Environmental Views and Values of Children in an Inner-City Black Community

Peter H. Kahn, Jr. and Batya Friedman
Colby College

KAHN, PETER H., JR., and FRIEDMAN, BATYA. *Environmental Views and Values of Children in an Inner-City Black Community.* CHILD DEVELOPMENT, 1995, **66**, 1403–1417. 72 children across grades 1, 3, and 5 (mean ages, 7-5, 9-6, and 11-4) from an economically impoverished inner-city Black community were interviewed on their views and values about the natural environment. Assessments were made on whether children were aware of environmental problems, discussed environmental issues with their family, valued aspects of nature, and acted to help the environment. Additional assessments pertained to the prescriptivity and generalizability, and supporting justifications, of children's normative environmental judgments based on a hypothetical scenario that involved polluting a waterway. Overall, children showed sensitivity to nature and awareness of environmental problems, although attenuated by both developmental and cultural factors. Most children believed that polluting a waterway was a violation of a moral obligation. Children's environmental moral reasoning largely focused on homocentric considerations (e.g., that nature ought to be protected in order to protect human welfare). With much less frequency, children focused on biocentric considerations (e.g., that nature has intrinsic value or rights). Findings are discussed in terms of moral-developmental theory, and the place of social-cognitive research in understanding the human relationship to the natural environment.

It is often said that environmental concerns arise from White, economically privileged people, and that people of color, especially in the inner cities, have little interest in such matters. This study addressed such widely held perceptions. Children in an economically impoverished inner-city Black community were interviewed on their understandings about and interest in the natural environment.[1]

This study also sought to provide an initial foray into characterizing the structure of children's environmental moral reasoning. Most of the psychological research on children's moral development has investigated moral issues and situations that exist between people (e.g., Arsenio, 1988; Damon, 1977; Eisenberg, 1982; Gilligan, 1982; Helwig, 1995; Killen, 1990; Kohlberg, 1984; Laupa, 1991; Nucci, 1981; Selman, 1980; Smetana, 1982; Tappan, 1989; Thorkildsen, 1989; Turiel, 1983; Wainryb, 1991; Youniss, 1980). But in what ways does it make sense to talk about a moral relationship not with other people, but with nature? Such a question is puzzling, for the criteria that usually help establish human ethics are not present, or at least not fully present, in the natural environment. For instance, when we say we have a moral obligation not to harm other people (e.g., physical assault), we recognize that other people, like ourselves, can feel pain and hold certain rights (e.g., to life and liberty). But what then does it mean to say that we have an obligation not to harm the natural environment? Does the natural environment feel pain? Does it have rights? Or

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[1] Based on our conversations with teachers, administrators, and parents, it appeared that for the most part people in this community preferred to distinguish themselves as Black Americans as opposed to African-Americans. Thus throughout this article we follow their preference.

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is moral obligation an inappropriate construct by which to understand the moral relation of humans with nature?

Toward investigating such questions, a distinction was made between obligatory and discretionary moral judgments. Following philosophical theory (Gewirth, 1978; Kant, 1785/1964; Rawls, 1971) and psychological research (Kohlberg, 1971; Turiel, 1983), an obligatory moral judgment at a minimum requires an act of a moral agent (prescriptivity), even if that person lives in a different geographical location with different customary practices (generalizability). A discretionary moral judgment is one where performing a moral act, while not required of an agent, is nevertheless conceived of as morally worthy and admirable (see Williams, 1985; cf. Eisenberg, 1982).

Both types of judgments appeared in an earlier study by Kahn and Turiel (1988) on children's conceptions of trust, and were then explicitly investigated by Kahn (1992). In this latter study, it was found, for example, that when the cost for helping was low, some prosocial acts such as aiding an economically impoverished family were conceived of as morally obligatory based on considerations for human welfare. In contrast, when the costs for helping increased, children often viewed aiding an economically impoverished family in morally discretionary terms, as something that morality does not require of an individual, but if performed was morally worthy and virtuous. It was also found that negative moral acts, even those with relatively high cost to the agent (such as not stealing money even if one is economically impoverished and very hungry), were more often viewed as obligatory than positive moral acts, even those with relatively low cost to the agent (such as giving a small amount of money for food to an economically impoverished hungry person). Thus in moral developmental research, instead of asking which single moral construct defines or is the most important to the moral life (e.g., justice, prosocial reasoning, virtue, or an ethic of care), the distinction between obligatory and discretionary moral judgments can help cultivate analyses of different, conceptually grounded moral constructs and their potential relations.

It was expected that this distinction between obligatory and discretionary moral judgments could help us understand important aspects of children's environmental reasoning. Supporting indications come from noting societal assumptions and practices. For example, based on considerations of property rights and harm to others' welfare, presumably it is morally obligatory for an industry not to dump its polluted discharge in a public park. But this is not to say that polluting the environment is categorically wrong. After all, we all pollute some when we drive our cars, or heat our homes with oil. Indeed, in the United States there is a growing acceptance of the idea that pollution quotas can be created, and then sold and traded as commodities. Thus polluting the environment, while usually viewed negatively, does not always seem to have the categorically obligatory features usually ascribed to such prototypic immoral acts as stealing and murder. Thus to assess the presence or absence of moral obligatory environmental reasoning, children's judgments were obtained regarding a hypothetical scenario that involved polluting a bayou (small waterway) in six conditions within and across cultural boundaries.

The six conditions also helped position us to identify what might prevent children from establishing obligatory environmental judgments. Two issues were explicitly addressed. One issue focused on the magnitude of environmental harm. Consider, for example, that one person camping in a wilderness area causes virtually no environmental harm; millions of people in the same area do, as the environmental degradation of many national parks in the United States attests to. Thus of the first three conditions, two involved negligible environmental harm: of a single person who throws garbage in a bayou in the child's own cultural context, and in a context that legitimates the practice. The third condition involved more substantial harm: of an entire community that routinely throws its garbage in a bayou.

The second issue focused on one's proximity to harm. Across a diverse range of literature, including studies on obedience to authority (Milgram, 1974), conceptions of genetic engineering and nuclear power (Fleming, 1984), and conceptions of computer property and privacy (Friedman, 1988, 1989), research shows that the more remote an individual from the resulting harm, the more likely is the individual to cause or permit that harm to occur. A similar environmental finding often appears in the popular press. People seem to object to environmentally degrading acts more often when those acts occur close to their homes than in other parts of their country or globe. Correspond-

ingly, a common popular expression has arisen—NIMBY (Not In My Back Yard). Thus the final three of the six conditions examined judgments about throwing garbage in a bayou in a distant geographical location. Paralleling the first three conditions, the fourth and fifth conditions involved a single individual who throws garbage in a bayou. The sixth condition involved an entire community that routinely throws its garbage in the bayou.

The daily reality of economically impoverished inner-city living presumably constrains children's experience of nature. Thus, to complement the hypothetical scenario, the interview also examined children's views and values of nature in their daily life. Children were assessed on their understandings about and value for such natural phenomena as birds, water, plants, insects, parks, and air—all a part of their everyday context. Children were also asked about their awareness and knowledge of environmental problems that exist generally and that affect them directly. Our expectation was that the latter environmental problems, those with direct effect, would be conceptually more salient than those less immediate and more abstract. Assessments were also made of these children's everyday environmental practices and behaviors, and whether environmental concerns and issues are talked about in their home. Taking these assessments together, it was expected that these children would have awareness of, interest in, and moral concern for environmental issues, albeit attenuated in ways by their economic status, race, and urban setting.

In the environmental ethics literature, two overarching approaches toward framing an environmental ethic can be distinguished. One approach grounds environmental considerations in homocentric (human-oriented) terms. From this approach, for example, it has been argued that the Brazilian rain forests should be protected because through their biological diversity the forests harbor immense untapped material wealth for humans, in the form of food, medicine, and amenities (Wilson, 1984, 1992). Or—with a dash of joviality to elucidate this approach—it has been argued that penguins should be protected if people enjoy seeing them walk about rocks (Baxter, 1986). A second approach grounds environmental considerations in biocentric terms wherein nature itself is granted at least some moral standing. For example, it has been argued that animals, species, or even trees have rights (Regan, 1981; Stone, 1972), or that nature has value independent of its utility to humans (Godfrey-Smith, 1979; Kohak, 1984; Taylor, 1986).

While such environmental philosophical investigations have burgeoned in recent years, there has not yet been a corresponding commitment to understanding the psychological ontogenesis of the human relationship to nature. To date, perhaps the most sustained inquiry along these lines has been pursued by Kellert (e.g., 1980, 1985, 1991, 1993a), who through survey research has empirically refined a typology of attitudes toward nature, particularly toward animals: utilitarian, naturalistic, ecologistic-scientific, aesthetic, symbolic, humanistic, moralistic, dominionistic, and negativistic. Many of these attitudes seem congruent with a homocentric environmental orientation. For example, the utilitarian attitude focuses on ways that nature provides humans with the physical means for sustenance, protection, and security. A few of the attitudes appear congruent with biocentrism. For example, the moralistic attitude can include feelings of valuing land independent of the land's utility.

Thus drawing on both Kellert's research and the environmental ethics literature, we used the two categories, homocentric and biocentric, as a starting point in our justification data analysis. It was our expectation that the categories could be refined empirically, particularly by attending to their developmental precursors.

Finally, it is important to mention two reasons for our choosing an urban Black population. First, little research exists on Black children's relationship with nature, and yet often—perhaps without sufficient cause—little of such a relationship is believed to exist (see Chawla, 1988). Second, we sought data that could inform on general psychological theory, and here a Black population can serve well. As Graham (1994) says, "there often is very little interplay, or perceived mutual benefit, between mainstream psychology and research on one or more subpopulations within society. . . . This need not, and should not, be the case" (p. 108). The two can help one another. Graham shows, for example, how research on the mental health of African-Americans could have been advanced by less focus on "simple Black-White comparisons and more attention to understanding African-American behavior within the framework of general

psychological theory" (p. 108). In turn, research with minority populations can strengthen and invigorate general psychological theory by helping researchers better conceptualize and investigate core concepts and issues central to the human condition (Kahn, 1991, 1994).

Method

Subjects.—Seventy-two children were interviewed, 24 (12 males and 12 females) in each of three grade levels: first, third, and fifth (mean ages, 7-5, 9-6, and 11-4). Children came from an inner-city elementary school in Houston, Texas. Virtually all of the students attending the school were Black (>99%) and most received the free lunch program (91%). Based on TEAMS assessment, more than 60% of the students were considered low-performing.

Procedures and measures.—One of two interviewers (one Black, one White) administered to each child individually a semistructured interview that lasted approximately 40 min (see Damon, 1977; Lave, 1988; Nucci & Turiel, 1993; Ogbu, 1977; Piaget, 1929/1960; Saxe, 1990). Approximately half the interview focused on children's environmental awareness, values, and practices in the context of their lived lives. The other half focused on children's environmental reasoning in the context of a relevant, hypothetical scenario. The interviews were tape-recorded and later transcribed for analysis.

The interview proceeded in the following manner. First, children were asked about their views and values about animals (e.g., Are animals an important part of your life? If so, how? If not, do you have any pets? Do you ever think about animals or ever get a chance to play with animals? Why are animals important or not important?). Similar questions followed about children's views and values about plants and parks. Second, children were asked whether they were aware of any environmental problems in general, and then specifically asked to comment on whether they were aware of problems related to air pollution ("smelly air"), water pollution ("bad tasting or unclean drinking water"), and garbage. Children were also asked whether any environmental problems affected them directly, and then also probed specifically for air pollution, water pollution, and garbage. Third, children were asked about possible conversations they might have with family members about environmental issues (e.g., Does your family talk about the environment much? If so, what kinds of things do you talk about?). Fourth, children were asked about any current practices they or their family engage in to help the environment. Then children were specifically asked about whether they and their family recycle cans, bottles, or newspapers.

After this point in the interview, questions shifted to a hypothetical scenario of polluting a bayou: "The Case of the Polluted Bayou." A bayou runs within about 1 mile of the children's school, and was familiar to all the children. To assess the presence or absence of moral obligation, and the possible effects of magnitude of and proximity to environmental harm, six conditions were presented. First, children were asked to judge whether it was all right or not all right for a person to throw his or her garbage in the neighborhood bayou. The child's own gender was used to refer to the hypothetical protagonist. Second, children's initial judgments about throwing garbage in the bayou were pitted against local social conventions that legitimated the practice under discussion ("Let's say that in your neighborhood most people throw their garbage in the bayou; is it then all right or not all right for a person to throw garbage in the bayou?"). Third, children were asked to judge the validity of such routine conventional practices ("Is it all right or not all right for the whole neighborhood to throw its garbage in the bayou?"). Fourth, children were asked whether their judgments about individual practices of polluting generalized to a different geographical location where the society did not legitimate the practice ("Let's say that in X [named by the child as the place farthest away that he or she knew of] there was a bayou, and people in X don't usually throw their garbage in their bayou. Is it all right or not all right for a person there to throw garbage in this bayou?"). Fifth, children were asked to judge the validity of the individual practice of polluting in a different geographical location where the society legitimated the practice ("Let's say that in X most people do throw their garbage in this bayou. It is like a way of life there. Is it all right or not all right for a person there to throw garbage in this bayou?"). Sixth, children were asked to judge the validity of such routine conventional practices when they occur in a different geographical location ("Let's say that in X a whole neighborhood throws its garbage in the bayou. That's one of the ways that they handle their garbage.

In this case, do you think it is all right or not all right for the whole neighborhood to throw its garbage in the bayou?"). For all of their evaluations, children were asked to explain their reasons. Multiple reasons were encouraged.

Finally, questions were asked to ascertain ways children believe that throwing garbage in their neighborhood bayou would harm other parts of the natural environment. Questions directly pertained to birds ("Do you think that throwing garbage in the bayou is harmful or not harmful to the birds that live around the bayou?"), aesthetics (on the view of the bayou), the water, and insects. Moreover, after each of these questions in which harm was identified, children were probed for whether it mattered to them if such harm occurred.

Coding and reliability.—A coding manual was first developed from the responses of 50% of the children, a total of 36 children, with 12 from each age group. The coding manual was then applied to the responses from the other 50% of the children. The results from both groups were combined for analyses. Three types of responses were coded. Dichotomous evaluation responses (e.g., all right/not all right; aware/not aware of air pollution; matters/does not matter that insects would be harmed), content responses (e.g., animals, plants, parks, garbage, pollution, and drugs), and justifications for the evaluative responses (e.g., an appeal that animals have rights). Parts of the justification coding system drew on coding systems developed elsewhere (Davidson, Turiel, & Black, 1983; Kahn, 1992; Kahn & Turiel, 1988). Summary descriptions on the most general level of the justification coding system are presented in Table 1.

An independent coder trained in the use of the coding manual recoded 18 interviews (25%), three randomly chosen from each of six groups comprised by grade and gender. In total, 450 evaluations, 96 content responses, and 232 justifications were recoded. Intercoder reliability was assessed through testing Cohen's kappa for statistical significance at the .05 level. All tests were statistically significant. For evaluations, intercoder agreement was 89% ($Z = 19.19$). For content responses, intercoder agreement was 78% ($Z = 5.37$ and 9.86, for two separate tests). For justifications on the level reported in Table 1, intercoder agreement was 79% ($Z = 24.60$).

Results

Nonparametric tests (e.g., Marascuilo & McSweeney, 1977) were used for tests of statistical significance of the categorical data. Virtually no gender differences were found—far fewer than expected by chance. Thus gender data were collapsed. Age differences were found where reported. When appropriate, categorical data were converted to score data, and then analyzed by analysis of variance.

Children's environmental profile.—The results profile ways in which these children

TABLE 1

SUMMARY OF ENVIRONMENTAL JUSTIFICATION CATEGORIES

1. Homocentric	
An appeal to how effects to the environment affect human beings. In other words, the environment is given consideration, but this consideration occurs only because harm to the environment causes harm to people.	
A. Personal interests	An appeal to personal interests and projects of self and others, including those that involve recreation or provide fun, enjoyment, or satisfaction (e.g., "[Animals are important to me because] if I go hunting, that's an important part of my life because it'll be fun to me"; "Animals matter to me a little bit because we need more pets and different animals to play with").
B. Aesthetic	An appeal to preservation of the environment for the viewing or experiencing pleasure of humans (e.g., "The bayou should look beautiful because if my relatives come over, I could take them to the bayou and show them how beautiful it is and clean"; "because I'd get to see all the colors of the plants and the beauty of the whole—of the whole natural plants").

TABLE 1 (Continued)

C. Welfare	An appeal to the physical, material, and psychological welfare of human beings, including that of agent (e.g., "because if the water is dirty, I might get sick"), of others (e.g., "air pollution goes by and people get sick, it really bothers me because that could be another person's life"), and of society (e.g., "it's wrong to destroy nature because nature will be good for all human kind").
D. Interpersonal condemnation	An appeal to how others would judge the actor(s) negatively for both personal contexts (e.g., "they'd probably lose their friendship with everyone") and publicly (e.g., "harming the environment is wrong because the people in town will get really mad, no one will like these people if they do that").
E. Punishment avoidance	An appeal to punishment or its avoidance (e.g., "because the police might catch her").
F. Influencing others	An appeal to the act's influence on others, with a consequentialist orientation (e.g., "because if a group of people throw theirs in there then a lot more other people will hear about it and they probably will take their trash and throw it in there").
G. Unelaborated	

2. Biocentric

An appeal to a larger ecological community of which humans may be a part.

A. Intrinsic value of nature	An appeal that nature has value, and the validity of that value is not derived solely from human interests, including is-to-ought appeals (e.g., "if nature made birds, nature does not want to see birds die"; "I think people should care about animals because animals are like part of everyone's life"; "it was here before mankind arrived here").
B. Rights	An appeal that nature has rights or deserves respect, including appeals wherein humans and nature are viewed as essentially similar (e.g., "fishes, they want to live freely, just like we live freely, they have to live in freedom, because they don't like living in an environment where there is so much pollution that they die every day"; "animals don't need to be killed either, because they need the same respect that we need"), and set in a compensatory relation (e.g., "Fishes [deserve respect for while they] don't have the same things we have, they do the same things. They don't have noses, but they have scales to breathe, and they have mouths like we have mouths. It's going to be the same, just going to be different").
C. Relational	An appeal to a relationship between humans and nature, including those based on psychological rapport (e.g., "animals are important to me because when a person in my family like died, they could come and cheer me up"), personal caretaking (e.g., "I have a dog and he's like my child or something, I take care of him"), and stewardship (e.g., "Those are animals that everyone must take care of, because God put these animals on earth for people to, like for pet stores, to keep and take care of them").

3. Unelaborated Harm to Nature

An appeal to the welfare of nature, including animals (e.g., air pollution is bad because "the birds and the butterflies, they can't hardly get any air, and it'll probably kill them"), and plants (e.g., "air pollution could kill the flowers and the trees, and the grass and stuff"). No reference is made to whether that concern derives from a homocentric or biocentric orientation.

were *aware* of environmental problems, *discussed* environmental issues with their family, *valued* aspects of nature, and *acted* to help the environment. For example, when asked initially whether they think about the natural environment, 96% said yes. As reported in Table 2, children's thinking pertained to animals (59%), plants or trees (54%), various types of pollution (20%), and garbage (20%). Seven percent of the children said that drugs and human violence were environmental issues that they thought about. When specifically asked, 84% of the children said that animals were an important part of their life, 87% for plants, and 70% for parks.

Children's interest in nature extended into aspects of their family life and activities. For example, 72% of the children said that they talk about the environment with family members. As shown in Table 2, children reported on conversations that included litter or garbage (47%), air pollution (25%), plants (23%), water pollution (17%), drugs (17%), and animals (13%). Though not statistically significant, there was some indication that children engage in more talk about the environment with increasing age: first grade (54%), third grade (79%), and fifth grade (83%). Children also reported on activities they engage in that help the environment. Based on specific questioning, 74% said they recycle cans and/or bottles, and 25% recycle newspapers. When asked if they do anything else that helps the environment, 53% of the children said they pick up litter. Based on these responses that pertain to environmental behavior, 93% of the children said that they or their family do things to help the environment.

Children's knowledge of three different types of pollution were systematically investigated: water pollution, air pollution, and garbage. For each type of pollution, the McNemar statistic for repeated measures was used to test whether children who understood about the idea of the pollution in general also understood that they directly encountered such pollution in Houston. The findings show a consistent pattern. Sixty percent of the children understood about air pollution in general, but only 36% believed that they encountered air pollution in Houston ($\chi^2_M = 17.00$, $p < .005$). Seventy-three percent understood about water pollution in general, but only 28% believed that they encountered water pollution in Houston ($\chi^2_M = 33.00$, $p < .005$). Finally, 57% understood about the problem of too much garbage and litter, but only 29% believed that they encountered a problem with garbage and litter in Houston ($\chi^2_M = 20.00$, $p < .005$).

Children were also asked to imagine that their entire community threw garbage in the neighborhood bayou. Results showed that the large majority of children believed that harmful effects would result for birds (94%), water (95%), insects (80%), and the view (92%). In addition, children said that it would matter to them if such harm occurred to birds (89%), water (91%), insects (77%), and the view (93%).

To provide an overall assessment of these children's environmental profile, and to test in one place for effects of age, 11 of the above questions were summed as a single score, reflecting the degree of each child's pro-environmental views and values. The questions included those that pertained to whether the children were aware of environmental problems, discussed environmental issues with their family, valued aspects of nature, and acted to help the environment. For each question, an affirmative re-

TABLE 2

PERCENTAGE OF CHILDREN'S RESPONSES TO OPEN-ENDED QUESTIONS ON THINKING AND TALKING ABOUT THE NATURAL ENVIRONMENT

Environmental Categories	Think About Environmental Issues	Talk About Environmental Issues with Your Family
Animals	59	13
Plants	54	23
Parks/open spaces	7	0
Garbage/litter	20	47
Water pollution	10	17
Air pollution	7	25
General/other pollution	3	9
Drugs/human violence	7	17

sponse received a score of 1, a negative response a score of 0, and then the scores were summed across the 11 questions. Results showed that out of a possible score of 11 (the most pro-environmental score), first graders' mean score was 7.7, third graders' 9.6, and fifth graders' 9.5. Combining third and fifth graders together, these results were analyzed with a one-way analysis of variance with the pro-environmental score as the dependent variable. Results showed a significant effect for age: $F(1, 70) = 8.02$, $p < .01$.

Children's moral judgments about nature: The case of the polluted bayou.—Virtually all of the children interviewed (96%, $Z = 19.24$, $p < .01$) judged the individual act of throwing garbage in their neighborhood bayou as not all right. Children maintained their judgments not to throw garbage in a bayou even in conditions where local conventions legitimated the practice, for an individual (96%, $Z = 18.31$, $p < .01$) and for the entire community (94%, $Z = 15.42$, $p < .01$). Moreover, children maintained that it would similarly not be all right for an individual in a different geographical location to throw garbage in a bayou (96%, $Z = 19.24$, $p < .01$) even when a different cultural convention legitimated the practice, for an individual (87%, $Z = 9.14$, $p < .01$) and for the entire community (91%, $Z = 12.18$, $p < .01$).

Toward assessing conceptions of moral obligation, results showed that 87% of the children viewed polluting a bayou as not all right in all six conditions ($Z = 8.94$, $p < .01$). Developmentally, 68% of the first graders provided such categorical judgments, compared to 91% of the third graders and 100% of the fifth graders. A Dunn planned contrast for proportions between first and fifth grades was significant ($Z = 3.15$, $p < .02$).

Children's environmental justifications.—Children were probed for their reasons on nine of their evaluations. The first three evaluations involved whether animals, plants, and parks/open spaces played an important part in their life. The remaining six involved "The Case of the Polluted Bayou." Children's justifications were coded with the categories reported in Table 1. The resulting justification percentages for each of the nine questions are reported in Table 3. Averaging across all nine questions, results showed that the majority of justifications were homocentric (74%), followed by unelaborated harm to nature (22%), and then biocentric (4%). Under the homocentric category, on average children's reasoning included concerns for human welfare (28%), personal interests (19%), and aesthetics (16%).

From a developmental perspective, several findings, while not statistically significant, were suggestive. Collapsing across all nine questions, results showed that first graders used the aesthetic category relatively seldom (14%) compared to third graders (42%) and fifth graders (44%). In addition, even though biocentric justifications were seldom used, there was some indication of a directional change. Collapsing biocentric justifications across all nine questions (total justifications = 27), the results showed the following usage: first grade (7%), third grade (37%), and fifth grade (56%). Moreover, not one first grader provided a single intrinsic value or rights-based biocentric justification.

In the earlier analyses of the "Case of the Polluted Bayou," moral obligation was assessed through the six measures that pertained to prescriptivity and generalizability. The moral quality of such obligatory judgments is underscored by those justifications that appealed to welfare, influencing others, intrinsic value of nature, rights, relational, and unelaborated harm to nature. For these justifications (spanning both homocentric and biocentric considerations) turn on issues of harm, justice, and virtue—issues that in moral philosophy traditionally come under the purview of morality. Accordingly, for children who judged as not all right polluting the bayou in all six conditions, an analysis was conducted that examined the percentage of children who provided moral justifications for their negative evaluations. Results showed that for each question, well over half (depending on the question, from 59% to 80%) of the justifications were moral. In addition, 82% of the children used moral justifications in at least three of their six evaluations.

The justification data comprise a rich and complex component of this research, and call for some qualitative presentation to highlight the types of concerns and issues that children brought to bear on their environmental moral reasoning. As mentioned in Table 1, in homocentric reasoning an appeal is made to how effects to the environment affect human beings. For example, consider the following justification for why it is wrong to pollute a waterway:

TABLE 3

PERCENTAGES OF ENVIRONMENTAL JUSTIFICATIONS BY CATEGORIES

JUSTIFICATION CATEGORY	PLAY AN IMPORTANT PART IN YOUR LIFE			CASE OF THE POLLUTED BAYOU					
				In Your Neighborhood			In Another Place, Far Away		
	Animals	Plants	Parks/Open Spaces	Individual	Individual: Given the Common Practice to Pollute	Community: Given the Common Practice to Pollute	Individual: Given the Common Practice Not to Pollute	Individual: Given the Common Practice to Pollute	Community: Given the Common Practice to Pollute
Homocentric:									
Personal interests	40	14	86	10	7	8	2	5	3
Aesthetic	4	23	0	19	23	18	19	11	23
Welfare	31	51	11	26	23	26	20	35	25
Interpersonal condem.	0	0	0	0	1	2	6	1	1
Punishment avoidance	0	0	0	7	13	9	9	6	2
Influencing others	0	0	0	2	6	2	16	7	8
Unelaborated	0	0	0	0	0	0	1	0	1
Biocentric:									
Intrinsic value of nature	0	0	0	2	0	1	2	1	1
Rights	4	2	0	2	0	2	2	4	0
Relational	7	4	0	0	0	0	0	0	2
Unelaborated harm to nature	15	6	2	33	27	32	23	30	34

NOTE.—Percentages may not equal 100 due to rounding.

[It's not all right] because some people that don't have homes, they go and drink out of the rivers and stuff and they could die because they get all of that dirt and stuff inside of their bodies.[2]

In this response, the child says that the underlying reason why environmental degradation is wrong lies in the environment's harmful effect on human welfare: that people could die.

A less direct form of homocentric reasoning can be seen in aesthetic justifications. Here an appeal is made to ways in which the natural environment can render pleasure to humans in terms of its beauty.

[It is not all right to throw trash in the local bayou because] the bayou, it should look beautiful. . . . Because like if my relatives or something come over, I could take them to the bayou and see, and show them how beautiful it is and clean.

This reasoning appears to turn centrally on how humans appreciate the aesthetic experience of the natural environment. Thus, for example, the child reasons that it is not all right to throw trash in the bayou because a bayou should look beautiful, and that other humans (his relatives) would also like to see a beautiful bayou.

It is also worth calling attention to the form of some of the children's biocentric reasoning, not because they used such reasons with much frequency—they did not—but because it is possible that this form of reasoning reflects the leading edge of the developmental progression from fifth grade onward (see Beringer, 1992). Biocentric reasoning highlights that the natural environment has a moral standing that is at least partly independent of its value as a human commodity. For example, children occasionally argued that nature has intrinsic value, and established that value by means of what could be called a naturalistic fallacy in its most literal form.

Because water is what nature made; nature didn't make water to be purple and stuff like that, just one color. When you're dealing with what nature made, you need not destroy it.

This child highlights that what is ("what nature made") ought to remain ("you need not destroy it"). Thus an "ought" is derived from what "is."

A second form of biocentric reasoning focuses on rights for nature. Two ways of establishing such rights appeared. In one way, natural objects (usually animals) are compared directly with humans:

Bears are like humans, they want to live freely. . . . Fishes, they want to live freely, just like we live freely. . . . They have to live in freedom, because they don't like living in an environment where there is so much pollution that they die every day.

Thus an animal's desire for freedom ("to live freely") is viewed to be equivalent to that of a human's desire, and because of this direct equivalency animals merit the same moral consideration as do humans. In turn, a second way of establishing rights for nature occurs through establishing indirect compensatory relationships:

Fish need the same respect as we need. [Tell me more about this idea of respect.] Fishes don't have the same things we have. But they do the same things. They don't have noses, but they have scales to breathe, and they have mouths like we have mouths. And they have eyes like we have eyes. And they have the same co-ordinates we have. . . . A co-ordinate is something like, if you have something different, then I'm going to have something, but it's going to be the same. Just going to be different.

Here the child struggles eloquently with the idea of a "co-ordinate," by which he seeks to explain that while fish are in some respects not the same as people (they don't have noses like people do), in important functions (such as breathing and seeing) they are the same. In other words, this child moves beyond a reciprocity based on directly perceivable and salient characteristics to be able to establish equivalences based on functional properties.

Discussion

The results from this study speak to the importance—personally and morally—of environmental issues in the lives of Black children in the inner city. Animals, plants, and parks, for example, played an important part in the lives of the majority of the children we interviewed. The children have talked about environmental issues with their family members, and engaged in certain sorts of environmentally helpful behavior such as recycling cans and bottles. They

[2] The qualitative examples in this section come from fifth-grade children.

were also aware that water pollution can harm birds, water, insects, and landscape aesthetics. Moreover, such environmental harm mattered to these children.

At the outset of this study, it was unclear to us what form—obligatory or discretionary—children's moral reasoning would take about polluting a bayou. On the one hand, previous research (e.g., Arsenio & Ford, 1985; Friedman, 1988, 1989; Kahn, 1992; Killen, 1990; Nucci & Turiel, 1993; Smetana, Schlagman, & Adams, 1993; Tisak & Ford, 1986; Turiel, 1983) has found that children usually conceive of prototypic negative moral acts (such as not stealing or not hitting) as morally obligatory. Thus it seemed plausible that children would conceive of not polluting (a negative act) as morally obligatory. On the other hand, several bayous run through the city of Houston (one about a mile from the children's school) and are all quite polluted. The city discharges its "treated" sewage into the bayous, and by this means the sewage is transported to the ocean. The bayous often smell of pollution and are not safe for swimming or wading. Garbage is often found along their edges or floating on the water. Thus, with such pollution as a norm, it seemed equally plausible that throwing a small amount of additional garbage into a bayou, while not necessarily desirable, could nonetheless be viewed by the children as permissible. This view might especially take hold in conditions where the pollution occurs in a distant geographical location, where the small amount of increased environmental harm has virtually no direct effect on the children.

Results overwhelmingly supported the first proposition. Virtually all of the children (96%) judged the individual act of throwing garbage in their neighborhood bayou as not all right. In addition, the large majority (87%) judged throwing garbage in a bayou as not all right across the other five conditions that pertained to generalizability, and which controlled for magnitude of environmental harm and proximity to harm. Thus the data support the proposition that moral obligation can be an appropriate construct by which to understand the moral relation of humans with nature. The data also speak further to the place of environmental concerns in the moral lives of inner-city Black children.

Homocentric reasoning emerged as children's most common justification for not harming the natural environment. Such reasoning often appealed to personal interests, human welfare, and aesthetics. With much less frequency, children drew on biocentric reasons that included appeals to the intrinsic value or rights of nature. Because of the infrequent use of the biocentric category, it was difficult to analyze it developmentally. However, the findings were suggestive in that it might be the case that biocentric reasoning arises through the hierarchical integration of homocentric reasoning. Recall that homocentric reasoning cut across ages, while biocentric reasoning was used primarily by older children. In addition, when children accorded rights to animals, such reasoning was not in contradiction to according rights to humans, but often enlarged the scope of what has moral standing (e.g., "bears are like humans, they want to live freely"). Similarly, biocentric relational reasoning often extended the idea of caretaking to include not only humans but animals and plants. This idea of hierarchical integration can be thought of in Piagetian terms: In the same way that it can be said that formal operations does not negate the place or importance of, say, class inclusion, but integrates it within a more comprehensive logical structure, so, too, might homocentric reasoning remain influential psychologically while forming part of a more comprehensive moral environmental structure. Preliminary analyses from another of our environmental studies with a partially older population (Kahn & Friedman, in preparation) support this tentative proposition insofar as we have been able to delineate additional biocentric categories that subsume homocentric considerations.

Kellert's survey research (noted earlier) on children's attitudes toward nature provides an interesting counterpart to our data. Kellert (1985) found that the moralistic attitude (which includes judgments about right and wrong treatment of animals, with strong opposition to exploitation or cruelty toward animals) increased significantly between the eighth and eleventh grades. Kellert also found that in comparison to White children and children in a rural context, Black children in the city revealed less affection for and general interest in animals. Our own findings with Black children, however, point in a somewhat different direction. Not unlike Kellert, we found an increase in children's morally obligatory reasoning that opposed polluting a bayou, but the shift appeared much earlier: between first graders and fifth graders. Along similar lines,

third and fifth graders scored higher on our environmental profile than did first graders. But our main point is this: Even the first graders had an environmental moral orientation that appeared pervasive across a wide range of measures.

To say that the children we interviewed were aware of and morally concerned about environmental issues is not to negate ways in which their economically impoverished social class and inner-city geographical context affected their environmental views, values, and behaviors. For example, while it is true that 74% of the children said that they or their families recycle cans and bottles, children often told us that local recycling centers provided monetary compensation for recycling these items, but seldom for newspapers, if the centers accepted newspapers at all. Only 25% of the children said they or their families recycled newspapers. Such a finding supports the common belief that economic incentives can help motivate environmental behavior.

Children's environmental reasoning also often reflected other realities of the inner-city experience. When asked, for example, what they thought about in terms of nature, 7% of the children responded with issues pertaining to drugs and human violence. Moreover, when asked about what environmental issues they talk about with their families, 17% of the children responded with issues pertaining to drugs and human violence. These findings surprised us when interviewing, since we ourselves had not thought to classify drugs and human violence in this way. Or consider the following short segment of an interview with a third-grade girl, where we first sought to establish that she knew what a bayou was before proceeding to the hypothetical scenario.

"Tell me Trina [a pseudonym], do you know what a bayou is?"

"Yes . . . it's where turtles live and the water is green because it is polluted. People—some people need to um, some people are nasty. Some people, you know, like some people go down there and pee in the water."

"mm hmm."

"Like boys, they don't have nowhere to pee, and drunkers, they'll go do that, too."

"Okay."

"And sometimes they'll take people down and rape them, and when they finished, they might throw 'em in the water or something."

"So, what does it look like? How would you describe it? A bayou?"

"It's big and long and green and it stinks . . . and turtles live in it."

Trina clearly knows what a bayou is, and provides a vivid description of its polluted state ("It's big and long and green and it stinks"). But such environmental knowledge is interwoven with how such "natural" states are used in the inner city: people such as boys and drunks urinate in the bayou, rapes occur alongside it, and bodies are thrown in it.

Houston is one of the more environmentally polluted cities in the United States. Local oil refineries contribute not only to the city's air pollution, but to distinct oil smells during many of the days. Bayous can be thought of more as sewage transportation channels than fresh water rivers. Within this context, our results showed that two-thirds of the children we interviewed understood about ideas of air and water pollution in general. However, contrary to our expectations, only one-third of the children believed that environmental issues affected them directly. How could this be? How could children who know about pollution in general, and live in a polluted city, be unaware of their own city's pollution?

One possible answer is that to understand the idea of pollution one needs to compare existing polluted states to those that are less polluted. In other words, if one's only experience is with a certain amount of pollution, then that amount becomes not pollution, but the norm against which more polluted states are measured. If we are right about this, then it would speak to the importance of keeping environmental preserves, refuges, and parks close to (and even within) cities, and of providing means for children to experience these areas. Indeed, what we perceive in the children we interviewed might well be the same sort of psychological phenomenon that affects us all from generation to generation. People may take the natural environment they encounter during childhood as the norm against which to measure pollution later in their life. The crux here is that with each generation, the amount of environmental degradation increases, but each generation takes that amount as the norm—as the nonpolluted condition. Researching such "generational amnesia" may help provide a psychological account of how it is that our world has

moved toward an environmentally precarious state.

Further research conducted in the United States or cross-culturally could also help inform the generalizable features of our results. For example, a colleague and ourselves (Howe, Kahn, & Friedman, in preparation) recently modified the methods from the current study and interviewed in Portuguese 44 fifth-grade Brazilian children who lived along the Rio Negro in either the city of Manaus (the capital of the state of Amazonas) or a small remote village a day's journey up river. Preliminary analyses point to some notable similarities between the Brazilian and Houston children, particularly in the types of environmental justifications the children used, and in their morally obligatory judgments against water pollution.

It is within this broader context that we seek to place our findings. Increasingly, scientists argue that to help check the environmental degradation of our planet, vigorous research is needed across many disciplines that bear on understanding nature, and the human relation thereto (Kellert, 1993b; Nelson, 1983; Orr, 1993; Ulrich, 1983, 1993; Wilson, 1984, 1992). This study provides a structural-developmental psychological approach in this direction. Moreover, the results from this study provide some basis for hope. It would appear that the serious constraints of living in an economically impoverished inner-city community cannot easily squelch these children's diverse and rich appreciation for nature, and moral responsiveness to its preservation.

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