CHILDREN'S CONCEPTIONS OF DEATH AND DYING AS A FUNCTION OF COGNITIVE DEVELOPMENT

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CHAPTER I

STATEMENT OF THE PROBLEM

Social concern relating to children's concepts of death and dying has rapidly developed in the past decade. Perhaps this increase in concern is due to an increased awareness of the number of children who deal with their own impending death or that of loved ones. Many researchers have attempted to determine how children conceptualize death and dying and how these concepts develop.

Recent attention on children's concepts of death and dying has refocused interest in pioneer studies by Nagy (1948) and Anthony (1971). Nagy asked children what they thought about death and asked them to draw pictures and write compositions about death. In Anthony's original study (performed in 1939), children were asked to define death and to complete stories about death-related topics. These two studies and studies that followed (Gartley & Bernasconi, 1967; Melear, 1973; Swain, 1976) have established the following: 1) Children's concepts of death and dying develop in stages. 2) Each stage is characterized by different concepts of death, and in each succeeding stage the child develops more mature and differentiated concepts of death and dying. 3) Children's concepts of death and dying have many aspects. A concept of death includes, among other things, understanding the differences between life and death, the causes of death, the permanence and universality of death and

personal death. 4) Children's concepts of death and dying are strikingly different than those of adults.

Not only have researchers been interested in children's concepts of death and dying, they have been interested in determining what factors influence a child's concepts of death and dying. Every researcher of children's concepts of death and dying has attempted to answer this question. The researchers that have studied the effects of factors include: Fink (1976), Peck (1966), and Robinson (1976). The factors that have been studied include: The gender of the child, the child's experiences with death, the child's religion, social class, parental education, ethnic status, academic achievement, and psychological disturbance. Surprisingly, these factors have been found to have little influence on the child's concepts of death and dying. The one factor that has been found to have a major influence on children's concepts of death and dying is the age of the child. As a result of such findings regarding the influence of age, researchers have often used age to delineate the stages of children's concepts of death and dying.

More contemporary researchers such as Hansen (1972), Kane (1975), and Koocher (1973) have developed a different theoretical framework in which to understand the development of children's concepts of death and dying. These researchers have observed that the child's cognitive abilities develop in a related fashion to the child's concepts of death and dying. They have predicted that the cognitive development of the child influences his/her concepts of death and dying. Using Piaget's (1960) theory of cognitive development as a base, they have hypothesized that there are three stages in children's

concepts of death and dying that correspond to Piaget's PreOperational, Concrete Operational, and Formal Operational stages of cognitive development. Each stage is characterized by particular concepts of death and dying that reflect the cognitive abilities of that stage.

The focus of the present study will be to examine the relationship between the child's concepts of death and dying and his/her cognitive development. Further, the present study predicts that children will conceptualize death and dying utilizing the cognitive processes of their cognitive stage of development. By knowing the cognitive stage in which the child conceptualizes death and dying, one can predict the child's concepts of death and dying.

CHAPTER II

REVIEW OF THE LITERATURE

Theoretical Structures

Researchers have employed three basic types of theories in their attempts to understand children's concepts of death and dying. The types of theories can be broadly labeled: psychosocial, developmental, and cognitive developmental.

Researchers employing psychosocial theories include: Hall (1977), Rochlin (1967), and Von Hug-Hellmouth (1965). Von Hug-Hellmouth and Rochlin postulated a theoretical structure based on Freud's psychoanalytic theory. Rochlin stated that children develop defenses to modify or distort their perceptions of death. Hall believed that the personal experience and the environment of the child determines his/her conception of death. The utilization of psychosocial theories has been a rarity in the research. Studies that have used these theories have been deficient in objective data.

In contrast, a number of researchers have employed a developmental theoretical structure. These researchers have postulated that children's concepts of death and dying develop in stages, each stage characterized by particular concepts of death and dying. Nagy (1948) postulated a three stage sequence in the development of children's concepts of death and dying. Anthony (1971) constructed a five stage sequence of development. Gartley and Bernasconi (1967), Maurer (1973),

Melear (1973), Natterson and Knudson (1960), Peck (1966), and Swain (1975) have developed stage theories that were similar to, or that were supportive of the stage theories of Nagy and Anthony. All of these researchers have agreed that there are stages in the development of children's concepts of death and dying. They have seldom agreed on how many stages there are, when the stages occur, or, except in general aspects, the concepts of death and dying typical of each stage.

Other researchers have utilized a developmental framework but focused upon how the child's concept of death and dying is related to other behaviors that are developmentally determined. Most of these have attempted to relate intellectual abilities to the development of concepts of death and dying. Kastenbaum (1967) created a developmental stage theory based on the hypothesis that there is a close relationship between the development of concepts of death and dying and the child's intellectual development. Kastenbaum stated that the child bases his/her questions about death on the intellectual concepts that he/she has developed; more specifically, the child's assumptions of continuity and periodicity. He states that as the child ages, he/she achieves the mental and emotional security to understand the finality and irreversability of death. He suggested that when the child reaches adolescence, there is not a clear correlation between concepts of death and intellectual development. Schilder and Wechsler (1934) attributed their results to the child's development of language and thought processes. They observed that the child under the age of eight years was living in a world of verbal uncertainties, thus determining uncertainties in the child's

concepts of death and dying. Anthony (1971) stated that there was a common process of conceptual development that is related to changes in the child's concept of death; more specifically, that the stages of the development of death and dying concepts initiate the stages of a child's intellectual growth. The difficulty with these studies is that the relationship between intellectual development and the development of concepts of death and dying has either been hypothesized but not tested or, in Kastenbaum's study, appeared to be the result of circular reasoning.

In more contemporary research, a cognitive developmental structure has been applied to understanding children's concepts of death and dying. Piaget's (1960) theory of cognitive development has been utilized as the model of cognitive development by Hansen (1973), Kane (1975), Koocher (1973), Steiner (1965), White (1977), and White Elsom, and Prawat (1978). Researchers, using the cognitive development theory, have hypothesized that: 1) the cognitive abilities of the child determine the child's concepts of death and dying, and 2) Piaget's cognitive stages delimit the stages of children's concepts of death and dying. Piaget has researched a related topic; the child's concept of life/living. Piaget stated that a child's concept of life/living develops through four stages. Piaget's description of the concept of life/living is characterized by two important elements: 1) the child's concept of life differs with maturation and can be divided into stages of development, and 2) each stage of the child's concept of life is associated with particular cognitive processes. While Piaget concentrated on the child's conceptualization of life/living in his early work, as reported in Anthony (1971), he had a

similar theoretical viewpoint of the cognitive features of the child's conceptions of death and dying. Piaget postulated a fundamental relationship between the concept of death and the development of the concept of cause. He stated that the child's awareness of the difference between life and death sets the child's curiosity into action. The child's puzzlement concerning death leads him/her to questioning. This questioning sets the stage for the child to leave behind the stage of pure finalism and to acquire a notion of statistical causality or chance.

Using Piaget's (1960) model of cognitive development, Fry (1978), Hansen (1972), Kane (1975), Koocher (1973), Steiner (1965), White (1977), and White et al. (1978) have studied the relationship between children's cognitive development and the development of concepts of death and dying. These researchers have had varying degrees of success in determining the relationship between the development of concepts of death and the development of cognitive abilities.

In the literature, the nondevelopmental and the developmental theoretical structures appear to have been least adequate to conceptualize children's concepts of death and dying. The cognitive developmental theoretical structure appears to have the most promise for the study of children's concepts of death and dying. The cognitive developmental theoretical structure postulates an explanatory principle underlying the development of children's concepts of death and postulates theoretical assumptions than can be experimentally tested.

Children's Concepts of Death and Dying

What are children's concepts of death and dying? The answer to

this question has been explored since the late 1800's (Scott, 1896-97), and continues to the present day. Nagy (1948) found the following concepts to be present in her three stages: Children in the first stage (less than five years old) attribute life and consciousness to the dead. In the first part of this stage, death is seen as a departure, a sleep, or a separation. During the latter part of this stage, the child recognizes the fact of death. Children in the second stage (ages five to nine years) personify death in one of two ways. Death is imagined as a separate person or death is identified with the dead. The child associates "sin" (what the child has done) with the occurrence of death. The child accepts the existence of death in concrete terms. Children in the third stage (older than nine years) realize that death is the cessation of corporeal life, that death is a process operating within themselves, and that death is universal and irreversible. Natterson and Knudson (1960) replicated Nagy's findings.

Content in the five categories of Anthony's (1971) stage theory are as follows: Category A and B encompassed children under the age of five years. In Category A, the child is ignorant of the meaning of death. In Category B, the child is beginning to develop a concept of death but there is a confusion of phenomenon and function. Children in Category C (5 to 12 years) define death but their definition is not restricted to humanity. There is a ritualistic flavor to the child's definition of death. Children in Category D (lower age limit of nine years) define death but their construct is limited. It is not until Category E (average age of 10.4 years) that the child achieves a general, logical, and biological concept of death.

Melear (1973) delineated the content in four stages of the development of the concept of death. In the first stage (three to four years), children are relatively ignorant of the meaning of death and may equate death with an illness or an accident. In the second stage (four to seven years), death is conceptualized as a temporary state and the dead are credited with feelings and senses. It is not until the third stage (5 to 10 years) that the child conceives of death as irreversible. Despite considering death to be irreversible, children in this stage continue to attribute biological functions such as sight and touch to the dead. In the last stage (6 to 13 years), the child associates the permanence of death with the cessation of biological functioning.

Gartley and Bernasconi (1967) described the child's concepts of death and dying in seven stages. Children in Group A (5.5 to 6.4 years) do not think that death applies to them and are confused as to whether the dead are able to experience sensations. Children in Group B (6.6 to 7.5 years) associate death with lying down and not breathing. Personal death is still a remote concept but the child realized that death is permanent. Group C (7.5 to 8.4 years) children think that the dead go to heaven. During this stage, the child begins to develop an abstract concept of death, and death is recognized as an immediate possibility. Children in Group D (8.5 to 9.8 years) begin to distinguish between body and soul and give more detailed answers to questions about death. Group E (9.6 to 10.1 years) children attribute violent causes to death and have developed a more biological view of the causes of death. Group F includes children up to the age of 10.9 years and does not appear to differ

significantly from Group E discussed above. Children in Group G (10.10 to 14 years) develop increasingly mature concepts of death. The child achieves an understanding of the universal and irreversible nature of death and achieves a biological view of the process of death and dying.

Swain (1976) described children's concepts of death and dying in three stages. In the first stage, ages two to four years, children conceive of death as reversible and not personally applicable. Here there is an accidental and punishing nature to the child's concepts of death. In stage two, ages five to seven years, the greatest change occurs in children's conceptualization of death. The child's concepts of death include personal death and either a spiritual afterlife or final death. In the third stage, ages 14 to 16 years, the child's concepts of death include a belief in the universality of death and a belief in personally applicable death. Their concepts are based on abstract concepts.

Schilder and Wechsler (1934) found that children under the age of eight years: 1) deal with death in a matter-of-fact way, 2) do not demonstrate critical judgment, 3) allow contradictions between convention and their observations, 4) focus on immobility in describing death as well as exhibiting some personification of death, 5) do not believe in their own death, and 6) do not believe that death is permanent. Von Hug-Hellmouth (1965), in a case study approach, found that his young child thought of death as temporary and that the child's understanding of death was based on personal experience. Mitchell (1967) stated that children before the age of four to five viewed death as a change of state. She found that immobility was

considered almost synonymous with death and that death was considered reversible. Maurer (1964) found that adolescents (17 to 19 years) utilized a sublimation through religion or other altruistic choices in their understanding of death. Fink (1976) found that there were four distinct thought patterns that adolescents (12 to 20 years) could have about death and dying. Adolescents could conceive of death and dying as: 1) a spiritual achieving of life's goals, 2) a natural closing of earthly activity, 3) an event of religious judgment, and 4) a natural movement to a poetic new existence. Beauchamp (1974), Blum (1975), Bolduc (1972), Childer and Wimmer (1971), Formanek (1974), Hall (1977), Hansen (1972), Kastenbaum (1967), Koocher (1973), Peck (1966), Robinson (1976), Steiner (1965), Zweig (1976) and many others have found children's concepts of death and dying that are similar to that of the studies by Anthony (1971), Gartley and Bernasconi (1967) Melear (1973), Nagy (1948) and Swain (1976).

Researchers have generally agreed on the concepts that children have about death and dying. Kane (1975) conducted a literature search and composed a list of 10 possible components of a child's concept of death and dying. These components are: Realization (personification), Separation, Immobility, Irrevocability, Causality, Dysfunctionality, Universality, Insensitivity, and Appearance. The majority of the studies on children's concepts of death and dying have studied some, if not all, of these components.

Factors Influencing Children's Concepts of Death and Dying

Many variables have been studied to determine the influence on

children's concepts of death and dying. One of the factors studied has been the effect of a serious illness or a death within the environment of the child. Fink (1976) used discriminative analysis to study the effect of a serious illness within his/her family on the child's concept of death and dying. In his adolescent subjects, a serious illness within the family had minimum predictability for the adolescent's concept of death. In contrast, Zweig (1976) found that the child's experience with death had some influence on some concepts of death, but was unclear as to the context of this influence. Bolduc (1972) found significant differences among children, between the ages of 9 to 14 years, in their concepts of death due to their experience with a death in their family. A closer examination of Bolduc's results indicates that the differences found were in emotional reactions to death, not in the child's conceptualization of death. Peck (1966) found that a child's experience with death had no influence on his/her concepts of death. These studies appear to indicate that a serious illness or death within the environment of the child has a minimal effect on his/her concepts of death but does affect his/her emotional response to death.

Another factor studied is gender. Beauchamp (1974), Lester (1967), and Swain (1975) found that the gender of the child had no effect on his/her concepts of death. Fink (1976) determined that the gender of the child had a low predictive value of the child's concepts of death. On the other hand, Cameron (1973) and Zweig (1976) found a relationship between the gender of the child and his/her concepts of death. Cameron found that females of all ages have more passing thoughts on death. Zweig found significant

differences due to gender for certain attitudes about death, but was unclear as to the content of his reported significant differences. The effect of gender on a child's concept of death is unclear. Zweig is the only researcher that has found significant gender differences in a child's concepts of death. However, due to usage of a questionnaire to assess their attitudes about death and dying, the applicability of his design is questionable.

The factor of parents' education and the factor of type of the child's schooling has been investigated by Swain (1975) and Blum (1975). Swain found that parent's educational level had no significant effect on the child's concepts of death. Blum found that the type of school the child attended (parochial vs. public) had a minimal effect on the child's concepts of death and dying. In summary, parent's educational level and type of school attended by the child appear to have little effect on the child's concepts of death and dying.

Fink (1976) and Maurer (1964) investigated the factor of adolescents' academic achievement. Fink found no relationship between academic achievement and concepts of death and dying for 12 to 20 year old subjects. Maurer stated that the statements and vocabulary used regarding death of 17 to 19 year olds was related to their academic achievement. Notably, Maurer's definition of academic achievement appeared to be confounded with intelligence and cognitive abilities. The question of the effect of academic achievement on an adolescent's concepts of death and dying remains unanswered, and the question of academic achievement's effect on the concepts of death of young children has not been addressed.

Beauchamp (1974) and Peck (1966) studied the factor of social class. Both studies found no relationship between social class and the child's concepts of death and dying.

Schilder and Wechsler (1934) studied the factor of psychological disturbance. Subjects diagnosed as mentally retarded, Minimum Brain Syndrome, and behaviorally disordered had concepts of death and dying similiar to those found by other studies using normal children. This study suggests that there are no differences in a child's concepts of death due to psychiatric classification.

The effect of religion on a child's concepts of death has been a subject of controversy. Fink (1976) stated that religiousity was the most significant predictor of adolescent's thought patterns of death. Blum (1975) found that the religion of the child (Jewish vs. Catholic) had little effect on a child's concepts of death. Swain (1975) found that religious influence within a child's family had no effect on a child's concepts of death. Minton and Spilka (1976) found that the child's religious commitment determined whether he/she held a concept of a natural end vs. an afterlife. Research in this area has been plagued by methodological problems. One such difficulty is in defining religion and religiousity. Currently, there is no consensus as to the effect of religion on a child's concepts of death and dying.

Robinson (1978) and Zweig (1976) studied the factor of ethnic status. Zweig found that black and white children differed significantly on certain attitudes about death. Robinson found that the cultural background of the child, Mexican-American vs. Anglo-American,

had an undefined, subtle role in influencing a child's concepts of death. Neither study was clear as to the effect of ethnic status.

The factor that has been studied more than any other is the age of the child. There is a long list of researchers that have placed age somewhere along a continuum of minimally or maximally influential in determining the child's concepts of death and dying. Many researchers have focused upon age as the important element that delineates their stage theories (Anthony, 1971; Gartley & Bernasconi, 1967; Melear, 1973; Nagy, 1948; Swain, 1975). Many other researchers, including Beauchamp (1974), Blum (1975), Childer and Wimmer (1971), Fink (1976), Fry (1978), Mitchell (1967), Peck (1966), Robinson (1976), Safier (1964), and Schilder and Wechsler (1934), have concluded that age plays a determining part in children's concepts of death and dying. While all these studies conceptualize age as the most influential factor in a child's concepts of death and dying, none of them agree as to the ages a child holds particular concepts of death and dying. In fact, there are wide disagreements concerning a child's conceptualization of death at any particular age.

Piaget's Stage Theory of Cognitive Development

The majority of researchers have conceptualized children's concepts of death and dying within a developmental theoretical framework. Within that framework, they have postulated that children's concepts of death and dying develop in stages. The questions that these researchers have attempted to answer are: 1) What are the stages of development? 2) What concepts of death and dying are developed? 3) At what rate and in what patterns do concepts of death and dying develop?

The studies previously discussed have often attempted to use the factor of age to answer these questions. Researchers such as Nagy (1948) have postulated that certain ages are associated with certain stages and certain concepts of death and dying. These attempts have largely been unsuccessful and disagree with each other. Lately, a new approach has been utilized. This approach employs a cognitive developmental theoretical framework. Studies using this approach have found Piaget's Theory of Cognitive Development helpful as a theoretical structure for conceptualizing cognitive development.

The theoretical structure underlying Piaget's (1960) material on children's cognitive development is a stage theory. (For an in depth description of Piaget's work, the reader is referred to Elkind (1974), Flavell (1963), Ginsburg and Opper (1979), and Phillips (1975). Piaget, as reported in Phillips, states that the child has biologically inherited modes of interacting with the environment. There are two basic functions that the child employs to encompass new materials presented in the environment--organization and adaptation. The latter function consists of accommodation and assimilation. By use of these functions the child continually strives to achieve equilibration between the environment and his/her cognitive structures.

Piaget, as reported in Flavell (1963) and Phillips (1975), states that there are four stages of cognitive development. The four stages are: The Sensorimotor Stage, the PreOperational Stage, the Concrete Operations Stage, and the Formal Operations Stage. Each cognitive stage of development is associated with a group of cognitive abilities that the child develops while in that stage.

It is important to realize that these stages are somewhat arbitrary and are not delimited by the age of the child.

Studies Utilizing Piaget's Theory of Cognitive Development

Close analysis of the data presented in studies that have not used a cognitive developmental theoretical structure reveals many examples of Piagetian constructs. Nagy's (1948) discussion of stage one is similar to a discussion of Piaget's construct of animism. The examples that Schilder and Wechsler (1934) present appear to be examples of artificialism, immanent justice, and egocentrism, among others. Similar analysis of other studies studies reveals similar examples.

Recently, several studies have attempted to directly test the relationship between Piaget's theory of cognitive development and children's concepts of death and dying. Formanek (1974) hypothesized a negative relationship between Piaget's concept of egocentrism and a child's understanding of death. The results obtained were mixed. Blum (1975) found that the child's conceptualization of the afterlife was less concrete for older subjects. Kane (1975) defined three stages and equated these to Piaget's cognitive stages of PreOperational, Concrete Operational, and Formal Operational Stage, and related these to the child's concepts of death and dying. Steiner (1965), using a content analysis of the child's responses, concluded that the child's concepts of life and death are generally consistent with their cognitive abilities. She found that the cognitive development of preschool age children was characterized by pre-logical

thought processes and egocentrism. This group did not conceive of death as final or universal. The cognitive development of seven to eight year old children was characterized by concrete thought processes. This group accepted the finality of death but had only a qualified acceptance of personal death. In the older group of children (11 to 12 years) a conceptual mode of thought was frequently present. With such a mode of thought there was an understanding of the universality and finality of death and of personal death. Hansen (1972) concluded that the concept of death and dying developed in stages that were related to the child's cognitive stage of development.

While each of these studies found some relationship between cognitive development as measured by Piaget, and the development of children's concepts of death and dying, their results are confounded with experimenter's expectations and/or incomplete. Methodological difficulties of these studies include the following problems: 1) the child's thoughts about death and dying were subjectively interpreted and analyzed for the presence of cognitive processes, 2) the method used for obtaining the child's responses was such that misinformation or misinterpretation could occur, and 3) these studies do not have an independent assessment of the child's level of cognitive development.

White (1977) and White et al. (1978) attempted to resolve some of these methodological difficulties. They obtained an independent assessment of one cognitive ability--conservation--and related this ability to a child's concepts of death and dying. White related the child's level of development of conservation to selected aspects of the concept of death and dying. Using Goldschmid and Bentler's

(1968) Concept Assessment Kit, he found that an understanding of the irrevocability of death and an understanding of death as a cessation of biological functioning was independent of the child's conservation ability. White et al. tested the hypothesis that children at the Concrete Operations Stage of cognitive development would be able to understand the universality of death. A child was assumed to be functioning at the Concrete Operations Stage if he/she was able to pass two or three tasks that measured conservation. These authors concluded that children at the Concrete Operations Stage demonstrate greater frequency of understanding the universality of death than children who utilize preoperational thought.

While these studies used an independent assessment of the child's cognitive ability, they tested only one cognitive ability--conservation. This practice does not address the question of the effects of other cognitive processes or stages upon the child's concept of death and dying. Additionally, one could question the validity of using one cognitive ability to determine whether the child is functioning within the Concrete Operations Stage. Finally, they did not analyze the chld's statements regarding death and dying for evidence of differing levels of cognitive development.

Koocher (1973) also attempted to remedy past methodological difficulties. He employed an independent assessment of the child's level of cognitive functioning and analyzed the cognitive processes the child used in conceptualizing death and dying. Koocher attempted to delineate the development of a child's concept of death and dying in accordance with their Piagetian level of cognitive development. He hypothesized that the cognitive stage at which a child was

functioning would determine their concepts of death and dying. Koocher tested 75 children between the ages of 6 and 15 years. He preselected these 75 children by their performance on the Similarities subtest of the Wechsler Intelligence Scale for Children. Only children who performed average or above were retained for study. Then he ascertained cognitive functioning on the basis of conservation--conservation of mass, conservation of number, and conservation of volume, and on the basis of hypothesis testing. A child was considered to be functioning at the Concrete Operations Stage if he/she passed all three conservation tasks and failed a hypothesis testing task. The child was assumed to be functioning at the Formal Operations Stage if he/she passed all three conservation tasks and passed the hypothesis testing task. In order to ascertain the child's concept of death, Koocher asked the following questions (no prompting of the children was allowed): 1) What makes things die? 2) How do you make dead things come back to life? 3) When will you die? and 4) What will happen then? Koocher concluded that children's concepts of death and dying are clearly related to their level of cognitive development. However, he found some children who were capable of Formal Operation thinking, but who gave specific and concrete responses to the questions pertaining to death. Koocher's hypothesis would predict abstract responses from these children.

Koocher's (1973) study yielded promising results, but there are some areas of difficulty. His method of obtaining children's thoughts about death and dying may have resulted in misleading data. A strict question approach can limit the responsiveness of the child and influence the types of answers received from the child. Koocher's

work exhibits the same difficulty found in White (1976) and White et al. (1978), basing the determination of a child's cognitive development mainly on one process--conservation. This might be the reason for unexpected results with Formal Operation children. Additionally, Koocher did not have a measure for determining the cognitive abilities by which children conceptualize death and dying. Leaving unanswered the question of whether children conceptualize death and dying with the cognitive abilities of their stage of cognitive development.

The Present Study

The studies of the relationship between the child's development of concepts of death and dying and his/her cognitive development, according to Piaget's theory, have yielded promising results. The present study will attempt to study this relationship while accounting for the methodological difficulties that have made past studies difficult to interpret. These methodological difficulties have included: 1) the method of obtaining children's concepts of death and dying, 2) the method of obtaining an independent assessment of the child's cognitive development, and 3) the method of determining the level of cognitive functioning by which children conceptualize death and dying. The present study will deal with these methodological problems in the following manner:

First, the present study will restrict itself to studying the development of children's concepts of death and dying. The assumption will be made that children's emotional reactions to death and dying will not influence their concepts of death and dying.

Second, the present study will randomize the factors of religion, gender, experience with death, intelligence, academic achievement, type of school the child attends, parental educational level, ethnic status, and social class.

Third, the present study will use a cognitive developmental theoretical framework with Piaget's theory of cognitive development as a model of cognitive development in children.

Fourth, the present study will obtain the child's unique thoughts about death and dying by using the method clinique to interview the child about death and dying.

Fifth, the present study will employ two independent judges to analyze the child's interview. The judges will be blind to the age, the name, and the gender of the child. The judges will determine the child's concepts of death and dying. The judges will use as a guideline, a list of children's concepts of death and dying compiled from a literature search of studies of children's concepts of death and dying.

Sixth, these two judges will rate the cognitive proceses by which the child conceptualizes death and dying. The judges will use as a guideline a list of the cognitive processes in Piaget's stages of cognitive development.

Seventh, the child's Piagetian cognitive stage of development will be assessed independently of the child's performance in the interview. The present study will use a Cognitive Abilities Scale that enables the experimenter to objectively determine the cognitive stage in which the child is functioning. The scale will consist of six tasks that test a wide range of cognitive abilities.

Hypotheses

1. Given that the child's age is moderately related to his/her stage of cognitive development, the present study hypothesizes that age will be positively related to stage. More definitively, the ages of the children within each cognitive stage will vary widely and overlap the ages of children in the stages of cognitive development below and above theirs.

2. Given previous findings and the logical assumption that the child's Piagetian cognitive stage of development is related to his/her conceptualization of death and dying, the present study hypothesizes a positive relationship between the child's level of cognitive functioning as determined by the Cognitive Abilities Scale, and the child's level of cognitive functioning as determined by the analysis of the child's thoughts about death and dying.

3. Given that past researchers have delineated children's concepts of death and dying, the present study assumes that the same concepts of death and dying will be found in the child's responses to the Death and Dying interview. Given the assumption that the child's concepts of death and dying will reflect his/her level of cognitive development, the present study hypothesizes that children's concepts of death and dying will be related to the level of cognitive functioning.

CHAPTER III

METHOD

Subjects

Ninety-four children (47 male and 47 female) participated in the present study. They ranged in age from three years, four months to 16 years, six months. The subjects consisted primarily of white, middle-class children, although a small number of children of Black, Hispanic, and Indian ethnic backgrounds served as subjects. The majority of subjects were recruited from a preschool and a Young Men's Christian Association summer program in a South Midwestern university town. The remainder of the subjects were obtained by parental referral and friendship pyramiding. A minimum of 15 children were placed in each of the five scoring categories of the Cognitive Abilities Scale.

Materials

Death and Dying Interview

Questions for the Death and Dying Interview (DDI) were selected to include aspects of children's thoughts about death and dying that had been elicited by previous studies, namely Nagy (1948) and Piaget's (1960) work on animism. These aspects included: animism, attributes of death, personal death, permanence of death, and the universal

nature of death. The questions were worded to maximize spontaneous responses by the children. Each child was asked all questions. (Refer to Appendix A for a copy of the questions.)

The major focus of this interview was to obtain the child's unique thoughts about death and dying, to elicit the child's concepts of death and dying, not the child's answers to specific questions. To further this objective, Piaget's method of interviewing (method clinique) was used. This method has two characteristics. First, the method allows the child as much latitude as possible in answering the questions. Second, when the child answers a question on the DDI, further questions posed are based on the child's response. Thus, the interviewer can reaffirm the child's answers by reasking the question in terms of the child's responses and does not input his/her interpretation of what the child has said.

Analysis of the Death and Dying Interview

The interview was scored for two kinds of data: The concepts of death and dying exhibited and the cognitive abilities employed in conceptualizing death and dying. All interviews were scored by an individual who was blind to the child's age and gender and to the child's performance on the Cognitive Abilities Scale. Additionally, 25 of the DDIs were selected to be scored by a second judge. The 25 interviews were selected to include five randomly selected interviews from each of the five categories of cognitive development as determined by the Cognitive Abilities Scale.

Analysis of Children's Concepts of Death and Dying

To obtain a measure of the child's concepts of death and dying, a list was compiled of nine concepts of death and dying reported in past research. The child was determined to have a particular concept of death and dying if his/her responses fit the definition of that concept. For each of these nine concepts of death and dying, the subject received a score of present/not present. (Refer to Appendix B for the list of concepts of death and dying and the criteria by which they are defined.)

For the 25 selected interviews, percentages of agreement in scoring was used to assess the interjudge reliability of each concept of death and dying. The percentages of agreement were 100% for all but one of the concepts of death and dying. The percentage of agreement was 80% on scoring of Cause of Death (immanent justice).

Analysis of Children's Cognitive Abilities

To obtain a measure of the cognitive abilities the child employed in conceptualizing death and dying, Elkind (1974), Flavell (1963), Ginsburg and Opper (1979), and Phillips (1975) were perused to complete a list of the cognitive abilities developed during each of Piaget's stages of cognitive development. Each cognitive ability was defined and labeled as to the cognitive stage of development it indicated. The resultant list consisted of four cognitive abilities that are indicative of functioning at the Sensorimotor Stage, 12 cognitive abilities that are indicative of functioning at the Pre-Operational Stage, eight cognitive abilities that are indicative of

functioning at the Concrete Operational Stage, and six cognitive abilities that are indicative of functioning at the Formal Operations Stage. The cognitive abilities that the child employed were used to determine the level of cognitive development by which the child conceptualizes death and dying.

Determination of the Child's Cognitive Stage of Development From the Death and Dying Interview

The child was determined to be in one of five levels of cognitive functioning: Preoperational Stage, Transitional Level between the Preoperational and the Concrete Operations Stages, Concrete Operations Stage, Transitional Level between the Concrete Operations Stage and the Formal Operations Stage, and the Formal Operations Stage. The child was determined to be functioning at a given cognitive stage (PreOperational, Concrete Operational, Formal Operational) if at least 75% of their scored cognitive abilities were indicative of thought in that stage. The child was determined to be functioning at the Transitional Level between the PreOperational and the Concrete Operational Stages if approximately 50% of his/her scored cognitive abilities were indicative of the PreOperational Stage and 50% were indicative of the Concrete Operations Stage. The child was determined to be functioning at the Transitional Level between the Concrete Operational and the Formal Operational Stages if approximately 50% of his/her scored cognitive abilities were indicative of the Concrete Operations Stage and 50% were indicative of the Formal Operations Stage. (Refer to Appendix C for the list of cognitive abilities,

the criteria by which they are defined, and the stage of cognitive development they indicate.)

Based in the DDI, the child's cognitive level of functioning was ordinally scaled as follows:

PreOperational Stage	1.0
Transitional Level between the Pre-Operational and the Concrete Operations Stage	1.5
Concrete Operations Stage	2.0
Transitional Level between the Concrete Operations Stage and the Formal Operations Stage	2.5
Formal Operations Stage	3.0

Interjudge Reliability of Scoring Children's Cognitive Abilities

For the 25 selected interviews Pearson Product-Moment Correlation Coefficients were used to assess the interjudge reliability for scoring of the cognitive abilities employed in conceptualizing death and dying. A highly significant correlation was found ($r=.98$, $p<.001$) between the two judges' assessment of the child's cognitive ways. Significant correlations were found for interjudge scoring of all the individual cognitive processes. The correlations between the judges' scoring of cognitive processes differentiating between the PreOperational and the Concrete Operation Stages ranged from 0.58 to 1.00. The correlations between the judges' scoring of the cognitive processes differentiating between the Concrete Operations and Formal Operations Stages ranged from 0.67 to 1.00. Each of these reliability coefficients was significant at the .05 level. (Refer to Appendix D

for the reliability coefficients between judges on each cognitive ability.)

Cognitive Abilities Scale

Based on Piaget's model, a cognitive scale was developed that would ascertain each child's cognitive functioning. A series of tasks were selected from Elkind (1974), Ginsburg and Opper (1979), and Phillips (1975). The tasks selected were those that Piaget used in his research on children's cognitive development. The scale contained Piagetian tasks that could be used to determine a child's level of development in object permanence, conservation of length and volume, egocentrism, reversibility, and logical processes. Each of these constructs is developed by a child at a particular stage (or part of a stage) in Piaget's model of cognitive development (as reported in Elkind, Phillips, and Ginsburg & Opper). The scale consisted of: the Blanket Task, the Toy Car Task, the Three Mountain Task, the Word Problem Task, and the Pendulum Problem. (Refer to Appendix E for description of the apparatus of each task and its administration and scoring.) For each of these tasks, at least two different responses could be made by the child. Each response indicated a particular stage (or part of a stage) of cognitive functioning. (Refer to Appendix F for the stages, or parts of a stage, the tasks delineated.)

The child's performance on the Cognitive Abilities Scale (CAS) was used to determine the child's level of cognitive development. Piaget's model of cognitive development, as reported by Flavell (1963), was used to determine five stages of cognitive development. The

child's performance on the cognitive tasks was used to determine whether his/her functioning at the: PreOperational Stage, the Transitional Level between the PreOperational and Concrete Operational Stages, the Concrete Operations Stage, the Transitional Level between the Concrete Operations and the Formal Operations Stages, or the Formal Operations Stage.

Scale Administration

In delineating the child's cognitive stage, a basal and a ceiling level were determined. The basal level was defined as that cognitive stage at which the child passed all tasks tested at that level. The ceiling level was defined as the highest level of cognitive development at which the child failed all tasks tested at that level.

The preschool age child started with the Blanket Task and then performed in order: the Toy Car Task, the Water Bottle Task, and the Three Mountain Task, until his/her ceiling level had been determined. The latency age and adolescent subjects began with the Toy Car Task and then performed in order: the Water Bottle Task, the Three Mountain Task, the Word Problem Task, and the Pendulum Task until their ceiling level had been determined.

Determination of Cognitive Stage of Development

Based on the cognitive tasks, the child's performance was ordinally scaled as follows:

PreOperational Stage	1.0
Transitional Level between the PreOperational and the Concrete Operations Stages	1.5

Concrete Operations Stage	2.0
Transitional Level between the Concrete Operations Stage and the Formal Operations Stage	2.5
Formal Operations Stage	3.0

The child's level of cognitive development was determined by the following criteria:

1. PreOperational Stage - If the child performed at the Preoperational level on the Blanket Task and the Early PreOperational level on the Toy Car Task, then the child was determined to be functioning at the Preoperational Stage of cognitive development.

2. Transitional Level Between the PreOperational and the Concrete Operations Stages - If the child performed at the PreOperational level on the Blanket Task, the Late PreOperational level on the Toy Car Task, and at the Early Concrete Operations level on the Water Bottle Task or the Three-Mountain Task, then the child was determined to be functioning at the Transitional level between the Preoperational and the Concrete Operations Stage.

3. Concrete Operations Stage - If the child performed at the Late PreOperational level on the Toy Car Task, the Early or Late Concrete Operations level on the Water Bottle Task and the Three Mountain Task, and the Concrete Operations level on the Pendulum Problem, and failed to pass the Word Problem Task, then the child was determined to be functioning at the Concrete Operations Stage.

4. Transitional Level Between the Concrete Operations Stage and the Formal Operations Stages - If the child performed at the Late Concrete Operations level on the Water Bottle Task, on the Three Mountain Task, and on the Pendulum Problem, and answered correctly

one of the two Word Problems, then the child was determined to be functioning at the Transitional Level between the Concrete Operations Stage and the Formal Operations Stage.

5. Formal Operations Stage - If the child performed at the Late Concrete Operations level on the Water Bottle Task and the Three Mountain Task, and performed at the Formal Operations level on the Word Problems Task and the Pendulum Problem, then the child was determined to be functioning at the Formal Operations Stage.

Procedure

Written consent was obtained from parent(s)/guardian(s) of the child prior to contact with the subject. Appendix G contains the permission slips for the latency age and adolescent subjects; Appendix H contains the permission slips for the preschool age children. Verbal consent was obtained from the child prior to the initiation of data collection.

Preschool Children

The experimenter expended considerable time establishing rapport with the preschool age children. The experimenter spent two to three hours per week, for three months, playing and talking with the children at their preschool. The preschoolers were interviewed, given a questionnaire about death and dying (part of another study), and then given the Cognitive Abilities Scale. During the test session, if the experimenter believed that the child's attention and motivation were wavering sufficiently to detrimentally affect the child's performance, the child was not given the next stage of the procedure. Instead,

he/she completed the test session either later that day or the next possible day. The children were given a reward (a balloon) for participating in the experiment. Children were told before the procedure began that they could expect the reward for participation.

Latency and Adolescent Children

The older children were tested in a quiet room, free of auditory distractions. Before entering the room, the experimenter talked with each child until rapport was established. The child was brought into the testing room. Once the experimenter and child were alone, the experimenter presented the instructions. (Refer to Appendix I for a copy of the verbal instructions given to the children.)

The first step of the procedure was the Death and Dying Interview. Throughout the interview, the experimenter gave reassurance as was necessary to keep the child comfortable and relaxed in answering the questions. The setting and the atmosphere of the interview was kept informal and flexible. If the child did not want to answer one or all of the questions, the experimenter did not pressure the child to respond. A cassette tape recorder was used during the interview to record everything stated by the child.

Once the child finished the DDI, he/she was given a brief rest. During this time the experimenter talked with the child and answered any questions that he/she had about the interview or the situation that were not relevant to the content of the interview. Questions concerning the concept of death and dying were answered by saying that the experimenter was interested in what the child thought about death and dying. If this was not sufficient for the child, he/she

was told that the discussion could be continued after the session was completed.

The second step of the test session focused upon the child's performance on the Cognitive Abilities Scale. When the child's stage of cognitive development was determined by the Cognitive Abilities Scale, the test session was complete except for the debriefing. During the debriefing, the experimenter answered any questions that the child had about the purposes of the study. If the child wished to talk about death and dying, the experimenter was careful not to suggest ideas different from those that the child had volunteered.

CHAPTER IV

RESULTS

For the five scoring categories of cognitive development, frequency distributions were constructed of the ages of the children within each of these categories. The frequency distributions were independently constructed as a function of the Cognitive Abilities Scale (CAS) and as a function of the analysis of the Death and Dying Interview (DDI). Additionally, within each of the five scoring categories of cognitive development, mean age, and standard deviation were calculated. (Refer to Table I for a summary of these data.)

Pearson-Product Moment Correlation Coefficients were utilized to assess the relationship between age and cognitive stage of development as measured by the CAS, and cognitive stage of development as measured by the analysis of the cognitive abilities in the child's DDI. Significant correlations were found between age and each of the independent measures of the child's stage of cognitive development. The correlation between age of the child and his/her stage of cognitive development as measured by the CAS was $r=.86$, $p<.001$. The correlation between the age of the child and his/her stage of cognitive development as measured by the analysis of the DDI was $r=.86$, $p<.001$.

Thus, Hypothesis one was supported. Age was found to be positively and highly related to cognitive stage as measured by the CAS and the DDI. However, the relationship is not a perfect one. As can

TABLE I

MEANS, STANDARD DEVIATIONS, AND RANGES OF SUBJECT AGE IN FIVE COGNITIVE STAGES DETERMINED BY THE COGNITIVE ABILITIES SCALE (CAS) AND THE DEATH AND DYING INTERVIEW (DDI)

Cognitive Stage	Number	Mean (Mos.)	Standard Deviation (Mos.)	Range (Mos.)
PreOperational Stage				
CAS	25	62.7	13.5	45-112
DDI	30	65.6	18.5	42-118
Transitional level between PreOperational and Concrete Operations Stages				
CAS	21	74.4	29.6	40-159
DDI	18	68.5	16.7	40-106
Concrete Operations Stage				
CAS	15	96.3	15.0	79-136
	16	111.9	20.7	79-159
Transitional level between Concrete Operations and Formal Operations Stages				
CAS	17	125.5	20.6	97-162
DDI	15	124.0	24.2	85-162
Formal Operations Stage				
CAS	16	169.4	18.1	153-198
DDI	15	171.2	17.3	146-198

be seen in Table I, and as predicted in hypothesis one, the children within each cognitive stage vary widely and overlap the ages of children in the stages of cognitive development below and above theirs.

A Pearson-Product Moment Correlation Coefficient was used to assess the relationship of the child's cognitive stage of development as determined independently by the CAS and the DDI. A highly significant correlation was found ($r=.85$, $p<.001$) between the independent measures of the child's stage of cognitive development. Thus, Hypothesis two was supported; these two independent measures of the child's cognitive functioning are highly related.

Within each cognitive stage the percentages of children that exhibited each predetermined concept of death and dying was calculated. These percentages were calculated as a function of the CAS and as a function of the analysis of the DDI. (Refer to Table II for a summary of these data.)

In examining Table II, one observes that the percentages of children in each cognitive stage who exhibit concepts of death and dying delineated in previous research would indicate that these concepts of death and dying were found in the present study. Notably, the likelihood of the presence of such concepts was found to vary by the cognitive stage in which the child was functioning. Examination of Table II would document a relationship between concepts exhibited and stage of cognitive functioning as measured by both the CAS and the DDI.

Chi-square analyses were performed to assess the relationship between the child's concepts of death and dying and his/her stage of cognitive development. These were performed separately for the data on cognitive stage obtained from the CAS and from analysis of the DDI.

TABLE II

PERCENTAGES OF SUBJECTS EXHIBITING SPECIFIC CONCEPTS OF DEATH AND DYING AS A FUNCTION OF COGNITIVE STAGE

Cognitive Stage	CONCEPTS OF DEATH AND DYING* AN	ATHP	IJ	CDC	CDA	UN	PM	PD	DOD
	a. Cognitive Stage as Measured by the CAS								
PreOperational Stage	60	64	64	24	00	56	56	72	84
Transition PreOperational Concrete Stages	57	57	71	38	5	52	48	67	76
Concrete Operations Stage	20	20	40	73	7	80	80	100	47
Transition Concrete-Formal Stages	6	6	12	100	35	100	88	100	12
Formal Operations Stage	00	00	00	100	94	100	10	100	00

TABLE II (Continued)

Cognitive Stage	CONCEPTS OF DEATH AND DYING* AN	ATHP	IJ	CDC	CDA	UN	PM	PD	DOD
	b. Cognitive Stages as Measured by Analysis of the DDI								
PreOperational Stage	73	77	73	17	00	43	40	63	90
Transition PreOperational Concrete Stages	44	44	72	44	6	61	61	83	94
Concrete Operations Stage	6	6	25	94	00	100	88	100	12
Transition Concrete-Formal Stages	00	00	00	100	47	100	10	100	00
Formal Operations Stage	00	00	00	100	10	100	10	100	00

*Key of Concepts of Death and Dying:

AN --Animism
ATHP --Anthropomorphism
IJ --Cause of Death (immanent justice)
CDC --Cause of Death (concrete)
CDA --Cause of Death (abstract)
UN --Universality
PM --Permanence of Death
PD --Personal Death
DOD --Definition of Death

(Refer to Appendix J for the frequencies of concepts of death and dying as a function of stage of cognitive development.) Children's concepts of death and dying were significantly related to stage of cognitive development as measured by the CAS ($X^2_{(32)}=43.31$, $p<.0001$). Children's concepts of death and dying were significantly related to stage of cognitive development as measured by the DDI ($X^2_{(32)}=72.41$, $p<.0001$). Thus, Hypothesis three was supported, children's concepts of death and dying were related to their level of cognitive functioning whether measured by the CAS or by the analysis of the DDI.

A series of post-hoc chi-square comparisons were performed to clarify the relationship between children's concepts of death and dying, the child's age, and the child's stage of cognitive development. Because many cells in the table relating death and dying concepts and cognitive stage (Appendix J) were zero or near zero, the post-hoc comparisons of each death and dying concept and cognitive stage were carried out by classifying the children's cognitive stages into two categories for each death and dying concept examined. In examining the relationship between cognitive stage and death and dying concepts, there are a wide variety of classification of stage which could be made. Based on the suggestions of Piaget's model of cognitive development (Flavell, 1963), the following comparisons were selected as pertinent to the predictions of the cognitive stage theory. Three sets of comparisons were performed. The first set of comparisons was devised to determine differences in concepts of death and dying as a function of PreOperational thought vs. the more advanced stages of cognitive development. The first category consisted of two stages, the PreOperational Stage and the Transitional level between

the PreOperational and the Concrete Operational Stages. The second cognitive category consisted of the remaining three stages; the Concrete Operations Stage, the Transitional level between the Concrete Operational and the Formal Operational Stages, and the Formal Operation Stage. The second set of comparisons were devised to determine differences in concepts of death and dying as the child begins to develop thought properties characteristic of the Concrete Operations Stage. Two stages of cognitive development were compared, the Pre-Operational Stage and the Transitional level between the PreOperational and the Concrete Operational Stages. The third set of comparisons were devised to determine differences in concepts of death and dying as a function of Concrete Operational thought vs. Formal Operational thought. The first cognitive category consisted of the Transitional level between the PreOperational and the Concrete Operational Stages and the Concrete Operations Stage. The second cognitive category consisted of the Transitional level between the Concrete Operational and the Formal Operational Stages and the Formal Operations Stage. For each set of comparisons of cognitive stage and concepts of death and dying, similar analyses were performed employing the child's age instead of his/her cognitive stage. In each age analysis, frequencies in each age category were precisely matched to the frequencies in the corresponding stage classification in order to allow a precise comparison of predictability between cognitive stage theory and age theory approaches. The comparisons of each death and dying concept and age were carried out by classifying the children's age into two categories for each death and dying concept examined. The age at which the two age categories were split differed for each set of

comparisons. The youngest children (as determined by the number of children in the cognitive categories of each set of comparisons) formed one age category and the oldest children (as determined by the number of children in the cognitive categories of each set of comparisons) formed the second age category.

In the first set of comparisons (PreOperational Stage and Transitional level between the PreOperational and the Concrete Operational Stages vs. the other stages), chi-square analyses were performed to compare for the children in these two cognitive categories the presence of the following concepts of death and dying: Animism, Anthropomorphism, Cause of Death (immanent justice), Cause of Death (concrete), Cause of Death (abstract), Universality, Permanence, Personal Death, and Definition of Death. Separate analyses were performed for stage of cognitive development as determined by the CAS and stage of cognitive development as determined by the analysis of the DDI.

Significant differences were found between cognitive categories for both measures of cognitive development and for each concept of death and dying. Children functioning at the PreOperational or the Transitional level between the PreOperational and the Concrete Operational Stages, were more likely to have concepts of Animism, Anthropomorphis, Cause of Death (immanent justice) and Definition of Death than were children functioning at the more advanced stages of cognitive development. Children functioning at the Concrete Operations Stage and higher stages were more likely to have the concepts of Cause of Death (concrete), Cause of Death (abstract), Universality, Permanence, and Personal Death than were children functioning at less

advanced stages of cognitive development. (Refer to Table III for exact chi-square values.)

TABLE III

CHI-SQUARE ANALYSES OF CONCEPTS OF DEATH AND DYING AS A FUNCTION OF COGNITIVE STAGE AND AGE*

Concept of Death and Dying	Method of Determining Cognitive Stage		Age	
	CAS	DDI	CAS	DDI
Animism	26.95	38.68	26.95	28.53
Anthropomorphism	28.87	40.75	28.87	30.39
Cause of Death (immanent justice)	29.94	39.91	28.37	21.55
Cause of Death (concrete)	37.27	49.75	37.27	38.49
Cause of Death (abstract)	24.23	26.59	24.23	26.59
Universality	19.18	30.89	28.37	25.85
Permanence	16.06	26.14	19.92	21.69
Personal Death	17.17	15.76	17.17	15.76
Definition of Death	37.77	71.67	46.32	46.44

*Each chi-square test has one df; each of these chi-squares were significant at the 0.05 level.

When the cognitive categories were determined by the CAS, the first age category consisted of the 46 youngest children and the second age category consisted of the 48 oldest children. When the

cognitive categories were determined by the analysis of the DDI, the first age category consisted of the 48 youngest children and the second age category consisted of the 46 oldest children. Significant differences were found between the age categories for both means of determining age categories. Significant differences were found between age categories for each concept of death and dying. The younger children were more likely to have concepts of Animism, Anthropomorphism, Cause of Death (immanent justice), and Definition of Death, than were the older children. The older children were more likely to have the concepts of Universality, Permanence, Personal Death, Cause of Death (concrete), and Cause of Death (abstract) than were the younger children.

In the second set of comparisons (PreOperational Stage vs. Transitional level between the PreOperational and Concrete Operational Stages), chi-square analyses were performed to compare for children in these two cognitive categories the presence of the following concepts of death and dying: Animism, Anthropomorphism, Cause of Death (immanent justice), Cause of Death (concrete), Cause of Death (abstract), Universality, Permanence, and Personal Death. Separate analyses were performed for stage of cognitive development as determined by the CAS and stage of cognitive development as determined by the analysis of the DDI. When the cognitive categories were determined by the CAS, significant differences were not found between these two cognitive stages. When the cognitive categories were determined by the DDI, significant differences in concepts of death and dying were found between these two cognitive categories. Children in the Transitional level between the PreOperational and the Concrete

Operational Stages were less likely to have concepts of Animism ($X^2_{(1)}=4.19$, $p<.05$), Anthropomorphism ($X^2_{(1)}=4.34$, $p<.05$), and Cause of Death (immanent justice) ($X^2_{(1)}=7.03$, $p<.05$), than were children in the PreOperational Stage. Children in the Transitional level between the PreOperational and the Concrete Operational Stages were more likely to have concepts of Universality ($X^2_{(1)}=4.39$, $p<.05$) and Cause of Death (concrete) ($X^2_{(1)}=4.39$, $p<.05$), than children in the PreOperational Stage (Table IV).

TABLE IV

CHI-SQUARE ANALYSES OF CONCEPTS OF DEATH AND DYING AS A FUNCTION OF COGNITIVE STAGE AND AGE*

Concept of Death and Dying	Method of Determining Cognitive Stage		Age	
	CAS	DDI	CAS	DDI
Animism	0.04	4.00**	10.25*	6.85
Anthropomorphism	0.22	4.34**	8.41**	5.11**
Cause of Death (immanent justice)	0.29	7.03**	6.87**	7.03**
Cause of Death (concrete)	1.07	4.39**	5.39**	2.03
Cause of Death (abstract)	1.22	1.70	1.22	1.70
Universality	0.06	4.19**	15.32**	3.20
Permanence	0.32	2.01	8.93**	0.67
Personal Death	0.15	2.18	12.03**	7.77**
Definition of Death	0.44	0.29	8.43**	0.29

*Each chi-square test has one df.

**Significant at the 0.05 level.

When the cognitive categories were determined by the CAS, the first age category consisted of the 25 youngest children and the second age category consisted of the 21 oldest children. When the cognitive categories were determined by the analysis of the DDI, the first age category consisted of the 30 youngest children and the second age category consisted of the 18 oldest children. When the age categories were determined by the CAS, significant differences were found between the age categories for each concept of death and dying except Cause of Death (abstract). The younger children were more likely to have concepts of Animism, Anthropomorphism, Cause of Death (immanent justice), and Definition of Death, than were the older children. The older children were more likly to have concepts of Cause of Death (concrete), Universality, Permanence, and Personal Death than the younger children. When the age categories were determined by the analysis of the DDI, the younger children were more likely to have concepts of Animism, Anthromoporphism, and Cause of Death (immanent justice) than the older children. The older children were more likely to have concepts of Personal Death than the younger children.

In the final set of comparisons (Transitional level between the PreOperational and the Concrete Operational Stages and the Concrete Operations Stage vs. the Transitional level between the Concrete Operations and the Formal Operations Stages and the Formal Operations Stage), chi-square analyses were performed to compared for children in these two cognitive categories the presence of an abstract understanding of the cause of death. Separate analyses were performed for stage of cognitive development as determined by the CAS

and stage of cognitive development as determined by the analysis of the DDI. Significant differences were found for the cognitive categories as determined by the CAS ($X^2_{(1)}=26.14$, $p<.05$) and as determined by the analysis of the DDI ($X^2_{(1)}=34.30$, $p<.05$). Children functioning at the Transitional level between the Concrete Operations and the Formal Operations Stages and the Formal Operations Stage were more likely to have an abstract understanding of the causes of death than were children functioning in the Transitional level between the PreOperational and the Concrete Operational Stages or the Concrete Operations Stage.

When the cognitive categories were determined by the CAS, the first age category consisted of the 36 youngest children and the second age category consisted of the 33 oldest children. When the cognitive categories were determined by the analysis of the DDI, the first age category consisted of the 36 youngest children and the second age category consisted of the 33 oldest children. When the age categories were determined by the CAS, the older children were significantly ($X^2_{(1)}=21.17$, $p<.05$) more likely than the younger children to have an abstract understanding of the causes of death. When the age categories were determined by the analysis of the DDI, the older children were significantly ($X^2_{(1)}=21.17$, $p<.05$) more likely than the younger children to have an abstract concept of the cause of death.

Pearson-Product Moment Correlation Coefficients were used to assess the relationship between gender and stage of cognitive development as determined by the CAS and by the analysis of the DDI. Gender was not found to be related to stage of cognitive conceptualization

about death and dying. The CAS and DDI correlations with gender were 0.05 and 0.09, respectively. Only 10 ethnic minority children participated in this study. Therefore, the relationship between ethnic status and stage of cognitive development could not be assessed.

CHAPTER V

DISCUSSION

The hypothesis concerning the relationship of age to stage of cognitive development was supported. The present study documented a highly significant positive relationship between the age of the child and both measures of the child's cognitive stage. Each cognitive stage was characterized by an age range consistent with expectations based on prior studies (Elkind, 1974; Phillips, 1975). The ages of the children within each cognitive stage were found to overlap the ages of children in cognitive stages below and above theirs. Piaget, as reported in Flavell (1963), stated that age is related to stage of cognitive development. However, he postulated that a given cognitive stage was most likely to be attained by children of wide age ranges. The results of the present study supported the relationship between age and cognitive stage as defined by Piaget's theory.

The hypothesis that the two independent measures of cognitive functioning would be related was supported. The present study documented a highly significant positive relationship between the two independent measures of cognitive functioning. The child's cognitive stage as determined by his/her performance on problem solving tasks (CAS) was found to closely agree with the child's cognitive stage as determined by analyzing the cognitive processes the child used in conceptualizing death and dying. In two-thirds of the

children tested, the two independent measures of cognitive stage placed the child in the same cognitive stage (category). In the remaining children, the two measures rarely disagreed upon the child's cognitive stage by more than one category of cognitive development (including the transitional stages) above or below the other. As the CAS is an independent measure of the child's cognitive level, and the analysis of the DDI is an independent measure of the cognitive processes the child uses to conceptualize death and dying, the relationship between these measures of cognitive stage indicates that children conceptualize death and dying with the cognitive abilities of their cognitive state of development.

At this point it is interesting to compare the approaches of the age theorists and the cognitive development theorists. The two theories can be compared on an empirical level as to the accuracy of the predictions they make concerning death and dying concepts. Later the theories will be compared on the basis of what each contributes to understanding the development of children's concepts of death and dying.

A comparison of the accuracy of these two theoretical approaches, predictions of children's concepts of death and dying, produces contradictory results. The accuracy of predictions of the cognitive development model exceeds the accuracy of the age model when it comes to differentiating concepts of death and dying of children in the PreOperational Stage and the Transitional level between the PreOperational and the Concrete Operational Stages vs. the advanced stages (9 out of 18 of the cognitive development chi-squares were higher than the age model chi-squares, with six ties). The accuracy of

predictions of the age model exceeds the accuracy of the cognitive development model when it comes to differentiating the concepts of death and dying of children in the PreOperational Stage vs. children in the Transitional level between the PreOperational and the Concrete Operational Stages (11 out of 18 of the age model chi-squares were higher than the cognitive development model chi-squares, with four ties). The accuracy of predictions of the cognitive development model exceeds the accuracy of the age model when it comes to predicting the concept of an abstract understanding of the causes of death. Both cognitive development model chi-squares were higher than the age model chi-squares. Due to these contradictory results, the age model cannot be discounted at this point on empirical grounds. Future research is necessary to explore the predictive ability of these two models.

In spite of the better predictions made by the age model in areas, there are conceptual problems in a purely developmental framework. The age model doesn't provide any postulates concerning the process underlying the relationship between age and concepts of death and dying. Anthony (1971) and Nagy (1948), as well as numerous other researchers, have hypothesized that the age of the child determines his/her stage of concepts of death and dying. The relationship that these researchers found between age and children's concepts of death and dying can be explained by the present findings regarding the relationship of age to cognitive stage of development. If there is a relationship between age and concepts of death and dying, it is most likely due to the existence of a highly significant positive relationship between age and cognitive stage. Additionally, the

inability of age theorists to agree on the ages of each stage of concepts of death and dying, and their inability to place all children within these stages, is likely due to the wide and overlapping age ranges one finds in each cognitive stage. Notably, in the present study children functioning at the same cognitive stage differed by as much as seven years in age but conceptualized death and dying with cognitive abilities characteristic of their stage of development.

The relationship documented in the present study between the two measures of cognitive stage suggests that the stages in the development of concepts of death and dying can be understood within the framework of Piaget's theory of cognitive development. The present study independently assessed the cognitive stages of Piaget and the transition periods between these stages. The stages in the development of concepts of death and dying were assessed as parallel to Piagetian cognitive stages. One interpretation is that as the child develops new cognitive abilities, he/she becomes capable of conceptualizing death and dying at a new level of understanding. Thus, the findings of the present study demonstrate the potential of the cognitive development theory in assessing and understanding the development of children's concepts of death and dying.

A further test of the merits of Piaget's cognitive stage theory is the predictability of the child's concepts of death and dying from his/her cognitive stage. This theory predicts that children's concepts of death and dying can be predicted by their cognitive stage. Piaget clearly specified that certain concepts of death and dying were present during specific cognitive stages. The children tested

in this study were found to differ in their concepts of death and dying as predicted by the cognitive development theory. Children functioning in the PreOperational Stage or the Transitional level between the PreOperational and the Concrete Operations Stages, explained death and dying with concepts of animism, anthropomorphism, immanent justice explanations of the causes of death, and imaginal concepts of the differences between life and death. These concepts were used significantly more frequently in these cognitive stages than in the more advanced stages. The concepts of Universality, Permanence, Personal death, Concrete and Abstract causes of death were used significantly less frequently in these stages than in the more advanced stages.

Children functioning at the Concrete Operations Stage, the Transition level between the Concrete Operations and the Formal Operations Stage, explained death and dying by the concepts of Universality, Permanence, Personal death, and Concrete and Abstract causes of death. These concepts were used significantly more frequently in these cognitive stages than in children in the PreOperational Stage or the Transitional level between the PreOperational and the Concrete Operations Stages. The concepts of Animism, Anthropomorphism, Immanent Justice, and imaginal definitions of death were used significantly less frequently in these stages than in the PreOperational Stage or the Transitional level between the PreOperational and the Concrete Operations Stages. Additionally, pictorial representations of the concepts of death and dying as a function of cognitive stage demonstrates that an abstract understanding of the causes of death were rare among children functioning at the Concrete Operations Stage.

Children functioning at the Transitional level between the Concrete and Formal Operations Stages or the Formal Operations Stage, explained the causes of death by Abstract explanations. An Abstract understanding of the causes of death was used significantly more frequently in these cognitive stages than in the less advanced cognitive stages. The pictorial representations of the concepts of death and dying of children functioning at these two cognitive stages demonstrates that the concepts of animism, anthropomorphism, immanent justice, and imaginal concepts of the difference between life and death, were rarely used by children functioning at these cognitive stages.

As additional support for the Piagetian theoretical model, the present findings that children's concepts of death and dying could be predicted by their cognitive stage, is consistent with previous findings by researchers (Fry, 1978; Hansen, 1972; Kane, 1975; Koocher, Safier, 1964; Steiner, 1965; White, 1976; White, Elsom, and Prawat, 1978), who used the cognitive development theory to study children's concepts of death and dying. The present study improved upon previous research by developing a quantitative measure of children's concepts of death and dying and by documenting quantitative differences in children's concepts of death and dying as a function of cognitive stage.

Piaget's cognitive development theory delineates properties of the child's congitive abilities within each stage. Closer inspection of the DDI revealed numerous examples in which the child's conceptualization of death and dying was related to his/her cognitive stage and reflected the interaction of the cognitive properties characteristic of that stage. In all five categories of cognitive development, the

cognitive properties of the child were clearly related to his/her conceptualization of death and dying. The conceptualization of death and dying of the child functioning at the PreOperational Stage reflects the cognitive properties of egocentrism, lack of metastructure, and transductive reasoning. These properties are characteristic of this stage of cognitive thought as defined by Piaget (Flavell, 1963; Phillips, 1975). Each of these properties individually, and in concert with the others, appears to be related to how the child can conceptualize death and dying. An example of this is found in one concept of death and dying, immanent justice, where the child stated, "The rich people die and the good people don't die." Immanent justice was observed frequently in the PreOperational Stage and the Transitional level between the PreOperational and the Concrete Operations Stages. It was not often observed in other stages. Notably, egocentrism is a property of these two cognitive stages. Additionally, the relationship between egocentrism and immanent justice would appear to have face validity.

The conceptualization of death and dying of the child functioning at the Concrete Operations Stage reflects the cognitive properties of classification, decreased egocentrism and logical reasoning, although the child is limited to concrete and current perceptions. These are properties of this stage of cognitive thought as defined by Piaget (Flavell, 1963; Phillips, 1975). An example of the reflection of these cognitive properties in the child's conceptualization of death and dying was his/her conceptualization of the differences between life and death. In response to the question, "How would you know that he (Zip) was dead?" the child responded: "Well, they would

probably be laying down, its eyes shut or open and its heart wouldn't be beating or wouldn't breathe and it wouldn't move unless somebody moved him." This type of response was observed frequently in the children functioning at the Concrete Operations Stage and was not often observed in the other stages. This response demonstrated decreased egocentrism and increased classification abilities, as well as demonstrated the child's limitations to concrete and immediate perceptions.

The conceptualization of death and dying of a child functioning at the Formal Operations Stage reflects his/her ability to conceptualize hypothetical possibilities, abstract concepts, and combinatorial logic. These are properties characteristic of this stage of cognitive thought as defined by Piaget (Flavell, 1963; Phillips, 1975). An example of this is one concept of death and dying, personal death, where the child stated:

> I think that the chances are very probable that I will die, unless again we take this religious deal and you know how Revelations and all about that. The Lord might come back before my lifetime is over, might not, but I think it is most probable that I probably would. Well, I could die tomorrow, I could die later, he could come back tomorrow, I could die now, but it is most probable. . . .

This type of response was observed frequently in the Formal Operations Stage and was not often observed in the other stages.

The hypothesis that the child's gender and ethnic status would not be related to the child's cognitive stage was partially supported. No significant relationship was found between gender and cognitive stage. A test of the hypothesis regarding ethnic status was impossible due to the limited sample obtained of children of different ethnic status. According to the cognitive development theory, gender

and ethnic status are unrelated to cognitive development. The determination of no relationship between gender and cognitive stage provided partial support to this supposition.

This study has been the first step in experimentally testing the predictions of the cognitive development theory within a specific subject matter area. More specifically, using Piaget's cognitive developmental stage theory, the present study focused upon resolving previously published contradictory and inconclusive research findings on the development of children's concepts of death and dying. Methodological difficulties of past research were corrected by the development of two independent measures of cognitive functioning, the development of a quantitative measure of children's concepts of death and dying, and the utilization of the method clinique to obtain children's thoughts about death and dying. The present study documented strong support for Piaget's cognitive development theory. A positive relationship was found between the child's conceptualization of death and dying and their cognitive stage. Additionally, the exhibition of specific concepts of death and dying were related to cognitive stage. Furthermore, the properties of the child's cognitive abilities were demonstrated in their use of specific concepts of death and dying. The present study demonstrates an effective design for studying children's conceptualization of death and dying. Further elaboration of this design will enable further exploration of children's responses to the world.

The results of this study open many intriguing possibilities for future research. Within the area of children's conceptualization of death and dying, one possibility for further exploration is the

relationship between specific cognitive processes, individually and in concert with one another, and children's conceptualization of death and dying. Another possibility rests in the nature of Piaget's theory (Phillips, 1975) of cognitive development. Piaget's theory of cognitive development emphasizes the concept of continuous adaptation between the child and his/her environment. Perhaps children's development of concepts of death and dying can be additionally understood as the result of the dynamic interplay between the child's cognitive processes and his/her environment. The child does not develop concepts of death and dying in isolation; instead, the child's conceptualization of death and dying is a continuously changing integration of his/her cognitive abilities and environment. Studies can be done with populations in different environments or circumstances (e.g., a study of children who are terminally ill; a study of children who are very "religious").

The applicability of Piaget's cognitive development theory is not limited to children's conceptualization of death and dying. Children are continually confronted with new challenges to be understood. Bernstein (1975) demonstrated the applicability of understanding children's thoughts about conception and birth as a function of their cognitive development. The design developed in the present study can be used to empirically test and elaborate further upon that specific content area. Children are confronted with many experiences as they mature. Somehow they must integrate their experiences in a way that they can understand. One factor that affects the child's experience of the world is his/her cognitive ability. Exploring the

relationship between the child's cognitive development and his/her conceptualization of his/her experiences can help us understand the child's world.

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APPENDIXES

APPENDIX A

DEATH AND DYING INTERVIEW

1. a. Is a car living?
   b. Does a car hurt when it is hit?
   c. Does a car die?

2. Zip, the dog, has died.
   a. How do you know he is dead?
   b. Will Zip ever be alive again?

3. Mr. Zong has died.
   a. Where is he?
   b. How did he get there?
   c. Can he come back?

4. Zelda is 10 years old.
   a. Can Zelda die now?
   b. Will Zelda die when she gets old?
   c. What makes things alive?
   d. What is the difference between people who are living and people who are dead?

5. Will you die? When?

6. What will happen then?

7. What do things that are alive do?

8. Do all people die?

9. Do dead things come back to life?

10. How do you make dead things come back to life?

APPENDIX B

CONCEPTS OF DEATH AND DYING

1. Animism - Everything that has activity or function is considered to be alive.

2. Anthropomorphism - Attributing human motivation, characteristics, or behavior to inanimate objects or the dead.

3. a. Causes of Death (immanent justice) - Attributing death as due to behavior or "sins" of the person. A punishing concept of the cause of death.

   b. Causes of Death - Concrete causes of death such as not breathing or not moving. Some understanding of the biological causes of death that is based on observable differences between life and death. Death is seen as the termination of life.

   c. Causes of Death - Abstract understanding of the causes of death. Death due to the body's dysfunctionality. Natural causation of death that includes understanding of unseen causes due to internal biology.

4. Universal Nature of Death - All people die.

5. Personal Death - I can die.

6. Permanence of Death - The dead cannot be brought back to life.

7. Definition of Death - Imaginal concepts of the differences between life and death.

APPENDIX C

COGNITIVE PROCESSES

Sensorimotor Stage

Object Permanence - Not developed--out of sight, out of mind.

Beginning Action Oriented - The beginning of thought action oriented, limited to concrete goals, limited to linking successive perceptions of concrete events.

Imitation - They do it--you do it. Beginning of imitation of things or people not present.

Seeing is Believing - If can still remember not gone or changed? What they can visualize in their minds to them is real.

PreOperational and Concrete Operational Stages

Metastructure - Increasing internalization of representational actions and increasing differentiation of signifiers from significants.

> Early PreOperational Stage: Child has no metastructure.
>
> Late PreOperational Stage: Child beginning to develop metastructure.
>
> Concrete Operational Stage: Child has efficient metastructure. He/She no longer gives impression of understanding something and moments later reveal a lack of any understanding.

Immanent Justice - The child in the PreOperational Stage attempts to explain how justice and law are maintained. Whenever a misfortune occurs, the child answers in egocentric overtones.

Artificialism - The child in the PreOperational Stage conceptualizes natural objects or events to be designed by men for man's use.

Centering - The child in the PreOperational Stage centers attention on one detail or event and is unable to process information from other aspects of a situation. The child in the Concrete Operations Stage can switch his/her center of attention.

Egocentrism of Reasoning - There are three uses of "because" that describe the relationship between adjacent causes: 1) Causal Explanation--a cause and effect relationship between two facts, 2) Psychological (Motivational) Explanation--it answers the question why and the two parts of it are the intention and the act, and 3) Logical Implication--establishes a relationship of reason and consequence between two

ideas or judgments. The child in the PreOperational Stage is unable to discriminate between these types of relations. His/her thinking is a juxtaposition of facts or ideas. The child in the early part of the Concrete Operations Stage can distinguish between Causal and Psychological explanations but has difficulty with Logical Implications--often using a psychological explanation instead. In the latter part of the Concrete Operations Stage, the child can distinguish between all three types of explanations.

Transductive Reasoning - The child in the PreOperational Stage is not capable of inductive or deductive reasoning, but rather, they reason from particular to particular. Therefore, their reasoning is not logical and often does not make sense. There are two types of transductive reasoning: 1) A causes B is not seen as different from B causes A, and 2) A is like B in some way; therefore, A is like B in every way.

Egocentrism of Social Relationships - The child in the PreOperational Stage engages in simple monologues which contain the content of their own activities or in collective monologues in which the child responds to another's statement with a response totally unrelated to that person said. In the Concrete Operations Stage, the child can shift from his own viewpoint to another and is capable of intercommunication.

Egocentrism in Representation of Objects and Events - The child in the PreOperational Stage is unable to see the world from others' point of view. They feel as though the world is created for their own personal satisfaction. They are unable to benefit from the experiences of others. The child in the early part of the Concrete Operations Stage realizes that there are other points of view but it is not until the latter half of the stage that the child can correctly identify the other person's point of view.

Realism - Confusion between wish and reality, confusion between psychological events and objective reality.

> PreOperational Stage: Child has absolute realism, nothing is inner or subjective, everything is external and real.
>
> Early Concrete Operations Stage: Thoughts originate in the mind but become objective realities.
>
> Late Concrete and Early Formal Operations Stages: There is a realization of a dualism that exists between psychological events and objective reality.

Concept of Whole vs. Parts--Conservation - The Child in the PreOperational Stage can reason either about the whole or the parts but not about both at the same time. When the child achieves the concept of reversibility in the Concrete Operations Stage, he/she can form a pattern of relationships into an integrated whole.

States vs. Transformations - The child in the PreOperational Stage attends to the successive states of an event rather than the transformations by which one state is changed into another. The child in the Concrete Operations Stage can attend to both.

Classification - The ability to differentiate and coordinate the two properties of a class: 1) intention--the criterion that defines a class, and 2) extension--the objects meeting the criterion.

> Early PreOperational Stage: A given intention does not determine any specific extension.
>
> Late PreOperational Stage: Child is better able to determine the extension of a class but the concept of class inclusion is lacking as well as a lack of hierarchies.
>
> Concrete Operations Stage: The two properties of classification can be used by the child.

Concrete and Formal Operations Stages

Egocentrism - Children in the Formal Operations Stage can cognitize the thoughts of others but they devise idealistic schemes to bring reality into line with their own thinking. They fail to distinguish between the focus of another's thoughts and those which are their own focus of concern.

Plays on Words - The child in the Formal Operations Stage can appreciate metaphor, irony, satire, parables, and analogies.

Combinatorial Logic - When children in the Concrete Operations Stage are faced with solving a problem with many factors, they usually test each factor separately and fail to consider all possible combinations. The child in the Formal Operations Stage can deal with a problem in which several factors operate at the same time. He/She can consider all possible combinations.

Form - The child in the Formal Operations Stage is more concerned with the form of his/her responses than the content. He/She will attempt to tie the different concepts of a response into a relationship.

Real vs. Possible - The child in the Formal Operations Stage formulates hypotheses in which he/she imagines what events would occur under imagined conditions. The child is not tied to immediate perception as is the child in the Concrete Operations Stage. Possibilities dominate reality.

Reversibility - The thoughts of a child in the Formal Operations Stage can proceed in one direction and then use several different methods to return to the starting point.

APPENDIX D

INTERJUDGE RELIABILITY TABLE

TABLE V

INTERJUDGE RELIABILITY FOR COGNITIVE PROCESSES IN THE DEATH AND DYING INTERVIEWS*

a. Differentiating Between the PreOperational and the Concrete Operations Stages (n=15)

Cognitive Processes	r
Metastructure	0.60
Immanent Justice	1.00
Artificialism	1.00
Centering	1.00
Egocentrism of Reasoning	0.72
Transductive Reasoning	0.72
Egocentrism of Social Relationships	0.87
Egocentrism in Representation of Objects and Events	0.58
Realism	1.00
Concept of Whole vs. Parts	1.00
States vs. Transformations	0.60
Classification	1.00

b. Differentiating Between the Concrete Operations and Formal Operations Stages (n=10)

Cognitive Processes	r
Egocentrism	0.76
Plays on Words	0.80
Combinatorial Logic	0.76
Form	0.67
Real vs. Possible	1.00
Reversibility	0.82

*Each of these reliability coefficients was significantly greater than zero at the .05 level.

APPENDIX E

COGNITIVE ABILITIES SCALE

1. Blanket Task (Object Permanence) - This task measures the child's level of object permanence and was used to determine if the child had completed the tasks of the Sensorimotor Stage of cognitive development. The apparatus for this task was a piece of bulky cloth and a coin. The child was shown a coin in the experimenter's hand. Then the experimenter closed his fist and put his hand under a piece of cloth. While his hand was under the cloth, the coin was dropped onto the floor. The experimenter then reclenched his fist and withdrew his hand from under the cloth. The experimenter then told the child to find the coin. The entire sequence of this task occurred as the child was watching the experimenter's behavior.

The child who has completed the development that occurs in the Sensorimotor Stage of cognitive development will first look in the experimenter's hand for the coin and then under the piece of cloth where the experimenter's hand had been. The child who has not completed the development that occurs in the Sensorimotor Stage will look in the hand and not under the cloth.

2. Toy Car Task - This task measured the child's ability to conserve length and determined at what level of PreOperational or Concrete thought the child was functioning. The apparatus for this task consisted of a 20" x 30" sheet of white poster board, two toy cars, and a 1" x 2" piece of white poster board. On the larger piece of poster board, two lines were drawn with a wide edge, black, magic marker. The lines were centered on the poster board and positioned parallel to each other with corresponding end points. The top line was a horizontal line 20" in length. The bottom line was composed of two inch line segments positioned perpendicular to each other, alternating

horizontal and vertical segments. (Refer to Appendix K for a diagram of the setup.) The two inch length of poster board was placed within easy sight and reach of the child before the instructions were stated. The potential use of this piece as a measuring device was not pointed out to the child. The experimenter moved one of the toy cards two and a half segments along the bottom line. The child was instructed to move his/her toy car the same distance along the top line as the experimenter had moved his car along the bottom line. The experimenter repeated the instructions, substituting synonyms of "distance" until the child stated he/she understood the directions. This task was performed twice by each child. The only difference between Trial 1 and Trial 2 was that the experimenter moved his car four and a half segments for Trial 2.

The purpose of this task was to determine the child's ability to use more than one dimension of a situation to solve a task. To score this task, their placement of their cars and any comments they made about how they solved the task was used as criteria. There are three possible solutions to this task. If the child placed his/her toy car directly above that of the experimenter, then this task indicated that his/her development of the conservation of length is at the Early PreOperational Stage. The second possible response is if the child doesn't place his/her car directly above that of the experimenter. Instead, his/her response is close to the correct distance, but he/she doesn't use the measuring piece of poster board or any other measuring attempt. This response indicates that the child is performing at the late PreOperational Stage on this task. The third possible response is for the child to use the measuring piece of poster board or another

measuring device to determine the distance that he/she should move his/her car. This response indicates that the child is functioning at the Concrete Operations Stage on this task. If the child gives both a first and a second type of response on the two trials, then a third trial is given and the type of response most given by the child is used for scoring.

3. Three Mountain Task - This task measured the child's level of egocentricity and determined at what level of PreOperational and Concrete thought the child was functioning. Three miniature "mountains" were constructed by covering cones of styrofoam with colored felt. Mountain 1 was eight inches high, 3-3/4 inches in base diameter, and covered with dark blue felt. Mountains 2 and 3 were both 5-1/2 inches in height with a base diameter of three inches. Mountain 2 was covered with yellow felt and Mountain 3 was covered with red felt. Two pieces of green styrofoam were glued together to form a two foot by two foot flat board. Places were marked on the board for each mountain. The places were centered on the board and arranged in the shape of an equilateral triangle with a mountain at each vertex. The places were marked such that the mountains were 12 inches apart. The assembled board was placed on a table and eight 5 x 8 inch photographs were taken from the perspective of a child sitting at the table looking at the board. The photographs were the four straight-on views and the four views from the angles of the board. (See Appendix L for a diagram of the setup and the views the photographs presented.) In the test situation the mountain board was placed on a small table with four chairs around it. The child was asked to walk around the table and look at the mountain board from all directions. The child was

then seated in Chair 1 and a lifesize (32 inches in height) Raggedy Ann doll was seated alternatively in the remaining chairs. The child was given the set of eight photographs and asked to look through all the photographs for the photograph that showed the view the doll had of the mountain board. This was done three times with the doll in Chairs 2, 3, and 4, respectively. The photograph that the child chose for each position of the doll was recorded.

This task differentiated egocentricity into three levels of development, each level corresponding to a particular stage of cognitive development. The level of development of egocentricity expressed on at least two of the three trials was used to determine the stage of cognitive development at which the child was functioning on this task. If the child chose the view of the Mountain Board corresponding to what he/she sees as the view of the doll, then he/she was operating at a cognitive level of the late PreOperational stage on this task. If the child chose a view of the Mountain Board other than his/her own and he/she picked the correct view for the doll one trial or less, then he/she was operating at a cognitive level of the early Concrete Operations Stage.[1] If the child chose the view of the Mountain Board corresponding to the view of the doll on two or three trials, then he/she was operating at the late Concrete Operations Stage or the Formal Operations Stage.

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[1]Elkind (1974) and Phillips (1975) disagree slightly as to what response is indicative of a child at the early Concrete Operations Stage. Elkind states that the child would pick a view other than his/her view of the mountain board and this view would have no relationship to the view of the doll. Phillips agrees with this except to add that the child might make some correct responses.

4. Water Bottle Task - This task measured the child's ability to conserve volume and determined at what level of PreOperational and Concrete Operational thought the child was functioning. The apparatus of this task consisted of freehand, outline drawings of four water bottles. Each bottle was identical in their physical dimensions. They were five inches in height and three inches wide at the base. The neck of each bottle was one inch in diameter. Two bottles were drawn in upright positions. One of these bottles simulated an empty bottle. The other bottle was drawn to simulate a bottle one-fourth filled with water. The other two bottles were drawn at different degrees off the vertical, one at 45 degrees off the vertical and the other at 90 degrees off the vertical. Both of these bottles were drawn to simulate empty bottles. (See Appendix M for drawings of the bottles.)

The Water Bottle Task was administered in the following manner: The child was shown the outline drawing of the upright bottle, one-fourth filled with water. He/She was instructed that this was a picture of a bottle, one-fourth filled with water. He/She was given an outline drawing of the empty, upright bottle and asked to draw what the waterline would be if the water from the first bottle was poured into the empty bottle. This was used to determine that the child understood the directions of the task. If the child understood the directions, he/she was given the drawing of the bottle, 45 degrees off the vertical. He/She was asked to draw what the waterline of this bottle would be if the water from the upright bottle was poured into it. After the child completed this, he/she was given the drawing of the bottle, 90 degrees off the vertical and asked to do the same thing--draw the waterline.

This task differentiated conservation of volume into three levels of cognitive development. The level of development of conservation of volume that was expressed on both trials was used to determine the stage of cognitive development at which the child was performing this task. Scoring was as follows: The child operating at a cognitive level consistent with the late PreOperational Stage would center on the configuration of the bottle and draw the waterlines of the tilted bottles from that basis. The figure below demonstrates the responses that they would make:

The child operating at the cognitive level of the early Concrete Stage would be in conflict as to where to base the waterlines of the tilted bottles. Their conflict would be in choosing the dimension by which to make their estimate of the waterline. The conflict would be between taking references from the bottle's configuration or to use the horizontal and vertical contours of the surround as a reference. The following figure demonstrates the responses of this stage of cognitive development:

The child operating at the cognitive level of the late Concrete Pre-Operations Stage would draw the waterline correctly. The following figure demonstrates the responses of this level of cognitive

development:

5. Word Problem Task - This task was used to differentiate between the Concrete Stage and the Formal Operations Stage. This task focuses on the child's level of reasoning ability. The materials of this task consisted of two word problems. These are:

a. Helen is taller than Mary and Mary is taller than Jane; who is the tallest of the three?

b. Jack is heavier than John and John is heavier than Peter; who is the heaviest of the three?

The word problems were read to the child by the experimenter. They were repeated if the child requested to hear the word problem again.

If the child answered both questions correctly, he/she was functioning at the Formal Operations Stage on this task. If the child answered one of the two problems correctly, he/she was performing at a transitional level between the Concrete Operations and the Formal Operations Stages. If the child failed both problems, the task was not used to determine cognitive stage.

6. Pendulum Problem - This task measured the child's propositional logic and hypothesis testing ability and determined at what level of Concrete Operational and Formal Operational thought the child was functioning. The apparatus for this task consisted of a pendulum with specific characteristics. In this pendulum, both the length of the string and the weight of the suspended object could be varied. Two strings were made, one 23-1/2 inches, the other 10-1/2

inches in length. They were constructed for easy attachment and detachment from the tip of the pendulum, as well as easy attachment and detachment of the weights. Two weights were used, one of four ounces, and the other of 10 ounces. (See Appendix N for a diagram of the pendulum.)

The child was presented with an experiment. He/She was shown the pendulum and its special characteristics. He/She was shown how to vary the length of the string, how to vary the weight of the object, how to release the pendulum from different heights, and how to push the pendulum with different amounts of force. The child's task was to determine which of four factors: length, weight, height, and force, alone or in combination with other(s), was the major causative factor of the pendulum's frequency of oscillation. The correct answer is the factor of length of the string. The child was instructed to determine the answer in whatever manner he/she wished using the materials supplied. The child was asked to explain his/her reasoning throughout his/her attempts at finding a solution.

In order to reach the correct solution to this task, three cognitive abilities are required. The child must be able to design a test by which the effects of all the variables can be determined without confounding. In order to accomplish this, the child needs to be capable of hypothesis testing. The second requirement for success is for the child to be able to accurately observe the results of his/her manipulations of the variables. The third requirement for success is for the child to draw the correct, logical conclusions from his/her results. The child who is performing at the Concrete Operations Stage may arrive at the correct answer but he/she will

confound the variables during his/her manipulations and the logical conclusions that he/she draws from the empirical results are inaccurate. The child who fulfills all three of the requirements for obtaining a correct response is considered to be functioning at the Formal Operations Stage even if he/she gives an incorrect response.

APPENDIX F

COGNITIVE SCALE TABLE

TABLE VI

COGNITIVE STAGE TESTED BY EACH COGNITIVE TASK

Tasks	Cognitive Stages								
	Sensorimotor Stage	Early Pre-Operational Stage	PreOperational Stage	Late Pre-Operational Stage	Early Concrete Operational Stage	Concrete Stage	Late Concrete Stage	Transitional Concrete to Formal Stage	Formal Operations Stage
Blanket Task	X	X							
Toy Car Task		X		X		X			
Three Mountain Task				X	X		X		
Water Bottle Task				X	X		X		
Word Problem Task								X	X
Pendulum Problem Task						X			X

APPENDIX G

PERMISSION SLIPS - LATENCY AND ADOLESCENT CHILDREN

We know little of the child's concept of life and death; we have no information about how such concepts develop. Frequently young children may ask about the disappearance of a pet or perhaps state that a dead pet will most likely awake. Older children may ask about the death of a friend or relative. There is some indication that how a child perceives and understands these matters is related to the child's general level of understanding, as well as to his/her age. We are completing a study in which the child's level of understanding will be measured with simple Piagetian tasks. In addition, the child will be asked questions such as the following: Is a ball living? Tip, the cat has died; why did he die? Will he live again? Do all people die? No religious related questions will be asked.

We would like your child to participate in this study. We will ask your child to talk with us; no child that is unwilling will be forced to participate. If you are willing to give permission for your child to participate, please sign below. We would be happy to talk with you further and to provide information about the results of the study after its completion.

Sincerely,

Vicki Green, Ph.D.
Kevin Loomis, Psychology Dept.,
Oklahoma State University

Parent's Signature_____

Child/Parent would like
feedback on results

___Yes

___No

APPENDIX H

PERMISSION SLIPS - PRESCHOOL AGE CHILDREN

M E M O R A N D U M

DATE: January 21, 1977

TO: Parents of Children at Miss Carolyn's Preschool

FROM: Vicki Green-Nealey, Ph.D.
Kevin Loomis, Psychology Department, Oklahoma State University

SUBJECT: Participation of your child in a study investigating the child's concepts of death

We know little of the child's concept of life and death; we have no information about how such concepts develop. Frequently children will ask about the disappearance of a pet or perhaps state that a dead pet will most likely awake in the morning. How do we answer such questions and respond to such statements? There is some indication that how a child perceives and understands these matters is related to the child's general level of understanding as well as his age. We are completing a study at the preschool where we measure the child's level of understanding with simple Piagetian tasks. In addition, we ask the child questions such as the following: Is a ball living? Does a ball die? Tip, the cat, has died; why did he die? Will he live again? No religious related questions will be asked.

We would like to have all the children at Miss Carolyn's be a part of this study. We will ask the children to talk with us; no child that is unwilling will be forced to participate. Each child will receive a small toy for his/her participation. We would be happy to talk with you further. If you choose not to have your child participate, please notify Miss Carolyn in written form prior to Friday, February 11, 1977.

We appreciate your help in this matter.

APPENDIX I

INTERVIEW INSTRUCTIONS

I would like to ask you a few questions. They will be questions about what you think about death and dying. None of these questions will have a right or wrong answer. We want to know what you think about the things the questions ask. As I ask you different questions about death and dying, tell me what you think about them. If you don't want to answer any of the questions that is fine, we'll just go on to the next one. After the questions I'll have some tasks (games*) that I would like for you to try.

Shall we start?

*"Games" was the word substitute for latency and preschool subjects.

APPENDIX J

FREQUENCY OF CONCEPTS OF DEATH AND DYING AS A FUNCTION OF STAGE OF COGNITIVE DEVELOPMENT TABLE

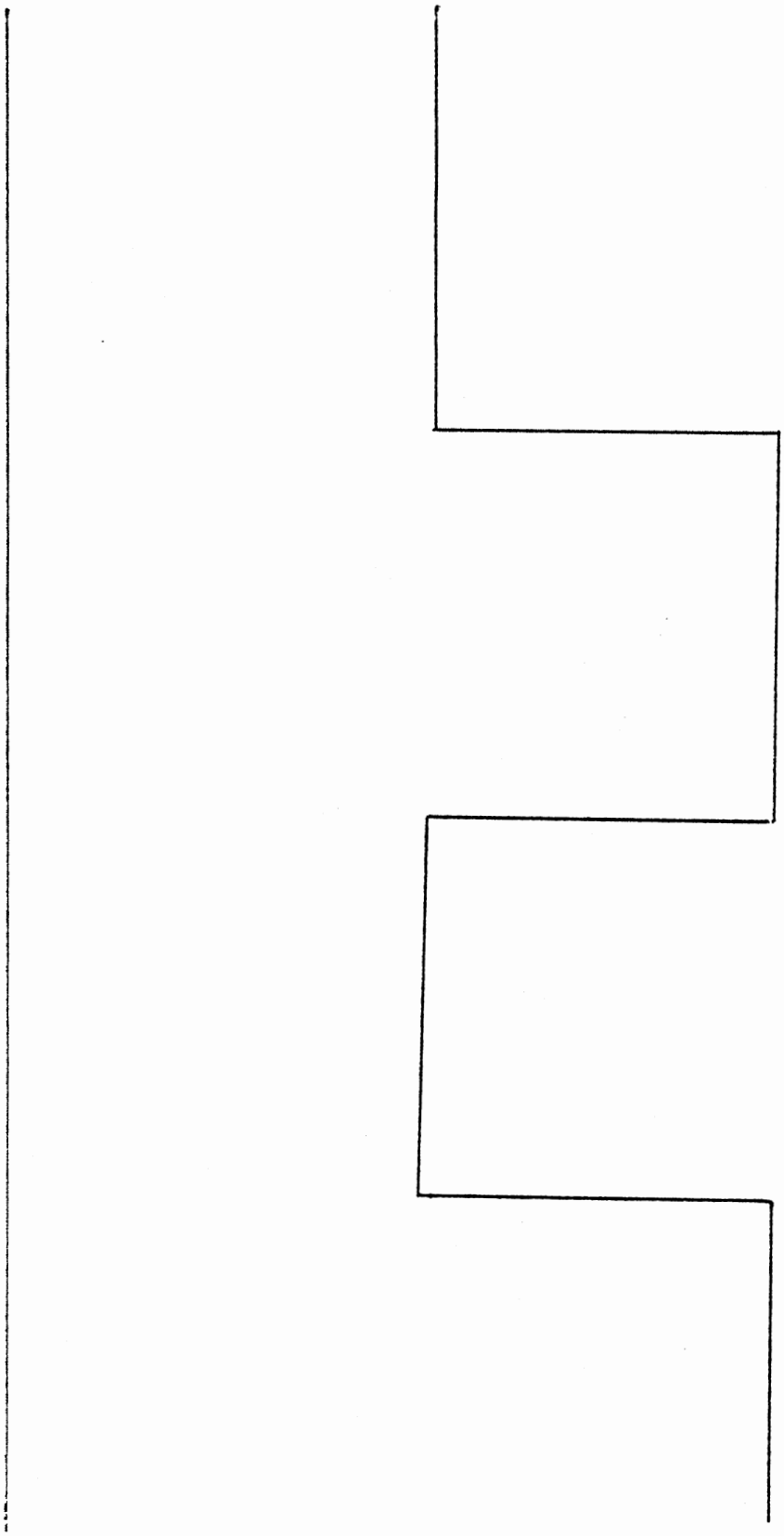
TABLE VII

FREQUENCY OF CONCEPTS OF DEATH AND DYING
AS A FUNCTION OF STAGE OF
COGNITIVE DEVELOPMENT

Stages	N	Animism	Anthropo-morphism	Cause of Death (IJ)	Cause of Death (CON)	Cause of Death (ABS)	Univ.	Perm.	Personal Death	Definition of Death
a. Stage of Cognitive Development Measured by the Cognitive Abilities Scale										
PreOperational	25	15	16	16	6		14	14	18	21
Transition PreOper-ational to Concrete	21	12	12	15	8	1	11	10	14	16
Concrete Operations	15	3	3	6	11	1	12	12	15	7
Transition Concrete to Formal	17	1	1	2	17	6	17	15	17	2
Formal Operations	16				16	15	16	16	16	
b. Stage of Cognitive Development Measured by Analysis of Death and Dying Interview										
PreOperational	30	22	23	22	5		13	12	19	27
Transition PreOper-ational to Concrete	18	8	8	13	8	1	11	11	15	17
Concrete Operations	16	1	1	4	15		16	14	16	2
Transition Concrete to Formal	15				15	7	15	15	15	
Formal Operations	15				15	15	15	15	15	

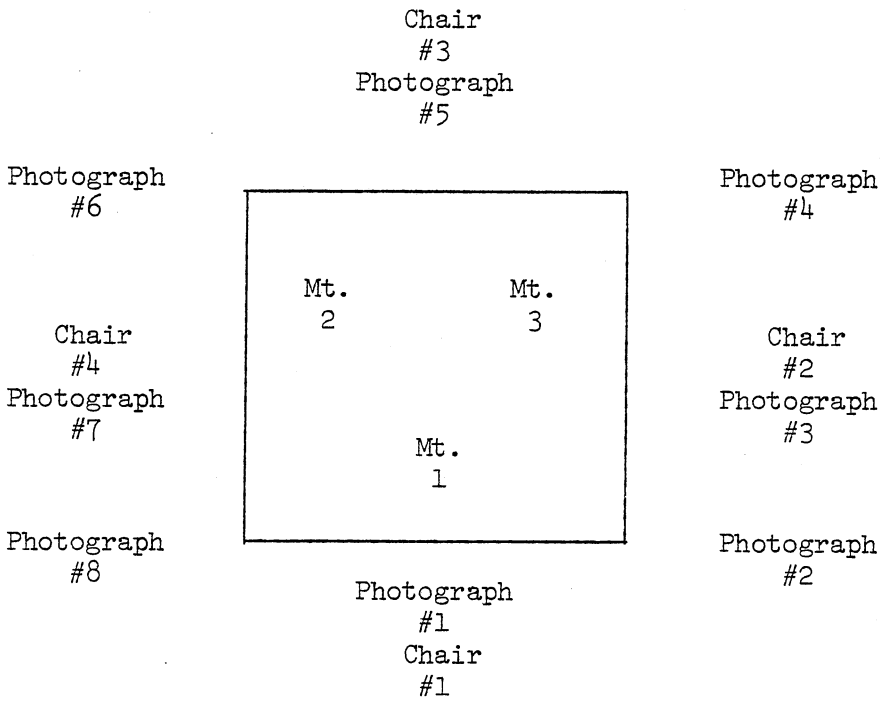
APPENDIX K

TOY CAR TASK



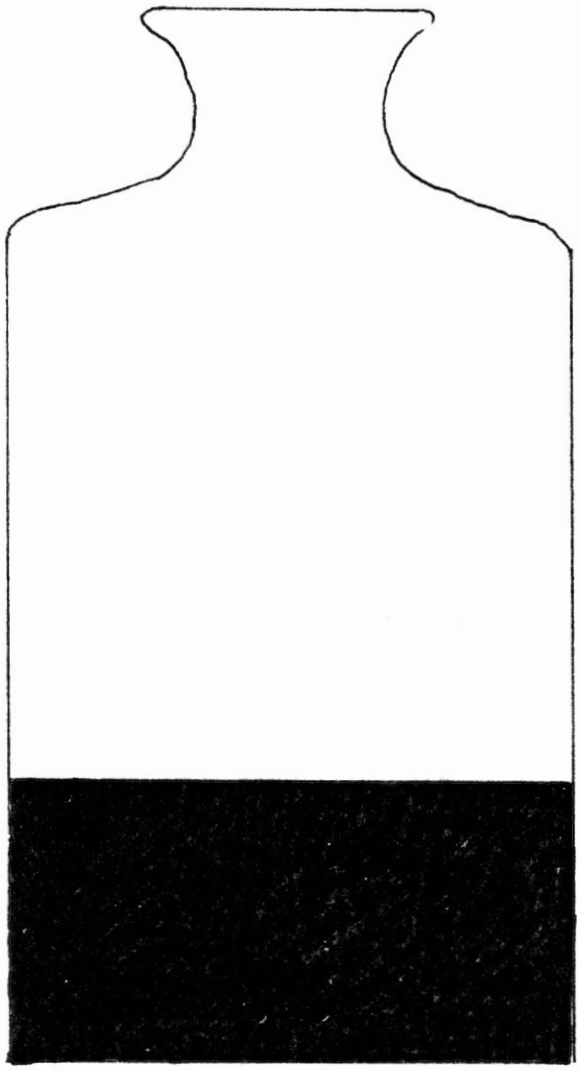
APPENDIX L

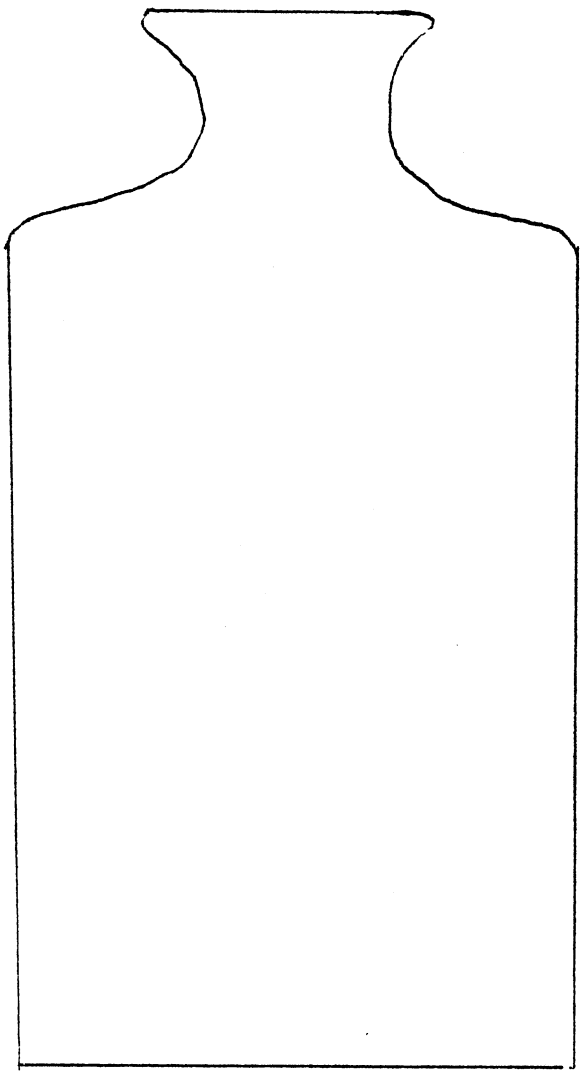
THREE MOUNTAIN TASK

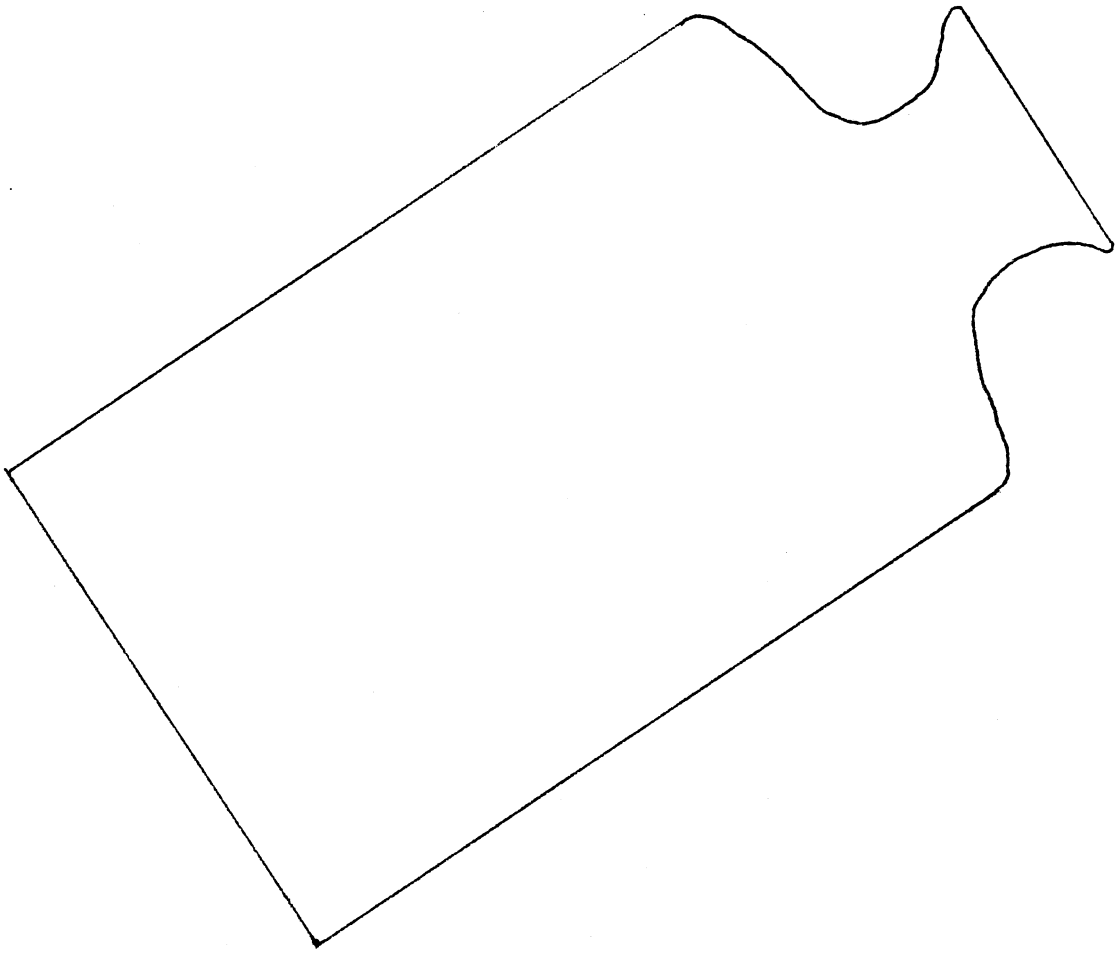

Chair
#3
Photograph
#5
Photograph
#6
Photograph
#4
Mt.
2
Mt.
3
Chair
#4
Photograph
#7
Chair
#2
Photograph
#3
Mt.
1
Photograph
#8
Photograph
#2
Photograph
#1
Chair
#1

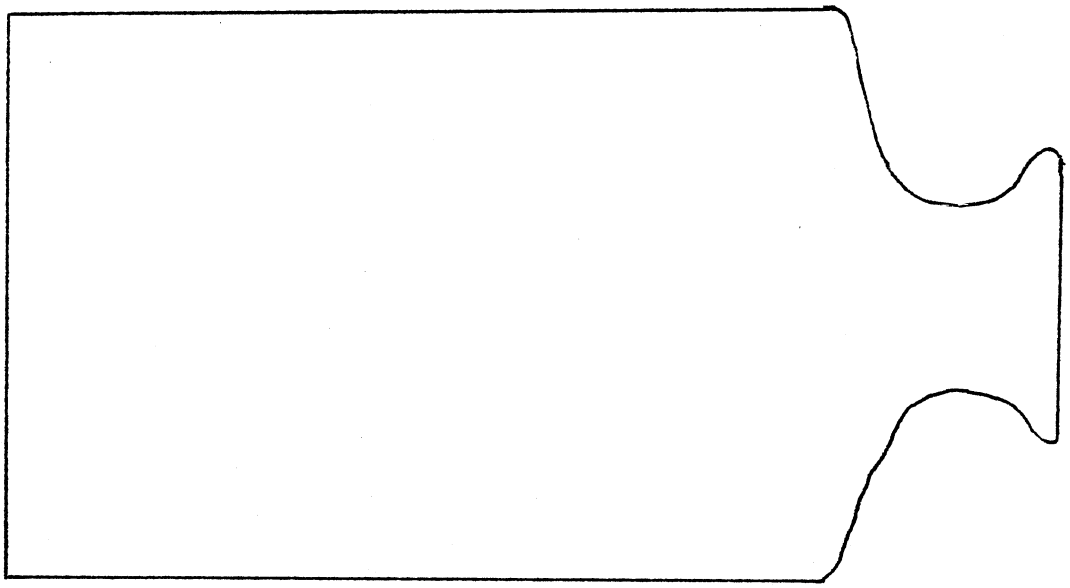
APPENDIX M

WATER BOTTLE TEST





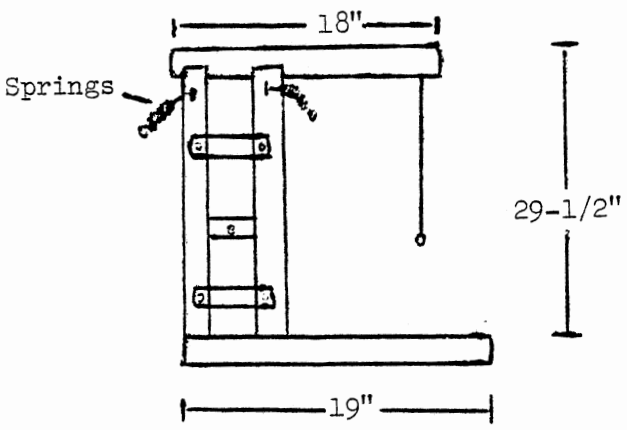




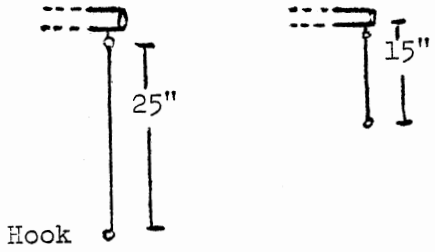
APPENDIX N

PENDULUM PROBLEM

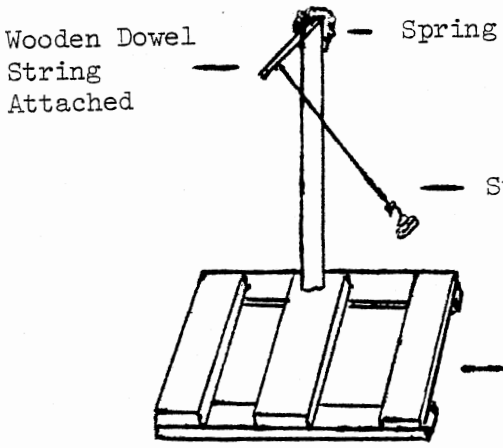
Side View



Two dowels with length of string attached



Front View



Two Weights

VITA

Kevin Robert Loomis

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Master of Science

Thesis: CHILDREN'S CONCEPTIONS OF DEATH AND DYING AS A FUNCTION OF COGNITIVE DEVELOPMENT

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