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Realism of fears and children's animistic thinking

Emilla Lee Tschanz
Iowa State University

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Realism of fears and children's animistic thinking

by

Emilla Lee Tschanz

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INTRODUCTION

Importance of the Problem

There are many unanswered questions concerning the role of fears in the development of children. With our concern about mental health in our society at this time, it seems advantageous to study children's fears. Of considerable interest are both the nature of fear and the processes by which fear develops.

There is a possibility, as Freud suggests, that fears may be related to poor mental health:

.... It cannot be overlooked that children are not all equally apprehensive, and that the very children who are more than usually timid in the face of all kinds of objects and situations are those who later on become neurotic. The neurotic disposition is therefore betrayed, amongst other signs, by a marked tendency to object anxiety (1935, p. 352).

Jersild and Holmes (1935) found when they studied fears remembered by adults from their childhood that many fears persist from childhood to adulthood. Some fears can be extremely handicapping to adult functioning.

From a different point of view, it can be seen that fears in certain situations are important to man's survival. Ausubel (1958) distinguishes at least three functions of fear for the individual: to serve as protection, to motivate, and to socialize. Children have fears that are reactions of objective anxiety to perception of external danger (Freud, 1935). For example, fear of speeding cars, of being burned by hot objects, and of being picked up by strangers may be important to children's safety. Very young children, however, often overestimate their powers and behave without fear because they do not recognize danger. They need to be
protected from their fearless explorations.

Fears may serve to motivate children. Many students of motivation hold the view that human drives are learned in the socialization process. Such acquired drives as identification, aggression, and dependency are learned (Sears et al. 1953; Bandura and Walter, 1959; Burton et al. 1961; Walters and Ray, 1960). Brown (1953) has proposed that a motivational component of many of these acquired drives may be a learned tendency to be anxious in the absence of certain goal objects such as affection.

Anxiety has been found to have an effect on learning. Some variables influencing whether or not the effect is facilitating or interfering are the nature of the task (Sarason, 1960), whether or not stress is present (Sarason, 1960; Taylor, 1956; Vogel et al. 1959), and if present whether or not the stress threatens the ego (Sarason, 1960; Taylor, 1956); past history of success, intrinsic motivation (Vogel et al. 1959), and sex of the subject (Hartup, 1958).

Fears may serve as socializing agents. According to social learning theory, anxiety-reduction is central in the socialization process. Fear of punishment may be involved in a child's learning to resist temptation. Reward or punishment serves as reinforcement or inhibition of behavior if the reward or punishment is consistently given. This discipline technique does not, however, result in internalization of standards. Burton et al. (1961) proposes the hypothesis that as children grow older, cognitive techniques of socialization (e.g. explanation) may be more effective.

There are certain behavioral correlates of fear. Children learn dependency through reward and punishment (Sears et al. 1953). When
nurture is lacking or inadequate, a child becomes frustrated and anxious. Anxiety serves as a drive resulting in dependent behavior (Bandura and Walters, 1959; Hartup, 1958; Sears et al. 1953). The relationship between punishment and dependency is curvilinear i.e., moderate punishment results in more dependency behavior than either less severe or more severe punishment. Boys become more dependent while girls become less dependent as a result of severity of punishment (Sears et al. 1953; Bandura and Walters, 1959). One possible explanation for the sex difference is seen in the girl's stronger identification with the mother. Punishment from the mother, therefore, seems more severe to the girl than to the boy and causes the girl to inhibit dependency behavior.

Similarly, aggression results when nurturance needs of a child are not met and he is punished for dependency (Bandura and Walters, 1959). Punishment of aggression causes a child to become frustrated and anxious about aggressive feelings. The relation of punishment to aggression is curvilinear and sex-related. When aggressive behavior is inhibited because of anticipated punishment, aggressive drive is maintained. Studies of doll-play and severely punished children show that the children still reflect aggressive tendencies (Sears et al. 1953).

An extremely fixated orientation to social and perceptual stimuli is often a sign of anxiety. Too much emotional conflict may result in intolerance of cognitive ambiguity (Frenkel-Brunswik, 1949). This intolerance of ambiguity is related to prejudice. Smock (1956) found premature closure to be a function of anxiety arousal when stimulus ambiguity was present. He hypothesizes that intolerance of ambiguity arises from anxiety during the socialization process.
Sarason et al. (1960), in reviewing the literature, states that the hypothesis that anxiety does have some type of interfering effect on intellectual performance is justifiable. The literature sheds no light on the hypothesis that anxiety has facilitating effects on intellectual performance.

Some fears may be a source of pleasure to some children. Some children appear to enjoy being frightened in certain situations. They seek excitement, for example, through walking in a cemetery at night or seeing a frightening movie or television program. On the other hand, some children report that they avoid such experiences. It is theorized by Berlyne (1960) that humans seek to maintain an intermediate level of arousal. The excitement from some slightly fearful but not truly harmful phenomena, short-lived and controllable, is desired.

One reason for the lack of studies of fear may be the fact that fear and anxiety have not been distinguished from each other except in psychoanalytic theory. The terms often are used interchangeably (Ruebush, 1963; Sarason, 1960).

Ausubel defines fear as:

...a differentiated emotional experience that betokens cognitive awareness of threat to some highly involved aspect of the individual's self-concept such as his physical well-being or his self-esteem (1958, p. 323).

Although there are usually physical changes in the body when the individual is in a state of fear and changes in perceptual and response thresholds, the only essential component of fear experience is subjective awareness of threat following cognitive interpretation of an adequate excitant (Ausubel, 1958).
Also, fear is difficult to study in individuals since in some cultures, overt fear behavior may be inhibited because the society condemns such behavior. Physiological reactions are not dependable indicators of fear in an individual since such reactions vary from individual to individual under fear-producing situations.

Some authorities (Sarason, 1960; Ausubel, 1958; McCandless, 1967; Erikson, 1950) believe that the relationship between an object or situation designated as fear-producing by a child and the fear felt may be unclear both to the individual and to the experimenter studying fear.

The relationship of fear to anxiety is little understood. Lewis defines anxiety as "the painful emotional state concerned with harm to come" (1967, p. 97). He distinguishes between anxiety and fear psychiatrically on the basis of "presence and reality of the thing apprehended" in the case of fear but not in the case of anxiety.

There is disagreement about whether one should attempt to distinguish between fear and anxiety. Ausubel (1958) suggests that differentiating fear and anxiety is unwarranted since the basis of distinguishing fear from anxiety (the presence and reality of the source of threat) may not apply in all cases. The condition of threat in state of fear may be unidentifiable, and may lie in feelings of inadequacy, guilt and hostility. Under conditions of anxiety, on the other hand, the threat may be external and specified. The individual may be aware of the anxiety and the response may be commensurate with the objective magnitude of the danger. Sarason et al. (1960) states that it is useful to discriminate between anxiety and fear in adults on the conceptual level so that each may be studied more fully.
Erikson is one authority who suggests that man must learn to differentiate between fears and anxieties. However, he states that:

...in childhood, of course, fear and anxiety are so close to one another that they are indistinguishable, and this for the reason that the child, because of his immature equipment, has no way of differentiating between inner and outer, real and imagined, dangers (1950, p. 364).

Freud (1935) differentiates between "real anxiety" and "anxiety". He declared the former to be natural and rational, to develop from perceived external danger, and to depend on knowledge and the ability to recognize danger. By contrast, Freud defines "anxiety" as marked expectant dread or anxious expectation.

Horney (1939) states that both fear and anxiety are emotional responses to danger. What characterizes anxiety in contrast to fear is "a quality of diffuseness and uncertainty." Also, in anxiety, what is endangered is something "belonging to the essence or core of the personality" (1939, p. 194). In anxiety, a person feels helpless to danger, but in fear he does not. A given situation may bring fear to one person and anxiety to another person. It depends on the person's willingness to cope with the danger.

Sullivan (1953) distinguishes between fear and anxiety as follows: anxiety results from the need for approval of significant others. It is internal. Fear involves avoidance of pain. It involves distance sense receptors in the external world.

McCandless stresses the functional usefulness of fear by stating that "Many children and adults use the relative comfort of fear where the stimulus and method of fear reduction are known, to alleviate anxiety"

Thus, fear and anxiety are not clearly differentiated from one another. They are somewhat confounded. There is the possibility that the focusing by a subject upon a stimulus as fear-producing may be his way of reducing his general anxiety. It therefore seems pertinent to briefly outline the theories of anxiety under which, according to Ruebush (1963), most recent theory-based studies of anxiety have been done.

The psychoanalytic viewpoint concerning anxiety is that anxiety is a conscious danger signal warning of danger from unconscious ideas, wishes and phantasies emerging into conscious awareness. Defenses are brought forth to keep the material from awareness. At first, anxiety follows a traumatic experience, but through learning, anxiety serves as a cue to warn the organism before trauma occurs. Avoidant behavior can occur, and anxiety is reduced (Horney, 1939). Sullivan (1953) postulates a mechanism, the self-system, which warns the individual of impending anxiety. In the educative process, the child attempts to maintain equilibrium in the self-system. As a result of interpersonal relations, an individual behaves to minimize anxiety. Many psychoanalytically-oriented theorists place the origin of anxiety in the infant's traumatic experiences at birth (Rank, 1929; Freud, 1935).

According to learning theory, stimuli, through learning, bring about anxiety-evoking properties. A response learned in similar situations is elicited by a stimulus. Responses which reduce unpleasantness are reinforcing. Anxiety contributes to drive level. Several hypothetical constructs mediate between stimulus and response. Habit, drive and excitatory potential are such constructs. Spence (1958) introduces internal
emotional response as a mediating construct between drive and anxiety. Factors affecting learning may be characteristics of the subject, the situation, the task, sex of the child, and stress in the situation.

Social learning theory (Mowrer, 1939; Dollard and Miller, 1950) places anxiety in a central place in socialization of the child. Anxiety-reduction has been suggested by some learning theorists (Dollard and Miller, 1950; Brown, 1953) as the central motivating factor in socialization of the child.

There are many theories concerning causes of fear and the process whereby fear develops. According to Ausubel (1958), some fears develop through association and stimulus generalization. Thus, certain objects and situations come to be feared when they become associated with an object or situation perceived as threatening.

Freud (1935) explains a child's fear of strangers on the basis of the similarity between the situation and the primary anxiety state during birth when the child is separated from the mother. Fear of darkness is explained as being a transformation of an earlier state of loneliness in the darkness. Freud also states that a constitutional factor is involved in fear. He believes that the earliest, most pervasive and least conscious themes of fear are the oral fear of being left empty or starved of stimulation, the fear of losing autonomy, the fear of exposure and inspection, the fear of castration, and the fear of remaining small.

Sullivan (1953) explains infant fear as caused both by violent disturbances of the zone of contact with circumambient reality and by certain emotional disturbances with the mothering one. Sullivan (1953) states that fear is called out by the novelty, danger, or unpleasantness (pain
or severe discomfort) of a situation.

Hebb (1949) explains primary emotions such as anger, fear, and grief on the basis of a conflict of phase sequences, a lack of sensory support for the phase sequence which disrupts timing of cortical action, or by metabolic changes. Fears which are explained in this way are fear of the dark, of solitude, of loss of support, of contact with a dead body, and of unfamiliar combinations of familiar things. These unfamiliar combinations of familiar things produce conflict in the observer and, therefore, fear. Fear of the dark, of solitude, of loss of support, and contact with a dead body result in lack of sensory stimulation, and therefore fear. Action in fearful situations is intended to put an end to the original stimulation by fleeing, avoidance, or desperate attack.

Hebb also theorizes that when primitively disruptive events occur suddenly, the organism is upset, after which a coordinated response follows which differs according to the subject's perception of the total situation. He believes that the individual's prior learnings provide the basis for his differentiating among the various emotions. He also thinks that constitutional factors are involved.

The learning theory of fear is that fear is learned by classical conditioning. If a neutral cue is repeatedly associated with a pain-arousing stimulus, the cue will serve to warn of pain. This response is fear or anxiety. Therefore, fear is an acquired drive (Mowrer, 1939).

Thus, there are many theories about the nature and causes of fear. The study of fear is very complex. Somatic aspects of fear may be repressed by cultural pressures (Ausubel, 1958). Anxiety may bring about centering of release of tension on innocuous stimuli seen by the subject.
as fearful. The unconscious may be involved. Study of fears, therefore, cannot be limited to bodily reactions since different stimuli cause different reactions in different individuals and even in the same individual at different times. Interviewing a person about his fear ignores the possibility of repression, conscious or unconscious, on his part.

It seems important to investigate the nature of children's fears in a world of turmoil. A part of this turmoil is the fact of change in our society at this time. Children's fears may be a reflection of the diminished congruence of experiential referents resulting from rapid change. A logical first step in determining the effect of fear on a child's developing personality appears to be to discover the nature of the fears experienced by the child. If we wish to study the onset of fears and to prevent some fears from occurring, we need to determine what fears children have.

The current study, therefore, is concerned with the nature of children's fears and some of the factors thought to be related to fears in children. Specifically, the relationship among reported fears, measures of intellectual performance and developmental aspects of fears will be investigated.

Theoretical Framework

Fear and anxiety in children are most commonly studied by utilizing reports of behavior or attitudes elicited from the child himself or from an adult in retrospect (Bronfenbrenner and Ricciuti, 1960; Sarason, 1960). Among the most widely used techniques for appraising anxiety in children
are projective methods (Bronfenbrenner and Ricciuti, 1960). Other methods involve direct observation of a child's behavior in a controlled situation in which the child is physically stimulated or placed under psychological stress (Miller, 1960). There are conceptual and theoretical problems involved in studying fear and anxiety. Researchers experience difficulty in distinguishing between generalized anxiety and specific anxieties or fears. Also, there is difficulty in differentiating between anxiety as a response tendency such as a general dispositional state of anxious expectation or as a motive to reduce, eliminate, or avoid anxiety. Two children may have the same level of anxiety which indicates their response tendencies, but they may differ in the extent to which anxiety serves as a motive to energize them to cope with anxiety (Bronfenbrenner and Ricciuti, 1960; Ruebush, 1963).

Imperfect as is the method of utilizing children's reports of their fears there do not seem to be adequate devices to study children's fears. Many available instruments and techniques appear to suffer from serious conceptual and theoretical problems as well as from problems of construct validity (Bronfenbrenner and Ricciuti, 1960).

A puzzling aspect of the results of research on children's fears is the fact that a large proportion of the fears appear to be irrational. In other words, the fears do not appear to be consistent with the life experiences of the children (Jersild et al. 1933; Pratt, 1945; Webster, 1961; Maurer, 1965; Sidana, 1967).

Several authors have suggested that there may be a relationship between the child's thought processes and his fears. Jersild and Holmes
state that "again and again the data in the present study suggest the need of a study that combines an investigation of fear with an investigation of the development of the imagination and growth of understanding" (1935, p. 132).

Ausubel (1958) states that the principle cause of altered responsiveness to fear in children is cognitive maturation. Children gain in experience, understanding, and the ability to cope with situations. They become more capable of perceiving situations as potentially dangerous. They benefit from experience. They develop in the ability to imagine dangerous encounters. They learn to use deductions and generalizations. Freud, in writing of the very young child who does not recognize dangers, says that "The less it knows, the less it fears" (1935, p. 353).

Fear involves cognitive awareness of threat to physical well-being or self-esteem (Ausubel, 1958). What are realistic fears? "Realism" means that a thing, state, quality, or event actually exists or has been; it is objectively factual, not imaginary or visionary. It does not just seem to be; it is. It is not just something that is pretended. Thus, a child who has realistic fears feels a threat to self from phenomena or experiences that are objectively factual, that actually exist, that are not imaginary, that do not just seem to exist. The phenomena occur. It happens.

If a child has realistic fears, not only do the phenomena and experiences he fears actually exist, but they must be a source of danger or harm to his physical well-being or self-esteem (Ausubel, 1958). Thus, realism of fear depends on the probability of occurrence of feared
phenomena or events in the current life of a child (Ausubel, 1958). Not only must the phenomena or event be something that actually exists in childhood, but the child must be potentially able to experience the phenomenon or event in such a way that it may harm his physical well-being or his self-esteem.

Thus, it is assumed for the present investigation that in order for a child's fears to be realistic, the following three criteria should be involved: the phenomenon or event must occur in childhood; the child must meet with or encounter the phenomenon or event; and the phenomenon or event must be capable of inflicting harm to his physical well-being or self-esteem. In order to determine the realism of feared phenomena or events, then, one would need to determine the probability of a phenomenon or event actually occurring in childhood; the probability of the child's encountering the phenomena; and the probability of harm ensuing from the child's encounter with the phenomenon.

Realism of a child's fears, therefore, will be defined in this study on the basis of the following three criteria:

1) Probability of frequency of occurrence involves the probability of a specific objective phenomenon (a person, object) or experience (happening, situation) occurring in the current life (childhood) of the child. The reported fear may deal with people, living or nonliving objects, or possible or impossible happenings or situations.

2) Probability of chance of encounter involves the probability that a feared phenomenon or experience will be encountered by the child during his childhood; the chance that he will have to cope with the feared phenomenon or experience, if the phenomenon or experience occurs.

3) Probability of disastrous harm involves the probability of disastrous harm resulting from an encounter with the feared phenomenon or experience. "Disastrous harm" is to be considered
from two standpoints: a) physical harm (long-term damage and/or immediate physical pain or distress) to the child's body and b) negative effect on a child's self-esteem or feeling of confidence and self-worth.

It would seem that by studying the development of thought processes in the child in relation to the developmental pattern of children's fears, we might be able to discover a related variable in the development of children's fears. Following this line of reasoning, Piaget's studies of thought processes in young children may have some bearing.

Piaget's work focuses on two aspects pertinent to the present discussion: causal thinking (Piaget, 1930) and realistic thinking (Piaget, 1954). He states that during the preschool period, the child's thought is egocentric, is characterized by inability to separate subjective and objective elements, and provides evidence of lack of understanding of relationships between cause and effect. A child at this stage in his thinking might be fearful of things or experiences that another child, who thinks more in accordance with objective fact, might not fear. Similarly, a child in a more advanced stage of thinking might fear things or experiences that a child functioning at a lower level of logic would not fear. Piaget also studied relatively primitive thinking in children, a form of which is labelled animistic thinking. Animistic thinking is a mode of thinking which involves attributing life to an inanimate object. Piaget determined that stages of animism are age related. As the child becomes progressively older he is less animistic and more objectively logical in his thinking.

Russell and Dennis (1939) investigated animism in a variety of samples of children in different parts of the United States, utilizing their own
standardization of Piaget's questioning procedure. Their work corroborates Piaget's findings in the area of animistic thinking.

Among the numerous investigators who have studied animism in this and other countries, there has been considerable controversy concerning the presence of animistic thinking in children. Some investigators have failed to replicate Piaget's finding, even when using his procedures (Johnson and Josey, 1931-2). Laurendeau and Pinard (1962) investigated animism by means of their version of Piaget's questioning procedure. In the course of their work they developed a modification of Piaget's stages of animism. They discovered animistic thinking in children but found the children to be more advanced for their age in concept of life than the children in Piaget's experiments.

The focus of the present investigation, therefore, will attempt to study the relationship of the realism of the fears of children to the animistic thinking of children and to determine if the relationship changes with age. In this way, it may be possible to determine the relationship between children's thought processes and their reported life experiences.

Statement of the Problem

The purposes of the present study are to determine the nature of the fears of children four through eleven years of age and the relationship between the realism of those fears and developing intellectual processes. Specifically, the intellectual process known as animistic thinking will be investigated.

The dependent variable in this study is fears of children. The
independent variable is animism. Operational definitions of the variables are:

<table>
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<tr>
<th>Variable</th>
<th>Definition</th>
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<tr>
<td>Fears</td>
<td>Responses during an interview to statements (e.g. &quot;I would like to have you tell me about things that frighten you;&quot; Tell me the one that is most frightening to you.&quot;) are designated as fears.</td>
</tr>
<tr>
<td>Predominant fears</td>
<td>The child's response to the question, &quot;Tell me the one that is most frightening to you&quot; when the fears he has stated are listed for him is designated as the predominant fear.</td>
</tr>
<tr>
<td>Realism of fears</td>
<td>Fear of objective phenomena (persons or objects) or experiences (happenings or situations) that are appropriately considered as fear-producing on the basis of the following hypothesized components of fear: 1) occurrence of the phenomena in childhood; 2) encounter with the phenomena and 3) physical harm or harm to the self-esteem resulting from encounter with the phenomena is considered to be realistic fear.</td>
</tr>
<tr>
<td>Mental age</td>
<td>Score obtained from individual administration of the Peabody Picture Vocabulary Test is considered as mental age.</td>
</tr>
<tr>
<td>Animism</td>
<td>Attributing life to an inanimate object.</td>
</tr>
<tr>
<td>Animistic score</td>
<td>A score assigned to a child's responses on the Laurendeau and Pinard Animism Test on the basis of stages of animism: Stage 0 - Incomprehension and refusal; Stage 1 - Animistic thinking based on usefulness, anthropomorphism or movement; Stage 2 - Autonomous movement with some residual animistic thinking; Stage 3 - Total disappearance of animistic thinking.</td>
</tr>
<tr>
<td>Animistic error</td>
<td>Number of times a child attributes life to an inanimate object in the Laurendeau and Pinard Animism Test.</td>
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Utilizing the suggestions of Jersild and Holmes (1935), Freud (1935), and Ausubel (1958) that lack of understanding of phenomena and experiences may account for the nature of young children's fears, and considering the information found in reviewing the literature, the following hypotheses
are proposed:

1) **There is no relationship between realism of fears and animism score.**

2) **There is no relationship between realism of fears and number of animistic errors.**

3) **There is no relationship between realism of fears and number of reported fears.**

4) **There is no relationship between number of reported fears and number of animistic errors.**

5) **There is no relationship between number of reported fears and animism score.**

In addition, ancillary information regarding sex, chronological age, and mental age in relation to realism of fears, number of fears, number of animistic errors, and animism score will be investigated. In an attempt to better understand the kinds of fears children have, the reported fears will be categorized and described by age and sex of the subjects.
REVIEW OF LITERATURE

The Nature of Observed Fears in Children

Children's fears have been studied in a variety of ways: by having parents or teachers observe children, by experimentally inducing fear, by obtaining parents' reports of children's fears, and by obtaining children's reports of their fears. Probably the most well known early studies of children's observed fears were carried out by J. B. Watson and his co-workers.

J. B. Watson (1966) stated that in the newborn there are only two things that bring a fear response: sudden loud sound and sudden loss of support. He proposed that three emotional responses can be called out at birth: fear, rage, and love. According to Watson, these have a hereditary background. Crackling a newspaper, striking a steel bar with a hammer, and pulling a blanket on which a baby lay (or dropping him) elicited an emotional response, but only the first few times. Very soon the baby ceased to react emotionally in response to these stimuli.

Watson did research with healthy hospital-reared children of wet nurses. He worked with these infants during the first and often the second or third year of life. He found that these infants did not seem to be fearful of cats, rats, dogs, pigeons, zoo animals, fire, or the dark.

His experiment with one of these children, Albert B., is well-known (Watson, 1966). The child was eleven months old. Albert was tested for fears, and it was determined that he feared only loud noise and removal of support. He reacted positively to a white rat shown him. Then a
steel bar was struck with a hammer just as he touched the rat. The child was conditioned so that the presence of the rat elicited the avoidance response that the loud sound had elicited. The fear also generalized so that the experimenters found that he had become afraid of a rabbit, a dog, a fur coat, cotton wool, hair, and a Santa Claus mask.

Another child, Peter, age three, while at home had developed fear of white rats, rabbits, fur coats, feathers, cotton wool, frogs, fish, and mechanical toys. In order to uncondition Peter, at midafternoon snack time, when he was hungry, the rabbit was moved closer to Peter until it eventually was placed on the table, then onto Peter's lap. Peter no longer showed fear of the rabbit or of cotton, a fur coat, or feathers.

Mary Cover Jones (1924) worked at the Hecksher Foundation with Watson. In a laboratory situation she tested seventy children aged three months to seven years by exposing them to fear stimuli such as being left alone, being in a dark room, hearing a loud noise, having exposure to a snake, a rat, a rabbit, a frog, and a mask, to determine which situations were fearful to them. She experimented with various methods of eliminating fear in these children to determine the relative effectiveness of each method. One method was that of disuse. In this method, the child is shielded from stimuli that he fears. A second method was verbal appeal, in which the feared stimulus is explored verbally. In the third method, negative adaptation, the child is repeatedly stimulated with the feared object until he at least tolerates it. In repression, a fourth method, children in a group teased fearful children until the fearful children tried to repress the fear. In a fifth method, distraction, adults turn the child's attention away from the feared stimulus. In direct
conditioning, the sixth method, the feared object is associated with a stimulus capable of bringing a positive reaction, with hunger being found to be the most useful motive to use. Social imitation, the seventh method, involves removal of fear by social suggestion.

Direct conditioning and social imitation were found in this study to be successful. Verbal appeal, disuse, negative adaptation, repression and distraction were sometimes effective, but Jones recommended that these methods not be used unless combined with other methods. The case of Peter described above made use of direct conditioning. The fear object (rabbit) was transferred into a source of positive response through the hunger motive.

Holmes (Jersild and Holmes, 1935) experimentally studied fear behavior of 105 children 24-71 months of age enrolled in two nursery schools, one each in an upper and lower socio-economic area. The purpose of the study was to determine children's behavior in situations that might produce fear. The study involved giving children an opportunity to enter a potentially fear-arousing situation.

An experimental room was set up in which there were toys with which to play and apparatus for the experiments. The child was left alone, requested to walk on low boards which tilted when walked on, asked to retrieve a ball from a dark room, invited to obtain colorful toys near a seated strangely-dressed woman, asked to walk on high boards to obtain toys, asked to go investigate a loud sound made by striking an iron pipe behind a screen, asked to reach in a box with a snake in it to obtain a toy, and asked to pat a dog on a leash. The behavior of each child in
each situation was classified into one of four categories. The child received a numerical score for all eight experimental situations. The experimental situations when ranked from most to least fearful were a collie dog, a garter snake, retrieving a ball thrown into a dark room, walking on a high board, retrieving toys placed close beside a strangely-dressed person, a loud noise, being left alone, and having a board two inches from the floor tilt when walking on it. Intelligence quotients as measured by the Minnesota Preschool Scale, Form A, and fear correlated .30. More girls than boys were fearful. Children from the private nursery school showed more fears than the day care children. However, the day care group included more older children and more girls.

Jersild and Holmes (1935) used several methods to obtain data concerning children's fears. 1) They had parents keep records of children's fears for 21 days at a time. Fears of 136 children, three months to eight years of age, were recorded. 2) They had 52 parents, teachers, and nurses record evidence of fear that had come prominently to their attention without making systematic observations. 3) They interviewed 31 parents in detail concerning their children's fears. 4) They obtained fears remembered from childhood by 303 adults.

In this study, a decline in frequency of overt fears was observed to occur after the age of two years. Fear of noise was exhibited by half of the children. Fear of animals was next in frequency, with 38 percent of the children exhibiting this fear. Fear of strange or unfamiliar persons, of queer, deformed or masked persons was found to be third in frequency and occurred in 30 percent of the children. Events producing pain were found to be fearful to 25 percent of the children. Fear of
falling and loss of support was found in 23 percent of the children; fear of strange objects or situations was found in 20 percent; sudden or unexpected movements frightened 11 percent of the children. Jersild and Holmes (1935) concluded that the young child fears concrete and immediate phenomena and experiences, whereas the older child imagines and anticipates possible future events which he fears. These authors also found that on the whole, the resemblances between fears of boys and girls were more outstanding than the differences.

The Nature of Reported Fears in Children

Jersild et al. (1933) interviewed 400 children of ages five to twelve from a public school of lower socio-economic level and a private school of higher socio-economic level concerning their fears, dreams, daydreams, likes, dislikes, best happenings and worst happenings, ambitions, wishes and preferences. Most pertinent to the present study was the interview concerning fears and worst experiences.

The authors utilized a variety of bases in analyzing their data: sex, socio-economic level, intelligence, and age. The following paragraphs present, in brief summary form, the findings which result from each analysis.

Differences between boys and girls were not unusual. "The resemblance between children of high and low intelligence with regard to reported fears are more outstanding than the differences" (Jersild et al. 1933, p. 155).

Similarities between fears of boys and girls were more outstanding
than the differences, as were similarities between fears of public and private school children. It should be noted that the I. Q. of the public school children was 105 and of the private school children was 124. Private school children report more fears of bodily injury than public school children (12 percent; 8 percent, respectively), fear of solitude, dark and strange places and events (18.2 percent; 11.3 percent, respectively), and injury or death of relatives (2.6 percent; 1.3 percent, respectively). Public school children report more fears of bad people than private school children (10.5 percent; 2.5 percent, respectively), more fears of supernatural and mysterious objects and happenings (24.7 percent; 15.7 percent, respectively) and scoldings, reprimands, failure (2.9 percent; .6 percent, respectively). When the children in the two school groups were matched by I. Q., the public school children continued to report more fears of death and supernatural or mysterious creatures.

The largest difference between fears of children of lower and higher intelligence pertain to fears of criminal characters and fears of supernatural and mysterious creatures.

The largest class of fears consists of fears of occult, supernatural, mystery, skeletons, corpses, death (21.0 percent of first named fears). Fear of animals (17.8 percent) and fear of strange happenings and places, of being alone or in the dark, and of deformities (14.1 percent) are the next largest categories. Nightmares and apparitions (8.8 percent), bad people (7.3 percent), gestures, noises, and expressions intentionally made to frighten (6.8 percent), bodily injury, illness, dying (9.6 percent) are next in order. Jersild et al. note that "An interesting feature in the children's reported fears is the high frequency of relatively irrational
and unwarranted fears" (1933, p. 157).

These authors found that younger children fear animals more than older children. Younger children also fear bad characters more than older children do. With increasing age, there is a rise in frequency of occurrence of fears of failure, ridicule, inadequacy, and apprehension and fear that relatives might get sick and die. Fear of the dark and of imaginary creatures associated with the dark also increase with age. With increasing age there is also a decline in number of specifically-named imaginary creatures, of fears of remote animals, of criminal characters, and of fears that are imaginative or deal with remote dangers. However, it is also noted that fears of the latter type have a high frequency at all ages. The most marked increase in frequency of fears with increasing age is in the category of accidents or injuries.

When the children were asked their worst happenings, they mentioned bodily injury, illness and physical accidents, yet when asked their fears, these happenings were not mentioned frequently. Jersild et al. concluded:

In some respects older children's fears come nearer to being a reflection of misfortune that actually might befall them than do the fears of the younger children. This is seen by the fact that 15.2 percent of children's first-named fears at the ages of 11 and 12 dealt with physical injuries whereas only 5.1 percent of the fears at the ages of 5 and 6 fell in this category. Older children likewise showed more fear of injury to relatives, and more fear of social disapprobation, failure, and guilt, and, in keeping with this tendency, the older children showed relatively less fear of animals and of criminals. But in fear of supernatural creatures, ghosts, bogeys, and the like, and of mysterious events, the older children appeared to be no more rational in some respects than did the younger ones. Older children reported less fear on the first report of ghosts, giants, bogeys, etc. (13 at the ages of 5 and 6; 4 at the ages of 11 and 12), fear of corpses was about equally frequent at all age levels. Fear of the dark and of being alone were the first-named fears in the case of 3 children at the ages of 5 and 6, of 14
children at the ages of 11 and 12, so that in this item children did not appear to gather more courage with age (1933, p. 157-8).

Ferguson (1952) replicated Jersild's study (1933) of children's fears. The purposes of the study were to determine fears of children in relation to age, sex, school, and intelligence and to compare the findings with the Jersild study (1933). She studied 398 children age 5 to 12: 306 in public school and 92 in private schools in North Carolina, Alabama and Massachusetts. The distribution by age groups in this study was the same as in the Jersild study. The children who were under age nine were individually interviewed using Jersild's technique. The older children were interviewed in groups of 15 or 20 and were told, "I am writing a story about boys and girls. Tell me a story about yourself.... Anything you are afraid of or has ever scared you" (Ferguson, 1952, p. 12).

In general, the children expressed the same fears as in the 1933 Jersild study, but the fears were reported with different frequencies. The predominant fear was of animals, whereas in the 1933 Jersild study it was of supernatural events or beings. There were more fears of animals, loss of parents, and of fighting or war. There was less fear of the supernatural, bogey men, the dark, and being alone. The total number of fears expressed in the 1952 Ferguson study was greater than that of the 1933 Jersild study. There was little difference in the fears of boys and girls. Children of superior intelligence reported more realistic fears than children of lesser intelligence. The children of lowest I. Q. reported more fear of animals and of the supernatural. Fear of the supernatural was reported by 1.9 percent of those children of superior
intelligence; by 8.6 percent of those of average intelligence; and by 12.1 percent of those of low intelligence.

Younger children reported more fears of the supernatural, the dark, being alone, startling events and loud noises. Older children reported more fear of bodily injury and of embarrassment.

Webster (1961) replicated Jersild's 1933 study in the South with 240 children ages 5-6 and 11-12, including both white children and Negro children. Public schools for white children and for Negro children were selected from each of three socio-economic levels: lower, middle, and higher level. Also, a private Negro kindergarten and a white kindergarten were selected. Jersild's interview technique was used. The children were asked individually about their worst experiences as well as fears. The four interviewers were of the same race as the children interviewed. The fears were categorized by the investigator and a portion of the interviews were categorized by two additional judges. The frequency of fears and worst experiences in each category were determined and the chi square test was applied to the distributions for each variable: age, race, sex and socio-economic level.

There were significant differences between younger and older children, with younger children more frequently reporting fears of the supernatural. Negro children's responses differed significantly from those of white children. Fear of the supernatural accounted for most of the difference, with Negro children reporting such fears more frequently. The difference between responses of boys and girls was not statistically significant.

Comparing this study with Jersild's 1933 study, the children reported
nearly twice as many fears of animals (32.1 percent and 17.8 percent, respectively). Fewer children reported fear of the supernatural (10.0 percent as compared to 21.1 percent). In both studies, the largest percent of worst happenings was in the classification of bodily injury (72.7 percent versus 54.4 percent). A significantly larger percent of reported worst happenings related to injury, illness and death of relatives (20.8 percent as compared to 6.0 percent). In the Webster study, different content was reported for fears and for worst happenings. There was a lack of significant relationship between fears and worst happenings.

Dunlop (1951), under the direction of Jersild at Columbia University, studied the reported fears of 418 children ages 9-12 years. The purpose of the study was to determine a child's adjustment to the environment and the number, intensity, and distance of causation of his declared fears. Also, there was an attempt to quantify the data and use statistical procedures. Adjustment was measured by the Mitchell Revision of the Haggerty-Olson-Wickman Behavior Rating Schedule which is filled out by the teacher to yield a numerical adjustment score. Each child checked a Fear Check List on which 38 fear situations were listed. The child indicated his fears, the strength of his fears, and selected from nine listed causes, the cause of his fears. Strength of fear was rated as "strong fear" with a score of two or "moderate fear" with a score of one. Distance of causation was rated as "near" or "remote". "Near" received a value of one and "remote" a value of two.

A correlation study of adjustment as related to number of fears, number of strong fears, average intensity of fears, and distance of
causation of fears was made. Little relationship among these variables was found. The fears were classified into various groupings and analysis of variance studies were made to determine the influence of fear category, age, strength of fear, distance of causation of fear, and the interactions among these.

Age and adjustment were unimportant in relation to number, intensity and distance of causation of the fears. The three most significant factors were intensity of fear, distance of causation of fear, and the situation feared. Fear situations which were strange and unfamiliar tended to develop fears of great intensity. Familiar and commonplace fear situations produced moderate fear. Near causation is influential in commonplace situations and remote causation was influential in unusual situations. The experimenter recommends that parents try to prevent unfamiliar stimuli or reduce intensity of the stimuli after exposure of the child by familiarizing the child with the situation.

Dunlop stated that rational fears arise in response to obvious and demonstrable threats and dangers in the environment and that irrational fears seem to be a response to hidden or subjective dangers or conflicts within the child. He stated that fears of distant causation may be caused by internal anxieties projected to remote and improbable aspects of the environment.

Pintner and Levi (1940) studied worries of fifth and sixth graders, using an inventory of worries. The children reported worrying most about failing a test. Family and school also were high ranking fears. Boys were more concerned than girls with social and personal adequacy. Worry about
imaginary things was not predominant with these children.

Pratt (1945) studied fears of 570 rural children of ages 4 to 15 years 10 months. The aims of this study were to determine age and sex differences in things feared, variety of things feared, animal versus nonanimal fears, most frequent fears, individual fear patterns, and extent of the impact of World War II on fears. The children were asked to list fears in writing and to indicate the three most feared and three least feared listed items. A critical ratio comprised of difference to the standard error of the difference was used to test significance.

The younger children listed more fears than older children. The number of things feared increased with age. There was an average of 7.5 fears reported per child. Girls listed significantly more mean fears than boys. Fears of animals were dominant among these children, but decreased with age. Seventy-five percent of the fears listed were fears of animals. The most common three fears were bears, snakes, and bulls.

The boys feared school work, ghosts and spooks more than girls. Girls feared illness, disease, dark and night more than boys. Older children feared illness, disease, school work, water and drowning, whereas younger children feared guns and bombs, ghosts, spooks, thunder, lightning, dark, high places and falling.

When the fears of all age groups were considered, fire was the predominant nonanimal fear (13 percent of the fears reported), and was followed by fear of natural phenomena (12 percent), guns, bombs, explosives (11 percent), cars, planes, trains (10 percent), dark and night (9 percent), disease and illness (9 percent), water and drowning (7 percent),
and, lastly, war (5 percent).

Pratt states that:

The work of Jersild and his collaborators and the data of the present survey reveal a mass of fear associations which are irrational and unrealistic in relation to the physical environment in which the children live (1945, p. 190).

Winker (1949) studied wishes and fears of orphans of ages 7 to 16 years. Children were selected to obtain a balance of intelligence, sex, and age. The Stanford-Binet Intelligence Test was used to determine intelligence quotient. Responses were categorized and significant differences were calculated. According to this study, younger children showed more fear of animals than did older children. Older children, however, were found to be more afraid of physical harm.

Angelino and Shedd (1953) studied fears and worries that 589 children of ages 10 to 18 reported in writing in school when they were asked to list fears and worries that they felt people their own age had. The purpose of the study was to determine shifts in fears as related to chronological age in the age group 10 to 18 years. The fears were placed in ten categories. The authors state with reservation that fear of animals is preponderant at ages 10-12. At 13, fears shift to school-connected experiences. At age 15, the shift is to economic and political matters, social relationships, personal appearance, and personal conduct. According to this study, fear of natural phenomena increases with age, contrary to the general notion that contact with or knowledge of phenomena reduces fear of those phenomena.

Fears were listed as one of the problems of 252 children between 21 months and 14 years as reported by parents in the control group of the
longitudinal Berkeley Guidance Study (Macfarlane et al. 1954). For boys, the greatest number of fears occurred at age 3.5, with a second peak at age 11. Early preschool fears were situationally determined, later ones more anxiety determined.

Dogs were the predominant fear of both sexes at age 3. Fear of the dark began to be shown at age 3.5 and outranked dogs by age 4 among boys. Only one boy feared dogs after age 7. Only two girls feared dogs after age 8. Girls showed significantly more fears than boys at age 3 and 13.

Maurer (1965) studied fears of 130 children of ages 5 to 14. These children had all been referred to a school psychologist for problems ranging from trouble with schoolwork to lack of social interaction. Retarded children were included in one of the analyses of the study. The Wechsler Intelligence Scale for Children was administered to the children, and at the end of the comprehension subtest, another question was asked, "What are the things to be afraid of?" Fears of animals was predominant at ages 5 and 6 (80 percent of the children of these ages mentioned this fear). This fear was maintained at a high level through age 12 and was rare after mental age 12. These urban children feared wild animals. With but two exceptions, fear of the dark disappeared by age 7. Fear of nonexistent entities was not reported after age 10. Maurer believes that age 9 or 10 is the age when children would no longer find fright films traumatic. Subject matter of fear becomes more realistic and more closely tied to learned or experienced objects or situations as children become older.

Children's perceptions of past, present and projected future fears
were studied by Croake (1967), who utilized children in grades 3, 6 and 9. A questionnaire was devised from asking 53 children to list their fears of three years before and the present time as well as those they predicted they would have three years in the future. The resulting questionnaire was then administered to 333 children. The population included children from an urban area, a small city, a rural area and an Indian population in the Midwest.

Thirty-six of the responding children were then interviewed to determine the intensity of their fears and how each thought he had acquired his fears. Social workers rated fears listed by the children with respect to realism for each grade level. Croake found that girls had more fears than boys. Lower socio-economic children held more fears than did upper socio-economic children. There were few differences among the number of fears for the three grade levels for boys, except that sixth grade boys reported more fears than either ninth grade boys or third grade boys. Children at all grade levels thought they had had more fears in the past and expected to have fewer fears in the future.

For all age levels, the most commonly held fears in the present and expected for the future were political. Natural phenomena were the most common past fears. Supernatural phenomena were the most common past fears for boys, for children at the upper socio-economic levels, and for sixth grade children. Fears of natural phenomena were the most persistent fears from past to future, regardless of grade level. Political fears were the strongest from past to future for sixth grade. For ninth graders, political fears were the most predominant present and expected future fears.
School fears were most frequently reported in all three categories (past, present, and expected future) for all ages. There was great similarity between fears children predicted for their future and fears children three years older actually held.

Most children stated that they did not know the origin of their fears. "Contact with fear object" was relatively frequently reported in all fear groups. The most prevalent intensity of fear was "sometimes worry about," especially with respect to political fears. Younger children's fears tended to be in the category, "hardly ever worry about."

Wallis (1954) studied fears in 21 Canadian Dakota Indian children of ages 8 through 14 years and in 18 Minnesota racially-mixed Dakota Indian children of ages 6 through 14. These Indians were studied to determine past and present socialization processes. They oppose use of physical punishment in child-training, but at one time used fear as discipline. The teachers asked the children to write about the thing that frightened them the most when they were little children.

It should be noted that in earlier times in the Dakota culture, fear of "the old woman" was used to discipline children. Adults actually dressed up to frighten children who misbehaved. A group of women of this culture was interviewed and two of the women said that they had actually dressed up to scare children. Some adults said that they just threatened children with "the old woman." The fears of the children were placed in four of Jersild's categories. A comparison of Jersild's findings with those of Wallis shows the following percents of reported fears categorized as "fear of supernatural beings": among low socio-economic children, 22.8
percent (Jersild); among higher socio-economic children, 5.8 percent (Jersild); among Minnesota Dakotas, 14 percent (Wallis); and among
Canadian Dakotas, 17 percent (Wallis).

Wallis states that:

From their written expression it is possible to identify the Indian child with rural white children of the United States and at the same

time to recognize types of fear which, though they occur in all
groups, here carry a significance characteristic of Dakota culture,
particularly with regard to methods of child training (1954, p.192).

Fear of animals was found to be the most frequent fear of the Dakota children.

Sidana (1967) studied fears of 120 children ages 6 through 8 years
and 10 through 12 years in India. Fears of children from low socio-

economic groups who attended municipal schools were contrasted with fears
of higher socio-economic children attending English convent schools. In
personal interview, the children were asked of each of 100 fear-provoking
stimuli, "Are you afraid of _____?" The significance of the differences
in fears by sex, age, and socio-economic level was calculated. More fears
were reported by children of the lower socio-economic group. Girls gave
more fear responses than did boys. Younger children held more fears than
did older children.

In this study, also, the greatest frequency of fears related to
animals. Fears relating to natural phenomena were next highest. In all
categories except fantasy, interpersonal relations and fear of persons,
fears were more frequently reported by girls than by boys. In all groups
of children, the most frequently reported fears were those of ghosts,
sadhus (a threat is often made to children that beggars will kidnap them),
shadows, big animals (like snakes, lions, tigers, and elephants), darkness and father. Shadows are believed to be a replica of a frightening image which belongs to the devil, so shadows are a common fear of a child.

Most fear responses were found not to be consistent with personal experiences. Children learn about lions, tigers, snakes, and elephants mostly from literature or people, rather than from experience. When groups were matched for age and socio-economic level, girls were found to be more fearful than boys. The author utilized culture as a basis for accounting for this finding, saying that women were submissive and more protected and supervised than men in the culture of India. Sidana's analysis of children's fears in India as related to the culture would suggest that many other of the children's fears also have a cultural basis.

Piaget's Theory of Animism

Piaget's theory of mental development would appear pertinent to a study of the realism of children's fears in relation to developmental changes in the nature of children's thinking.

Piaget, in drawing conclusions from his observation and interviews with children, has evolved a theory of cognitive development. He has identified a level of thinking in young children which he terms "pre-causal". Three main periods in the development of children's understanding of physical causality have been specified (Piaget, 1930). The first period is characterized by psychological, phenomenistic, finalistic, and magical explanations of physical causality. Explanations of the second period are characterized by artificialist, animistic, and dynamic types of
explanations. Both of these periods are considered by Piaget to involve precausal thinking. During the third period, the preceding forms of explanations disappear, giving way to more rational, causal, thought. Piaget found that after ages 7 or 8, child thought becomes more rational. By ages 11 to 12, thinking has evolved to mature levels.

According to Piaget, three processes are involved in the evolution of causal thinking. In the first process, the child must learn to separate the subjective from the objective. The second process involves the constitution of a temporal series: for instance, at first, children do not understand that there are intermediaries between cause and effect. During the third process, the child is able to establish reversible series in thought.

Piaget also contends that a child's conception of reality is influenced by three processes. 1) The child has to move in his thought from realism (absence of differentiation of self from objects in the external world) to objectivity. He must become able to separate his concept of self from objects in the external world. 2) He has to move from realism to reciprocity. This means that he learns that other people have their own points of view. 3) He must move from realism to relativity. He comes to understand the relationships of various phenomena to each other. For instance, he understands that objects float because of the relation of their weight to that of water (Piaget, 1930).

Animism is defined by Piaget as "the tendency among children to consider things as living and conscious" (1933, p. 537). This form of precausal thinking was found by Piaget in early stages of development of concepts of causality and reality. Animistic thinking had been recognized by
those who studied child thought long before Piaget's experiments on animism (Dennis, 1938). Piaget interviewed children ages 4 to 12 years, asking about animate and inanimate objects, to determine which objects the children believed were living. He asked if the object knew what it was doing, could feel a prick. He found that children age 4 to 6 believe everything active to be alive. "But as activity is taken to consist in usefulness to man, and as children of this age are anthropocentric, everything is, in fact, considered as alive" (Piaget, 1933, pp. 537-8). Children of ages 6 and 7 call what moves to be alive. At 8 to 10 years, autonomous movement characterizes living things. At 11 to 12 years, the child reserves life to animals and plants or to animals alone.

Children's ideas of consciousness are similar. First, everything is conscious, then moving things are conscious, then only self-moving things, then only animals.

Piaget (1933) attributes animistic thinking to confusion caused by lack of ability to differentiate between the psychic and physical. Piaget found by questioning children that prior to 7 or 8 years of age they explain movement in nature on the basis of the obligation of rivers, the sun and clouds to provide man with water and sunlight (moral obligation). People need water, sunlight, and rain, so rivers, the sun and clouds move. Magic and artificialism may be involved. He also states that: "The conviction that parents have organized the best possible world for him leads the child to conceive all nature as organized according to a plan and constructed by man himself" (Piaget, 1933, p. 543).

A search of the literature, including the recent review of the literature on animism by Looft and Bartz (1969) yields no studies of the
relation of realism of children's fears and precausal thinking. There has been, however, considerable study of animism in children in several cultures, in different socio-economic groups and geographical regions of the United States and at different intelligence and age levels.

Attempts to Standardize and Amplify Piaget's Work on Animism

Russell and Dennis (1939) standardized an animism questionnaire using Piaget's approach. A series of experiments on a variety of populations was done using this questionnaire. In this standardized procedure, twenty objects are used to elicit responses concerning concept of life. Eight of the objects are present in the room and the others are verbally referred to. Objects used or referred to are: a stone, a knife, a mirror, a broken button, a comb, a chair, a broken dish, a watch, the river, clouds, the moon, the wind, lightning, a pencil, a dog, a bird, a bug, a tree, a flower and grass.

Each child is interviewed individually. He is told,

We are going to play a game. I am going to ask you some questions and we will see how many you can answer. You know what living means? A cat is living but if an automobile runs over it, it is dead.

For each object, the questions asked were: "Is the ___ living or dead?" "Why?" If additional clarification is needed, the child is asked, "Is the ___ living or dead when it is moving?" The second question is, "Can the ___ move by itself or does something move it?" The child's protocol is classified into a stage of animism by three judges. The
stages used are: 1) No concept stage; 2) Stage 1, which includes answers classifying everything useful or in good condition as being alive; 3) Stage 2, which includes answers basing life on motion of an object; 4) Stage 3, which includes responses attributing life on the basis of autonomous motion; 5) Stage 4, which includes answers restricting life to animals alone or to plants and animals.

Utilizing the questionnaire which they prepared, Russell and Dennis (1939) examined 385 subjects ages 3 to 15 years in Worcester, Massachusetts. The children were from lower middle class homes. The Kuhlmann-Anderson Intelligence Test was administered to the children. The median I. Q. was 106. Interrater reliabilities of .88 to .97 were obtained in evaluation of responses to the animism test. One hundred and thirty-three of the children were re-examined one week later. Changes were found in the stages of animism for some children: some children advanced, while some regressed. Test-retest reliability achieved was .81. The procedure was used with 774 children: 361 lower middle class children in Massachusetts and 413 city and rural youth in Virginia (Russell, 1940a). The children were ages 6 to 15 years. It was found that each stage of animism included children of the entire mental age range as measured by the Kuhlmann-Anderson Intelligence Test. Russell found that 98 percent of the children could be classified into the stages of animism and that children progressively pass through the stages as they increase in chronological and in mental age. The investigators found it impossible to limit the age range of the stages as Piaget did. They found a correlation of .59 between mental age and animism and a correlation of .62 between chronological age and animism. There was no significant difference in answers
Russell et al. (1940) studied 430 feebleminded subjects in Virginia and Massachusetts using the Russell and Dennis standardized procedure for testing animism. The purpose of studying feebleminded subjects was to determine the effect of experience on animistic thinking since under these circumstances subjects of a given mental age varied in chronological age. Another purpose of this study was to determine if feebleminded subjects progress through the stages of animism and if the rate is equivalent to that of normal subjects. There were 98 subjects who had no concept of life. Those subjects who had been at a certain mental age for several years were more advanced in concept of life than those who had just reached the level. Most normal adults are in Stage 4. Twenty-two percent of adult feebleminded subjects of mental age 6 years 7 months were in Stage 4, while 43 percent of such adults of mental age 8 years 9 months were in Stage 4. These feebleminded adults were more advanced in animism than are normal children of the same mental age.

Nass (1956) studied 120 withdrawn and emotionally normal children ages 8 to 10 years. They were matched for I. Q. using the Pintner-Cunningham Intelligence Test scores, sex, and age. Personality of the subject, experience of the child with phenomena, and form of the questions on the animism test were studied in relation to children's responses to questions concerning 13 phenomena. Personality adjustment was determined by the classifications "emotionally disturbed" or "normal emotional adjustment" assigned to the children by the Bureau of Child Guidance of the New York City Board of Education. Children were individually interviewed. There were two animism questionnaires. In one form, children were asked
why certain phenomena occur. On the other form, the children were asked how certain phenomena occur. The children were asked questions about a radiator, a boat, a clock, a whistle, a car, leaves, and a balloon. These items represented phenomena with which a child was expected to have had direct experience. Other questions concerned thunder, wind, stars, clouds, rainbows, sunshine; phenomena with which the child was not expected to have had direct experience.

Responses were classified as Nonnaturalistic, Phenomentistic, and Naturalistic. "Why" questions elicited significantly more Nonnaturalistic responses to phenomena with which children had not had direct experience. The answers of withdrawn children were less mature than those of emotionally normal children. Nass (1956) explains these findings on the basis that withdrawn children are unable to disassociate themselves from the world.

In a study by Werner and Garrison (1944), the Russell and Dennis standardized animism procedure was used with 18 pairs of mentally retarded boys, familial retardates matched with brain-injured children. The mean age of the boys was 10 years. The children were matched by I. Q. and mental age. A personal interview was used. Also included in the study were questions concerning objects' ability to feel or to know and to be mean. The brain-injured were more animistic than the familial retardates. Also, they were at earlier stages of animism. The brain-injured gave more unique answers than the familial retardates. The brain-injured assigned more capabilities of feeling, knowing and being mean to objects. The difference between responses of brain-injured and familial retardates was explained on the basis of a lack of spontaneity in the brain-injured that
may prevent them from being as aware of purposeful activity in persons as opposed to that in things.

Dennis and Russell (1940) tested 24 Zuni children ages 8 to 16 years on animism. Although the Russell and Dennis animism procedure had not been standardized when this study started, many of the same objects were used. Piaget's writings describing his studies were used as a pattern for the procedures used in this study. Later in the study, the standardized procedure was used. The children also were asked about objects' feeling, about how people think, and about dreams. The test was given in English. Some children were retested each summer. The children's answers were the same as those of white children in the United States or in Switzerland. On the whole, the children were retarded in concept of life.

Dennis (1943) studied 98 Hopi children ages 12 to 17 years. The Russell and Dennis procedure was modified to correspond to Hopi beliefs. The adult Hopis believed the sun, moon, stars, wind, clouds, permanent springs of water, permanent rivers and fire to be living. The test was administered in English. The Hopi children were retarded in their concept of life compared to Russell et al. (1940) study of 774 children in Virginia and Massachusetts. When the children were asked concerning moral realism and consciousness of objects they were found to believe that objects know about and punish misdeeds.

Havinghurst and Neugarten (1955) investigated belief in immanent justice and animism in Pueblo Indian children (Hopi, Zuni and Zia). Navahos, Papagos and Sioux age 6 to 18 years and American white children age 8 to 18 years. The Indians were asked about a story of two boys who
stole melons, one of whom later met with an accident, to determine whether or not the Indians thought the accident was a punishment for the stealing. Animism was measured by asking them if the ax that cut the boy's foot knew that the boy had stolen. The children were questioned in English and in their native language. Among children age 12 to 18, 85 percent of the children believed in immanent justice except among Shiprock Navahos who were not as believing. Belief in immanent justice either increased or did not change with age. Acculturation did not seem to affect their belief in immanent justice.

Belief in animism on the other hand decreased with age or did not change. Indian children are more animistic than American white children. Havinghurst and Neugarten stated that the results of their study agreed fairly well with the Dennis and Russell studies of Hopis and Zuni Indians. Indians are more animistic than whites in America, but the lower socio-economic white children do not differ from the least animistic Indian groups.

Jahoda (1958) studied animism in Accra schools in Africa. He studied 120 children of approximately ages 6 to 18. Individual interviews were held, using the native language. He used the story also employed by Havinghurst and Neugarten (1955) about the child who stole an orange and then cut his foot. In order to elicit answers concerning immanent justice children were asked if the boy were punished by the cutlass because of the misdeed. He also used a gramophone and the children were asked to explain where the music and songs came from. Among the 120 children, there were 24 animistic answers given. On the whole, these children did not
exhibit as much animism as is usually found in semiliterate societies.

Dennis (1957) studied 707 college students in Beirut and high school students in Iraq by means of a mimeographed sheet on which questions were asked concerning seven objects. The native language was used with the high school students. Seventy-nine percent of the subjects gave one or more animistic answers. Crowell and Dole (1957) studied 225 college students at the University of Hawaii. A questionnaire was used on which inanimate objects were listed. The subjects were asked to indicate whether the objects had life and to give a reason for their answers. Seventy percent of the students gave some animistic answers. There was no significant difference in responses by year in college. When courses in biology taken by the subjects were considered, it was found that the courses had no effect on animism score. When students' aptitude test scores were considered, more bright students denied animism.

Laurendeau and Pinard (1962), at the Institute of Psychology of the University of Montreal, investigated the existence and sequences of stages of mental development in 700 children age 4 to 12 years. Animism was one aspect of the study of precausal thinking in children. They developed a standardized procedure for testing animism. The introduction is different from that of Russell and Dennis' procedure. The child is asked, "Do you know what it is to be alive, to be living?" "What does it mean?" "Give me the names of some things that are alive."

The question, "Is a ___ alive?" is asked about 21 objects which are not present in the room. Then the child is asked about each object, "Why do you say it is (not) alive?" Then there are five comparisons for
the child to consider. "Take the ___ and the ___: is one of them more alive than the other?" "Why do you say that it is the ___ that is more alive?" Judges are used to classify the protocol of a child into a stage of animism. Laurendeau and Pinard found that they could not use the stages of Piaget or Russell and Dennis, so they modified the stages as follows: Stage 0, No concept; Stage 1, Animistic thinking based on usefulness, anthropomorphism or movement; Stage 2, Autonomous movement with some residual animistic thinking; Stage 3, Total disappearance of animistic thinking. They found that 249 of the children were in Stage 0, 275 were in Stage 1, 162 were in Stage 2 and 315 were in Stage 3. The median age for Stage 0 was 4.7 years; for Stage 1 it was 7.1 years; for Stage 2, 9.8 years; and for Stage 3, 9.6 years.

The lack of age discrimination between Stage 2 and Stage 3 is attributed to limitations of the sample. The authors hypothesize that if older children had been included in the study, the median age of the stage would have increased. The same drop between Stage 2 and Stage 3 was "found in practically all the other tests undergone by the present sample" (Laurendeau and Pinard, 1962, p. 155). These authors conclude that:

Until a valid explanation has been found for this general phenomenon, it is preferable to assume that the sample of twelve-year-old children is not truly representative of the normal population and contains too many weak elements (Laurendeau and Pinard, 1962, p. 155).

No significant differences were found between responses of boys and girls. Laurendeau and Pinard conclude "These results leave no possible doubt on the existence of animistic thinking among children: as many as 43.7 percent of the subjects attribute life to some inanimate object" (1962, p. 157). They found that the child attributes life "most frequently and
for a longer period of time to those objects which are most removed from his direct experience" (1962, p. 159). They found when they analyzed the number of animistic errors of children in Stages 1 and 2 they could not determine a relationship between number of animistic errors and age. Also, they found no relationship between number of animistic errors and criteria used by the children to discriminate between living and non-living things.

Stern (1966) attempted to develop a model for a theory of animism. He used the Laurendeau and Pinard standardized questionnaire on animism with 96 children of ages 4 to 10 from the Duke University preschool, a church nursery school and two public schools. Also, he used eight demonstrations in this study. The children were asked to explain the demonstrations and to answer questions about them. Rather than analyzing the children's responses to the animism test as Laurendeau and Pinard did, he investigated different types of justification for responses. In his developmental model, he finds three stages of animistic thinking.

1) Animistic: this stage is characterized by more than two animistic errors. Children use action and movement justifications for their answers.
2) Nonanimistic: this stage is characterized by two animistic errors or less, and life is denied to at least one plant. Animal characteristics are used to justify answers.
3) Adequate Concept of Life: this stage is characterized by less than two animistic errors and plants are declared to be alive. Children use general life characteristics to justify answers. Spontaneous movement and locomotion are associated with few animistic errors in children's responses. He did not find spontaneous movement to be a transitional justification as in Piaget's stages of animism.
Anthropomorphic justifications were associated with a minimum number of incorrect responses. In placing children in stages of animism, he used two raters to categorize responses. He found that stages of animism were related to mental age but not to chronological age. Retesting the subjects six months later, he found the animistic thinking to be stable in 60 percent of the children. Stern (1966) states that his model is more precise and better defined than previous models and clarifies how children learn to distinguish life from nonlife.

Stern (1966) had three judges use nine of Piaget's categories of pre-causal thinking to categorize children's explanations of the demonstrations. He found that children do give precausal explanations. Piaget's classifications of precausal thinking were not exhaustive nor entirely relevant. He found precausal thought to be age-related. By age 8-10, less than half of the explanations were precausal.

Stern tested the hypothesis that children who make animistic errors are those who give the greatest number of precausal explanations for the demonstrations. He did not find support for this hypothesis.

Using the Peabody Picture Vocabulary Test (PPVT), Stern (1966) tested the hypothesis that animism and precausality are related to cognitive development. Both were related to the PPVT scores. He attempted to help children who use precausal explanations to learn causal relations from repeated experience in a learning task. He found that they failed to learn a casual relationship with repeated experience.

Looft (1968) attempted to develop in 35 children 7 to 9 years of age an accurate concept of life by means of a film. He used a questionnaire
developed for this study. The child was asked in an interview whether each of 18 objects were alive. They were asked to give reasons for their answers. Then the film\(^1\) "Living and Non-living Things" was presented and the children were retested one week later with the same questions. The scoring of responses was different in this study from the usual scoring of an animism test. The response of each child for each object on the pretest and posttest was rated individually by two judges on a scale of 1-99 points depending on the accuracy of the child's explanation of an object's being living or nonliving.

Analysis of variance was performed using children, sex, judge, treatments, measures and the interactions among these. Sex differences were not significant, although males were judged as more mature in concept of life. There was a significant effect of the judges. One judge consistently scored responses higher than the other. However, relative ratings of the judges were consistent and interjudge reliability was high. The children/sex interaction was significant. This finding emphasizes individual differences in the sample. The finding that subjects performed significantly better on the posttest is in opposition to Piaget's belief that concept maturity is a slow process and cannot be mastered in a short time.

Criticisms of Piaget's Theory of Animism

Through the years since Piaget started his work on animism, there has been controversy concerning the existence of animistic thinking in

\(^1\)Coronet Instructional Films, Chicago, Illinois.
children. In an experiment by Johnson and Josey (1931-2), Piaget's techniques were used yet his findings concerning animism were not confirmed. Johnson and Josey (1931-2) give few details in their report of their study of animism except that they used the technique reported by Piaget in his writings. In their study they substantiate only a few of the claims of Piaget. The greatest difference they found between the performance of the children in their sample and Piaget's was among the six-year-olds. They studied children age 6, 8, and 11. They report that the 6-year-old children they studied did not use the types of precausal thinking described by Piaget. The 6-year-olds were not egocentric and passed 33 of Piaget's tests, whereas Piaget's 6-year-olds passed only one test. In the Johnson and Josey study, the 11-year-olds passed all the tests, whereas Piaget stated that children did not develop full mastery of thought processes until age 12. Johnson and Josey state that even children with I. Q. below 100 performed better than children studied by Piaget. They suggested that the English language may be superior to French for logical thinking. Similar results are reported by Askar (1932) who studied 714 subjects ages 5-12 and found few examples of animistic thinking.

Oakes (1947) studied animism in 153 children in the kindergarten, second, fourth and sixth grades. The purpose of the study was to analyze answers given concerning natural phenomena and to compare the findings with Piaget's. An individual interview was held with the children. Questions concerned names of pictured things, origin of things, nature of life and explanation of natural phenomena. Some questions related to
simple demonstration-experiments.

Responses were categorized by 5 judges. Major classifications were Physical and nonphysical. Piaget's 17 types of precausal thinking were not found to be useable in this study. No evidence was found to corroborate Piaget's stages as characteristic of certain ages. The nature of the problem influenced the type of answer, as did the child's vocabulary, his experiences and the wording of the questions. Most children gave matter-of-fact, nonmetaphysical answers. The children gave more cause and effect answers to experiments than to verbal questions. Children can learn correct explanations of natural phenomena. Understanding of relationships increased with age although some kindergarten children gave better answers than sixth graders. The author suggested that bright children gave somewhat more matter-of-fact cause and effect explanations of natural phenomena, but he cautioned that the sample was too small for him to draw general conclusions. In this study, nonphysical responses comprised from 6.5 percent to 18.6 percent of the answers.

Some experimenters feel that they have disproved Piaget's ideas about animism. Margaret Mead (1933) studied the Manus tribes of the Admiralty Islands. She found no animism; however, she used children's drawings, ink blot interpretations and questioning, but not of a nature to elicit animistic thinking (Looft and Bartz, 1969; Laurendeau and Pinard, 1962).

Deutsche (1937) studied the development of causal thinking in 732 children age 8 to 16 years. A written test was administered to groups of children in classrooms. Children explained simple scientific demonstrations and questions about natural phenomena. An attempt was made to classify the responses into Piaget's 17 types of causal thinking. Piaget's
categories were found to be very difficult to use. They were vague and in some cases too inclusive. Some categories were not needed for the responses while other, additional categories were needed in order to classify all responses. Finally, each answer was classified by consensus among three judges. Then the types of causal thinking were classified into Materialistic or Nonmaterialistic answers.

Deutsche (1937) found that there was not a developmental sequence in stages of causal thinking, but there was overlapping by age groups. The nature of the content of each question determined the type of answer. She concludes:

A large percent of answers given at age 8 appealed to materialistic causes. This would indicate that the animistic, dynamic, prelogical type of answer has pretty well disappeared by the age of 8 years, if it ever existed, and that children at this age are not resorting to supernatural or other nonmaterial forces for explanations (1937, p. 76).

Huang and Lee (1945) studied 40 Chinese children age 3 to 5 and 6 to 8. Seven questions were asked in an interview concerning 10 objects. Responses were classified as "yes", "no", or "doubtful". They found that when errors were made, anthropomorphic traits were not used. When asked, "Is it living?" about an inanimate object, 34.2 percent of the children said it was alive, but when asked "Does it have life?" 9.3 percent said it was alive. There were more correct answers for "having life" than "living". Older children gave more correct responses than younger children. In a reexamination of the data, Strauss (1951) found cause to think that some of the wrong answers may have been anthropomorphic answers. Huang and Lee felt that animistic concepts were best explained by characteristics of the object, rather than being a general tendency.
They were concerned that "living" and "having life" do not mean the same to the children. "Living" is applied more loosely by children, "having life" more strictly. Strauss agrees with Huang and Lee on this. The procedures used by Huang and Lee (1945) were not the same as those of Piaget (1929) or Russell and Dennis (1939). Strauss believes that the data of Huang and Lee could be interpreted differently.

Klingberg (1957) studied animism in 97 Swedish children age 7-10, using Huang and Lee's method (1945). He asked about objects, "Is it living?" "Does it feel anything if I prick it with a needle?" He also asked, "Has it life?" He found that there is agreement in answers on an animism test between Chinese and Swedish children except when asking about a river. Chinese children were more accurate in their answers in that case. Klingberg found that Swedish children give more correct answers concerning inanimate objects if they are asked, "Has it life?" than "Is it living?" except in the case of "tree".

Among Swedish children 80 percent of the 6-year-old boys correctly classified dog and bird as living. Ninety-four percent of the girls did so. Seventy percent of the children after age 7 said that the boat, airplane, river, and train were not alive. Sixty-eight percent of children 6 years old said that the sun was alive. Thirty-five percent of 11-year-olds said that it was alive. At age 11, 92 percent of the children correctly classified a tree and a flower.

Klingberg states,

It may be said, in accordance with Strauss' critical views, that Huang and Lee have stated their opinion too categorically. However, and this is also the opinion of Strauss, the answers of the children
Klingberg states that the results indicate that the children were more able to distinguish between living and nonliving than Piaget thought children capable of doing. Children at ages 9 to 10 still have difficulties in distinguishing the living or nonliving status of some objects.

King (1961) studied scientific concepts and interests in 1235 children age 6 to 11 years. A questionnaire containing 70 questions was used in school classrooms. Children wrote answers to the questions or teachers recorded answers of the youngest children. Children were asked to estimate length, time and direction. They were asked about volume, weight, shadows, growth of living things, the sky, and the night. On this questionnaire, children were asked about animate and inanimate objects, "Is the ___ alive?"

King (1961) found that the majority of children (70 to 90 percent) after age 7 said that inanimate things were not living. The children had trouble with "sun" and "fire". At age 11, 35 percent still attributed life to the sun; 92 percent of the children attributed life to a tree; and 93 percent attributed life to a flower. King states that:

... so far as the answers of the group was concerned, there was no evidence of Piaget's stages of development but only a gradual development of the reasoning processes by more systematic organization of concepts (1961, p. 16).

According to Laurendeau and Pinard (1962), the reason that investigators such as Deutsche and Huang and Lee did not replicate Piaget's
findings on animism is due to the age of the subjects and methods of analyzing data. Laurendeau and Pinard believe that Deutsche did not understand Piaget's basis of classifying children's answers. Also, they note that she tested children age 8 to 16, so would not be able to find such precausal thinking in that age range. There are two techniques of analysis of data used in animism studies:

1. Global evaluation of all the child's answers to determine the presence or absence of a type of thinking. In this technique, not only the child's answer is considered, but the child's criteria for choosing that answer must be determined and considered.

2. For each item, only the correctness or incorrectness of the answers is considered, without considering how each subject answers.

Piaget (1929), Russell and Dennis, (1939) and Laurendeau and Pinard (1962) used the first technique listed above. Huang and Lee (1945) and Deutsche (1937) used the second technique. Laurendeau and Pinard believe that use of the second technique masks the presence of animistic thinking in children.

Piaget attributes animistic thinking to the fact that the thought processes of the very young child are characterized by egocentricity, inability to understand causality, and inability to distinguish the subjective from the objective. Some experimenters give other explanations for animistic thinking. Klingberg (1957) and Huang and Lee (1945) attribute animistic answers to lack of knowledge about objects in the world. Some experimenters explain animistic answers on the nature of the problem that the child is called upon to solve or confusing aspects of the objects the child is asked about (Huang and Lee, 1945; King, 1961). Some experimenters have found animistic thinking in children, but do not find
the stages of animism delineated by Piaget. These experimenters do not think there are stages when the child uses different criteria for attributing life, but that the child progresses smoothly on a continuum from inaccurate observations to accurate observations (Huang and Lee, 1945; Klingberg, 1957).

There appear to be very few studies (Johnson and Josey, 1931-2) using Piaget's techniques that do not support, to some degree, the concept of animism. In a majority of the studies of animism, Piaget's work has been confirmed. The recent refinement of Piaget's procedure for testing for animism by Laurendeau and Pinard (1962) seems to have been successful in distinguishing stages of animism in 700 children ages 4 to 12 years.

The Relationship between Fear and Intelligence

There have been some studies in which the relationship between the nature of a child's fears and his intelligence has been investigated.

Jersild and Holmes (1935) concluded from the analysis of the fears reported by parents of infants and preschool children that:

According to the data, younger children exhibit a large number of fears in response to concrete and immediate events, as though these in themselves were inherently dangerous. The child cries and runs away from a noise; he cries, retreats, or clings to his mother when confronted by a strange person. When these events are withdrawn, his fears subside. The older child, on the other hand, exhibits a greater number of fears of an imaginary or anticipatory nature. He shows apprehension over future punishment, harm, or failure even though no agent of such misfortunes is confronting him at the moment. By reason of his greater fund of past experience, his capacity for retention and his capacity for mental elaborations, an event may have meanings to him that do not occur
to a younger child. Moreover, his apprehensions may be revived by slight cues that had no effect upon him at an earlier age (1935, p. 72).

Jersild et al. (1933) also found in another study involving 400, 5 to 12 year-old-children that "The resemblance between children of high and low intelligence with regard to reported fears are more outstanding than the differences" (1933, p. 155).

Ferguson's (1952) replication of Jersild's study of children's fears supports the hypothesis that children of superior intelligence report more realistic fears than children of lesser intelligence.

Maurer (1965) studied fears of 130 children of ages 5 to 14 by adding the question, "What are things to be afraid of?" to the Wechsler Intelligence Scale for Children. He found that if evaluations were based on mental age there was a sharp drop in fear of the dark and of spooks as mental age advanced.

Thus, in the investigations in which intelligence was studied in relation to fear, the similarities between fears of high and low intelligence children were more apparent than the differences; children's fears change as mental processes develop; and more realistic fears are present in children of superior intelligence than in those of average or below average intelligence. There would appear, therefore, to be support for the idea that children's thinking may influence the nature of their fears.

In summary, there is some evidence that young children have more fears than older children (Pratt, 1945; Sidana, 1967) and that younger children fear a greater variety of phenomena (Pratt, 1945). There is a
peak in the number of fears at age 3 and a second peak at age 11 (Macfarlane, 1954; Croake, 1967).

There are changes in the nature of children's fears as they grow older. Fears of young children are of more concrete phenomena and events, whereas those of older children are of an imaginary or anticipatory nature (Jersild and Holmes, 1935). The increase with age in fear of bodily injury, of fear of failure, and of fear that relatives may die is illustrative of the increasing realism of fear and the increase in fear based on apprehension of future events. Some fears persist throughout childhood (e.g. fear of the dark and fear of animals).

A survey of the literature on the relation of sex and fear reveals that girls have more fears than do boys (Jersild and Holmes, 1935; Pratt, 1945; Macfarlane, 1954; Croake, 1967; Sidana, 1967). Holmes (Jersild and Holmes, 1935) found when she studied fears in an experimental situation, that girls were more fearful than boys. Macfarlane (1954) found that girls have more fears than boys at ages 3 and 13. Webster (1961) found that in the South, differences between responses of boys and girls were not statistically significant; however, she found that young Negro girls seemed especially fearful of the supernatural. Ferguson (1952) found little difference in the fears of boys and girls. Jersild et al. (1933) found that fears of boys and girls were more similar than different. Thus, the conclusion from a study of the literature would be that girls have more fears than boys but that the fears of boys and girls are similar in nature.

A search of the literature has revealed no studies of the relationship
between either the nature of a child's fears or the number of a child's fears and his animistic thinking as determined by judges who evaluate his responses to an animism test and classify his responses into a stage of animism.

There have been no studies of the relation between the number of animistic errors that a child makes on an animism test and either the nature of his fears or the number of his fears.
METHODS AND PROCEDURES

The purpose of the present study is to investigate the relationship between children's fears and their animistic stage of development. An animism test and a test of verbal intelligence were administered to 106 children 4 to 11 years of age. Individual interviews were conducted to discover the most prominent fear as well as other fears of the subjects. Judges determined the realism of the reported fears of the children. Another group of judges classified the children's responses on the animism test into stages of animism. The data were analyzed to determine the relationship between realism of fears and animism. The fears reported by the children were categorized and described by age and sex.

Subjects

A pool of subjects was formed from children who had been enrolled in the nursery school, kindergarten or older children's laboratory in the Child Development Department at Iowa State University during 1968-70. Foreign-born children were excluded from the study. To obtain a balance of age and sex representation in the sample, the list of available children was divided into four age groups (ages 4, 6, 8 and 10 years). Within each group, children were selected on the basis of age and sex with an attempt made to cover the age range in each group and to have an equal number of boys and girls. Siblings were excluded from the sample. Within an age group, the children of the first 26 families willing to participate in the study were selected. When a
sufficient number of children of one sex (13) were unavailable, the quota for the group was filled with children of the opposite sex. Two children were inadvertently placed in the wrong age groups, but it was decided to retain them although this resulted in two additional children in the sample.

The subjects are 106 Caucasian children (60 girls; 46 boys) ranging in age from 3 years 7 months to 11 years 4 months with a median age of 7 years 5 months. From information supplied by the parents (APPENDIX A), the range of occupation scores of the children's fathers on the North-Hatt prestige rating of occupations (Reiss, 1962) is 54 to 84 with a mean of 80.5 on a 20 to 100 point scale.¹ A score of 80-84 represents high prestige occupations such as college teaching, law, veterinary medicine, engineering, scientists, officers in the armed forces and similar occupations. There are 44 college professors among the 106 fathers.

The educational level of the fathers range from those who have not completed high school (8.5 percent) to those who have received the Ph.D. degree (36.8 percent). Most of the fathers hold college baccalaureate or higher degrees (76.4 percent).

¹Dr. Dwight Dean of the Iowa State University Department of Sociology was consulted and provided a listing of occupations with North-Hatt ratings.
Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test is a test which estimates verbal intelligence through measurement of hearing vocabulary (Dunn, 1965). This test consists of a book containing 150 pages of pictures. On each page are four pictures. Each page is exposed to the child's view while the child is instructed to point to the one picture on that page which best illustrates the word pronounced by the examiner. Although there are two forms of the test, the same booklet of illustrations is used for both forms. Thus, for Form A of the test, one word is presented and one of the four pictures on a plate is the correct response. For Form B, another word is given and another of the four pictures is the correct response.

The starting point on the test differs according to age levels. On the basis of the child's responses, the examiner determines both the child's basal score and his ceiling score. The number of correct responses makes up the raw score, with credit given for all words below the basal score. A mental age, percentile rank or deviation I. Q. may be determined (Dunn, 1965).

The PPVT was standardized on 4012 white children of ages 2.5 years through 18 years in the Nashville, Tennessee area. The test was given individually to those under 9 years of age and to groups of older children by means of photographic slides. The alternate forms of the test correlate .67 at age 6 and .84 at ages 17 and 18, with a median correlation of .77. Test-retest correlation for Form A is .88 in one year.
Dunn (1965) states that findings from a number of studies indicate that the PPVT mental age correlates .82 to .86 with the 1960 Binet mental age scores and .60 to .87 with the 1937 Binet mental age scores.

**Jersild's Fears Interview**

Technique for collecting data relative to children's fears was developed by Jersild et al. (1933). A "fears interview" was employed as part of a larger battery of questions designed to study children's desires, fears and fancies. Each child is interviewed in a private room and given the following explanation:

I am going to ask you a few questions and I would like you to answer each one as well as you can. This is not like a school test because you won't be marked or get a grade on it. I just want to ask a few questions and I am going to write down some of the things you say, but no one else is going to know what you say.

Then the child is asked to respond to the following statements:

Tell me about things that scare you, things that frighten you.  
Tell me what makes you afraid.  
What else makes you afraid?  
What else?  
What else?

In the case of children who seem to feel called upon to assert their courage, the interviewer assumes an attitude of being well pleased with the child's reply and then proceeds in a casual tone with some such statement as:

Well, most people get scared once in a while, I guess. All the people I know seem to be a little bit afraid of something or other.
I wish you would tell me about things that scare you.

If a child claims that he no longer has any fears the interviewer answers:

Oh, I see, things don't scare you any more. Well, then tell me about things that used to scare you.

With each response to a question, the interviewer inquires as far as possible into details of the fear. The interviewer keeps a record of the children's responses and as far as possible, records the responses verbatim.

There is no scoring as such for the Jersild Fears Interview. The children's responses are placed in categories by two or three judges working independently. The categories are: 1) Bodily Injury and Physical Danger; 2) Animals; 3) Bad People, Robbers, etc.; 4) Supernatural Events and Beings, Mystery; 5) The Dark, Being Alone, Strange Sights, Deformities; 6) Nightmares and Apparitions; 7) Scolding, Guilt, Failure; 8) Loss of Property; 9) Illness, Injury, Death of Relative; 10) Loss of Parent or Other Relative; 11) Others Injured, Fighting; 12) Startling Events and Noises; 13) Frightening Gestures, Noises, Tales; 14) Scary Games; 15) Certain Persons and Objects; 16) Marriage; 17) Nothing; 18) Don't Know, Can't Remember. The number of children who mention each type of fear are tabulated (example: animal fears) and a percentage is figured for each category.

Jersild et al. (1933) discussed the validity of the interview method as a means of determining children's fears. They suggest that the
questioning interview method corresponds to a controlled association test and serves the purpose of determining the associations children of different ages, intelligence levels and socio-economic levels have when they are questioned. They state:

The answers represent the associations which the child most readily or most willingly is able to report. These answers must be based upon his knowledge and experience and, even though they may not tell the whole story, they give a valid representation of associations which do occur to the child in connection with a particular topic (Jersild et al. 1933, p. 9).

The reliability of the interviewing and classification of fears was determined by Jersild in two ways. First, the refinement of the list of categories was continued until the judges could classify responses of 30 children picked at random from the sample with 96-100 percent agreement. Secondly, Jersild repeated the Fears Interview with 25 children three times. The agreement among all three of the interviews combined was 80 percent or more.

The questionable validity of the interview technique limits the use of the responses to the Fears Interview test. These reported fears may be taken at face value as the child's associations when he is questioned about things that frighten him. His response may represent his imagination; he may consciously be withholding information; or he may unconsciously be focusing his general anxiety on an objective phenomenon to relieve his anxiety.

Animism Test

Laurendeau and Pinard (1962) have established a standardized procedure for administering a test to determine the stage of animistic
thinking in children. The procedure employs an interview-type technique in which each child is tested individually.

Directions to the examiner:

Ask the child each one of the following questions, trying always to make sure that he understands it well. When necessary, change the wording of the question, using terms more familiar to the child, but be very careful never to suggest more than is included in the instructions. Record all answers verbatim.

The instructions to the child during administration of the test are:

I. General questions

Do you know what it is to be alive, to be living?
What does it mean?
Give me the names of some things which are alive.

II. Specific questions

A. Individual objects

Is a _____ alive? 1) mountain
Why do you say it is (not) alive?

(Directions: continue with the following objects, asking each time the same two questions as above):

2) the sun 9) a bird 16) the rain
3) the table 10) a bell 17) a tree
4) an automobile 11) the wind 18) a snake
5) a cat 12) an airplane 19) a bicycle
6) a cloud 13) a fly 20) a fish
7) a lamp 14) the fire 21) a pencil
8) a watch 15) a flower

B. Comparisons

1) Take the rain and the fire: is one of them more alive than the other?
Why do you say that it is the ____ which is more alive?

(Directions: continue with the following comparisons, asking each time the same questions as above):

2) ... the wind or a bicycle?
3) ... fly or a cloud?
4) ... a child or a cat?
5) ... a flower or an airplane?

The protocols obtained from administration of the animism test are judged by being placed into one of four stages of animism which Laurendeau and Pinard have modified from Piaget's stages of animism. The stages are:

Stage 0 - INCOMPREHENSION AND REFUSAL

This stage comprises the subjects who obviously do not understand the meaning of the questions. Some children answer at random without giving any valid reasons for affirmation or denials. Example: "Because it's alive"; "A boy told me." Children give a certain answer to all questions. Example: all "yes" or "no" answers. Children contradict by using the same reasons to explain life and nonlife.

Stage 1 - ANIMISTIC THINKING BASED UPON USEFULNESS, ANTHROPOMORPHISM OR MOVEMENT

These children make one or more animistic errors. Children make one or more errors in attributing life to one or more inanimate objects because the criteria used are usefulness, anthropomorphism or just movement or a combination of these.

Stage 2 - AUTONOMOUS MOVEMENT WITH SOME RESIDUAL ANIMISTIC THINKING

These children make animistic errors. Children distinguish between mobile objects which receive their impetus from an external source and those which move by themselves. They may still use usefulness, anthropometric traits or general movement for some answers. They mention autonomous movement at least once on the protocol.

Stage 3 - TOTAL DISAPPEARANCE OF ANIMISTIC THINKING

Children make no animistic errors. Life is reserved to plants and animals or to animals only. Explanations may refer to autonomous or general movement, to anthropomorphism or to usefulness.
When classifying a subject's responses, it is necessary to determine the protocols in which the subject 1) does not understand the questions or 2) does not seem to have a concept of life (he answers at random without giving a valid reason; he gives the same answers to all questions, or contradicts himself in using his criteria to attribute or deny life). These protocols are classified as Stage 0.

It is necessary to determine whether the question, "Is the ___ alive?" for each of the 21 objects is answered correctly or whether there are animistic errors (attributing life to an inanimate object). If there are no animistic errors, the protocol is classified as Stage 3. If there are one or more animistic errors, it is necessary to determine the reasons the subject gives for his answers when the question, "Why do you say it is (not) alive?" is asked in order to distinguish between Stage 1 and Stage 2. One must look for examples of autonomous movement in a child's responses since this is the distinguishing characteristic of Stage 2. If there are animistic errors, but no example of autonomous movement, the protocol is judged as Stage 1.

The number of children of each age who are judged to have reached each stage of animism are tabulated.

The validity of the Laurendeau and Pinard standardized procedure depends on the accuracy with which the test measures stages of animism as defined according to Piaget's theory (Piaget, 1933). This test is an endeavor to improve the accuracy of measuring responses on an animism test.

Laurendeau and Pinard (1962) found it impossible to distinguish Piaget's first two stages on the children's criteria of activity or
Also, they found that a child does not use just one criterion, but a combination of several criteria. The stages of animism were changed to permit more accurate classification of responses. A No Concept Stage was added as Stage 0. The stages of animism were set up to take into consideration the child's using more than one criterion in assigning or denying life to objects. Laurendeau and Pinard found a more rapid evolution in concept of life than Piaget found (1929). Animistic thinking was present in at least 43.7 percent of their subjects in addition to the No Concept Stage answers. They found that the children's responses could be classified into four stages of animism. Thus, the test does measure animism according to Piaget's theory of animism.

The classification of the protocols in the Laurendeau and Pinard study of 700 children ages 4 through 12 was done by two judges. A third judge then verified the classification. Laurendeau and Pinard state:

The results of this verification are most reassuring, since altogether only 3 percent of the protocols were considered to have been incorrectly classified.... These results support the validity of the classification used in the present analysis (1962, p. 102).

The reliability of the test was not stated by Laurendeau and Pinard.

Pilot Study

During the Spring quarter of 1970, a pilot study of 25 children (9 boys and 16 girls of ages 5 through 12 years) was undertaken in order that the examiner could become proficient with the measuring instruments and interview techniques and could acquire material for training judges.
Children were selected who would not be involved in the study.

Each child came to the Child Development Department of Iowa State University for two short sessions. The PPVT and the Fears Interview were administered individually to each child during the first session. The Animism Test was given during the second session. The Animism Test responses were tape recorded and protocols of the pilot subjects were typed from the tape recordings for use in training judges. After conducting 25 interviews, it was assumed that the investigator had achieved sufficient experience in the techniques to conduct the study.

Examination of the data from the pilot study revealed that only the more advanced stages of animism were present in the responses of the subjects. It appeared necessary, therefore, to include subjects younger than age 5 in the research if a complete range of animistic thinking were to be represented. Accordingly, the plan for drawing the sample was modified to include a younger age group of subjects.

**Modification of Jersild's Fears Interview**

Certain modifications were used in Jersild's Fears Interview. Since it was an untruth to say to the child, "No one else is going to know what you say," this statement was deleted from the procedure. Some of the questions Jersild asked the children did not appear to be worded relevant to the age of the subjects. Since Jersild's directions for conducting the interviews allow for some variation, it seemed appropriate to modify the interview questions as follows:

I am studying children and their feelings and how they think about some things because we adults feel that we need to know more about
children in order to be able to understand them better, to teach them better, to help them when they ask for help. I will appreciate your telling me how you feel about something that I will ask you about.

Children often have things that frighten them. There are some things that children are afraid of. I would like to have you tell me about what frightens you - things that frighten you, ideas or experiences that frighten you.

If a child says that he no longer has any fears, the interviewer says:

Oh, I see. Things don't scare you anymore. Well, then tell me about things that used to scare you.

If the child cannot seem to think of any fears, then the interviewer says:

Most people have something that they are afraid of. They may be afraid at night or during the day. They may be afraid at school or at home. They may be afraid when playing. They may be afraid when they are with little children, children their own age, with older children, or with adults.

After the child has reported one or more fears, he is asked:

Can you think of other things that frighten you?

The child's fears are written down in the order given. Then the child is told:

I am going to repeat the fears that you have told me and I want you to tell me the one that is most frightening to you.

The child is then asked how he became afraid of the fear designated as most frightening to him. If more than the first question were necessary to obtain the desired information, the following questions were asked:

How do you think that you first became afraid of _____?
What big experience can you remember that caused the fear?
How did you first start being afraid of _____?

Training of fear judges

To obtain a measure of the realism of the children's predominant fears, a panel of three judges was selected to classify the fears as
realistic or unrealistic. The judges were selected on the basis of their professional knowledge of child development. Two of the judges were staff members in the Child Development Department at Iowa State University and the third judge was a graduate assistant in the department.¹

The criteria for judging realism of fears was explained to the judges, using the Manual for the Judging of Children's Fears (APPENDIX B).

The fears reported by children in the pilot study to be their predominant fears were used in compiling a practice list of fears for the judges to use (APPENDIX C). A rating scale was used to rate the fears on the basis of realism.

In the current study, children's fears are defined as the fear (situation, phenomenon) designated by the child as the "most frightening." Scoring of the children's most frightening fears is based on the concept that there are three components involved in deciding upon the realism of a fear. The "most frightening" fear is judged on the basis of the degree to which each one of the three components (Occurrence, Encounter and Harm) are represented by the stated fear. The degree to which each component is present or absent is scored on the basis of 0 to 100.

A score sheet was used to rate the fears (APPENDIX D). The judge circled the number on the scale to give her estimate of the probability of a specific component of realism being represented in the phenomenon in childhood. A score of zero indicates that in her judgment, the component never is represented in the phenomenon in childhood. A score of 100 indicates that it is always represented in the phenomenon. The judge may

¹Judges were Mrs. Irma Galejs, Instructor; Mrs. Lynn Graham, Graduate Assistant; and Miss Kathryn Madera, Assistant Professor.
circle any of the numbers (example: 10, 20, 30) to indicate the probability of a component being represented in the feared phenomena. The judge uses four score sheets for judging, one for each component of fear and one for a Composite Realism Score. When judging Encounter and Harm, she omits those feared phenomena which she had previously judged as never occurring.

During the training of the judges each judge rated the practice list of fears on the first component of realism (Occurrence). The ratings were checked for interrater agreement. Application of the criteria to items on which agreement was low were discussed. The judges again rated the same list of fears on the same component of realism. Then they rated the lists of fears on Probability of Encounter, then on Probability of Harm. Then they rated the list by making a composite rating, taking into account simultaneously all three components of realism.

After judging of the practice list of fears, application of the criteria was clarified by development of two scoring conventions agreed upon by the judges and the examiner. 1) A score of zero on judging the component Occurrence indicates that the phenomenon or experience does not exist at all. If the phenomenon or experience exists in areas outside the midwestern United States, since a child might go on a trip to the area, the phenomenon was considered to exist in the childhood of the child. However, very low rating on Occurrence (e.g. 2) would be given. 2) Encounter was defined as "come in physical contact with". Therefore, Encounter does not include just seeing a phenomenon or looking at animals which are contained in cages.
When the judges understood the criteria and procedures for judging and had become sufficiently familiar with the categories so that they no longer had questions about them, they were considered ready to judge the responses of the subjects.

Training of animism judges

Three judges were selected to judge the protocols resulting from administration of the Laurendeau and Pinard Animism Test. The judges consisted of a staff member in the Student Counseling Service at Iowa State University and two graduate assistants in the Psychology Department. A meeting was held with the judges to discuss the scoring criteria for the Animism Test. Each judge was presented with a zeroxed copy of pages 131-159 from the Laurendeau and Pinard book, Causal Thinking in the Child, (the sole source of information on administration and scoring of the test) and a list of the stages of animism. Sample protocols from Causal Thinking in the Child were discussed. Further interpretation of the criteria for judging was made by the judges and the investigator as additional study of examples from Laurendeau and Pinard and experience in judging three protocols from the pilot study brought more understanding.

When the judges were studying the criteria for assigning protocols from the animism test to a stage of animism, they became confused in determining what comprises a conflict, one of the criteria designated for assigning a protocol to Stage 0. The judges and the investigator used sample protocols from Laurendeau and Pinard (1962) to help them resolve this confusion. The following is one of the protocols used:

1Judges were Mrs. Barbara Chaplik, Graduate Assistant in Psychology; Dr. Marian Peglar, Counseling Psychologist; and Gary Schumaker, Graduate Assistant in Psychology.
A mountain?  No  Why?  It does not move, but cannot eat.
The sun?    Yes  Why?  It does not eat, but it turns
around.
An automobile?  No  Why?  We have to make it run ourselves.
The cat?    Yes  Why?  It can eat.
A cloud?   Yes  Why?  Because they bump together and
the rain falls.
A lamp?    No  Why?  It doesn't light up by itself.
A watch?  No  Why?  It can go around but it's because
it is connected.  (Laurendeau and

This protocol was judged by Laurendeau and Pinard to be in Stage 2 in
spite of the conflict in the qualified statement, "It does not eat,
but it turns around." Thus, the judges and the investigator arrived at
the following conventions concerning how to distinguish and judge con­

1. Do not assign a protocol to Stage 0 on the basis of conflict if
the conflict is in a qualified statement only.

2. Do not assign a protocol to Stage 0 if a child has one criteria
which he uses consistently except for one time when he makes a
conflicting statement.

3. Do not assign a child to Stage 0 if a child has more than one
criteria which he uses consistently except for one time when he
makes a conflicting statement.

4. Assign a protocol to Stage 0 if a child has conflicts in using
each of his criteria and never uses criteria without conflict.

5. Assign a protocol to Stage 0 if a child uses criteria consistently
but has more than one conflict on the protocol.

6. Add the following criteria for assigning protocols to Stage 0:
the child cannot decide whether to answer "yes" or "no" to
one or more questions on the animism test.

The order in which the criteria were applied to the protocols was re­
organized to facilitate judging (APPENDIX E). Judges then independently
rated a number of the pilot study protocols.
Procedures

In the summer of 1970, the families of the 106 children who comprised the sample in this study were contacted and asked to bring their children to the Child Development Department twice for interviewing and testing.

In order for the investigator to establish rapport with the child before questions of a personal nature were asked him in the Fears Interview, it seemed advisable to use the following sequence: 1) administer the Peabody Picture Vocabulary Test 2) during the same session, interview the child concerning fears and 3) have the child brought again in a few days and test him or her on animism. Two sessions were used since it was thought that there might be contamination between the Fears Interview and the Animism Test.

The interviewing and testing was done in a small classroom adjacent to the Child Development Research Laboratories. This room was selected because it was air-conditioned and thus would be physically more comfortable for the subjects. The room had plain light-colored walls without distractions. The room was arranged with a large table against one wall on which the examiner's materials could be stored. Two small low tables and two small chairs were brought from the testing rooms. A tape recorder was placed on one table for recording the Animism Test. The other table was used during the interviewing and testing. During the administration of the PPVT and during the Fears Interview, the investigator and child sat side by side. During the administration of the Animism Test, the investigator and the child sat across from each other so that the investigator could operate the tape recorder. It was expected that during the
administration of the PPVT in a game-like atmosphere the child could become acquainted with the investigator and feel at ease by the time he was asked questions of a more personal nature concerning his fears.

A few of the children selected for the study were attending the summer session of nursery school, so they were taken directly from the nursery school for the purpose of testing. If a child were reluctant to participate, the teacher accompanied him to the testing room; subsequently, the child seemed to be satisfied and ready to participate in the testing procedure.

For the majority of the subjects, the parent brought the child to the testing room. While the tests were being administered to the child, the parent went to another room and completed a short questionnaire about the child's background (APPENDIX A).

**Peabody Picture Vocabulary Test**

The standardized procedure specified in the manual (Dunn, 1965) for the PPVT was used in administering the test. The preschool children seemed to enjoy the PPVT, and since the directions of the PPVT stressed praising the children, the investigator was able to maintain their interest and attention.

**Fears Interview**

Jersild's Fears Interview with the modifications developed in the current study was used with the children. The child's responses were written by the investigator on the Fears Interview Recording Form (APPENDIX F). The child was asked to state his fears, then to designate
from his reported fears the most frightening one. This fear is considered his predominant fear. These predominant fears comprised the list of reported fears used by the judges who rated the realism of fears.

Most of the children did not hesitate to mention their fears. They seemed to respond quite openly, although there is the possibility of deliberate distortion or withholding of information. There were a few children of each age group who did not report fears without additional questioning. Four preschool boys and a preschool girl, and a girl age 8 years 9 months required further questioning. Three boys did not report any fears at all. One of the boys was in the 4 year age group; one was in the 6 year age group; and one was in the 10 year age group. These children were dropped from the sample. In most studies, there are some children who report that they have no fears (Jersild et al. 1933)

Animism Test: the Laurendeau and Pinard standardized procedure

The Laurendeau and Pinard Animism Test was administered during the second session that was held with the child. The standardized procedure of Laurendeau and Pinard (1962) was utilized. The child's "yes" and "no" responses were recorded by the investigator on the typed protocol form (APPENDIX G). The child's responses to the questions were tape recorded and later transcribed and typed on the protocol form which was duplicated for the judges.
Judging Fears

A panel of three judges rated the realism of the reported predominant fears of the children. A list of the 75 different fears reported by the children in the sample was compiled. A rating scale of 0 to 100 was developed for judging the fears (APPENDIX D). Each of the 75 reported fears was to be judged four times. The judges rated each fear on each component of realism (Occurrence, Encounter, and Harm) and then a fourth time gave a Composite Realism Score for each fear listed.

Pearson product-moment correlations were calculated by computer for interjudge reliabilities in judging the three components of realism of the children's reported fears (Probability of Occurrence, Probability of Encounter, and Probability of Harm) and a Composite Realism Score.

The correlations for judging Probability of Occurrence were: Judge A and Judge B, r = .72; Judge A and Judge C, r = .64; Judge B and Judge C, r = .63. The correlations for judging Probability of Encounter were: Judge A and Judge B, r = .74; Judge A and Judge C, r = .73; Judge B and Judge C, r = .67. The correlations for judging Probability of Harm are: Judge A and Judge B, r = .57; Judge A and Judge C, r = .78; Judge B and Judge C, r = .61. The correlations for judging a Composite Realism Score are: Judge A and Judge B, r = .19; Judge A and Judge C, r = .24; Judge B and Judge C, r = .33.

The correlations among the judges ranged from .19 to .85 with a mean correlation of .59. The mean interjudge correlations in judging Probability of Occurrence of the fears was .74; for judging Probability of
Encounter, .71; and Probability of Harm, .65. For judging a Composite Realism Score, the mean interjudge correlation was .25.

The reliability of the composite ratings, i.e. averaging the scores from the judges for each child, can be approximately obtained from the formula, \[ r_{kk} = \frac{k - 1}{1 + (k-1) \bar{r}_{ij}} \]
where \( k \) = the number of judges, and 
\[ \bar{r}_{ij} = \text{average interjudge correlation} \] (Thorndike and Hagen, 1969, p.192).

The reliability correlations were: Probability of Occurrence, \( r = .85 \); Probability of Encounter, \( r = .88 \); Probability of Harm, \( r = .85 \); Composite Realism Score, \( r = .50 \).

A mean score was calculated for each child's predominant fear for
1) Probability of Occurrence, 2) Probability of Encounter, 3) Probability of Harm resulting from encounter and 4) Composite Realism Score.

Animism

The verbatim record of each child's response to each question on the Laurendeau and Pinard Animism Test was analyzed by a panel of three judges in order to classify a child's answers into a stage of animism. The protocol of each child for all of his answers to the questions concerning objects being living or nonliving (including his criteria for attributing life to objects) was used to classify his responses into a stage of animism.

Each judge was given a set of protocols on which the animistic errors had been checked. The protocols were coded by number so that the judge had no knowledge of the child's identity. Answers to the first questions in the Animism Test, such as, "Do you know what it is to be alive, to be living?" were not judged. The comparisons at the end of the test
were not used in judging.

Each judge assigned a protocol to one of the stages of animism (Stage 0, 1, 2, or 3). The protocol was assigned to the stage of animism agreed upon by at least two of the three judges. There was complete agreement among the three judges for 96 out of the 106 protocols and between two of three judges for the remaining ten protocols. The stage assigned to a child represents his animism score.

Pearson product-moment correlations were calculated for the inter-rater reliability. The correlation between Judge A and Judge B was $r = .96$; Judge A and Judge C, $r = .97$; Judge B and Judge C, $r = .95$. The correlations ranged from .95 to .97 with a mean correlation of .96.

Analysis of Data

The data consisted of ten variables related to animism and fears. The dependent variable was realism of fear divided into three components, Probability of Occurrence, Probability of Encounter, and Probability of Harm; and Composite Realism Score. The independent variables were chronological age, mental age, sex, animism score, number of fears and number of animistic errors. There were three kinds of analysis in this study: correlation analysis, regression analysis and descriptive analysis of the reported fears.

The responses of the subjects were recorded and where appropriate, judged before being coded and punched on IBM cards. The variable, sex, was coded: male, 0; female, 1; stage of animism was coded: Stage 0, -2; Stage 1, -1; Stage 2, 1; Stage 3, 2.
Person product-moment correlations were calculated for the ten variables to determine whether significant relationships exist between the variables as hypothesized.

Regression analysis was performed with each of the three components of realism and Composite Realism Score being regressed on chronological age, mental age, sex, animism score, number of fears and number of animistic errors. From this analysis, it could be determined whether the dependent variables were being affected by these variables and if so, which variable of the set of variables was weighted the most for the dependent variables. In this way, the portion of the variance of each component of fear attributable to the independent variable could be determined. These results would also provide evidence to test the hypotheses.

It was thought to be of some interest to categorize the fears according to Jersild’s (et al. 1933, p. 146-151) method. The 106 predominant fears and 203 other reported fears were placed by judges\(^1\) in 15 categories used by Jersild et al. (1933). The percent of fears in each category was determined for predominant fears and for other reported fears. The fears in each category were described by age and by sex.

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\(^1\)Judges were Miss Hazel Hagne, Miss Elizabeth Ward, and Mrs. Frances Sessions, present or former staff members in early childhood education at Humboldt State College, Arcata, California; and Mrs. Gwen Jolly, home economics graduate of the same college.
RESULTS

Major Findings

Pearson product-moment correlations were calculated for the ten variables in this study: chronological age, mental age, sex, animism, the three components of realism (Probability of Occurrence, Probability of Encounter, Probability of Harm), a Composite Realism Score, number of reported fears and number of animistic errors. With 105 degrees of freedom, a correlation of .19 is significant at the .05 level. The correlation matrix is presented in Table 1.

Degree of animism was significantly related to Probability of Occurrence ($r = .21; p < .05$) and to Probability of Encounter ($r = .20; p < .05$), but was not significantly related to Probability of Harm or Composite Realism Score. Thus, the null hypothesis that no relationship exists between realism of fears and degree of animism may in part be rejected. Animism is significantly related to two of the three components of realism. This means that the subjects who are more advanced in animistic concepts are more likely to hold predominant fears which are related to situations likely to occur in their environment and which the subjects will encounter. However, these fear-producing situations are not likely to be harmful.

Number of animistic errors was significantly and negatively related to Probability of Occurrence and Probability of Encounter ($r = -.28; p < .01$) and significantly and positively related to Probability of Harm ($r = .24; p < .05$). The relation between number of animistic errors and
Table 1. Correlation matrix of chronological age, mental age, sex, animism score, and realism of fear

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r = .19; p < .05; df = 105
r = .25; p < .01; df = 105

Key to symbols:
1 = Chronological age
2 = Mental age
3 = Sex
4 = Animism score
5 = Probability of Occurrence
6 = Probability of Encounter
7 = Probability of Harm
8 = Composite Realism Score
9 = Number of reported fears
10 = Number of animistic errors
Composite Realism Score was not significant. Thus, the null hypothesis that no relationship exists between realism of fears and number of animistic errors may be rejected in part. Number of animistic errors is significantly related to all three components of realism of fear. Thus, children who make no animistic errors or only a few on an animism test are those children whose fears are of phenomena that do occur in their childhood and that they do encounter, although the feared phenomena are not very harmful.

Regression analysis was performed with each of the three components of realism of fear and Composite Realism Score being regressed on chronological age, mental age, sex, animism score, number of fears and number of animistic errors. The significant F-test ($F = 2.69; p < .05$) indicates that the combined effect of the independent variables on Probability of Occurrence was not due to chance (Table 2).

Table 2. Regression analysis of Probability of Occurrence on chronological age, mental age, sex, animism score, number of reported fears and number of animistic errors

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<th>Variation due to</th>
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</tbody>
</table>

$R^2 = .14$

$F = 2.19; p < .05; df = 6$ and $99$
A test of the multiple correlation coefficient indicates that it is significant ($R^2 = .14; p < .05$). The proportion of the variation in the dependent variable explained by regression is .14.

An inspection of Table 3 shows that a significant F-test also was obtained when Probability of Encounter was regressed on these variables ($F = 2.60; p < .05$). A test of the multiple correlation coefficient indicates that it is significant ($R^2 = .14; p < .05$). The proportion of the variation in Probability of Encounter explained by regression is .14.

The independent variables did have a small but significant effect on Probability of Occurrence and Probability of Encounter.

The F-tests for regression of Probability of Harm and of Composite Realism Score on the variables were not significant (Tables 4 and 5). The test of the multiple correlation coefficient for Probability of Harm indicates that it is not significant ($R^2 = .11; p > .05$). The proportion

<table>
<thead>
<tr>
<th>Variation due to</th>
<th>Degrees of freedom</th>
<th>Sums of squares</th>
<th>Mean square</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (corrected)</td>
<td>105</td>
<td>55937</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>6</td>
<td>7611</td>
<td>1286</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>99</td>
<td>48325</td>
<td>488</td>
<td>2.60</td>
</tr>
</tbody>
</table>

$R^2 = .14$

$F = 2.19; p < .05; df = 6$ and 99
Table 4. Regression analysis of Probability of Harm on chronological age, mental age, sex, animism score, number of reported fears and number of animistic errors

<table>
<thead>
<tr>
<th>Variation due to</th>
<th>Degrees of freedom</th>
<th>Sums of squares</th>
<th>Mean square</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (corrected)</td>
<td>105</td>
<td>100994</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>6</td>
<td>10972</td>
<td>1828</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>99</td>
<td>90022</td>
<td>909</td>
<td>2.01</td>
</tr>
</tbody>
</table>

\[ R^2 = .11 \]

\[ F = 2.19; p < .05; df = 6 \text{ and } 99 \]

Table 5. Regression analysis of Composite Realism Score on chronological age, mental age, sex, animism score, number of reported fears and number of animistic errors

<table>
<thead>
<tr>
<th>Variation due to</th>
<th>Degrees of freedom</th>
<th>Sums of squares</th>
<th>Mean square</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (corrected)</td>
<td>105</td>
<td>16539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>6</td>
<td>1534</td>
<td>255</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>99</td>
<td>15004</td>
<td>151</td>
<td>1.69</td>
</tr>
</tbody>
</table>

\[ R^2 = .09 \]

\[ F = 2.19; p < .05; df = 6 \text{ and } 99 \]

of the variation in Probability of Harm explained by regression is .11.

The test of the multiple correlation coefficient for Composite Realism
Score indicates that it is not significant ($R^2 = .09; p > .05$). The proportion of the variation in this variable explained by regression is .09. **Probability of Harm** and **Composite Realism Score** were independent of the effect of chronological age, mental age, sex, number of fears and number of animistic errors.

Estimated regression coefficients are displayed in Tables 6, 7, 8 and 9. In order to determine the relative importance of the various

Table 6. Estimated coefficients in the regression of Probability of Occurrence on chronological age, mental age, sex, animism score, number of fears, and number of animistic errors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CA</td>
<td>0.13</td>
<td>0.67</td>
</tr>
<tr>
<td>2 MA</td>
<td>0.03</td>
<td>0.27</td>
</tr>
<tr>
<td>3 Sex</td>
<td>-0.17</td>
<td>-0.03</td>
</tr>
<tr>
<td>4 A</td>
<td>1.46</td>
<td>0.67</td>
</tr>
<tr>
<td>9 RF</td>
<td>-0.29</td>
<td>-0.37</td>
</tr>
<tr>
<td>10 AE</td>
<td>-2.36</td>
<td>-2.71</td>
</tr>
</tbody>
</table>

t = 1.89; p < .05; df = 105

t = 2.63; p < .01; df = 105
Table 7. Estimated coefficients in the regression of Probability of Encounter on chronological age, mental age, sex, animism score, number of fears and number of animistic errors

<table>
<thead>
<tr>
<th>Variation</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CA</td>
<td>0.05</td>
<td>0.33</td>
</tr>
<tr>
<td>2 MA</td>
<td>0.05</td>
<td>0.46</td>
</tr>
<tr>
<td>3 Sex</td>
<td>2.60</td>
<td>0.55</td>
</tr>
<tr>
<td>4 A</td>
<td>1.85</td>
<td>0.98</td>
</tr>
<tr>
<td>9 RF</td>
<td>-0.07</td>
<td>-0.11</td>
</tr>
<tr>
<td>10 AE</td>
<td>-2.15</td>
<td>-2.83</td>
</tr>
</tbody>
</table>

$ t = 1.89; \ p < .05; \ df = 105 $
$ t = 2.63; \ p < .01; \ df = 105 $

Table 8. Estimated coefficients in the regression of Probability of Harm on chronological age, mental age, sex, animism score, number of fears and number of animistic errors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CA</td>
<td>0.19</td>
<td>0.66</td>
</tr>
<tr>
<td>2 MA</td>
<td>-0.09</td>
<td>-0.68</td>
</tr>
<tr>
<td>3 Sex</td>
<td>-14.19</td>
<td>-2.20</td>
</tr>
<tr>
<td>4 A</td>
<td>-1.85</td>
<td>-0.72</td>
</tr>
<tr>
<td>9 RF</td>
<td>0.58</td>
<td>0.63</td>
</tr>
<tr>
<td>10 AE</td>
<td>2.71</td>
<td>2.62</td>
</tr>
</tbody>
</table>

$ t = 1.89; \ p < .05; \ df = 105 $
$ t = 2.63; \ p < .01; \ df = 105 $
Table 9. Estimated coefficients in the regression of Composite Realism Score on chronological age, mental age, sex, animism score, number of fears and number of animistic errors

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CA</td>
<td>0.13</td>
<td>1.48</td>
</tr>
<tr>
<td>2 MA</td>
<td>-0.01</td>
<td>-0.17</td>
</tr>
<tr>
<td>3 Sex</td>
<td>-4.97</td>
<td>-1.89</td>
</tr>
<tr>
<td>4 A</td>
<td>-0.04</td>
<td>-0.04</td>
</tr>
<tr>
<td>9 RF</td>
<td>0.30</td>
<td>0.80</td>
</tr>
<tr>
<td>10 AE</td>
<td>0.40</td>
<td>0.95</td>
</tr>
</tbody>
</table>

\[ t = 1.89; \ p < .05; \ df = 105 \]
\[ t = 2.63; \ p < .01; \ df = 105 \]

independent variables in relation to the dependent variable, the t-test was used with the estimated regression coefficients to test the null hypothesis that the coefficient is equal to zero. Examination of Table 6 and Table 7 reveals that number of animistic errors was the variable in this set of independent variables that was the most distinct for both Probability of Occurrence \( t = -2.70; \ p < .01 \) and Probability of Encounter \( t = -2.83; \ p < .01 \).

The results of this regression analysis give further supporting evidence for rejecting the hypothesis that there is no relationship between realism of fears and number of animistic errors. When the results both of the correlation analysis between animistic errors and Probability of Occurrence, Encounter, and Harm; and of the regression
analysis of the components of realism on the independent variables are considered it can be concluded that a child who makes animistic errors would be expected to report fear of phenomena that do not occur in his childhood and that he would not encounter. On the basis of the correlation analysis, but not the regression analysis, we could expect this child to report fears of phenomena that were harmful.

It can be seen in Table 1 that number of reported fears was not significantly correlated with any of the three components of realism of fear nor the Composite Realism Score. Thus, the hypothesis that no relationship exists between realism of fears and number of reported fears was not rejected.

Number of reported fears is not significantly related to number of animistic errors (Table 1). Thus, the null hypothesis that no relationship exists between number of reported fears and number of animistic errors cannot be rejected.

Number of reported fears was significantly and negatively related to animism score ($r = -.59; p < .01$). Thus, the null hypothesis that no relationship exists between the number of reported fears and animism score can be rejected. A child who is at a lower stage of animism would report more fears than a child who is at a higher stage of animism.

Inspection of the correlation between Probability of Occurrence and Probability of Encounter ($r = .94; p < .01$) reveals a very strong relationship. This correlation would indicate that these two components of fear are not independent components. The correlation
between Probability of Occurrence and Probability of Harm was negative and significant ($r = -.34; p < .01$). Probability of Encounter was negatively and significantly related to Probability of Harm ($r = -.33; p < .01$). The relationship between Probability of Occurrence and Composite Realism Score approaches zero ($r = .03$).

Ancillary Findings

Inspection of Table 1 reveals that animism score was significantly related to both chronological age ($r = .45; p < .01$) and mental age ($r = .45; p < .01$). As children increase in chronological age and in mental age, they become more advanced in their animistic thinking. Chronological age was significantly related to Probability of Occurrence ($r = .25; p < .01$), Probability of Encounter ($r = .22; p < .05$) and Composite Realism Score ($r = .22; p < .05$). As children increase in age, they report fear of phenomena that occur in their childhood and that they will encounter. As children become older, their reported fears are rated as more realistic by judges.

Mental age was significantly related to Probability of Occurrence ($r = .24; p < .01$), Probability of Encounter ($r = .22; p < .05$) and Composite Realism Score ($r = .20; p < .05$). The correlation of Probability of Harm with either chronological age or mental age approaches zero. Children with higher mental ability report fears that are of phenomena which do occur in childhood, and which they would encounter. Also, judges rate fears as more realistic.

Neither increased age nor advanced mental ability in children is
related to the harmfulness of their feared phenomena. Younger children or children of lower mental age are as likely as older children or children of higher mental age to report fears of phenomena that are harmful.

Number of fears was significantly and negatively related to chronological age ($r = -0.33; p < 0.01$) and to mental age ($r = -0.37; p < 0.01$). The older the children, the fewer fears they report. The higher the mental age of children, the fewer fears they report. Number of animistic errors is not significantly related to either chronological age or mental age. Younger children are as likely as older children to make animistic errors. Children of higher mental age are as likely to make animistic errors as children of lower mental age.

Sex was significantly and negatively related to animism score ($r = -0.20; p < 0.05$). More girls in the sample were judged to be at lower stages of animism. They were animistic in their thinking. Thus, girls are more likely than boys to be immature in their animistic concepts.

Descriptive Analysis of the Fears

The 106 predominant fears and 203 other fears reported by the children were placed into the categories used by Jersild et al. (1933) and are presented in Table 10. The descriptive analysis of the fears will consist of a presentation of the predominant fears and the other reported fears in each category, a comparison of the fears of boys and of girls, a comparison of the fears of younger children and of older children, and a comparison of rank order of the fears by category, by age, and by sex. For the purposes of comparing fears of children of different ages, the children are divided into a younger group ($N=53$) ranging in age from 3
Table 10. Percent of reported fears in each category

<table>
<thead>
<tr>
<th>Categories</th>
<th>Predominant fears (N = 106)</th>
<th>Other fears (N = 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sex Age</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>Boys</td>
</tr>
<tr>
<td>I. Bodily Injury and Physical Danger</td>
<td>17.9</td>
<td>34.8</td>
</tr>
<tr>
<td>II. Animals</td>
<td>26.4</td>
<td>23.9</td>
</tr>
<tr>
<td>III. Bad People, Robbers, etc.</td>
<td>1.9</td>
<td>0.0</td>
</tr>
<tr>
<td>IV. Supernatural Events and Beings, Mystery</td>
<td>11.3</td>
<td>10.9</td>
</tr>
<tr>
<td>V. The Dark, Being Alone, Strange Sights, Deformities</td>
<td>9.4</td>
<td>6.5</td>
</tr>
<tr>
<td>VI. Nightmares and Apparitions</td>
<td>6.6</td>
<td>4.3</td>
</tr>
<tr>
<td>VII. Scolding, Guilt, Failure</td>
<td>2.8</td>
<td>2.2</td>
</tr>
<tr>
<td>VIII. Loss of Property</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>IX. Illness, Injury, Death of Relative</td>
<td>2.8</td>
<td>0.0</td>
</tr>
<tr>
<td>X. Loss of Parent or Other Relative</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>XI. Others Injured, Fighting</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Table 10. (continued)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total</th>
<th>Predominant fears (N = 106)</th>
<th>Other fears (N = 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sex</td>
<td>Age</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>XII. Startling Events and Noises</td>
<td>11.3</td>
<td>6.5</td>
<td>15.0</td>
</tr>
<tr>
<td>XIII. Frightening Gestures, Noises, Tales</td>
<td>4.7</td>
<td>4.3</td>
<td>5.0</td>
</tr>
<tr>
<td>XIV. Scary Games</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>XV. Certain Persons and Objects</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>XVI. Miscellaneous</td>
<td>4.7</td>
<td>6.5</td>
<td>3.3</td>
</tr>
</tbody>
</table>
years 7 months and 7 years 4 months with a mean age of 5 years 4 months; and an older group (N=53) ranging in age from 7 years 6 months to 11 years 4 months with a mean age of 9 years 4 months.

The percent of the predominant fears reported by the children in each category from largest to smallest is as follows: Animals (26.4 percent); Bodily Injury and Physical Danger (17.9 percent); Supernatural Events and Beings, Mystery (11.3 percent); Startling Events and Noises (11.3 percent); The Dark, Being Alone, Strange Sights, Deformities (9.4 percent); Nightmares and Apparitions (6.6 percent); Frightening Gestures, Noises, Tales (4.7 percent); Miscellaneous (4.7 percent); Scolding, Guilt, Failure (2.8 percent); Illness, Injury, Death of a Relative (2.8 percent); Bad People, Robbers, etc. (1.9 percent).

The percent of the other fears in each category from largest to smallest is as follows: Animals (36.4 percent); Bodily Injury and Physical Danger (20.2 percent); The Dark, Being Alone, Strange Sights, Deformities (8.9 percent); Startling Events and Noises (8.9 percent); Supernatural Events and Beings, Mystery (5.4 percent); Miscellaneous (4.9 percent); Scolding, Guilt, Failure (4.4 percent); Certain Persons and Objects (2.9 percent); Nightmares and Apparitions (2.5 percent); Bad People, Robbers, etc. (1.9 percent); Frightening Gestures, Noises, Tales (1.5 percent); Illness, Injury, Death of Relative (.9 percent); Others Injured, Fighting (.5 percent); and Scary Games (.5 percent). There were no fears reported in the categories Loss of Property or Loss of Parent or Other Relative.

The two largest categories of fears of children ages 4 through 11, therefore, are Animals; and Bodily Injury and Physical Danger.
The percent of the predominant fears reported by the 60 girls was compared with the percent of predominant fears reported by the 46 boys for each category. The analysis is shown in Table 10. The largest category of fears for boys is Bodily Injury and Physical Danger (34.8 percent), whereas for girls it is Animals (28.3 percent). The second largest category for boys is Animals (23.8 percent) and for girls it is Startling Events and Noises (15.0 percent).

A larger percent of girls than boys fear: Animals (28.3 and 23.9 percent, respectively); Bad People, Robbers, etc. (3.3 and 0.0 percent, respectively); Supernatural Events and Beings, Mystery (11.7 and 10.9 percent, respectively); The Dark, Being Alone, Strange Sights, Deformities (11.7 and 6.5 percent, respectively); Nightmares and Apparitions (8.3 and 4.3 percent, respectively); Scolding, Guilt, Failure (3.3 and 2.2 percent, respectively); Illness, Injury, Death of Relative (5.0 and 0.0 percent, respectively); Startling Events and Noises (15.0 and 6.5 percent, respectively) and Frightening Gestures, Noises, Tales (5.0 and 4.3 percent, respectively).

A larger percent of boys than girls fear: Bodily Injury and Physical Danger (34.8 and 5.00 percent, respectively); Miscellaneous (6.5 and 3.3 percent, respectively).

The percent of the children's reported fears in each category was analyzed by age by comparing the fears of the 53 younger children (mean age: 5 years 4 months) with those of the 53 older children (mean age: 9 years 4 months). The analysis is shown in Table 10. The largest category of fears for the younger children is Animals (30.2 percent) and the second and third largest categories are Supernatural Events and
Beings, Mystery (16.9 percent) and Startling Events and Noises (16.9 percent). For the older children there were two large categories: Bodily Injury and Physical Danger (22.6 percent) and Animals (22.6 percent).

A larger percent of older children than younger children fear:
- Bodily Injury and Physical Danger (22.6 and 13.2 percent, respectively);
- Bad People, Robbers, etc. (3.8 and 0.0 percent, respectively);
- Nightmares and Apparitions (7.5 and 5.7 percent, respectively);
- Scolding, Guilt, Failure (5.7 and 0.0 percent, respectively);
- Illness, Injury, Death of Relative (5.7 and 0.0 percent, respectively);
- Frightening Gestures, Noises, Tales (5.7 and 3.8 percent, respectively);
- and Miscellaneous (9.4 and 0.0 percent, respectively).

A larger percent of younger children than older children fear:
- Animals (30.2 and 22.6 percent, respectively);
- Supernatural Events and Beings, Mystery (16.9 and 5.7 percent, respectively);
- The Dark, Being Alone, Strange Sights, Deformities (13.2 and 5.7 percent, respectively);
- Startling Events and Noises (16.9 and 5.7 percent, respectively).

In Table 11, a number has been assigned to each category based on the rank ordering of that category 1) among all predominant fears 2) according to sex, 3) according to age and 4) among the other reported fears. The ranking is based on the percent of the fears in each category. The categories Loss of Property; Loss of Parent or Other Relative; Others Injured, Fighting; and Scary Games were eliminated in the rankings since there was less than one percent of the fears in these categories.

In general, when the fear categories are rank ordered by percent of
Table 11. Rank order of the percent of fears reported in each category

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total</th>
<th>Predominant fears (N = 106)</th>
<th>Other fears (N = 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sex</td>
<td>Age</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>Animals</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Bodily Injury and Physical Danger</td>
<td>2</td>
<td>1</td>
<td>6.3</td>
</tr>
<tr>
<td>Supernatural Events and Beings, Mystery</td>
<td>3.5</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>Startling Events and Noises</td>
<td>3.5</td>
<td>4.3</td>
<td>2</td>
</tr>
<tr>
<td>The Dark, Being Alone, Strange Sights, Deformities</td>
<td>5</td>
<td>4.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Nightmares and Apparitions</td>
<td>6</td>
<td>7.5</td>
<td>5</td>
</tr>
<tr>
<td>Frightening Gestures, Noises, Tales</td>
<td>7.5</td>
<td>7.5</td>
<td>6.3</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>7.5</td>
<td>4.3</td>
<td>9.3</td>
</tr>
<tr>
<td>Scolding, Guilt, Failure</td>
<td>9.5</td>
<td>9</td>
<td>9.3</td>
</tr>
<tr>
<td>Illness, Injury, Death of Relative</td>
<td>9.5</td>
<td>10.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Bad People, Robbers, etc.</td>
<td>11</td>
<td>10.3</td>
<td>9.3</td>
</tr>
<tr>
<td>Certain Persons and Objects</td>
<td>12</td>
<td>10.3</td>
<td>12</td>
</tr>
</tbody>
</table>
predominant fears of all the children, this ranking is consistent with the rankings of the categories by sex and age of the children.

Fear of animals is one of the highest ranking fears of children throughout the age span from age 4 to 11. It ranks one in all groups except boys where it ranks two. When the total rank order for predominant fears is considered, it can be seen from an inspection of Table 11 that Bad People, Robbers, etc. (11) ranks lower than Supernatural Events and Beings, Mystery (3.5), Startling Events and Noises (3.5), and The Dark, Being Alone, Strange Sights, and Deformities (5). Illness, Injury, Death of Relative (9.5) ranks lower than Supernatural Events and Beings, Mystery (3.5), and Startling Events and Noises (3.5), except in the case of older children in which case these categories rank the same. Scolding, Guilt, Failure (9.5) ranks below Supernatural Events and Beings, Mystery (3.5), Startling Events and Noises (3.5), and The Dark, Being Alone, Strange Sights, Deformities (5), except that these categories all rank the same with older children.
DISCUSSION

The purpose of this study was to investigate the relationship among children's fears and measures of intellectual performance and developmental pattern.

Developmental Pattern of Thought Processes

When an animism test was administered to the children in this study, the responses were found to be classifiable into the four stages of animism designated by Laurendeau and Pinard (1962). There was a significant correlation between degree of animism score and chronological age of the subjects ($r = .45; p < .01$). Thus, animistic thinking was characteristic of the young children in the sample. Children who think animistically attribute consciousness and life to things.

Animism is one characteristic of a child who is precausal in his thinking (Piaget, 1930). Children who do precausal thinking have not developed concepts of reality and of physical causality. It is characteristic of them that they are egocentric. They cannot distinguish what is subjective that emanates from themselves and what is part of external reality that can be observed by everybody.

Animism score is related to mental age ($r = .45; p < .01$) as well as chronological age ($r = .45; p < .01$). Russell (1940a) obtained a correlation of .59 between mental age and animism score and .62 between chronological age and the animism score. Laurendeau and Pinard (1962) found a correlation of .74 between chronological age and animism score. The findings of these studies were supported by the present investigation.
The study of feebleminded adults throws light onto the relationship of mental age and animism. Russell et al. (1940) found that retarded adults think less animistically than children of the same mental age, but more animistically than normal adults. Since they have lived longer than children they have had more opportunity for experiences for learning about phenomena, yet their low mental ability makes them less capable than normal adults of developing an accurate concept of life. Apparently, both experience and intelligence is required for developing an accurate concept of life. It would seem therefore, that as a child increases in age, he should have more opportunities for learning experiences. These experiences should not be superficially imposed lessons in which the child merely accepts what he is told, but experiences in which he has a chance to fully explore phenomena from many viewpoints and apply previous learnings.

Number of animistic errors is not significantly related to either chronological age \( (r = -.09) \) or mental age \( (r = -.09) \). Children of all ages are likely to make animistic errors. Laurendeau and Pinard (1962) found that the children are distributed about equally across the age range 4 to 12 years in respect to number of errors. Not only do young children make animistic errors, but several investigators have found animistic errors among college students and adults (Dennis, 1957; Crowell and Dole, 1957). Similarly, children of higher mental ability are as likely as children of lower mental ability to make animistic errors. Laurendeau and Pinard's evaluation of the accuracy of assessing animistic thinking by number of animistic errors seems pertinent (1962). They state that merely counting animistic errors on a protocol does not give any
indication of a child's real reasoning process, but may indicate chance, fancy or perseveration. Even primitive thinking may lead to an accurate answer. Determining the number of animistic errors gives no clue to precausal thinking. Animistic answers are not a sensitive indicator of the development of thought in a child.

The nearly zero correlation \((r = -.06)\) between animism score and number of animistic errors and the fact that animism score is developmentally related to age, whereas number of animistic errors is not, lends support to Laurendeau and Pinard's evaluation of the significance of animistic errors.

On the other hand, the fact that number of animistic errors was negatively related to Probability of Occurrence \((r = -.28; p < .01)\) and Probability of Encounter \((r = -.28; p < .01)\) and positively related to Probability of Harm \((r = .24; p < .05)\) would indicate that number of animistic errors is related as hypothesized with realism of fear.

Sex was significantly and negatively related to animism score \((r = -.20; p < .05)\). Girls in this study were more animistic in their thinking. The median age of the girls in the sample was higher than that of the boys. Therefore, it would be expected that more girls than boys would be in advanced stages of animism. These results are not in agreement with those of Russell (1940a) who found no significant differences between boys and girls in stages of animism, and of Laurendeau and Pinard (1962) who state that sex of a child has no bearing on his animistic thinking. Neither Russell nor Laurendeau and Pinard found significant differences between boys and girls in level of animistic thinking.

It is interesting to consider various explanations for the fact that girls in this study are more animistic in their thinking. Maccoby (1966) states that existing information indicates sex differences in spatial
ability and in analytic ability from the early school years on. Boys are more analytic in their thinking and perform better than girls in spatial tests. Boys also are more able to break set or restructure a problem. Boys are more skillful in performing an intellectural task in which content must be disengaged from the context in which it is embedded. Women tend toward a global field approach in perceptual and intellectual functioning whereas men tend toward an analytic approach (Witkin et al. 1962).

There are several possible explanations for girls being more animistic than boys. Since they may not be as analytic as boys (Maccoby, 1966), girls may tend to retain primitive beliefs concerning life and nonlife longer than boys without noting discrepancies of disequilibrium when assimilating new information to old schemas. Girls may be more conforming and more dependent on ideas of others (Maccoby, 1966). They may accept adult statements about concept of life but take longer to really understand them.

Girls fear failure more than boys (Maccoby, 1966). Boys rise to an intellectual challenge, whereas girls retreat and become disorganized as they begin to face failure (Moriarity, 1961; Murphy, 1962). A third possible explanation of sex differences in animism scores is that there could have been disorganization in girls' responses as they realized the difficult nature of the problem that they were asked to solve (i.e. to evaluate the living or nonliving status of certain objects and to give an explanation for their answer). Also, perhaps boys could restructure the problem more easily.
Realism of Fear

In this study, it was theorized that realism of fear consists of three components: Probability of Occurrence, Probability of Encounter, and Probability of Harm. It is interesting to study the relationships among the three components of realism. The correlation between Probability of Occurrence and Probability of Encounter is very high ($r = .94; p < .01$). Therefore, Probability of Occurrence and Probability of Encounter are not independent components of realism of fear. The explanation may be as follows: if a phenomenon occurs very frequently in a child's environment, then he would be bound to encounter it more frequently than a phenomenon that rarely occurs in his environment. Conversely, a rare phenomenon would not often be encountered by a child. It would seem that these two aspects are important components of realism but that they are by nature closely related.

Probability of Occurrence is significantly and negatively related to Probability of Harm ($r = -.34; p < .01$). It seems reasonable that this correlation must logically be a negative one. If feared phenomena are frequent in occurring, they also could not be very harmful. Otherwise, children would be constantly faced with disastrous harm from phenomena they frequently encounter. Fortunately, this is not the case with the children in this sample. Also, Probability of Encounter is negatively and significantly related to Probability of Harm ($r = -.33; p < .01$). Again, phenomena which children are likely to encounter frequently are not very harmful.

The Composite Realism Score is significantly related to Probability
of Harm \( (r=.66; p<.01) \). It is interesting that the relationship between Composite Realism Score and Probability of Occurrence \( (r=.03) \) and Probability of Encounter \( (r=.04) \) approaches zero, whereas the relationship between Probability of Harm and Composite Realism Score is significant at the .01 level of probability. No logical explanation presents itself relative to the theory. The correlation between Composite Realism Score and Probability of Harm may reflect error of measurement in the Composite Realism Score; however, it may be that the judges when trying to make a composite rating of the realism of fear cannot keep all three components of fear in mind.

Chronological age and Probability of Occurrence \( (r = .25; p<.01) \) and Probability of Encounter \( (r = .22; p<.05) \) are significantly related. The relationship is small but significant. Thus, a young child's fears progress from being fears of phenomena that do not exist or rarely happen to fears of phenomena or experiences that often occur in the current life of the child. Also, as he gets older, the child's fears progress from fear of phenomena that he is very unlikely to encounter to fears of phenomena that he will meet and have to cope with.

When we note the relationship of the mental age of these children and the realism of their fears, we find a small but significant relationship between mental age and Probability of Occurrence \( (r = .24; p<.05) \) and Probability of Encounter \( (r = .22; p<.01) \). The more mental ability that the child has, the more realistic is his assessment of the probability that a feared phenomenon will occur in his childhood and that he will have to encounter the phenomenon.

Probability of Harm is not related to chronological age \( (r = -.04) \)
or mental age ($r = -.04$). Younger children are as accurate in assessing harmfulness of an encountered phenomenon as older children. More intelligent children would be no more accurate in assessing harmfulness than less intelligent children. This is a surprising finding. One would expect that a child's experiences over the years would help him to learn about harm and his mental ability should make it easier to learn to assess threat accurately. It may be that harm is not truly a component of realism of fear. Another explanation is that children may learn to assess Probability of Harm more quickly than they do Probability of Occurrence or Probability of Encounter. Parents try to educate children to be alert to threatening phenomena (examples: strange men, spiders, snakes, busy street traffic, a hot stove, deep water).

The Composite Realism Score is related to both chronological age ($r = .22; p < .05$) and mental age ($r = .20; p < .05$). Although an assessment of the findings of this study casts doubt on the validity of Composite Realism Score, nevertheless the relationship between Composite Realism Score and chronological age indicates that a child's fears become progressively more realistic as he grows older. Also, more intelligent children have more realistic fears than younger children. These results are compatible with the other significant relationships (Probability of Occurrence and Probability of Encounter are both significantly and positively related to both chronological age and mental age) found in the present investigation.

The realism of a child's fears is unrelated to sex. None of the components of realism nor the Composite Realism Score are significantly related to sex. Also, in this study, sex is not significantly
related to number of fears. This is in contrast to the data of several investigators who found that girls have more fears than boys (Jersild and Holmes, 1935; Pratt, 1945; Macfarlane et al., 1954; Croake, 1967; Sidana, 1967). There are differences in research designs of the studies that may account for some of the differences in results. Whereas in the current study, Jersild's Fears Interview was used to elicit reported fears from children, in the Macfarlane et al. (1954) study, parental reports of behavior were used. Holmes (Jersild and Holmes, 1935), used an experimental situation to elicit a fear response in children. The Croake (1967) and Sidana (1967) studies involved having children respond to a list of either written or oral fears. There is a basic difference between asking children in an interview what they fear and asking children to respond to a list of fears. It may be that different methods of investigating children's fears result in finding different relationships between sex and number of fears.

Number of fears was significantly and negatively related to chronological age \((r = -0.33; p < 0.01)\) and mental age \((r = -0.37; p < 0.01)\). These findings confirm the findings of Pratt (1945) and Sidana (1967) that young children have more fears than older children. It seems that there may be many factors contributing to this phenomena. A young child is more helpless than an older child. He is small in size in relation to phenomena and he is not as strong as older children. He does not have as much background experience to help him in knowing how to cope with a situation. He does not understand mechanical laws or relationships among phenomena sufficiently well so as to be able to solve problems: for example, how to unlock a door (Piaget, 1930). He cannot separate subjective from
objective reality (Piaget, 1930), so he thinks that imagined phenomena are real and threatening. On the other hand, an older child may become more able to predict danger and has more experience so as to realize danger that young children may not recognize (Freud, 1935; Ausubel, 1958).

The Relationship of Fears, Measures of Intellectual Performance, and Developmental Aspects of Fears

It would seem that the data in this study offer a partial explanation of how fears develop in children. It is important not to overstate the data since the correlations accounting for the variance in realism of fear are in most cases relatively small. The development of fears is undoubtedly a very complex process with many contributing variables. Fear is a differentiated emotional experience involving awareness of threat to the self concept, physical well-being, or self-esteem (Ausubel, 1958).

In the present investigation, it is suggested by an inspection of the data that there are two processes occurring in childhood. A child's thinking is maturing, proceeding from a less mature type of precausal thinking (animism) to a more mature, nonanimistic thinking. Concurrently, fears become more realistic and the child reports fewer fears the older he grows.

There was evidence in the present study to partially reject the null hypothesis that there is no relationship between the realism of fears and animism score. Animism score was significantly related to Probability of Occurrence ($r = .21; p < .05$) and Probability of Encounter ($r = .20; p < .05$).
These findings appear to have implications for theory. According to Piaget (1933), a child is animistic in his thinking because he cannot separate himself and his thoughts from external reality. He confuses subjective with objective reality. Also, he is egocentric and cannot consider several points of view taken together (Piaget, 1930). He accepts his perceptions and distorts them with his own subjective explanations, being unaware of universal laws and relationships (Piaget, 1930).

It may be theorized that a child whose thinking is animistic has difficulty when he attempts cognitively to assess phenomena and events in terms of their possible threat. In order to assess the Probability of Occurrence of a phenomenon in his environment (and whether the phenomenon really exists at all) he needs to be able to separate his subjectivity from objective reality. In order to be able to accurately assess Probability of Occurrence, a child's thought processes would need to have become relative. That is, the child would need to recognize objects and qualities dependent on each other and to understand their relationship to him. When a child thinks animistically he thinks of every object and every characteristic as absolute. Only as his thought becomes relative does it acquire nonanimistic characteristics.

In order to be able to accurately assess Probability of Encounter, a child also would need to be able to relate many phenomena and events in his life to each other and to external happenings in the objective world. Concepts of time and distance might be important factors involved in his thinking. For instance, if wolves exist in his environment, he would encounter them only by doing things in their immediate vicinity.
that would attract them. His parents might prevent him from playing
where wild animals are. A child who thinks animistically might assume
that if wolves exist, he will encounter them.

Animism score was not significantly related to **Probability of
Harm** \( (r = -0.09) \). There is need for further study of this component of
realism. In both the correlation analysis and the regression analysis,
the finding relative to **Probability of Harm** are not similar to those of
the other two components of realism, **Probability of Occurrence** and **Prob-
ability of Encounter** nor in keeping with the theory on which this study
is based. Whereas **Probability of Occurrence** is significantly correlated
with chronological age \( (r = 0.25; p < 0.01) \) and mental age \( (r = 0.24; p < 0.01) \)
and **Probability of Encounter** is significantly correlated with chrono-
logical age \( (r = 0.22; p < 0.05) \) and mental age \( (r = 0.22; p < 0.05) \), **Prob-
ability of Harm** is not related to chronological age \( (r = -0.04) \) or to
mental age \( (r = -0.04) \). Also, in the regression analysis, the F-test
was significant between the independent variables and **Probability of
Occurrence** \( (F = 2.69; p < 0.05) \) and **Probability of Encounter** \( (F = 2.60;
p < 0.05) \) but not between the independent variables and **Probability of Harm**
\( (F = 2.01) \). In addition, the positive relationship between **Probability
of Harm** and number of animistic errors is unexpected and difficult to
explain \( (r = 0.24; p < 0.05) \). The explanation for these findings may be
that a child who makes animistic errors may fear imaginary things pre-
dominantly (animistic errors was negatively and significantly related to
**Probability of Occurrence**). In judging **Probability of Harm**, judges rated
only the phenomena which actually occur in a child's environment. Perhaps
the phenomena that actually exist that are feared by a child who makes animistic errors are actually harmful. Parents may carefully teach children about harmful phenomena. Also, children learn about harm from experience. An assessment of all the findings in this study would suggest that further study be made of this component of realism to determine whether harm is indeed a component of realism and if so, whether or not it is being adequately measured.

Composite Realism Score is not significantly related to degree of animism (r = .09). It must be that the Composite Realism Score is not as accurate a measure of realism as are the measures of Probability of Occurrence and Probability of Encounter. It is more precise to judge on one component at a time rather than trying to keep several components in mind at once during judging.

According to the correlation analysis, number of animistic errors was significantly and negatively related to both Probability of Occurrence (r = -.28; p < .01) and Probability of Encounter (r = -.28; p < .01) and significantly and positively related to Probability of Harm (r = .24; p < .05). Also, the significant results of the regression analysis indicate that there is a small portion of the variance in both Probability of Occurrence (R^2 = .14; p < .05) and Probability of Encounter (R^2 = .14; p < .05) that is attributable to the influence of the variables chronological age, mental age, sex, animism score, number of fears and number of animistic errors. A test of the estimated regression coefficients indicates that animistic errors is the variable that accounted for significant unique variance for both Probability of Occurrence (t = -2.71; p < .01) and
The regression of Probability of Encounter (t = -2.83; p < .01) indicated that this variable was independent of the independent variables. The hypothesis that there is no relationship between realism of fear and number of animistic errors may be partially rejected.

If we can assume that number of animistic errors is a valid measure of animistic thinking, these findings are in keeping with the theory that level of thinking is related to realism of fears. A child who thinks animistically would be expected to be inaccurate in assessing threat of phenomena in terms of Probability of Occurrence and Probability of Encounter.

The relationships of number of fears to Probability of Occurrence (r = -.17), Probability of Encounter (r = -.15) and Probability of Harm (r = .10) are not significant. Thus, the hypothesis that there is no relationship between realism of fears and number of reported fears cannot be rejected. A child with realistic fears in terms of Occurrence, Encounter, or Harm may have either many fears of few fears. Also, it may be that the child's imagination, his proclivity to verbalize much or little, his ability to think of many fears on the spur of the moment or his willingness to state his fears may affect the number of fears that he reports.

Number of fears is not related to number of animistic errors (r = .07). Thus, the hypothesis that there is no relationship between number of fears and number of animistic errors cannot be rejected. A child who makes many animistic errors is as likely to report few fears as many fears.

There is a strong negative relationship between animism score
and number of reported fears \((r = -.59; p < .01)\). Thus, the hypothesis that there is no relationship between number of reported fears and animism score may be rejected. The less animistic a child's thinking, the fewer fears he reports. These findings lend support to the theory that a child's thought processes are related to his fears. Piaget's theories (1930) may explain the relationship between animism score and number of fears. A child who does not think animistically would be able to separate his imagination from phenomena in the real world. Also, he would better understand relationships of phenomena to each other and understand laws of science. He would not rely on magic as an explanation of phenomena. Thus, he would have fewer imagined fears.

**Educational Implications**

In this study, animism appears to be related to chronological age. The younger children are at more elementary stages of animism than the older children. Thus, according to Piaget's theory (1930), younger children are in a stage of mental development in which their thought is characterized by egocentrism and the inability to distinguish clearly between themselves (their thoughts and imagination) and the reality of the outer world. Their thought is characterized by lack of understanding of the relativity of oneself to the environment and that of objects and their properties to the environment. The world of these children is full of natural phenomena to which they attribute will and intention.

It is important for parents and teachers to understand the developmental nature of precausal thinking which results in the child's confusion
in regard to objective reality. It is equally important to consider how parents and teachers can help children with this level of thinking to more accurately assess phenomena in terms of Probability of Occurrence, Encounter, and Harm.

Adults can help a child to learn about reality, relativity, and differing viewpoints. Providing rich experiences for the child helps him to learn through sharpening his powers of observation (Read, 1971). We can help the child to gain more from an experience by encouraging curiosity and a questioning attitude.

Mass media can be an important source of background information. Looking at pictures, seeing television or listening to radio, reading books, magazines and newspapers and seeing movies can help children to learn. Children who select the reality experiences on television to view can learn about great men, hear issues discussed, see far places and events and see demonstration of science (Schramm, 1961). Children can learn from any instructional media under appropriate conditions (Chu and Schramm, 1968).

In the interview when the children reported their fears, several children mentioned as sources of fear the zoo. Parents take children to the zoo to provide both a pleasurable and an educational experience for the child. Perhaps parents could help children to develop understanding of animals rather than fear of them. The children's zoos with baby animals with which the child may have direct experience may promote such understanding.

Perhaps schools could be more concerned about dealing with fear of
failure in children. Stress in the learning situation as well as previous success or failure experience of the child affects learning (Taylor, 1956; Vogel et al. 1959; Sarason, 1960). As one child in the sample explained, "One time in math we had a test and I missed 13 out of 16 and I was afraid that I didn't get enough right." This child had remembered the experience vividly. The experimenter has been concerned by research (Morse, 1964) which shows that self-concept of children is lowered concomitantly with increased school experience.

Limitations of the Study

The sample for this study consisted of a group of Caucasian children in the Midwest who were decidedly above average in intelligence and socioeconomic level. They were children many of whose fathers were college professors or graduate students. The findings cannot be generalized to children of other geographic areas, cultures, or socio-economic groups.

There was only one method used (interviewing) to determine a child's fears. The interview technique has been questioned as a valid research instrument. Mischel (1968) states that it is appropriate for an assessor of problem behaviors to verbally explore a person's reports about his history or the meaning the stimulus conditions have acquired for him as long as these reports are not taken as automatic revelations of nonverbal, non-test behavior and as long as relations between the individual's reports and his reactions to various events and his other behavior are treated as an empirical issue.

According to Yarrow (1960):
The interview is a technique particularly well adapted to uncovering subjective definitions of experiences, to assessing a child's perceptions of the significant people and events in his environment, and to studying how he conceptualizes his life experiences (Yarrow, 1960, p. 561).

He states that the interviewing technique has been found satisfactory with children four years old and older since their understanding, vocabulary and cooperation are sufficiently developed. Yarrow states:

The ultimate value of the interview as a research tool is dependent on the interviewer's knowledge of developmental psychology and his ability to apply this knowledge sensitively in relating to children (Yarrow, 1960, p. 599).

In future research, it might be more fruitful to obtain parental reports of children's fears or to use some other method of determining fears in addition to the interview method. Perhaps several methods of assessing the same variable (e.g. fears) would yield substantially more information.

Suggestions for Further Research

Since the sample in this study was such a restricted sample in terms of socio-economic and educational background, race, geographical area, and mental age range, it might be worthwhile to replicate this study with children of various races and socio-economic levels.

When realism of fear was studied in terms of components of realism, the findings were sufficiently in keeping with the theory on which this study was based to suggest that it might be worthwhile to make further study of the components of realism. It needs to be determined if there
may be only two components since Probability of Occurrence and Probability of Encounter were so highly related. Also, the component Probability of Harm should be studied to determine whether or not it is indeed a component of realism. It would be necessary to further study children's understanding of harmfulness of phenomena in order to understand the unexpected relationships between harm and other variables in this study.

In order to study the developmental process in individual children, fears and animism in the same children at different ages could be studied. In such a case, different but comparable objects would need to be selected for the items in the animism test. The study would need to be controlled for the effect of learning from taking the animism test. There also would be an effect on the reporting of fears from the interview experience. It might be possible to use a master list of realism of fear scores obtained from judging fears from the first interviews. Thus, continuous judging of realism of fears would not be necessary. In such a study, it would be interesting to read a child's previously reported fears to him to learn if he were still fearful of the same phenomena and would pick the same predominant fears again.

It might be interesting to try to determine by interviewing a child concerning his fears how he became fearful of those phenomena or experiences. Also, parents could be interviewed to ask them what they thought were the child's fears and how the fears originated.

The question was raised in a discussion of the findings in this study concerning relative effects of using a fears interview or a written list of fears to be checked, especially in terms of its relation to the number
of fears reported by each sex. A study comparing fears reported in an interview and those checked on a questionnaire would be useful.

It might be worthwhile to ask a child to list his fears, indicating his degree of concern about the threat of the phenomena.

Findings in this study point to the necessity of studying the accuracy of children's concept of harmfulness of phenomena in relation to chronological age and mental age.
SUMMARY

The purpose of the present study was to determine the relationship between realism of a child's reported fears and the measures of intellectual performance and animistic thinking. Sex, chronological age, and mental age were studied in relation to fear and animism score. The nature of the reported fears was studied.

The sample consisted of 106 children ranging in age from 3 years 7 months to 11 years 4 months who had been enrolled in programs at the Child Development Department at Iowa State University during 1968-70.

Two sessions were held with each child. During the first session, the PPVT and an interview patterned on Jersild's Fears Interview was administered. The child was asked to list his fears and to indicate the most frightening fear. This fear is designated as the predominant fear. At the second session, the Laurendeau and Pinard Animism Test was administered. The children's responses to the Animism Test were taped on forms for the use of judges.

Realism of fear was hypothesized to consist of three components: Probability of Occurrence, Probability of Encounter and Probability of Harm. The reported predominant fears were judged on the three components of realism by a panel of judges. Each fear was assigned a mean score for each component of realism. A mean Composite Realism Score was also assigned to each fear. The judges used all three components of realism at once in judging Composite Realism Score. Interrater reliability of the fear judges averaged: Probability of Occurrence, .85; Probability of Encounter, .88; Probability of Harm, .85; and Composite Realism Score, .50.
The responses to the animism test were assigned by a panel of judges into Laurendeau and Pinard's four stages of animism. Interrater reliability of the animism judges averaged .96. Number of animistic errors made by each child was determined.

A correlation analysis was performed for chronological age, mental age, sex, animism score, Probability of Occurrence, Probability of Encounter, Probability of Harm, Composite Realism Score, number of fears and number of animistic errors.

Regression analysis was performed with each of the components of realism 1) Probability of Occurrence, 2) Probability of Encounter, 3) Probability of Harm and Composite Realism Score being regressed on the variables chronological age, mental age, sex, animism score, number of fears and number of animistic errors. Estimated regression coefficients were tested using the t-test.

Two of the three components of realism were highly related, Probability of Occurrence and Probability of Encounter (r = .94; p < .01). These two components are not independent one from the other. Probability of Harm was significantly and negatively related to Probability of Occurrence (r = -.34; p < .01) and Probability of Encounter (r = -.33; p < .01) and positively related to Composite Realism Score (r = .66; p < .01).

In the correlation analysis, Probability of Occurrence (r = .21; p < .05) and Probability of Encounter (r = .20; p < .05) were significantly related to animism score. In the regression analysis, it was determined that Probability of Occurrence (F = 2.69; p < .05) and Probability of Encounter (F = 2.60; p < .05) were significantly influenced by the
independent variables, and number of animistic errors was the regression
coefficient weighted for these two components of realism. The portion
of the variance for both of these components explained by this independent
variable was quite small but significant. The hypothesis that there is
no relationship between realism of fears and animism score can be
partially rejected.

Number of animistic errors was significantly and negatively related
to Probability of Occurrence \( (r = -0.28; p < 0.01) \) and Probability of En­
counter \( (r = -0.28; p < 0.01) \) and significantly and positively related to
Probability of Harm \( (r = 0.24; p < 0.05) \). Thus, the hypothesis that there
is no relationship between realism of fears and number of animistic errors
may be partially rejected.

There was no significant relationship between number of fears and
realism of fears and between number of fears and number of animistic
errors. Thus, the hypotheses dealing with these relationships cannot
be rejected.

Number of fears was negatively related to animism score \( (r = -0.59; p < 0.01) \).
The hypothesis that there is no relationship between number of fears and
animism score can be rejected.

Chronological age and mental age were positively related to animism
score \( (r = 0.45; p < 0.01) \) and Probability of Encounter \( (r = 0.22; p < 0.05) \). Chrono­
logical age is positively related to Probability of Occurrence \( (r = 0.25;
p < 0.01) \) and Composite Realism Score \( (r = 0.22; p < 0.05) \) and negatively re­
lated to number of fears \( (r = -0.33; p < 0.01) \). Mental age is positively
related to Probability of Occurrence \( (r = 0.24; p < 0.05) \) and Composite
Realism Score \( (r = .20; \ p < .05) \) and negatively related to number of fears 
\( (r = -.37; \ p < .01) \). Sex was negatively related to animism score \( (r=-.20; \ p < .05) \).

Judging realism of fear by components rather than using a composite rating seems more accurate, although realism should be studied further to determine its components and how to measure them.

When the reported fears of children were studied, the two first ranking categories of fears of children age 4 to 11 were Animals; and Bodily Injury and Physical Danger. The first ranking fear category of boys was Bodily Injury and Physical Danger. For girls, it was Animals. For the younger children (mean age: 5 years 4 months), it was Animals. For the older children (mean age: 9 years 4 months) Animals and Bodily Injury and Physical Danger shared the first ranking. The second ranking fear of boys was Animals. For girls it was Startling Events and Noises. For younger children the categories Supernatural Events and Beings, Mystery; and Startling Events and Noises shared the second rank. For older children, the category Miscellaneous was next in rank.

This study is of an exploratory nature to determine whether the theorized components of realism are adequate to measure realism and to determine whether there is a relationship between animism and realism of fear. The study gives some evidence that one slight influence on a child's fears is the development of his thought processes.

The implications of this study are that parents need to be aware of the developmental nature of precausal thinking in young children so that they can understand young children's fears. Providing rich experiences
for young children from which they may learn about objective reality may be a way to help to reduce the number of unrealistic fears of young children.
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Smock, C.

Spence, K.

Stern, Harris.

Strauss, Anselm.

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Watson, John B.  

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Yarrow, Leon.  
ACKNOWLEDGMENTS

I wish to thank Dr. Damaris Pease for helping me learn how to plan and systematically complete a research project. I appreciate her skill in directing research and I am grateful for the time that she shared with me.

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I was fortunate to be able to work with capable judges in this research. I appreciate their willingness to share their time and skills with me.

I appreciate the cooperation of the families whose children participated in this study. They adjusted busy schedules in order to bring the children twice for testing. I enjoyed testing the children, and I appreciate their help.

The moral support of other graduate students in the Child Development Department helped immensely.

The contribution of other staff members to my education is appreciated.

I wish to thank Elizabeth Peinert for loaning her tape recorder for recording the interviews. Her recorder and her technical help undoubtedly prevented disasters in recording.
I wish to thank the Home Economics Research Institute of the College of Home Economics for financial help to defray expenses of tape recording and transcribing the interviews.
APPENDIX A. QUESTIONNAIRE FOR SUBJECT'S BACKGROUND INFORMATION
INFORMATION CONCERNING

Check each grade in school completed by this child: 1 2 3 4 5 6 7

Did the child attend:

- nursery school  Indicate if attendance was less than for a full school year or less than 5 days a week  Number of years attended

- kindergarten

- church school  Number of years of attendance

Brothers of this child:
Name  Age  Sisters of this child:
Name  Age

Father's occupation

Father's education:  Check the category that describes the highest level of education attained:

- Elementary school  Graduated
- High school  Graduated
- College  BA or BS earned
- College  MA or MS earned
- Graduate work  Ph.D. earned

Questionnaire used to obtain information concerning each child in research study
APPENDIX B. MANUAL FOR THE JUDGING OF CHILDREN'S FEARS
PURPOSE OF THE STUDY

In a current research study we are concerned with the assessment of the relative realism present in children's reports of the things they fear the most. To obtain some measure of the realism of such fears it is necessary to have several people judge the reported fear-producing phenomena or experiences. For the purposes of the present fear investigation, realism is thought to consist of three components: (1) probability of the frequency of occurrence of the feared phenomenon or experience, (2) probability of the child encountering the feared phenomenon or experience and (3) probability of disastrous harm to the child when he encounters the feared phenomenon or experience.

Reported fears of 106 children, 3 years 7 months through 11 years 4 months of age, have been obtained through interviews. The children attended nursery school, kindergarten, or older children's laboratory at Iowa State University Child Development Department during the spring of 1970. The subjects in the sample were restricted to Caucasians born in the United States. All the subjects had lived in Ames for at least one year at the time of the interviews.

DEFINITION OF REALISM

For the purposes of the present study realism in relation to the reported fears of the subjects is defined by three components: (1) chance of occurrence, (2) chance of encounter and (3) chance of disastrous harm when encountered.
1. **Probability of frequency of occurrence**

What is the probability of a specific objective phenomenon (person, object) or experience (happening, situation) occurring in the current life (childhood) of the child? The reported fear may deal with people, living or nonliving objects, or possible or impossible happenings or situations.

Examples of feared people or objects: naughty people, bombs, whale

Examples of feared happenings or situations: being drowned, kidney infection, dropping a match in a heater to light it, invasion from Mars

2. **Probability of chance of encounter**

Given the probability of occurrence, what is the chance that a feared phenomenon or experience will be encountered by the child during his childhood? What is the chance that he will have to cope with the feared phenomenon or experience?

3. **Probability of disastrous harm**

What is the probability of disastrous harm resulting from an encounter with the feared phenomenon or experience? "Disastrous harm" is to be considered from two standpoints: (a) physical harm (long-term damage and/or immediate physical pain or distress) to the child's body and (b) negative effect on a child's self-esteem or feeling of confidence and self-worth.

Examples of physical harm: physical wounds from a car accident; pain from a badly skinned knee

Example of negative effect to self-esteem: embarrassment caused by a teacher who ridicules a child before a class
RATING SCALE

A rating scale of zero to 100 is used. You are to draw a circle around the number on the scale that indicates your judgment of the probability of a specific component (occurrence, encounter, harm) being related to the feared phenomenon. To help you judge the probability, four suggested divisions have been designated along the scale: never, infrequently, sometimes and frequently. Never is placed at zero on the scale while Infrequently suggests that that component occurs between 10 and 30 percent of the time in the childhood of the child. Sometimes suggests that the component occurs between 30 and 70 percent of the time while Frequently suggests that the component occurs between 70 and 100 percent of the time.

For example, let us say that you have been asked to judge the reported fear of a whale according to the three components of realism. Your responses might look something like the following:

Example

<table>
<thead>
<tr>
<th></th>
<th>Probability of occurrence</th>
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<tbody>
<tr>
<td></td>
<td>Never</td>
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<tr>
<td>Whale</td>
<td>0</td>
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<td></td>
<td>0</td>
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<tr>
<td></td>
<td>Probability of encounter</td>
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<td>Whale</td>
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<td>Probability of harm</td>
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<td></td>
<td>Whale</td>
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</tbody>
</table>

In other words you believe there to be about a ____ percent chance that a whale may be in the environment of the child during his childhood: a ____ chance that if the whale is in his environment the child will have
to encounter or cope with it and a ___ percent chance that the encounter will inflict great physical harm or negative effect to the self-esteem.

**DIRECTIONS FOR JUDGING THE COMPONENTS OF REALISM**

You will be given a list of 75 reported fears of the 106 children in this study. Your task will be to judge each of these fears four different times: three times for the components of realism (occurrence, encounter, harm) and once for a composite "realism score". When judging a specific fear, the component should be considered within the time span of the childhood of the child. For example, you should ask yourself "How frequently do I think this phenomenon or experience might occur during the subject's childhood?" "When the feared phenomenon or experience does occur, what is the probability that the child will encounter or have to cope with it?" and "When the child does encounter it (feared phenomenon or experience) what is the probability that it will be very harmful to him?"

Please note that if you decide that a feared phenomenon or experience can never occur (e.g. a disembodied spirit), cross off that item on the other two scales (encounter, harm) and score it again only on the "composite realism scale."
APPENDIX C. SCORE SHEET OF FEARS FROM PILOT STUDY FOR TRAINING

FEAR JUDGES
### Judging Realism of Children's Fears

<table>
<thead>
<tr>
<th>Reported fears</th>
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<th>40</th>
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<th>60</th>
<th>70</th>
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<tbody>
<tr>
<td>1. Something big with sharp gears going around.</td>
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<td>2. Being burned by a steam burn.</td>
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<td>3. Puppies that scratch.</td>
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<td>4. Geese flying over.</td>
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<td>5. In a sailboat. They tip over.</td>
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<td>6. Flowers you aren't supposed to pick. You get spanked.</td>
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<td>7. A lady at the store always looks like she doesn't trust me.</td>
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<td>8. Falling out of a boat and drowning.</td>
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<td>9. One time I watched the movie &quot;The Birds&quot;.</td>
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<td>10. No one else is in the house.</td>
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APPENDIX D. RATING SCALE ON REALISM OF CHILDREN'S FEARS
Rating Scale on Realism of Children's Fears

Reported predominant fears

1. When you are walking on a thin board up high.  
   0 10 20 30 40 50 60 70 80 90 100

2. Imagining rattlesnakes on the floor or under my pillow.  
   0 10 20 30 40 50 60 70 80 90 100

3. Playing hide and seek at night and bumping into someone (When I go around the corner and someone says, "Boo" and someone tickles me when I am not looking; Having someone touch me in the dark tunnel at the gym; My sisters touch me when I am reading or watching TV).  
   0 10 20 30 40 50 60 70 80 90 100

4. Nightmare (Scary dreams; dreams)  
   0 10 20 30 40 50 60 70 80 90 100

5. Bumble bees  
   0 10 20 30 40 50 60 70 80 90 100

6. Wasp  
   0 10 20 30 40 50 60 70 80 90 100

7. An exploding balloon  
   0 10 20 30 40 50 60 70 80 90 100

8. Green grasshoppers that bite  
   0 10 20 30 40 50 60 70 80 90 100

9. Snakes  
   0 10 20 30 40 50 60 70 80 90 100

10. Rattlesnakes  
    0 10 20 30 40 50 60 70 80 90 100
<p>| | | | | | | | | | | | | | |</p>
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<tbody>
<tr>
<td>11. Witches</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
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<td>60</td>
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<tr>
<td>12. Owls</td>
<td>0</td>
<td>10</td>
<td>20</td>
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<td>50</td>
<td>60</td>
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<td>13. Falling down high cliffs (Climbing up a cliff. The rock I stood on fell)</td>
<td>0</td>
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<td>14. Cats</td>
<td>0</td>
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<td>15. Bulls</td>
<td>0</td>
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<td>16. Monsters</td>
<td>0</td>
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<td>17. Lightning</td>
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<td>18. Thunder</td>
<td>0</td>
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<td>19. Fires</td>
<td>0</td>
<td>10</td>
<td>20</td>
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<td>40</td>
<td>50</td>
<td>60</td>
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<td>20. When people get burned in a fire</td>
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<td>21. A &quot;blob&quot; (monster) I saw on TV</td>
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<td>22. When we were camping and Daddy was standing outside the tent and I thought he was a shadow man</td>
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<td>23. When I care for my sister and she gets hurt and I don't know what to do</td>
<td>0</td>
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<td>24. Lions</td>
<td>0</td>
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<td>25. Tigers</td>
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<td>26</td>
<td>Some kinds of big dogs</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>27</td>
<td>Accident on bike</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>28</td>
<td>Sometimes I think my dad might get in an accident. He travels.</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>29</td>
<td>Buffalo</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>30</td>
<td>When you don't know anybody</td>
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<td>31</td>
<td>Wolves</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>32</td>
<td>When a sprinkler sprays me</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>33</td>
<td>Iguanas (big lizards)</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>34</td>
<td>Crocodile</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td>35</td>
<td>Tornadoes</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<tr>
<td>36</td>
<td>Going down the basement in a tornado warning</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<tr>
<td>37</td>
<td>When I am home alone</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
<td></td>
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<tr>
<td>38</td>
<td>Wild animals</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<tr>
<td>39</td>
<td>Burglars</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<td></td>
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<tr>
<td>40</td>
<td>A slide at a shopping center. I started to fall off.</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<tr>
<td>41</td>
<td>Sleeping without a night light</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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</tbody>
</table>
42. Getting lost

43. When my puppy ran out in front of a car

44. Chemical set

45. Threat by older brother

46. Giant

47. Sleepwalkers

48. Taking something that belongs to your sister. You might lose it.

49. Earthquake

50. The TV program "Dark Shadows"

51. Getting shots

52. If somebody is going to hit me

53. The dentist

54. When everything is quiet and someone screams

55. Dark shadows

56. Electric shock
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>57.</td>
<td>Dogs fighting near me</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>58.</td>
<td>Break your leg</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>59.</td>
<td>The dark when my door is closed (Being in the dark in bed; Dark)</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>60.</td>
<td>Heights</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>61.</td>
<td>Getting into deep water</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>62.</td>
<td>Jumping off a diving board</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
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<tr>
<td></td>
<td>(The first time that I went off a high board at the swimming</td>
<td></td>
</tr>
<tr>
<td></td>
<td>pool)</td>
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</tr>
<tr>
<td>63.</td>
<td>Spiders</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>64.</td>
<td>The idea that a murderer might be right near you</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>65.</td>
<td>Hearing a dog in the night</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>66.</td>
<td>When I was taking care of the neighbor's cat and he did not</td>
<td></td>
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<tr>
<td></td>
<td>come home</td>
<td></td>
</tr>
<tr>
<td>67.</td>
<td>Shark</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>68.</td>
<td>I think that somebody is in the closet</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>69.</td>
<td>Going to the moon</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
<tr>
<td>70.</td>
<td>Sometimes real big guys on the bus</td>
<td>0 10 20 30 40 50 60 70 80 90 100</td>
</tr>
</tbody>
</table>
71. When I am in my room at night and I think there might be somebody under the bed

72. I had a dream that something would happen to my uncle and it did—he got mugged

73. Goblins on Halloween

74. Going in front of a whole bunch of people

75. Falling out of a tree (I feel kind of frightened getting up high in a real big tree)
APPENDIX E. PROCEDURAL INSTRUCTIONS FOR ANIMISM JUDGES
LAURENDEAU AND PINARD ANIMISM TEST SCORING

I. Steps to use in scoring protocols

Step 1. If there are one or more inanimate objects to which a child does not answer "yes" or "no", consider these answers to be animistic errors.

Step 2. Identify all errors in "yes" or "no" answers; then evaluate the entire protocol for errors which would indicate that the responses belong in stage 0:

(a) Check the entire protocol for conflict in reasoning - using the same criterion in attributing life and denying life.

(b) Check to determine whether or not a child does not understand the meaning of the questions; he may answer at random without giving any valid reason for affirmations or denials. Example: Because it's alive; a little boy told me. "Yes" or "no" and reasons given are independent of each other.

(c) Check to determine whether or not a child gives a certain answer to all questions. Example: child says "yes" to all the questions.

Step 3. Check all of the errors to determine those that are animistic. Animistic errors are those in which the child attributes life to inanimate objects. We are concerned only with inanimate object errors, not errors in which a child denies life to a living object.

Step 4. If a child has made no animistic errors nor any of the errors enumerated in steps 1-3 above, then place the protocol in Stage 3.

Step 5. If there are one or more animistic errors, then in order to decide between Stage 1 and Stage 2:

If the child mentions autonomous movement at least once in the protocol, assign the protocol to Stage 2. He may still use usefulness, anthropomorphic traits or general movement for some answers.

If in the answers involved in animistic errors the child used as criteria in attributing life usefulness, anthropomorphism or just movement or a combination of these, assign the protocol to Stage 1.
APPENDIX F. FEARS INTERVIEW RECORDING FORM
Name__________________________

Date of testing____ ____ ________

Birthdate _______ _______ _______

Age _______ _______ _______

FEARS INTERVIEW RECORDING FORM

REPORTED FEARS:

1

2

3

4

5

6

7

8

9

10

REASONS GIVEN FOR THE FEAR
APPENDIX G. ANIMISM TEST RECORDING FORM
Number of animistic errors ______
Stage of animism ________________________
Name of judge ____________________________

Name______________________________

**ANIMISM TEST RECORDING FORM**

<table>
<thead>
<tr>
<th>B I (1)</th>
<th>Is a mountain alive?</th>
<th>&quot;Why do you say it is (not) alive?&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

(2) the sun

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
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</thead>
</table>

(3) the table

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
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</thead>
</table>

(4) an automobile

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
</tr>
</thead>
</table>

(5) a cat

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
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</thead>
</table>

(6) a cloud

<table>
<thead>
<tr>
<th>yes</th>
<th>no</th>
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</thead>
</table>
(7) a lamp
   ___yes  ___no

(8) a watch
   ___yes  ___no

(9) a bird
   ___yes  ___no

(10) a bell
    ___yes  ___no

(11) the wind
     ___yes  ___no

(12) an airplane
     ___yes  ___no

(13) a fly
     ___yes  ___no
(14) the fire
   ___yes ___no

(15) a flower
   ___yes ___no

(16) the rain
   ___yes ___no

(17) a tree
   ___yes ___no

(18) a snake
   ___yes ___no

(19) a bicycle
   ___yes ___no

(20) a fish
   ___yes ___no

(21) a pencil
   ___yes ___no