject, four could not be transformed to meet the requirements of a normal distribution and were dropped (Construction Test forms A and B fluency and originality). Scores taken from the same measure were highly correlated with the lowest being the relationship of originality to fluency and flexibility on the Pattern Meanings Test. Results showed the inter-form reliabilities for the Pattern Meanings Test and Construction Test to be below acceptable standards while the Starkweather Patterns Test was moderate (flexibility form A-.54, form B-.55, originality form A-.41, form B-.45). The researchers suggest that the Starkweather test is the only measure which should be used with 4-year-olds and it should be used cautiously because the two forms of the test as Starkweather used them, were not really parallel. A study by Sawyers, Moran, Fu, and Milgram (1983) showed the Uses Test to be successful with preschool children as well, but that results were influenced by stimulus familiarity.

Moran, Milgram, Sawyers, and Fu (1983) have successfully used measures of 'original thinking' adapted from Wallach & Kogan (1965), Ward (1968, 1969) and Starkweather (1964, 1971) with preschool children. The measures included the Instances Test (naming categories for round things, things that make noise and red things), an adaptation of the Starkweather

Originality Test (meanings of three different styrofoam shapes (see Appendix B, Fig. 1), and the Uses Test (naming multiple uses for a box, paper and a spoon). Each test response was scored as popular or original and for number of unique responses. The alpha coefficients of the original and popular scores were .76 and .55 respectively and were considered to indicate adequate reliability for the measures.

The divergent-thinking measure chosen for the present study was developed from the data gathered by Moran, et al. (1983). The measure was composed of two items from the adapted Starkweather Originality Test, two items from the Instances Test and two items from the Uses Test. The six items chosen for the present study were the most successful of those items used by Moran, et al., based on the percentage of total responses, particularly the unique scores. Patterns one and two were selected for the current study, noise and red were selected for the instances task and paper and box were selected for the uses task.

Observation Assessment Scales

Since the present research was based largely on the ideas proposed by Dansky and Silverman (1973), and tested by Dansky (1980b), it was determined that this study would incorporate the same observation assessment scales as used in the previous study. Some minor adjustment was made due to the use of video equipment versus direct observation. This involved the scoring

of 30-second time periods instead of 15-second periods in order to give the viewer time to reacquaint herself with the situation after the blackout.

Each of the 30-second play intervals for a subject was rated for make-believe behavior (J. Dansky, personal communication, September 2, 1983) using a checklist that included: 1) role play, 2) verbal communication, 3) nonverbal interaction, 4) pretend action or situation, 5) object substitution, 6) object acts, 7) preplay, 8) constructive play, and 9) other (see Appendix A, Item I for definitions). At the end of five minutes or ten 30-second intervals, each child was scored on the basis of a five-point imaginativeness scale developed by Freyberg (In Singer, 1973, p. 265--see Appendix A, Item II).

Subjects

The subjects used in this study were contacted through preschools, day-care centers, and recreation classes in and around Blacksburg, Virginia. Parents were met by the researcher as they came to pick up their child. The project was explained and they were given a printed summary. The researcher asked the parents if they thought they might be interested in participating. Telephone numbers were obtained from those who responded affirmatively and they were told they would be contacted in a few days for scheduling. Approximately

90% of the parents contacted were interested in the study of which 75% were able to conform to the test schedule.

Thirty-six females aged 4 to 6 (mean age 61.7 months) participated in the study. Four- to six-year-old children were selected for the study because they were verbal enough to express themselves in understandable fashion, yet were young enough to react spontaneously and freely in a free-play situation. No specific qualifications were required of the subjects other than that they were of the correct gender and age and were willing to participate in the study.

Materials

The materials provided for the children to play with were low or minimally structured so that there might be maximum potential for imaginative make-believe behavior. These toys included:

1. **Blocks.** Small multi-shaped solid wood blocks as well as larger rectangular and square hollow wooden blocks were provided. With the larger blocks there were triangular ramps or "slides" as the children referred to them.
2. **Beads.** Multi-colored wooden beads of varying sizes were available to the children with cords for threading.

3. **Boxes.** Numerous boxes were provided ranging from the smallest gift box to some large enough to conceal the children.
4. **Cardboard Rings and Tubes.** Hollow cardboard tubes of varying length and circumference were provided as well as colored cardboard "donut" rings, 12 and 18 inches in diameter.
5. **Blanket.** A 5-foot by 7-foot red plaid woven acrylic blanket was available.
6. **Pipe Cleaners and Tissue Paper.** White pipe cleaners (30) were available to the children as well as 8- x 10-inch sheets of white, green, and red tissue paper.

Procedure

Each child was brought to the Virginia Tech Lab School for two separate one and a half hour free-play sessions. It was intended that each play group consist of four children but due to circumstances beyond the researcher's control⁶, of the 22 sessions, 3 involved two subjects and 6 involved three subjects.

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⁶The children were scheduled to play in groups of four, but because some did not or could not show up at a late hour, it was not possible to find substitute subjects.

The play area consisted of approximately 145 square feet of play space and was partitioned off from the rest of the classroom using sectional dividers (see Appendix B, Fig. 2). Upon their arrival, the children were introduced to the researcher and assistants. They were then shown the area in which they would be playing and the garment they would be asked to wear for that play session. (The control garment was worn during the first play session and one of the two experimental garments was worn for the second session). The children changed into the garments and received a name tag. They were then taken to the play area and told that they could play with anything they wished but that it was necessary that they stay within the designated play area. They were shown a small cordless microphone and told that each of them would have a chance to wear it. The researcher encouraged the children to play, saying she had some work to do. The researcher seated herself at a table in plain view of the children (see Appendix B, Fig. 2) and began to take notes on the children's play activities, appearing to be absorbed in her work. The laboratory playroom was equipped with a video camera mounted to the ceiling. All sessions were video-taped from a control room in another part of the building and the children were unaware that they were being observed. If they asked why they were wearing the microphone, they were told it was so their voices could be heard and because it was thought they might enjoy a chance to wear it. The pin-on microphone

was used to pick up conversation that could not be heard clearly with the ceiling microphones.

The play sessions lasted approximately 45 minutes. The researcher did not intervene in the play other than to answer questions, settle disputes and the like. If the researcher noticed that a child was sitting with nothing to do, she asked if the child had seen various of the play objects (i.e. Sarah, have you looked to see what is in that box over there?). If the researcher was unsure of what a child was doing or making, she asked for clarification. A few children were reluctant to have their mothers leave in which case the mothers sat at the table with the researcher for a short time. In all cases, the children soon became interested in playing with the toys or other children and mothers were able to leave without further incident.

After the children completed the first session play period, they were told that one of the research assistants had some games she wanted to play with each of them. They were then taken to an isolated area and the measure of divergent-thinking was administered. In the Patterns Test (see Appendix B, Fig. 3), the child was first shown an example and given response instructions. The child was then given the shape to examine at her leisure and asked to respond with all the things she could think of that the shape might be. No response time limits were imposed and children were allowed to continue responding as long as they wished to or were able. On

the uses task the child was asked to name uses for a cardboard box or piece of paper. For the instances task, the child was asked to name all the things he could that made noise or were red. Ward (1969) found that while uncreative subjects did not appear to benefit from environmental cues, creative subjects gave more responses in the cue rich environment. Responses indicated that scanning their environment was a method used by a number of subjects in the present study. Although the environments in which the tasks were administered were not identical, they were similar in the richness of environmental cues. Upon completion of the tasks, the child returned to the classroom, changed into her own clothes and was provided with a snack.

The second session for each child was like the first with a story time replacing the divergent thinking tasks. The experimental garments were randomly assigned to the children, with 18 wearing the make-believe concept garment and 18 wearing the manipulative concept garment.

Analysis of Data

Scoring the Taped Behavior Segments

Each of the videotaped 45-minute sessions was edited down to a 20-minute tape containing forty 30-second intervals separated by a 15-second blackout to be used for scoring. Generally, the first 10- to 15-minute "warm-up" period (period

while the children were getting acquainted) was deleted, as well as bathroom breaks or other periods when all children were not visible to the camera. The researcher attempted on the edited tape, to insert a representative sample of all play behavior in the same proportion of time as it occurred in the initial play session.

Upon completion of the editing procedure, two independent judges were obtained to score the videotapes. During the training session, the judges were given a list of the play objects the children had available to them and a map giving the location of these objects (see Appendix B, Fig. 2). In addition, they were given written instructions on identifying the types of play behavior and using the five-point imaginativeness scale.

When the judges felt they had an adequate understanding of the scales, they viewed a number of practice tapes. Initially, the researcher narrated, pointing out types of play and how they might be scored. Then the judges were asked to verbally narrate the practice tapes and finally to rate them on paper as they would the actual experimental tapes. These ratings were compared and differences discussed. The process was repeated until the judges were able to achieve a reliability rating of 85% or higher on both the scoring for make-believe play and the imaginativeness rating.

The experimental tapes which were viewed by the judges contained anywhere from two to four children playing together,

however, each child was scored individually. If four children played together, the tape was viewed a total of four times, so that the judges could concentrate on the activities of only one child at a time.

The judges were provided with four score sheets for each child's play session. The sheets contained ten divisions listing the nine categories of play behavior (see Appendix A, Item III). The judges were told that as they observed a play behavior, they were to place a tick on the line in front of the appropriate behavior. If more than one behavior was noted during the 30-second interval, each behavior was noted by a tick. This procedure of multiple coding applied only to the first six categories or those concerning make-believe play. Whenever any items one through six were scored, categories seven, eight and nine were not scored and vice-versa (see Appendix A, Item III for sample scoring).

Upon completion of each score sheet, the judges were asked to score the previous five minute segment in its entirety for imaginativeness using Freyberg's five-point imaginativeness scale (see Appendix A, Item II). The judges were allowed to make half point demarcations in the scale but no less (i.e. 1.5 or 2.5 but not 1.25 or 1.75). It was suggested to the judges that they refer to the play data to refresh their memory of the play period (i.e. the number of times make-believe acts occurred or combinations of make-believe behaviors).

After the scoring process was completed, the judges' ratings were compared with each other. The identification of make-believe play achieved a high degree of inter-rater agreement from the beginning (95.7%). The same was not true of the imaginativeness rating. Upon examination, it appeared that there was some inconsistency between the observed play behaviors and the assigned imaginativeness ratings, mainly that one judge appeared to apply more stringent scoring guidelines to the latter tapes. To correct for this, the score sheets minus the imaginativeness scores were returned to her and she was asked to score them for imaginativeness once again. This time the ratings achieved a more acceptable level of inter-rater agreement (80.0%).

From the make-believe play ratings, a percentage was computed for each subject for total time spent in make-believe play. If any make-believe element occurred during a 30-second play interval, that interval was given the make-believe designation. The four imaginativeness ratings were averaged into a total imaginativeness score. Differences between judges were again averaged. Each subject was given two scores according to the percentage of time spent engaged in make-believe play and two imaginativeness scores, one for each time she attended a play session.

The designation of player or nonplayer was accomplished by rank ordering the percentage scores from the first play session of each child. A natural grouping occurred with 17

subjects scoring 28% or better and 19 subjects scoring 20% or below. Thus the break point was set at 25%. Dansky and Silverman (1975) defined players as those above 25% and nonplayers as those less than 5% because he had no subjects falling between those two numbers (J. Dansky, personal communication, August 29, 1983).

Scoring the Divergent-thinking Measure

The divergent-thinking measures were scored by the same method used by Moran, et al. (1983). All responses to each test item were placed on an alphabetical master list indicating the number of duplicate responses. Then the responses of each subject were compared with the master list and scored 3 = a statistically unique response, 2 = an unusual response (given by less than 5% of the subjects), 1 = common response, or 0 = repeat or unintelligible response. The responses were initially scored by the researcher, but due to the subjective nature of the scoring, a second judge who was familiar with this manner of scoring repeated the procedure. Results were compared and discussed and differences resolved.

Subjects were given a total fluency score which was the total number of responses for all six tasks, and a divergent-thinking score which was the total number of 2 = unusual and 3 = unique responses. Thus two scores composed the measure of divergent-thinking.

Statistical Analysis

Two models were selected to test the hypotheses. Statistical procedure was analysis of covariance. The null hypotheses were tested for significance using the analysis of covariance with repeated measures, controlling for the divergent-thinking score, fluency, and age.

MODEL I---Research Hypothesis I: There will be a difference in player/nonplayer imaginativeness scores while wearing control and experimental garments.

	Control Garment	Experimental Garment	
Player	I	I	I
	I	I	I
	I	I	I
Nonplayer	I	I	I
	I	I	I
	I	I	I

MODEL II---Research Hypothesis II: There will be a difference in player/nonplayer imaginativeness scores while wearing Experimental Garment I (make-believe) or Experimental Garment II (manipulative).

	Garment I Make-believe	Garment II Manipulative	
Player	I	I	I
	I	I	I
	I	I	I
Nonplayer	I	I	I
	I	I	I
	I	I	I

CHAPTER V

RESULTS

The results will be presented in the following sequence:

1. Hypothesis I
2. Hypothesis II
3. General Findings

Hypothesis I

The first hypothesis, designed to test the main effect of the clothing the children wore, was accepted. It stated that there would be a difference in player/nonplayer imaginativeness scores while wearing control and experimental garments. This was tested by performing a 2 (player/nonplayer) \times 2 (garment) analysis of covariance with repeated measures controlling for age, fluency score and divergent-thinking score (d-t score). None of the three were found to be significant covariates.

The results of the analysis of covariance indicated a significant difference between the players and nonplayers on the imaginativeness score while controlling for the covariates ($F = 56.22, p < .01$). Table 1 shows the means for players and nonplayers to be 2.33 and 1.40 respectively. The analysis also showed a significant difference in the

imaginativeness scores between the control and the experimental garments ($F = 8.42, p < .01$) while there were no interactions. The means were 1.65 and 2.02 respectively. Note that even though both players and nonplayers showed an increase in scores, the difference for nonplayers was not significantly greater than for players.

TABLE 1

Model for Hypothesis I Showing Imaginativeness Scores and Standard Deviations

		Control Garment		Experimental Garment		
	I		I		I	
Player	I	2.23	I	2.42	I	2.33
N = 17	I	(.53)	I	(.64)	I	(.60)
	I		I		I	
	I		I		I	
Nonplayer	I	1.14	I	1.66	I	1.40
N = 19	I	(.17)	I	(.59)	I	(.50)
	I		I		I	
		1.65		2.02		
		(.68)		(.72)		

Hypothesis II

The second hypothesis concerned with the main effects of the two experimental garments was rejected. It stated that there would be a difference in player/nonplayer imaginativeness scores while wearing Experimental Garment I (make-believe) or Experimental Garment II (manipulative).

This was not confirmed by a second 2 (player/nonplayer) x 2 (garment) analysis of covariance. Even though there was still a significant difference between player and nonplayer imaginativeness scores ($F = 56.22, p < .01$) with means of 2.42 and 1.66 respectively, the differences between Garment I and Garment II were not significant (see Table 2). Again, there were no interactions. Age and d-t scores remained nonsignificant covariates, but fluency was significant at the .05 level of significance, $F = 4.53$.

TABLE 2

Model for Hypothesis II Showing Imaginativeness Scores
and Standard Deviations

	Garment I		Garment II		
	I	N=10	I	N=7	I
Player	I	2.43	I	2.41	I 2.42
	I	(.71)	I	(.53)	I (.64)
Nonplayer	I	N=8	I	N=11	I
	I	1.73	I	1.60	I 1.66
	I	(.56)	I	(.60)	I (.59)
		2.08		2.01	
		(.74)		(.70)	

General Findings

The percentage of time the subjects spent engaged in make-believe play increased for both players and nonplayers (see Table 3). As with the imaginativeness scores, the

improvement was greater for nonplayers than players. Twenty-three subjects were responsible for the average 26 percentage point improvement (see Table 4). For 11 subjects, time spent in make-believe play decreased an average of 16.41 percentage points and 2 remained unchanged. Of those subjects who showed improvement, 8 were players and 15 were nonplayers.

TABLE 3

Mean Percentage Scores for Time Spent in
Make-believe Play

	Control Garment		Experimental Garment		
Player N = 17	I		I		
	I	49.34	I	50.24	I 49.79
	I	(14.11)	I	(18.19)	I
	I		I		I
Nonplayer N = 19	I		I		
	I	5.55	I	26.90	I 16.23
	I	(7.03)	I	(20.25)	I
	I		I		I
	27.45		38.57		

Twelve of the 23 subjects who increased the amount of time spent in make-believe play, wore the make-believe garment and 11 wore the manipulative garment (see Table 4).

TABLE 4

Number of Subjects Wearing the Experimental Garments Who Increased or Did Not Increase the Time Spent in Make-believe Play

	Increased		Not Increased		
	I		I		I
Make-believe	I	12	I	6	I 18
Garment	I		I		I
	I		I		I
Manipulative	I	11	I	7	I 18
Garment	I		I		I
		23		13	

Nine of those subjects designated as nonplayers during the first play session, increased the amount of time spent in make-believe play to above 25%, the highest percentage for the nonplayer designation (see Table 5). Using the McNemar Test of Change, it was determined that the changes were significant ($X^2 = 6.4, p < .01$). All nine showed a similar improvement on the imaginativeness scores. Two subjects who decreased on time spent in make-believe play showed improvement on imaginativeness.

TABLE 5

Subject Changes in Percent of Time Spent in Make-believe Play While Wearing the Control and the Experimental Garment

CONTROL GARMENT		EXPERIMENTAL GARMENT			
		(Nonplayer) <25%		(Player) >25%	
(Player) >25%	I	I	I	I	I
	I	1	I	16	I 17
	I		I		I
(Nonplayer) <25%	I	I	I	I	I
	I	10	I	9	I 19
	I		I		I
		11		25	

Although slightly more subjects with improved percentages of time engaged in make-believe play, wore the make-believe concept experimental garment, the greatest percentage point increases were actually achieved by the subjects wearing the manipulative concept experimental garment.

TABLE 6

Percentage Changes for the Time Spent in Make-believe
Play While Wearing the Experimental Garments

	Increased		Not Increased		
	I		I		
Make-believe	I	27.02	I	-16.90	I
Garment	I		I		I
	I		I		I
Manipulative	I	30.45	I	-10.99	I
Garment	I		I		I
		26.23		-13.95	

CHAPTER VI

CONCLUSIONS

The concluding chapter will address the following topics:

1. Discussion
2. Limitations
3. Implications for Future Research

Discussion

The significance of this study is that it provides some empirical evidence to demonstrate that the clothing worn by a child does, in fact, have an influence on his behavior. Specifically the evidence indicates an increase in a child's divergent-thinking skills as a result of wearing specially designed clothing.

Contrary to what was expected, in the first analysis of covariance, the covariates were not significantly related to the imaginativeness scores. In the second analysis of covariance, the fluency score was found to be significantly related to the imaginativeness score ($F = 4.53, p < .05$), while d-t (the sum of scores equal to 2 and 3 on the Uses, Instances, and Patterns Test), was more closely related to the imaginativeness score than was found in the first

analysis ($F = 3.42, p < .05$). The difference in the significance of the covariates between the two analyses may be partially due to a floor effect. The first scores showed a large number of subjects with a wide range of fluency scores, but grouped fairly low on the imaginativeness scale. Because of the improvement, the second scores were more dispersed leading to a stronger correlation.

There seems to be some indication that those with higher fluency scores also have higher imaginativeness scores. This relationship tended to be stronger in the second analysis when only the experimental garments were worn. The fact that fluency was found to be a significant covariate in the second analysis indicates a significant relationship between fluency and imaginativeness. This finding is in agreement with those reported by Moran, Sawyers, Fu & Milgram (in press) who found total fluency to be a predictor for imaginative play scores of preschool children.

The value of $d-t$, while not significant, does indicate that scores on tasks of divergent-thinking may have some potential relationship with imaginative behavior and might well continue to be a factor in statistical analysis. Certainly, fluency needs to be taken into account in future studies, at least until the full extent of its relationship with imaginative behavior is understood.

Age was not significantly related to the

imaginativeness scores in either analysis. One reason why the expected age difference was not found may be due to the fact that the 4-year-olds very often played with older children in their play sessions. The researcher noted that many times, the older children would initiate the make-believe play ideas and the younger children would gather in or copy the play in solitary. Since the behavior assessment made no allowance for who initiated the make-believe play, all parties who participated in the play received similar scores. Future research might control for age by simply obtaining a sample from a smaller age range.

Results of this study are consistent with the theory proposed by Dansky and Silverman (1973), which states that the occurrence of make-believe is responsible for higher scores on measures of divergent-thinking. Players received consistently higher scores than nonplayers both on imaginativeness as well as percentage of time spent in make-believe play. Results also support the findings of Smilansky (1968), Feitelson (1972), and Dansky (1980a) that all children do not participate in make-believe play as a matter of course. Eight of the 19 nonplayers received zero scores and did not participate in make-believe play at any time during the first session.

Of the nine children who showed negative improvement on either percentage of time spent in make-believe play or imaginativeness, eight were players. A reason for the

decreasing scores was evident to the researcher as she examined the video tapes. Several times a group of children, although not previously acquainted, seemed to gravitate to each other. Personalities and interests were extremely compatible. The children were quick to catch-on to and enlarge on each other's make-believe ideas. In one such group, all players received percentage scores of 57% to 67% and imaginativeness scores averaging 2.7 (see Appendix A, Item IV). These scores were so high that it was unlikely that the children would repeat them in the second play session, particularly since the combination of children was not alike for both sessions.

The researcher wondered if the group of children with whom the subject interacted during the first session could be responsible for changes in behavior during the second session. If a nonplayer was with three players, could she, in fact, pick up make-believe behavior from them? Groupings of players and nonplayers were examined for both sessions, but no clear trends of this nature were evident.

No significant difference was found between the make-believe and the manipulative experimental garments. The imaginativeness scores showed the same trends in the second analysis as in the first; scores were highest for players wearing Garment I, while there was a greater difference between nonplayer Garment I and II than there was for players. Nonplayers wearing the make-believe garment showed

the greatest increase in imaginativeness scores (see Table 7), but the fact that the manipulative garment represented the greatest percentage point increase for time spent in make-believe play, must also be taken into account (see Table 6). All considered, the differences in imaginativeness scores based on the wearing of the two experimental garments were so small, that it can hardly be said to so much as point in the direction of one garment or the other.

TABLE 7

Mean Imaginativeness Scores in Relation to
the Different Garments

	SESSION #1		SESSION #2				
	Control	Garment	Garment I	Garment II			
PLAYER	I	II	I	I			
	I	2.23	II	2.43	I	2.41	I
	I	II	I	I	I	I	
NONPLAYER	I	II	I	I			
	I	1.14	II	1.73	I	1.60	I
	I	II	I	I	I	I	

Results support the notion that as early as preschool, the clothing a child wears influences her behavior. Indications are that specially designed clothing can increase a child's divergent-thinking skills through increased make-believe behavior, thus demonstrating the potential for clothing as an instrument of behavior modification.

Limitations

The present study leads one to believe that specially designed clothing does, in fact, increase levels of divergent-thinking through increased make-believe behavior. However, it is clear that other studies are needed before practical application of this finding is possible. As exploratory research, this study only points the direction which future research might take.

One of the problems in the present research concerns situation adjustment. Could the children simply be more relaxed and at ease during the second session than the first, and therefore less inhibited to engage in make-believe play? A way to control for this might have been to have some children wear control garments during the first session, and some wear experimental garments. Unfortunately, this was not possible due to the necessity of administering the divergent-thinking tasks prior to the experimental treatment and also of having a period of free-play to establish a playful "set" before the tasks were undertaken. One possible solution to the problem, however, might have been to ask the children to come a third time prior to the wearing of the control and experimental garments, for a free-play session wearing their own clothes after which the divergent-thinking tasks would be administered. In this way, the children would have made the situation adjustment before

wearing either the control or experimental garment.

Another variable which may have had some effect on the degree of make-believe play was the selection of play objects. Low-structure play objects were selected for this study based on the findings of Phillips (1945), Pulaski (1973) and Olszewski and Fuson (1982) which indicated that fantasy play themes were of a greater variety and richness when materials were less realistic. On the other hand, McLoyd (1983), failed to find that either low- or high-structure play objects conclusively led to increased make-believe behavior. In retrospect, the researcher believes that a mix of low- and high-structured play objects may have elicited even greater levels of make-believe play, a thought also expressed by Dansky (personal communication, August 29, 1983).

In a pilot study of the present research, a mix of both low- and high-structure toys was available to the children which included such objects as dress-up hats and shoes, dishes and blocks. The play during this session was highly imaginative, but at the time, this was attributed to the close friendship of the subjects. It now seems that high-structure toys may suggest play themes that incorporate low-structure toys and therefore object substitution and make-believe play.

Another factor which limited the present study is related to the scoring of make-believe behavior. Behavior

was not designated as make-believe unless it was accompanied by a verbal expression of that behavior, except when the child was involved in an obvious continuation of activities previously declared. Some of the children's make-believe play could possibly have gone undetected because it was solitary play without verbal expression.

The present research involved a sample of limited size. Although the time involvement for this type of research is rather lengthy, a larger sample would be possible with the addition of members to the research team and would definitely add reliability to the findings.

Implications for Future Research

The present study has pointed out the significant role clothing plays in society today by demonstrating the effect clothes have on the behavior of preschool children, an area of clothing research which has, to this point, been largely overlooked. The strong influence that clothing has on adolescents and adults, may well be due to such early beginnings. If this is indeed the case, it would be in best interest to all to examine the role clothing plays in human development and to consider ways in which it might not only be used to foster desirable behaviors, but also be used therapeutically to avoid the development of adverse characteristics, a task logically undertaken during the

formative preschool years.

As in most exploratory research, this study seems to uncover more questions than it supplies answers. There is much to be learned about the exact manner in which clothing affects preschool behavior. Researchers are currently exploring the relationship of play and the development of cognitive abilities. It is entirely possible that clothing could be an effective aid in developing cognitive abilities or convergent-thinking skills in addition to the development of divergent-thinking skills as suggested in the present research. Studies which isolate the various garment factors that are responsible for behavior changes are needed as well as studies which assess the various ways that children are exposed to clothing, to determine what effect if any, this may have on attitudes and behavior. The present research suggests only one small area of behavioral development in which clothing may be useful, but there are many other areas in which clothing may prove equally as beneficial.

The research also suggests a void in the research literature concerning the effects of toy structure. To date, research has involved test conditions with either high- or low-structure toys. Research in which a third condition containing toys from both the low- and high-structure conditions that elicit the highest levels of make-believe play may provide interesting results.

Other studies might concern less controlled garment

design concepts. In the present research, the two design concepts represented by the experimental garments, were quite similar. Both the basic design structure and the color schemes were carefully controlled, while accessories and surface design comprised the only differences between the two concepts. It would be interesting to note the changes if either the structure or the color were varied between the design concept garments.

Results of the present research have pointed another direction which future studies might take. In the second analysis of covariance, it was found that while the make-believe garment was responsible for the highest as well as the largest increases in imaginativeness scores, the manipulative garment was responsible for the largest percentage point increases in time spent in make-believe play as well as the least decrease for those not improved. From this finding, one might ask the question of whether the highest scores are the most important factor or whether the amount of improvement is more crucial.

The present research succeeded in providing some empirical evidence to support the theory that the clothing a child wears influences his behavior patterns. Indications are that this behavioral influence extends to include divergent-thinking through increasing observable make-believe behavior. Further studies concerning the

effect of clothing on the behaviors of preschool children are necessary before this issue can be clarified.

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APPENDIX A

ITEM I

CRITERIA FOR JUDGING MAKE-BELIEVE PLAY

1. **Role Play:** The child pretends to be someone or something he is not. Role play can be expressed by means of an imitative action and/or verbalization. Imitations of people, animals, and objects are included in this category. If a child indicates by word or gesture that he is portraying a role, this category should continue to be scored so long as subsequent behaviors are being performed within the context of the role. For example, if a child declares that she is the "mommy" and then precedes to set a table with toy dishes, those intervals during which the child is setting the table are scored as involving role playing irrespective of whether or not the child declares that she is a mommy during each of those intervals.

2. **Verbal Communication:** There is some verbal interaction related to a dramatic play episode. The child directs a verbal communication to another player and/or responds to a verbal communication with a verbalization or motoric gesture.

3. **Nonverbal Interaction:** There are at least two children interacting within the framework of a dramatic play episode, but there is no verbal communication(i.e., two

children sit on a bench with wheels in hand, turning them, beeping, and pushing the bench). This example would be triple coded as "nonverbal interaction", "role play", and "object transformation". (Object transformation is described below.)

4. Pretend Action or Situation: The child substitutes verbal descriptions for actions or situations (i.e., the child states, "Pretend that I am the Daddy and I just came home from work."). If the verbalization is directed at another child or group of children, it should be double coded as a "pretend action or situation" as well as a "verbal communication".

5. Object Transformation: The child pretends that an object is something other than what it really is. This may be indicated by verbalization and/or gesture.

6. Object Acts: This category is similar to role playing except that, rather than assuming the role himself, the child pretends that some inanimate object is performing the action. In this case, the object might be object-inappropriate (i.e., the child pretends that a wooden block is a barking dog). In the latter case, the event would be double-coded as both "object transformation" and "object action".

7. Preplay: This category includes mechanical, explorative behaviors which are neither related to a play theme nor part of a sustained, constructive activity ('constructive play' is described below). Preplay includes the repetition of motor acts (i.e., pouring sand into and out of a bucket over and over again, bouncing a ball, jumping or skipping from one place to another) and seemingly aimless wandering from place-to-place. Preplay can involve social interaction. Preplay is social whenever the child is directing a verbal or nonverbal gesture to another individual, or when the child is responding to another individual's communication.

8. Constructive Play: Preplay can evolve into constructive play. In contrast to preplay, constructive play involves the creation of something. For example, repeatedly lifting sand and letting it pour through one's fingers would be scored as preplay, whereas building a structure from sand (or blocks, or boxes) would be scored as constructive play. The quality of the construction is not a factor in determining whether or not play is constructive. As soon as it becomes evident that the child is making something, his activity should be scored as constructive play--unless the construction is part of, or involves, a make-believe activity. For example, if in the course of his construction, the child makes reference to, or uses his construction in a

manner which indicates object transformation or object acts, these latter categories will be scored for those 30-second segments in which they occur. Like preplay, constructive play can be either solitary or social as when there is some verbal or gestural communication relevant to the construction and/or two or more children working simultaneously on the same creation.

9. **Other:** This category will be scored only when no behavior scorable as one through eight has occurred. No attempt will be made to characterize the range of possibilities inherent in this category other than whether it is peer-directed or adult-directed.

(Taken from J. Dansky, personal communication,
September 2, 1983)

ITEM II
IMAGINATIVENESS SCALE

1. Is extremely unimaginative in his play. Introduces no pretend elements into the play situation. Extremely stimulus-bound by the play materials.
2. Is slightly imaginative in his play, occasionally introducing fleeting pretend elements into play situation, but does not stay with any pretend situation for very long. No originality or organization found in pretend situations. A few pretend elements added to otherwise very stimulus-bound play.
3. Shows a moderate amount of pretending in his play, but not very original or removed from the actual stimulus situation. Little organization or consistency of pretense or role-playing. No voice changes or simulated vocalizations. Considerable changing from one activity to another.
4. Shows a substantial amount of pretend elements in his play, spontaneously creating make-believe situations, some originality in his pretending, not changing activities very often. Some organization and

consistency in pretense or role-playing, including some simulated vocalizations.

5. Shows high originality in the ways he uses toys and play material. A very high number of pretend elements in his play. High organization of activity and role-playing, including some simulated vocalizations.

(Taken from Singer, 1973, p. 265)

ITEM III

SAMPLE DATA SHEET

SCORE SHEET	Name _____	Session _____	Date _____
___ 1. Role Play ___ 2. Verbal Communication ___ 3. Nonverbal Interaction ___ 4. Pretend Action or Situation ___ 5. Object Transformation ___ 6. Object Acts <u>1</u> 7. Preplay ___ 8. Constructive Play ___ 9. Other		<u>1</u> 1. Role Play <u>1</u> 2. Verbal Communication ___ 3. Nonverbal Interaction <u>1</u> 4. Pretend Action or Situation <u>1</u> 5. Object Transformation ___ 6. Object Acts ___ 7. Preplay ___ 8. Constructive Play ___ 9. Other	
___ 1. Role Play ___ 2. Verbal Communication ___ 3. Nonverbal Interaction ___ 4. Pretend Action or Situation ___ 5. Object Transformation ___ 6. Object Acts <u>1</u> 7. Preplay ___ 8. Constructive Play ___ 9. Other		<u>1</u> 1. Role Play <u>1</u> 2. Verbal Communication ___ 3. Nonverbal Interaction <u>1</u> 4. Pretend Action or Situation <u>1</u> 5. Object Transformation ___ 6. Object Acts ___ 7. Preplay ___ 8. Constructive Play ___ 9. Other	
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ITEM IV

SUBJECT PERCENTAGE SCORES FOR TIME SPENT IN
MAKE-BELIEVE PLAY AND IMAGINATIVENESS SCORES

Subject	Percentage of Time Spent in Make-believe Play		Imaginativeness Scores	
	Time 1	Time 2	Time 1	Time 2
1	28.0	38.0	1.75	2.31
2	00.0	12.5	1.00	1.25
3	35.0	25.0	2.52	2.00
4	39.0	42.0	2.06	3.00
5	40.0	33.0	1.63	2.06
6	5.0	46.0	1.38	2.28
7	31.8	55.3	1.50	1.81
8	00.0	52.5	1.00	2.37
9	00.0	54.0	1.00	2.06
10	61.5	36.0	3.28	2.00
11	57.5	19.0	2.31	1.38
12	67.0	46.0	2.44	2.13
13	60.0	39.0	2.75	1.63
14	00.0	25.0	1.00	1.13
15	3.0	18.4	1.06	1.25
16	00.0	16.0	1.00	1.25
17	00.0	69.0	1.13	3.06
18	5.0	37.5	1.13	2.00
19	5.0	25.0	1.00	1.56
20	00.0	13.0	1.00	1.43
21	69.0	49.0	3.12	3.00
22	62.9	57.0	1.94	3.06
23	59.0	67.5	2.00	3.00
24	17.5	17.5	1.25	1.75
25	20.0	5.0	1.43	1.13
26	3.0	5.0	1.13	1.00
27	5.0	5.0	1.19	1.19
28	16.0	51.0	1.19	2.56
29	7.5	43.6	1.25	1.87
30	57.0	51.4	2.81	1.63
31	18.4	7.5	1.56	1.25
32	59.0	85.0	2.81	3.06
33	00.0	7.5	1.00	1.13
34	28.0	70.6	1.44	2.63
35	40.5	74.4	1.75	3.33
36	43.6	65.8	2.00	3.19

APPENDIX B

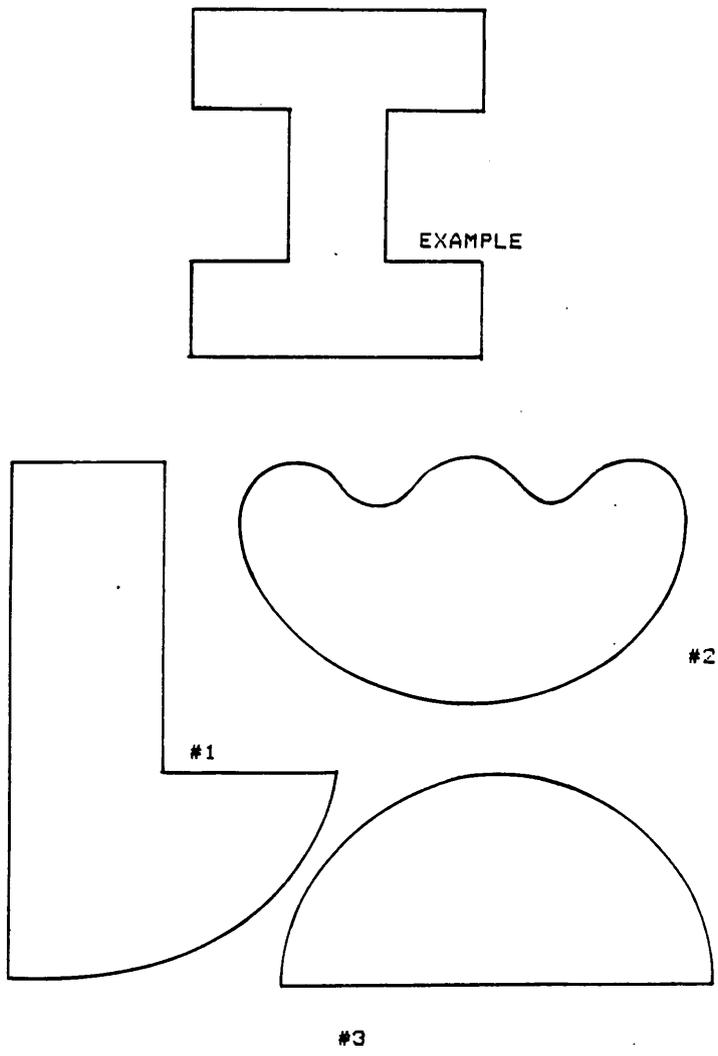


FIGURE 1

Shapes used by Moran, et al. (1983)

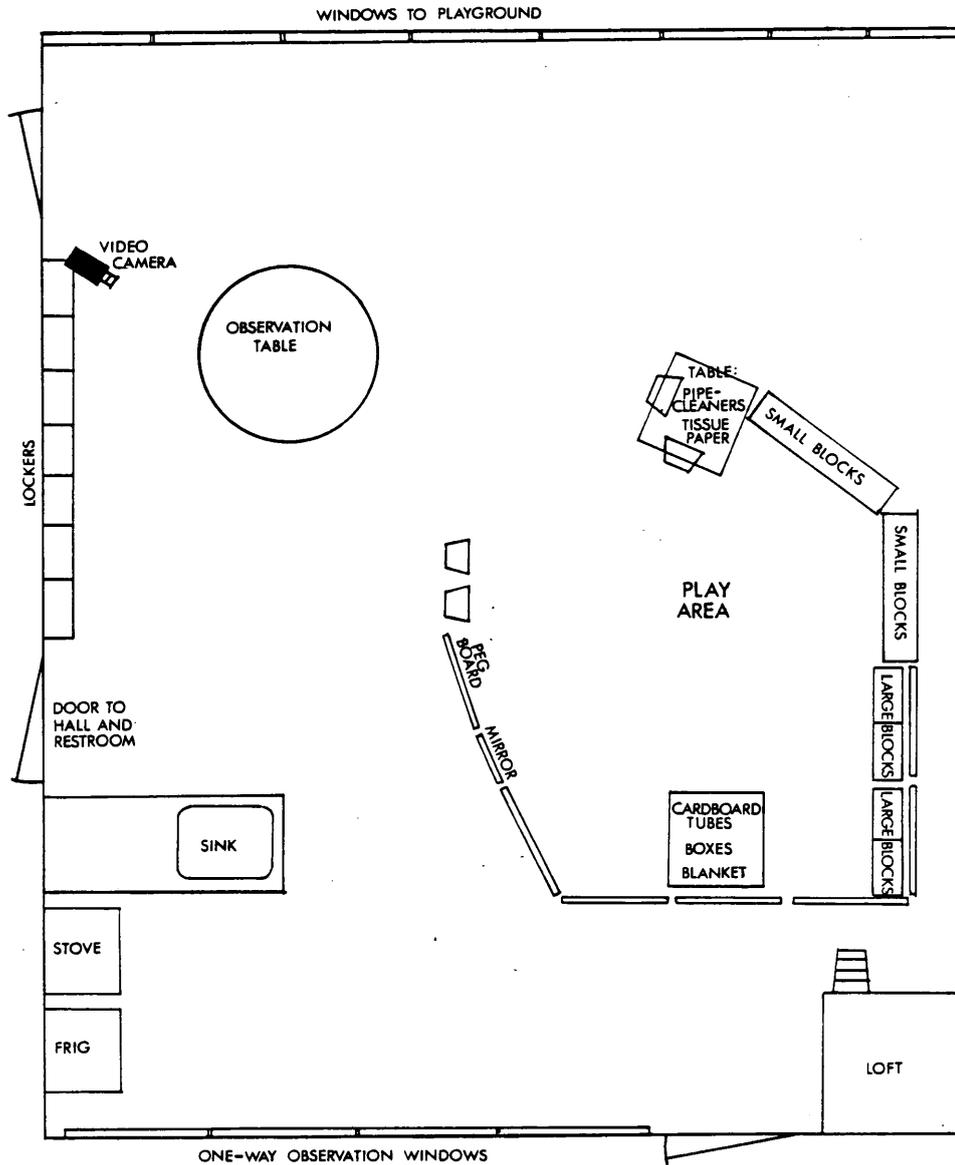


FIGURE 2

Map of laboratory play area

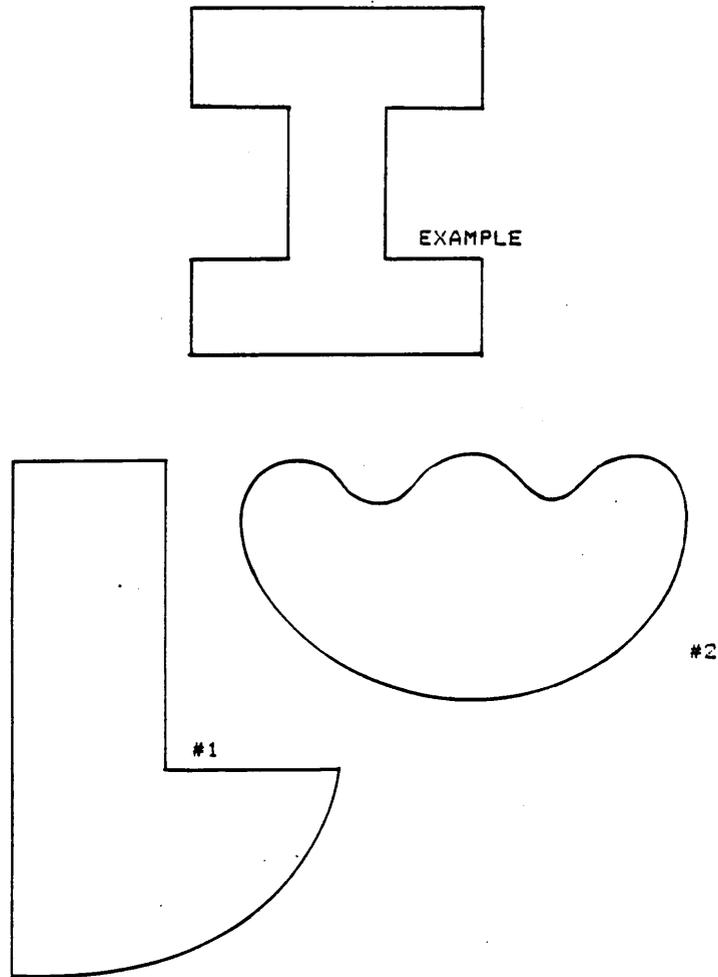


FIGURE 3

Shapes used in the present study

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the scanned document**