

# THE ROOTS OF ENVIRONMENTAL CONCERN

by Louise Chawla, PhD, and Roger A. Hart, PhD

*Louise Chawla and Roger A. Hart present a conceptual model of learning, giving insight into the role of environmental studies in child development. This model has direct applications to the Montessori view of the prepared environment and its role in building the child's understanding of and concern for the maintenance of the earth for future generations.*

## Introduction

This paper is a first stage in the construction of a model of the development of children's concern for the physical environment. To explore this process of development, it will consider sources of environmental knowledge and emotional investment, and some conditions under which concern becomes expressed as action. This model of the origins of environmental knowledge, emotion, and action will be applied to suggest ways in which community design can enhance opportunities for learning and responsible action.

In discussing environmental concern, three meanings of this term will be considered. As Dunlap and Van Liere (1977) have noted, many discussions of environmental ethics are based, in fact, upon personal interests and interpersonal responsibilities: The primary motive is to avoid disrupting the environment because it would have human consequences. Acknowledging that an environmental ethic which accords

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rights to animals, plants, and the land itself is rare, this paper will recognize three sources of concern: fears for self-preservation, responsibility for the welfare of present and future human generations, and an ecological conscience that accords rights to nonhuman things. These distinctions are important because different experiences may be expected to contribute to each of these motivations.

## Theories of Environmental Cognition

The relationship between knowledge, attitudes, and behavior is a complex one. No simple causal connection can be assumed (Burrus-Bammel, 1978). Nevertheless, it is impossible for children to value ecological systems until they know that they exist. There has been remarkably little theory or research regarding children's cognition of natural systems. The largest body of work on the spontaneous questions that they ask and evolution of their understanding remains that of Jean Piaget and his colleagues. Unfortunately, Piaget's exploration of this subject in the 1920s has not been built upon much by others; and he himself subsequently turned his attention away from children's understanding of real phenomena to the development of the general structure of their thinking.

In two companion books published in 1926 and 1927 and a third published in 1937, Piaget summarized his research on the development of children's conceptions of the physical world (English editions 1960b, 1960a, 1954). It is important to note that Piaget's concern was not with children's understanding of interdependent, dynamic ecosystems. Nevertheless, his years of careful research have provided the most comprehensive empirically based theory of children's cognition of physical phenomena.

Piaget (1937/1954) describes three complementary processes involved in the evolution of reality between 3 and 11 years of age. The first is the progressive differentiation of the self from one's surroundings, such that one can distinguish what comes from oneself and what forms part of the external world as it is observed by everybody. One never achieves complete objectivity, however. There always remain, in different degrees, what Piaget calls "adherences," or aspects of internal experience which cling to conceptions of the external world,

such as the tendency to think that everything is made for people, intentionality of nature, or animism.

Alongside this growing objectivity are two closely related processes: an increasing reciprocity of a child's point of view with the perspective of others, and an increasing relativity in which the child sees that phenomena are dependent upon each other and relative to an observer. In both the social and the physical realm, development involves the recognition of a universe of relations.

The interpretations of reality that Piaget first described have come to be generally acknowledged, but his theory of distinct stages has come under extensive criticism. Central to this criticism is the charge first made by the Soviet psychologist Vygotsky that the developmental uniformities Piaget found among his Swiss children are not laws of nature but are "historically and socially determined" (Vygotsky, 1960/1979). Work among children around the world has demonstrated that cognitive development is influenced by the materials experienced and the cultural situations in which they are interpreted.

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A rare example of a longitudinal study of developing physical concepts suggests an alternative to Piaget's stage theory. Navarra and his wife (1955) kept detailed records of their son's development of scientific concepts between the ages of three and five. From these records, they derived an image of a child as a miniature scientist that illustrates a key feature of Piaget's theory of cognitive growth: that it is achieved through active exploration of the world. Exploration led to hypothesis formation, followed by continued observation, experimentation, and concept revision, extending over spans of months or years.

Significantly, however, Navarra was not able to observe distinct stages of conceptual development. Instead, his son's growth seemed to be organized around concerns, or incompletely understood inter-

ests, which became threads upon which otherwise isolated experiences were bound together into larger, interlocking patterns of understanding. "The concern was, in a sense, a focus around which experiences were integrated. Through his activities the child gradually accumulated a body of information pertinent to the item of concern" (Navarra, 1955, p. 57).

A number of records which Navarra used as examples illustrate a major issue in the development of environmental knowledge: a child's frequent dependence on second-hand information. This issue has been highlighted in a study by Kates and Katz (1977). Four-, five-, and six-year-old children in Worcester, Massachusetts, were observed and interviewed regarding their understanding of the hydrologic cycle. Subjects commonly constructed two separate unlike cycles: a domestic water cycle and a natural cycle. None were able to spontaneously connect rain and water sources. It can be hypothesized that the children had difficulty linking the two systems for the very good reason that the natural hydrologic cycle is not easily observable. Rain percolating gradually to form rivers, ponds, lakes, and reservoirs, and thence into homes, is too gradual a process, at too large a scale, for children to observe. Clearly such learning depends more upon the availability of information than upon intellectual development.

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If children's experiences are solely with the world of people, it is unlikely that they will develop ecological understanding. The observation by Bunting and Cousins (1985) that urban children are more likely than rural children to endorse people's right to apply technology to modify and dominate nature supports this view. For an environmental ethic, the decentering of perspectives that Piaget has stressed in the social realm needs to be extended to the nonhuman world as well. To understand how "environmental perspective-taking" may develop, it is helpful to review theories of affective and moral development.

### Theories of Moral Development

Building upon early work by Piaget (1932), Kohlberg (1964) introduced a six-stage theory of moral development which has inspired extensive research and debate. Like Piaget, he has been challenged on the grounds that the stages he has described are historically and socially conditioned. Nevertheless, his contribution should be acknowledged in revealing that mature levels of moral reasoning are the product of a long course of development, and in suggesting processes by which higher levels are achieved.

Like Piaget, Kohlberg has described two main processes through which reasoning advances: cognitive disequilibrium and role-taking. Cognitive disequilibrium results when people are exposed to reasoning at a higher level than their own and thus become aware of inadequacies in their own position. Role-taking is the ability to take another person's perspective on an issue. In a more recent paper, Kohlberg (1973) has added that personal experiences of choice involving committed action are required to achieve independent principled thought.

Kohlberg (1973) has also extended his early work by speculating about larger personality development and a morality that transcends exclusively human relationships. He has proposed a seventh stage whose "essential is the sense of being part of the whole of life and the adoption of a cosmic, as opposed to a universal humanistic (stage six) perspective" (p. 55). Adopting terms from Erikson (1950), he has associated this final stage with integrity in contrast to despair. If

Kohlberg further incorporated into his theory Erikson's concept of epigenesis, in which seeds of later modes of life and thought are contained in early development, early signs of environmental morality in children would become relevant to this final stage.

Because Kohlberg has focused upon moral logic, rather than feelings, his theory has little to suggest regarding the emotions which may motivate children's moral concerns. For insight here, work by Hoffman (1976) on the development of empathy and sympathy is helpful.

Hoffman has suggested that natural modes of empathic arousal, such as crying in response to someone else's crying, or associating one's own experience of past pain or pleasure with signs of pain or pleasure in someone else, become integrated with a growing cognition of the "other" to produce successive levels of empathic response. From birth to adolescence, children move from an initial global response, in which the infant does not differentiate itself from the other, to a recognition of the history and circumstances of another person's plight.

A central thesis in Hoffman's theory is that mature empathy and sympathy are made possible by the initial confusion between the self and the external world. Young children give signs that what they experience is a conditioned response based on the similarity between behavioral cues of another and their own experiences in the past, and they only gradually differentiate the experiences of themselves and another. Hoffman stresses that this in-between period of gradual differentiation forms the link between empathy, or emotionally feeling *with* another, and sympathy, or cognitively feeling *for* another. He suggests that empathy alone evolves into a combination of empathy and sympathy. This process can be expected to operate in person-environment relationships as well as in social relationships.

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## Discussion

At this point, it is possible to speculate about the development of an environmental morality in light of the interpersonal literature reviewed above. Because Kohlberg has drawn heavily upon Piaget's cognitive theory, remarks made earlier in connection with the development of environmental knowledge also apply to the development of environmental concern. Because most contemporary Western children have little direct experience with living things or with complete chains of physical systems, it is to be expected that the development of concern, like knowledge, will be heavily dependent upon second-hand information passed on by adults, playmates, and media. There is rarely immediate feedback, in the form of either approval or correction, from physical systems. No one person has responsibility for the environment, and it is difficult to see the consequences of acts. There are few opportunities for cognitive disequilibrium and role-taking, the basis of Kohlberg's theory, in environmental learning.

In addition, opportunities for cognitive disequilibrium are obscured by widespread cognitive confusion. Social psychology has shown that it is perfectly possible for people to hold conflicting beliefs, as long as areas of conflict are not highlighted (Abelson et al., 1968). A naturalistic study by Susan Isaacs (1930), in which she made detailed records of four- to ten-year-old children's developing biological interests, illustrates pervasive confusion in the area of environmental morality.

Having noted that children are very interested in animals, Isaacs argues that there is probably no moral field in which there are as many inconsistencies between what children are told and the way adults behave. Children observe that most people eat dead animals, that they kill for their own safety or convenience or for sport, that they conduct experiments on living and dead animals, and that they breed domestic animals for utilitarian purposes. At the same time, children are read stories and poems in which animals show human behavior and emotions, they are given pets, and they are encouraged to study wildlife. Rather than being led to reflect on these inconsistencies, children are expected to tolerate them. On their side, animals are rarely allowed to coexist closely

enough with people to correct misconceptions regarding their behavior or the impact of human actions on their lives.

When children are permitted close contact with animals and the natural world, a parallel may exist between their spontaneous manifestations of animism and the foundation of empathy and sympathy that Hoffman has proposed. Piaget (1926/1960b) has noted that animism sometimes assumes the form of respect for the needs of nonhuman things. For example, he gives the record of a child who moved stones in the garden path now and then so that they wouldn't always have to look at the same view, or another who always picked several flowers at one time so that they should have company and not feel lonely (1926/1960b, pp. 208-209). Similarly, Navarra (1955) found that his son's first expressions of concern for animals' well-being could be related to a projection of his own needs, abilities, and feelings. It is plausible that childhood animism may form the emotional basis for environmental concern, and that it may need not erasure, but evolution.

In determining the final shape that early impulses will take, it is likely that the example and teaching of others is as important to environmental learning as it is to social learning. Bandura and Walters (1963) have demonstrated the importance of modeling and imitation to moral development. In the environmental sphere, when dedicated conservationists were surveyed regarding childhood experiences (Tanner, 1980), they reported two consistent influences: many free hours spent outdoors in woods and in fields and with animals, and at least one adult model who taught attentive respect for wild things.

These advantages that were reported fit the pattern that theories of cognitive and moral development would predict: opportunities for first-hand, intimate contact with nature, and role models who sanctioned identification with other forms of life, who drew attention to the interdependencies of all things. This pattern suggested an ideal of environmental education that cannot be fulfilled by the teaching of abstract ecological concepts in the classroom. It suggested that children need to be ensured access to natural areas in cities as well as in rural areas, under the guidance of adults who exemplify informed respect.

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