Childhood Death and Cognitive Development

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Much has been written about death and children's conceptions of it, but virtually no careful empirical research has been done in this area. Using Piaget's framework for conceptualizing cognitive development, children's attitudes toward death were explored and analyzed. Subjects were 75 children ranging in age from 6 to 15, and with at least average intellectual ability. Each child was tested to determine his primary level of cognitive functioning and asked the following four questions about death: "What makes things die? How can you make dead things come back to life? When will you die? What will happen then?" Replies to these questions were shown to be related to the child's level of cognitive development. Changes in the direction of more realistic appraisals by children were noted as levels of cognitive development advanced from preoperational, to concrete-operational, to formal-operational stages. Levels of significance for the various relationships discussed ranged from \( p < .05 \) to \( p < .001 \).

Many volumes have been written about man's concept of death and its psychological concomitants. Many authors have attempted to explain how man learns about death and comes to grips with this universal phenomenon. For all of the writing that has been done in this area, however, there is embarrassingly little in the way of empirical research, and what little exists is on the survey or opinion poll variety (Mitchell, 1967). Early research in this area, as illustrated by the now classic works of Nagy (1948) and Anthony (1940), was fraught with methodological problems that greatly limited its generalizability. In addition, there has been little attempt to organize and refine this research or to fit it into a theoretical structure which takes cognitive development into account. Virtually all psychologists interested in child development are aware of the importance of accurate information in this area. Hence the present study was initiated as an attempt to resolve some of these difficulties.

Piaget's theoretical framework for conceptualizing cognitive development seemed to offer an appropriate starting point for this investigation. Its focus is on three levels of cognitive functioning, the preoperational subperiod, the concrete-operational subperiod, and the formal-operational period as described by Piaget (1960). Special attention is given to the changes that occur as the child moves out of the preoperational stage and becomes capable of reciprocal interaction. Based on this framework, several hypotheses were posited.

First, when asked, "What makes things die?" it was predicted that children at the preoperational level would be limited to providing reasons consistent with egocentricity and adherences to animism, as Piaget (1960) has described. This level would in-

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1 This report is based in part on a doctoral dissertation submitted to the graduate faculty of the University of Missouri, Columbia. The author wishes to express special thanks to Fred McKinney and June Chance for their helpful comments on an earlier version of this manuscript. The author also gratefully acknowledges the generous assistance of the following people, who served without compensation as examiners and judges: Lance Baugh, Lyle Danuloff, Roger Ginn, Elizabeth Kraemer, David Simmonds, Armin Thies, Terry Walter, and Eddie Williams.

A preliminary report of this study was read at the meeting of the Eastern Psychological Association, Boston, April 1972.

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clude fantasy reasoning, magical thinking, and the sort of special cases which are directly linked to the child's idiopathic thought processes. Children at the concrete-operational and formal-operational levels would be expected to draw on the experiences of others in evaluating their environment, giving more realistic and naturalistic explanations.

Second, when asked, "How do you make dead things come back to life?", children at the preoperational level would be expected to detail one or more means to accomplish this. Since the child at this stage has yet to develop the reciprocity of interaction that comes with concrete operations, and since he has had no personal experience of death, he can draw only from his own fantasies. The preoperational child should be unable to tap the experiences of others to a significant degree, and even if given the opportunity to share the experiences of others, the child would be quite limited in terms of what his cognitive schema would be able to accommodate. Children at the concrete-operational or formal-operational levels, on the other hand, should have the capability to learn from the experiences of others via their newly acquired reciprocity skills. By being able to note that others are different from the self, and have different experiences, they should be able to express the permanence of physical death even though they have never experienced it, nor perhaps even had direct contact with it.

Third, when asked, "When will you die?," preoperational children would be expected to deny future death or reply with a grossly unrealistic estimate (e.g., "10 years old" or "500 years old"). This response would be anticipated because the child at the preoperational level, who is still establishing his own basic self-concept, is unable to accommodate his observations of the experiences of others in making his estimates. The mean and range of children's estimates of how long they will live would be expected to decrease for concrete-operational and formal-operational children, respectively. These predicted decreases should reflect the more realistic appraisals of the world which become possible as distinct others and one's own ideals become usable sources of data for the child.

Fourth and finally, the comparatively open-ended question, "What will happen then?," (i.e., "When you die?") would be helpful in exploring attitudes with a fantasy or projective component. While the author did not attempt to link this question to any specific hypotheses, this was intended to provide comparison data for the earlier findings of Nagy (1948) and others which deal with childhood fantasies or cultural stereotypes about death.

**Method**

**Subjects**

Subjects were 75 children ranging in age from 6 to 15 years. They were drawn from among participants in various summer recreation and school enrichment programs in a midwestern university community. The mean socioeconomic level of the sample was 2.2 ($SD = .83$), with a median level of 3, on the index of social position devised by Hollingshead and Redlich (1958, p. 394). This index has a high status position of 1 and a low status position of 5. The sexes were approximately equally represented, and roughly 20% of the subjects were black, Oriental, or American Indian.

**Examiners and Judges**

The examiners and judges used to administer the tests and rate responses to some of the death questions were all graduate students in clinical psychology. All were unaware of the major hypotheses of the study, and all had completed at least 1 full year of graduate training including practicum courses in the administration and scoring of objective and projective psychological instruments.

**Measures**

The Similarities Subtest of the Wechsler Intelligence Scale for Children (WISC) was used as a measure of verbal concept formation, abstract reasoning, and general intellectual level. This subtest is relatively quick to administer and comparatively simple to score. Potential subjects were eliminated if they failed to obtain a scaled score of at least 10 (average) on this subtest.

The level of cognitive functioning was assessed using the classification criteria suggested by Phillips (1969). Each child was tested for conservation in three modalities (i.e., mass, number, and volume) and was assumed to be preoperational if he failed one or more of these. The concrete-operational level was thus operationally defined by passing all three conservation tests but failing a final task in hypothesis testing and theory formation as detailed by Phillips (1969, pp. 94-99). A child was presumed to be functioning at the level of formal-operations when he passed all four tests.
Procedure

The examiner introduced himself to prospective subjects as a person who was interested in finding out their opinions and in seeing how well they could solve certain puzzles. The examiner asked the four questions about death in their respective order, and administered the WISC Similarities Subtest and tests of conceptual development. Each child was rewarded for his “work on these tests” with a candy bar which he had been promised in advance “for spending the time to tell us what you think about these things.”

The questions were asked verbatim, with no elaboration aside from the probes, “Anything else?” or “Can you tell me any more about it?” When in doubt, subjects were encouraged to guess or to “just give the best answer you can think of.” The examiners were prepared to spend additional time with any children who appeared anxious or upset following the questioning; however, this proved to be unnecessary. One child did not want to estimate when he would die and was not pressed to answer once he declined. Most of the children, however, seemed very interested in making their ideas about death known. A frequent response when the children were given their candy bars following the testing was, “Is that all you want?”

The judges who were asked to classify the subjects' responses to the question, “What makes things die?,” were individually trained using the following instructions:

There are three categories for making these classifications ranging on a continuum from very concrete to rather abstract. While the categories may not be mutually exclusive, it should be possible to rate the answers according to the most prominent mode of response. Class 1 (Relatively egocentric responses): This group includes fantasy reasoning, magical thinking, and/or realistic causes of death which are marked by egocentric reasoning as demonstrated in one or more special cases. The symbolism used here is closely tied to the child's experiences and may require extended explanation. Example: “You die when God reads your name in his book,” or “if you go swimming alone.” Class 2 (Specific or concrete reasons): This group includes specific means of inflicting death, with or without intention. Naming specific weapons, poison, or assaultive acts are all included in this group. Example: “guns, bows and arrows, rat poison, and getting beat up.” Class 3 (Abstract or generalized reasons): This group includes relatively abstract clusters of more specific possibilities. The child who states or implies that death is a natural process is in this group. The idea of physical deterioration or naming classes of potential causes also belongs here. Specific causes may be named as illustrations of the broader classes. Example: “old age, illness, or a worn out body,” “it happens to everyone when they get real old,” or “accidents, like getting hit by a car or falling off a roof.”

Results

For analysis, the subjects were divided into three groups with 20 at the preoperational level, 35 at the concrete-operational level, and 20 at the formal-operational level. The author originally intended to have 20 subjects in each group, but found concrete-operational children were most numerous in his available population, hence the larger number of these subjects. The mean ages of these three groups fell approximately 3 years apart. The mean age in the preoperational group was 7.4 years, with means of 10.4 and 13.3 for the concrete- and formal-operational groups, respectively. There were no sex or race differences; hence, sex and race groups are pooled for data analysis.

The importance of grouping subjects by level of cognitive development, rather than chronological age per se, may be seen by examining Table 1. Concrete-operational children in this sample, for example, ranged in age from 6 to 13 years. Preoperational and formal-operational subject groups also show a scattering across age levels not normally considered within these stages. Age alone does not appear to be a reliable predictor of the subject's level of response.

In answer to the question, “When will you die?,” all but one of the 75 subjects were willing to make an estimate or “guess.” The estimates ranged from a low of 7 by a 6-year-old, to a high of 300 by a 9-year-old. Despite this range, the mean estimates for all three groups fell quite close together. The variance of these groups, however, were quite diverse on these estimates. As indicated in Table 2, the variance decreases significantly ($p < .001$) as the level of cognitive functioning increases. That is to say, there was a very wide variance within the preoperational group, while the differences in the variances of estimates by concrete- and formal-operational children were not greater than chance. Children in these latter two groups had a closer intergroup and intragroup consensus in making these estimates then did subjects within the preoperational group.

When asked to tell, “What makes things
TABLE 1
SUBJECTS CLASSIFIED BY AGE, SEX, AND STAGE OF COGNITIVE DEVELOPMENT

<table>
<thead>
<tr>
<th>Group</th>
<th>6-7</th>
<th>7-8</th>
<th>8-9</th>
<th>9-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
<th>13-14</th>
<th>14-15</th>
<th>15-16</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Preoperational</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete-operational</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Formal-operational</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Overall</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

Note. 14 children of black, American Indian, and Asian extraction in the subject population are scattered randomly across the cells. Age is indicated in years. M = male, F = female.
TABLE 3
INTERJUDGE RELIABILITY DATA

<table>
<thead>
<tr>
<th>Judges</th>
<th>No. of items in agreement</th>
<th>% of items in agreement</th>
<th>Kappa coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 2</td>
<td>54/75</td>
<td>72.0</td>
<td>.50</td>
</tr>
<tr>
<td>1 and 3</td>
<td>58/75</td>
<td>77.3</td>
<td>.59</td>
</tr>
<tr>
<td>1 and 4</td>
<td>58/75</td>
<td>77.3</td>
<td>.62</td>
</tr>
<tr>
<td>2 and 3</td>
<td>59/75</td>
<td>78.7</td>
<td>.59</td>
</tr>
<tr>
<td>2 and 4</td>
<td>56/75</td>
<td>74.7</td>
<td>.55</td>
</tr>
<tr>
<td>3 and 4</td>
<td>55/75</td>
<td>73.3</td>
<td>.54</td>
</tr>
<tr>
<td>1, 2, 3, and 4</td>
<td>43/75</td>
<td>57.3</td>
<td>—</td>
</tr>
</tbody>
</table>

subjects\((p < .05)\). The same pattern in frequency of Class 3 responses holds when comparing formal-operational children to preoperational children\((p < .01)\). Concrete- and formal-operational children, however, did not differ significantly with regard to frequency of Class 3 responses. That is to say, although this rating system did not differentiate significantly between the concrete-operational and formal-operational groups, it did distinguish both of these from the preoperational group.

When asked, “How do you make dead things come back to life?,” only 8 of the 75 subjects indicated that they thought this was possible (i.e., gave a way that this might be accomplished such as, “Keep them warm” or “Give them hot food”). All 8 of these children were at the preoperational level. Thus, 40% of the preoperational subjects believed that a revival of “dead things” is possible and told ways in which they thought that this might be effected. On the other hand, none of the concrete- or formal-operational subjects expressed this belief.

In answer to the question, “What will happen when you die?,” a very wide variety of responses was obtained. These were grouped in nonexclusive categories, with response rates as follows: References to being buried were given by 52% of the children; references to being “judged,” going to “heaven or hell,” or hints at any sort of afterlife by 21%; references to having a funeral by 19%; specific predictions of how death would occur by 10%; no idea of what would happen by 10%; references to some aspect of sleeping by 7%; references to being remembered by others by 5%; references to reincarnation by 4%, and references to cremation by 3%. Two children gave responses not represented by any of the above categories. One of these made reference to “leaving all my money to my son,” while the other said, “They’ll do an autopsy on me.” Only 7% used the word “god” in answering this question. Not a single child used a personification of death, as described by Nagy (1948) in any description or explanation.

Careful examination of the data within each group for differences in sex or racial subgroups produced no significant differences attributable to these variables.

**Discussion**

Children’s answers to the question on the causes of death have been clearly related to their level of cognitive development. Children at the higher levels of cognitive func-
tioning are more likely to produce higher-order answers to this question. The lower level of cognitive functioning is more apt to be reflected in highly concrete or egocentric sorts of responses. Age alone, however, does not appear to be a sufficient basis on which to classify or group these responses. Rather, a cognitive development framework seems most useful for this purpose. The reader may note how the "adherences" to magical thinking and egocentricity described by Piaget (1960) influence children's perceptions of death. While some of the more primitive responses can be considered humorous by adult standards, the unique plane of childhood reasoning is easily apparent.

These differences assume dramatic proportions when the death of a relative, or even a pet, forces an adult into the awkward and uncomfortable position of explaining what has happened to a child. It would seem that the best explanations are those which are simple, direct, and draw as much as possible from the child's own experiences. In this way the relative concreteness of the younger child produces the least possible distortion.

Those who would undertake such explanations, would also be wise to ask the child to explain back again what he has been told, thus allowing the opportunity to correct any gross distortions. From the variety of causes of death that children are apt to think about, one can conclude that it is far better to explore and attempt to respond to the child's ideas, then to allow magical or unspoken fears to play upon a child's imagination.

The children's answers to the question, "How do you bring dead things back to life?", also support Piaget's observations regarding adherences to animism and reflect the childhood fantasies which such reasoning might lead to. By implication, death need not be permanent if someone will only look after the corpse properly. This view could easily give rise to guilt and anxiety when the child sees the body buried instead.

The estimates of how long the subjects expect to live provide a dramatic example of the importance of the reciprocity skills that come with the onset of concrete operations. Until reciprocity is learned, the child cannot use the observed experiences of others in thinking about death. With the onset of concrete operations, a significantly more realistic estimate is possible. An example of how the preoperational child cannot properly assimilate such data into his schemata, was the response of the 6-year-old preoperational child who stated that he would live to be 21, paused, and asked the examiner his age. The examiner answered that he was 24, to which the 6-year-old replied. "Well, I'm gonna live to be 25." This immature attempt at using the experience of another gives way to more effective applications when true reciprocity is attained.

Answers to the question, "What will happen when you die?", are more difficult to interpret than the others. While most of the children in the present study mentioned the idea of being buried or having a funeral, some describing the interment process in graphic detail, there was a wide range of responses. Some children detailed ideas of how they would die (i.e., by what means), thus reflecting their ideas about the causes of death once again. Another group seemed to reflect upon what it might feel like to be dead with references to sleeping, feeling "peaceful," or simply "being very dizzy."

It is particularly interesting to note that only 5% discussed their death in terms of how others might react. Rather, most subjects focused on concrete or stereotyped accounts of what would happen, such as detailed accounts of their funerals or explanations of what it might be like in heaven. What might be viewed as morbid concerns by adults were described matter-of-factly by many children, including specific references to "rotting away" in the grave.

The children's answers to this last question also provide an interesting contrast to Nagy's (1948) findings. She noted that Hungarian children between 5 and 9 years old generally personified death. That is to say, they spoke of death as if it were a person. She wrote that children will keep death at a distance in this way because, "Only those die whom the death-man carries off [1948, p. 26]."

Not a single child in the present study gave a personification-type response, when asked what would happen at the time of death. This lack of personification may re-
reflect cultural differences but certainly suggests a different sort of coping mechanism than Nagy found in her sample. In the present study, even children who were capable of above-average levels of verbal abstraction were consistently specific and concrete in their replies. Their concreteness may reflect a lack of experience with death as compared to other worldly phenomena, or perhaps a defense against the uncertainties of death to the child. Perhaps American children, or at least middle-class midwestern children of average or better intelligence, are inclined to use specificity of detail as a means to mastery and hence "control" over death, rather than personification. That is to say, "If I know exactly what is going to happen when I die, then I won't have to worry about it now." If this is indeed the case, then seeing that death is explained properly to children becomes especially important.

REFERENCES


(March 22, 1973)