

# An Annotated Bibliography of Research Relevant to Humane Education

The National Association for Humane and Environmental Education

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## Introduction

*This bibliography contains a sampling of research with implications for the theory and practice of humane education. What the studies tell us about how young people make moral decisions, what motivates them to help others, how they learn, think, and feel about animals, and how they interact with humans and nonhumans is highly relevant to our efforts to develop effective strategies for instilling in children a humane ethic. Although the compilation that follows is much longer and broader in scope than NAHEE's first such publication (which can also be found in the Research & Evaluation section of our Web site), it actually contains fewer studies on humane education per se. In fact, during the past fifteen years, little research analyzing the impact of humane education programs, approaches, or teaching materials has been published. To help remedy that situation, we invite those of you who may be involved in assessing humane education programs—whether formally or informally—to send us a report on your evaluation for possible publication in our Web site. Please send information to Bill DeRosa at NAHEE, P.O. Box 362, East Haddam, CT 06423, or via e-mail to [derosa@nahee.org](mailto:derosa@nahee.org). We also encourage you to send any questions or comments about this bibliography to the same address.*

*To facilitate your information search, the studies below are divided into categories. Simply click on one of the categories listed in blue to move directly to that section of the bibliography.*

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## Humane Education

*The following list includes studies that assess the effectiveness of various humane education activities, including one-time classroom presentations and comprehensive curriculums. Becoming familiar with such research can help humane education specialists and classroom teachers be as effective and efficient as possible in encouraging in children the development of empathy and respect for animals and awareness of animal-protection issues. Unfortunately, there is a paucity of research in this area.*

Ascione, F.R. (1997) Humane education research: Evaluating efforts to encourage children's kindness and caring toward animals. *Genetic, Social, and General Psychology Monographs*, 123 (1), 55-57.

Reviews research evaluating the effectiveness of several preschool and elementary humane education programs. Includes discussion of Fleming's 1985 study of the influence of Project WILD on kindergarten through fifth-grade students' knowledge and attitudes toward wildlife, which found an effect on students' knowledge but not on attitudes. A study of the same program's effect on sixth- and seventh-graders by Race, Decker, and Taylor (1990) found gender differences among the children. While the program had a greater effect on boys' knowledge than on girls', a greater effect on girls' attitudes than boys' was also noted. A 1987 study (Davis, Hein, Starnes, and Price) of the Massachusetts Society for the Prevention of Cruelty to Animals' school-based humane education presentations found that a single presentation

increased humane attitudes among second-graders. A series of three presentations had the same effect on third- and fourth-graders, but no effect was found on fifth-graders' attitudes.

Ascione, F.R., & Weber, C.V. (1996). Children's attitudes about the humane treatment of animals and empathy: One-year follow-up of a school-based intervention. *Anthrozoos*, 9(4), 188-195.

Tested fifth-grade students who had participated a year earlier as fourth-graders in a program utilizing the National Association for Humane and Environmental Education's (NAHEE's) *People and Animals* curriculum and *Kind News* classroom newspaper to determine if the effects found in Ascione's 1992 study (below) were maintained. Results showed that students who had received the treatment the previous year scored higher on humane attitude scales than did those who had not.

Ascione, F.R. (1992). Enhancing children's attitudes about the humane treatment of animals: Generalization to human-directed empathy. *Anthrozoos*, 5(3), 176-191.

Evaluated a program utilizing NAHEE's *People and Animals* curriculum and *Kind News* classroom newspaper in 32 first-, second-, fourth-, and fifth-grade classrooms by pretesting and post-testing children on attitudes toward animals and human-directed empathy. Results indicated that the program enhanced fourth- and fifth-graders' humane attitudes. Fourth-graders showed the most improvement in attitudes and a "generalization effect" from animal-related attitudes to human-directed empathy. No statistically significant effects were found on younger children's (first- and second-graders) humane attitudes.

Davis, F.A., Hein, G.E., Starnes, B., & Price, S. (1988). Massachusetts Society for the Prevention of Cruelty to Animals School Outreach Program Evaluation Report. Boston, MA: SPCA.

Observed and interviewed second- through fifth-grade students and teachers about the Massachusetts Society for the Prevention of Cruelty to Animals' humane education program, which consisted of classroom visits by MSPCA teachers who give presentations, lead discussions, and involve students in activities. Children were tested before and after the program to identify changes in their attitudes toward and knowledge of animal welfare-related issues. Results revealed increases in humane attitudes among second-, third-, and fourth-graders, but not fifth-graders. Children in grades three through five showed gains in knowledge (in the form of vocabulary development and awareness), while second-graders did not.

Montminy-Danna, M. & O'Hare, T. (2001). Evaluation report: Effectiveness of the Potter League humane education program. Potter League for Animals, Middletown, RI.

Employed qualitative and quantitative methods to determine the effects of a humane education program on animal-welfare-related knowledge, attitudes, and projected behavior of third- and seventh-grade children. Also investigated the extent to which attitudes toward animals generalized to people. Third-graders received eight weekly classroom lessons covering such topics as basic pet care, the role of animal shelters, and safety around animals. Seventh-graders received five weekly lessons that addressed animals in entertainment, endangered species, pet overpopulation, and animal-related moral dilemmas. Results revealed statistically significant gains in knowledge, attitudes, and intended behavior at both the third and seventh-grade levels. In addition, the examination of attitude transference indicated that children who were more knowledgeable about and favorably disposed toward animals were also more likely to respond with greater empathy to people and have better relationships with peers. Qualitative analysis yielded a wide range of information, most of which reflected positively on the Potter League program.

Nutter, C. L. (1992). Humane education: The effects of an outreach program for fifth-graders. Master's thesis, DePaul University.

Evaluated the impact of a classroom presentation by the Chicago Anti-Cruelty Society on fifth-graders' knowledge and attitudes toward animals. The one-time treatment included a film, discussion, question-and-answer period, and reading material addressing such topics as the interdependence of all life, responsible pet care, factory farming, and humane behavior toward wildlife. Students were surveyed

before the intervention, right afterwards, and again one month later. Results showed overall gains in knowledge and attitudes regarding most of the topics addressed and that those gains were maintained one month later. The report did not indicate whether results were statistically significant.

Shoemaker-Neyer, W. (1998) The impact of "Teaching Love and Compassion," a humane education program, on adolescent attitudes and knowledge toward animals and others. Master's thesis, California State University, Long Beach.

Assessed the effects on "at risk" seventh-graders of a humane education program designed to aid in reducing violent behavior and increasing awareness of the worth of human and nonhuman life. The program entailed hands-on training of dogs housed at an animal shelter and interactive lessons pertaining to conflict resolution, self-awareness, and self-esteem. Experimental- and control-group students completed a self-administered questionnaire before and after the program to test for changes in knowledge related to responsible pet care and anger and conflict management, and attitudes toward self, other people, and animals. Results indicated little improvement in experimental-group attitudes from pretest to posttest, but revealed significant gains in knowledge related to the humane treatment of animals and people.

Tweyman-Erez, J. (1997). The effects of a humane education curriculum involving the Great Ape Project on the attitudes of fourth-grade students. Master's thesis, University of Toronto.

Employed qualitative and quantitative methods to determine the attitudinal effects of a teaching unit focusing on The Great Ape Project, an animal rights initiative advocating that certain rights and protections be extended to chimpanzees, gorillas, and orangutans. The control and experimental groups each contained 17 fourth-graders. Data was gathered via attitude scales, interviews, students' journals, a teacher's journal, and written assignments. Results of the attitude scales revealed statistically significant gains, which were supported by findings from the qualitative measures.

## **Environmental Education**

*Most conservation action-strategies include education as a component. Included in the following section are evaluations of specific environmental education programs, studies of the impact of visits to natural history museums and zoos on ecological knowledge and attitudes toward the environment, and investigations into the role of public schools and the media in the development of environmental awareness. Such research can enable educators to substantiate claims about a program's benefits or provide evidence that modification or improvement is needed.*

Birney, B.A. (1995). Children, animals, and leisure settings. *Society and Animals*, 3(2), 171-186.

Following a visit to a natural history museum or zoo, sixth-grade students were interviewed about their behavior, feelings, knowledge, and opinions regarding zoos, museums, and the animals exhibited in such facilities. Results showed that when compared to museum visitors, more children visiting the zoo recalled animal behavior. Museum visitors were more likely to recall specific adaptations of animals and environmental aspects of animal life. Suggests that the settings in which captive wild animals are kept influence children's recollections of the animals' behavior.

Brody, M.J. (1996). An assessment of 4th-, 8th-, and 11th-grade students' environmental science knowledge related to Oregon's marine resources. *The Journal of Environmental Education*, 27(3), 21-27.

Interviewed students in grades 4, 8, and 11 about geology, ecology, natural resources, and the physical and chemical aspects of the marine environment to assess children's knowledge of Oregon's marine

resources. Results indicated that the general level of understanding of basic facts and concepts related to marine ecosystems and resource use is low, particularly in the areas of the physical and chemical aspects of the marine environment. However, students did understand natural resource concepts as well as the concepts of "food chain" and "habitat." Only eleventh-graders appeared capable of using the concepts of "nutrients" and "webs" to explain ecological relationships. Calls for carefully-planned improvement in science education as it relates to environmental problems.

Dresner, M., & Gill, M. (1994). Environmental education at summer nature camp. *The Journal of Environmental Education*, 25(3), 35-41.

Surveyed 10- to 13-year-old participants in a two-week nature camp program and their parents regarding the children's self esteem, naturalist life skills, environmentally responsible actions, and interest in nature. Results showed that participation in camp led to an increase in the frequency in which campers actively expressed concern about environmental problems, including pollution, oil spills, and wetlands development. The camp experience was also shown to increase curiosity and excitement about observing nature. Children rated the viewing of or proximity to wildlife as the best part of camp. Self esteem among camp participants increased significantly after the program. Outdoor skills also improved, particularly in urban children.

Euler, E. (1989). A comparative study of the effectiveness of a local environmental center's program for urban sixth-graders' environmental knowledge and attitudes. *Children's Environments Quarterly*, 6(2/3), 34-41.

Tested sixth-grade students about their knowledge of and attitudes toward the environment to investigate the effectiveness of two (formal and informal) environmental education programs. Results showed that both programs had positive effects on student knowledge and attitudes. Students in the formal program given in school showed a greater increase in environmental knowledge when compared to those in the informal program, which was conducted at an environmental center. Students in the informal program, however, showed greater improvements in attitudes toward nature centers than did the formal-program participants. Though the programs were not found to affect attitudes toward polluters and city parks, both programs (which used live animals in lessons) improved children's attitudes toward plants and wildlife.

Fortner, R.W., & Lyon, A.E. (1985). Effects of a Cousteau television special on viewer knowledge and attitudes. *Journal of Environmental Education*, 16(3), 12-20.

Surveyed adults before and after viewing a program on marine mammals to determine its effect on viewers' knowledge and attitudes regarding marine mammals. Participants' knowledge scores were higher on the second survey, after they had viewed the program. Attitude scores also generally improved immediately after the program, but a shift back to former levels was revealed during the "retention" test two weeks later. Suggests that people can learn and experience temporary attitude shifts in response to a television documentary on environmental issues.

Gambro, J.S., & Switzky, H.N. (1996). A national survey of high school students' environmental knowledge. *Journal of Environmental Education*, 27(3), 28-33.

Analyzed data from a study that assessed the environmental knowledge of students when they were in tenth grade and again when they reached twelfth grade. Results showed low levels of knowledge related to environmental issues. The seniors showed a lack of improvement in knowledge since the tenth grade. Though the majority of the students in twelfth grade recognized environmental problems (e.g., the burning of fossil fuels), less than half were able to recognize related scientific principles and apply that basic knowledge to show comprehension of the consequences of or potential solutions to environmental problems. Suggests the need for teachers to stimulate critical thinking about environmental issues.

Gelman, S.A., & Coley, J.D. (1990). The importance of knowing a dodo is a bird: Categories and inferences in two-year-old children. *Developmental Psychology*, 26(5), 796-804.

Tested children two to three years old on picture sets of animals to investigate their reliance on appearances and categories when reasoning about the identity and properties of animals. For example, children were shown a "target" picture of a bluebird (typical bird) and were reminded that it is a bird and lives in a nest. Leaving the target picture in view, they were then shown four "test" pictures of a dodo bird (atypical bird) and a pterodactyl dinosaur (atypical dinosaur that resembles a bird) and were asked whether or not the animals in each test picture lived in a nest. Results showed that the children were attentive to names or categories of animals and overlooked obvious similarities in appearances when thinking about characteristics of certain animals. For example, they wouldn't draw on salient perceptual similarities like color, shape, and presence of wings and pair up the pterodactyl with the typical bird. Rather, they based their choices on the animals' names and would pair up bluebird with dodo bird. Suggests that children do not require biological knowledge of animals in order to base their thinking on the named category membership of animals and that children draw inductive inferences in accordance with the language taught by adults early on.

Gillilan, S., Werner, C.M., Olson, L., & Adams, D. (1996). Teaching the concept of precycling: A campaign and evaluation. *Journal of Environmental Education*, 28(1), 11-18.

Interviewed by telephone adults of Salt Lake County, Utah, before and after a three-month television advertising campaign designed to educate the public about "preycling" (purchasing wisely to reduce waste) to determine the campaign's effect on public knowledge. Results showed that more people could accurately define the term "precycling" as a result of the advertising campaign. A high percentage of those interviewed practiced precycling prior to the campaign, but none of those precycling activities was found to increase after the campaign. Suggests that ways for encouraging the public to apply new knowledge to attitude and behavior change need to be developed.

Gutierrez de White, T., & Jacobson, S.K. (1994). Evaluating conservation education programs at a South American zoo. *Journal of Environmental Education*, 25(4), 18-22.

Surveyed fourth-grade students following participation in three conservation education programs to determine the programs' impact. Results show that students who visited a zoo after their teachers participated in a three-month zoo education program experienced the greatest positive attitude shift and learned the most about wildlife conservation. Neither a zoo visit alone nor one preceded by a slide presentation affected children's knowledge or attitudes. Demonstrates that exposure to wild animals alone is insufficient in increasing knowledge and affecting attitudes in elementary-school children. Suggests that favorable attitudes toward conservation can be fostered in children by improving teachers' knowledge of related topics.

Hanna, G. (1995). Wilderness-related environmental outcomes of adventure and ecology education programming. *Journal of Environmental Education*, 27(1), 21-32.

Surveyed participants in Outward Bound and Audubon Field Ecology camps to compare adventure programming and ecology-education programming and how those programs affect participants' wilderness-related knowledge, attitudes, and behavior. Results showed that students in the Audubon camp were more knowledgeable about basic ecological concepts than those in the Outward Bound group. Increased ecocentric wilderness attitude development was associated with both programs. Participants' intentions were weakly related to their behavior following the programs. Suggests that providing basic ecological knowledge and minimal-impact knowledge leads to a positive shift in attitudes toward wilderness issues.

Heinrich, C.J., & Birney, B.A. (1992). Effects of live animal demonstrations on zoo visitors' retention of information. *Anthrozoos*, 5(2), 113-121.

Interviewed adults who had attended the Animal All-Star Show to determine if its messages were reaching adults. The show, an entertaining children's-museum demonstration, was designed to demonstrate how the intelligence of some species enables them to help humans and to counteract

negative myths about certain species. Results indicated that the program's objective was being achieved: visitors' expression of concepts and recollection of content material were evidence that they made connections between the activities and the characteristic natural abilities of the animals. For example, 41% of visitors reported learning about the intelligence of pigs at the end of the program. Suggests that zoo visitors can receive humane messages while being entertained.

Hewitt, P. (1997). Games in instruction leading to environmentally responsible behavior. *Journal of Environmental Education*, 28(3), 35-7.

Tested fourth-, fifth-, and sixth-grade students before and after they played three of six instructional games to assess the effect(s) of the games on students' environmentally responsible behavior. Games covered such topics as wetlands, pollution, energy, world population, and endangered species. Results showed that students who had low pretest scores on environmentally responsible behavior generally scored higher after playing the games. Boys reported more improved environmentally responsible behavior than did girls. The games on pollution and world population were not shown to increase scores. Implies that games covering certain environmental topics can serve as an educational medium, though girls may need to be urged to participate to a greater extent so that their involvement and potential for benefit equals that of boys.

Hines, J.M., Hungerford, H.R., & Tomera, A.N. (1986). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *Journal of Environmental Education*, 18, 1-8.

Analyzed research available on environmental behavior to identify trends in findings. Results show that peoples' attitudes, verbal commitment, sense of responsibility, and knowledge of issues and action strategies are all associated with responsible environmental behavior. When compared to those with lower incomes, individuals with higher incomes appeared to be only slightly more likely to have reported engaging in responsible environmental behaviors. Studies that have directly measured behavior (as opposed to those that obtained self-reports of behavior) showed a stronger correlation between environmental knowledge and behavior.

Jordon, J.R., Hungerford, H.R., & Tomera, A.N. (1986). Effects of two residential environmental workshops on high school students. *Journal of Environmental Education*, 18(1), 15-21.

Tested high school students before and after participating in one of two six-day residential environmental education workshops to investigate the effect of issue awareness training alone and environmental action awareness training (in addition to issues training) on students' knowledge and environmentally responsible behavior. Results showed that only students receiving environmental action instruction reported engaging in more environmentally responsible actions following the workshop than they did prior to the workshop. Of the actions addressed in instruction, only those requiring little effort were taken by students. Demonstrates the success of a camp situation in which instructors model desirable behaviors and use carefully planned activities involving the acquisition of skills necessary for environmentally responsible action.

Kahn, P.H., & Friedman, B. (1995). Environmental views and values of children in an inner-city black community. *Child Development*, 66, 1403-1417.

Interviewed first-, third-, and fifth-grade students about their views and values regarding the natural environment to determine the importance of environmental issues among African-American children living in the inner city. Results showed that most of the children thought animals, plants, and parks were an important part of their lives for predominantly personal, human welfare, or aesthetic reasons. The majority of children reported talking about some aspect of the environment with family members, with a notable 47% having talked about garbage or litter. Nearly all children judged that throwing garbage in a bayou in their neighborhood to be "not all right." Suggests that the constraints of living in an economically impoverished inner city may not necessarily thwart children's appreciation and respect for nature.

Lane, J., Wilke, R., Champeau, R., & Sivek, D. (1994). Environmental education in Wisconsin: A teacher survey. *Journal of Environmental Education*, 25(4), 9-17.

Surveyed teachers to assess time devoted to teaching about the environment and their knowledge and attitudes regarding environmental education. Results show that although teachers feel that environmental education should be a priority, about 75% reported spending less than a half hour in each subject per week teaching about the environment. Most teachers who do not incorporate environmental education in their lessons fail to do so because of its perceived unrelatedness to their subject area or a lack of background in environmental education. Nearly one-third of the teachers responded that in-service training would influence them to teach about the environment, and slightly fewer reported that they would add environmental education to their curricula if better access to environmental education resources were provided. Calls for teacher education courses in environmental education to be made available to assist teachers in relating environmental issues to other subject areas.

Leeming, F.C., Porter, B.E., Dwyer, W.O., Cobern, M.K., & Oliver, D.P. (1997). Effects of participation in class activities on children's environmental attitudes and knowledge. *Journal of Environmental Education*, 28(2), 33-42.

Tested first- through sixth-grade students about their environmental attitudes and knowledge after they participated in a school-based program designed to encourage "proenvironmental" activities. Parents were also surveyed to measure environmental attitudes. Results showed that children who participated in the program generally exhibited more positive attitudes toward the environment compared to children exposed to the regular curriculum only. The program did not, however, increase knowledge relating to environmental issues. Regardless of whether children participated in the program, those in grades one through three showed more positive attitudes toward the environment than did older children, with participation in the program resulting in a marked increase in attitudes scores. Children in grades four through six generally showed a decline in attitude scores in the five to seven months between pretest and posttest, with program participation limiting the amount of decline in attitude scores. Responses from parents supported the conclusion that the program's activities had a positive influence on children's attitudes.

Margadant-van Arcken, M. (1989). Environmental education, children, and animals. *Anthrozoos*, 3(1), 14-19.

Observed kindergartners with animals and interviewed six- to twelve-year-old children regarding their experiences with animals and perceptions of nature to determine how animal interaction is useful in environmental education. Results show that young children (four to six years old) perceive plants and animals that do not move to be nonliving. To four-year-olds, fish, birds, and insects are not viewed as animals, and some five- and six-year-olds did not view insects as animals. Children generally expressed a much greater interest in living animals than in trees and plants. The children categorized animals according to their safety factor (most important), stroking factor, and playing factor. The amount of time required to trust an animal depended on the size and behavior of the species. Children quickly learn what to expect from animals that were allowed to walk around freely and be held. Suggests that children in a classroom situation should be allowed to play freely with animals in order for them to understand their symbiotic relationship.

Nyamwange, M. (1996). Public perception of strategies for increasing participation in recycling programs. *Journal of Environmental Education*, 27(4), 19-22.

Assessed public perception of selected strategies for increasing participation in city recycling programs. Households were surveyed regarding recycling frequency, items recycled, reasons for not recycling, and strategies for bringing awareness of recycling programs to the community. Results showed that most respondents (about 85%) participated in recycling programs to some degree, which may be due to the existence of mandatory recycling with curbside pickup. Most respondents were also knowledgeable about which materials were recyclable in their area. Television programs, public campaigns, newspapers, and radio advertisements were ranked as the top sources of recycling-related information. Among those who

did not participate in recycling programs, lack of knowledge (i.e., information on what and how to recycle) appeared to be the main deterrent. Suggests that educating the public on the mechanics of household recycling will increase their participation in recycling programs.

Pomerantz, G.A. (1990). Evaluation of natural resource education materials: Implications for resource management. *Journal of Environmental Education*, 22, 16-23.

Surveyed teachers from organizations representing science, social studies, math, and environmental education and evaluated elementary-level natural resource education materials to determine the emphasis of these materials on educational content and instructional goals. Results showed that in natural resource education materials for elementary students, the greatest emphasis is put on the basic knowledge of ecological principles. While virtually all lessons addressed knowledge about wildlife and the environment, only 31% dealt with attitudes or responsibility or stewardship for wildlife and the environment. Lessons gave little coverage of resource management and presented few opportunities for critical thinking and the application of knowledge to environmental action.

Roy, M., Petty, R., & Durgin, R. (1997). Traveling boxes: A new tool for environmental education. *Journal of Environmental Education*, 28(4), 9-17.

Surveyed Project WILD coordinators and representatives of environmental education organizations about their use of traveling multimedia educational trunks (also known as discovery kits and resource trunks), which are typically loaned to interested teachers for classroom use. Results showed that the portable boxes were used primarily to teach general wildlife/natural history. Most respondents supported the view that these boxes are useful as factual supplements to science curricula and as interdisciplinary teaching tools. Concerns regarding use of the boxes included the objection by animal rights organizations to the use of wildlife pelts in the boxes, the opportunity for special interest groups to provide misinformation via the boxes, the need for continued maintenance and replacement of damaged items, and the cost of shipping to rural schools.

Shepard, C.L., & Speelman, L.R. (1985). Affecting environmental attitudes through outdoor education. *Journal of Environmental Education*, 17(2), 20-23.

Surveyed 9- to 14-year-old students in three- and five-day outdoor education programs at a 4-H camp to determine whether camp participation affected environmental attitudes. Students participated in daily outdoor education classes emphasizing ecological concepts and were exposed to live-animal exhibits and organisms in a stream—activities intended to improve students' environmental outlooks. Results indicated that the program had little effect on environmental attitudes, but program length, previous camp experience, and students' age and residence did influence attitudes. The five-day program had a more positive effect on environmental attitude development than did the three-day program. Ten- to fourteen-year-old campers and repeat campers had already established conservation attitudes, and younger (9- to 11-year-old) campers appeared to be more in need of environmental education. Campers with a more rural background showed improvements in environmental attitudes in some instances, whereas urban campers showed no improvements.

Young, C.F., & Witter, J.A. (1994). Developing effective brochures for increasing knowledge of environmental problems: The case of the gypsy moth. *Journal of Environmental Education*, 25(3), 27-34.

Following the distribution of various educational brochures, homeowners were surveyed concerning their knowledge of the gypsy moth to determine the effectiveness of different strategies used in the brochures. Results show that the brochures helped increase knowledge about the biology and control of the gypsy moth. Carefully written brochures making use of headings and subheadings appeared to be most effective, followed by less carefully written brochures containing visual aids, i.e., keys, photographs, and charts. The least effective brochure differed from all others in its title, "Gypsy Moth Fact Sheet" (as opposed to "The Gypsy Moth in Michigan"). The ineffective brochure was also the only one in booklet format and contained cartoon-like drawings. Suggests that educational brochures are useful in increasing

homeowners' knowledge of an environmental problem, and there appear to be tradeoffs in designing effective brochures.

## **Moral/Character Education**

*Moral, or character, education has grown in popularity over the last decade, largely in response to what is seen as widespread erosion of basic social values among our nation's youth. The major goals of the national character education movement include preventing violence, drug use, and other forms of antisocial behavior, increasing civic involvement, and improving literacy. Increasingly, programs are being implemented in schools to help students develop social skills and values. Values typically of interest are responsibility, honesty, respect, empathy, compassion, kindness, and perseverance. Although programs often focus on peaceful conflict resolution and literacy, themes touching on the proper treatment of animals and the environment are often incorporated.*

*The following studies investigate moral development in individuals. Many address gender differences in peoples' use of "care" and "justice" moral orientations. Those concepts refer to the propensity to consider moral dilemmas chiefly in terms of justice and individual rights as opposed to being concerned with questions of caring, welfare, interpersonal harmony, and relationships with others. Thus, much of this research has implications for how moral education programs are designed to meet the character development needs of both sexes.*

Bauer, R.W. (1991). Correlates of student character development in small high schools (rural schools). (Doctoral dissertation, Bowling Green State University). Dissertation Abstracts International, 52(7-A), 2491.

Surveyed high school students to determine whether certain variables were related to character development. Results show that the character of students is strongly related to academic performance. Gives credence to the importance of character education programs in schools.

Beal, C.R., Garrod, A., Ruben, K., Stewart, T.L., & Dekle, D.J. (1997). Children's moral orientation: Does the gender of dilemma character make a difference? *Journal of Moral Education*, 26(1), 45-58.

Interviewed third-graders after reading two fables in which animal characters are confronted with a problem to determine whether gender differences exist in children's reasoning and whether their reasoning about moral dilemmas is influenced by the gender of the characters involved. Results showed that almost all of the children's responses reflected the care or rights orientation. No gender differences were found in the children's likelihood of suggesting solutions embodying the care orientation. Children's responses were not influenced by the gender of the characters in the fables. When cartoon drawings illustrating the stories were presented to reinforce the genders of the characters, the children's reasoning was still not affected by the gender of the characters and no gender differences in their moral orientations were found. Suggests that boys' and girls' reasoning about moral problems is similar in childhood.

Beringer, A. (1993). The moral ideals of care and respect: A hermeneutic inquiry into adolescents' environmental ethics and moral functioning (Doctoral dissertation, University of Michigan). Dissertation Abstracts International, 53(10-A), 3551.

Interviewed eleventh-grade students over a four-month period to evaluate their moral functioning with respect to environmental ethics. Results showed that moral ideals of "care" and "respect" guided students' moral thoughts and actions.

DeHaan, R., Hanford, R., Kinlaw, K., Philler, D., & Snarey, J. (1997). Promoting ethical reasoning, affect and behaviour among high school students and evaluation of three teaching strategies. *Journal of Moral Education*, 26(1), 5-20.

Tested high school students in ethics classes and a non-ethics comparison class to identify a strategy for promoting moral maturity in high school students. Results showed that an "economics ethics" class, an established economics course integrated with an ethics curriculum, had the greatest effect on students' moral reasoning. A "role-model ethics" class, a separate, non-curriculum-integrated course taught by graduate students, was not shown to have a positive effect on moral reasoning. That class did, however, have a negative effect on students' empathy. Provides evidence that ethics instruction by high school students' regular teachers has positive effects on the moral maturity of the students.

Donenberg, G., & Hoffman, L. (1988). Gender differences in moral development. *Sex Roles*, 18, 701-717.

Interviewed fifth-, sixth-, tenth-, and eleventh-grade students regarding solutions to a series of moral dilemmas that were read to them to determine whether gender differences existed in children's and adolescents' moral development. Results showed that for three of the dilemma stories, girls gave more care-oriented responses than did boys. Boys were more justice-oriented than were girls. Scores were not affected by the sex of the protagonists in the stories. Suggests that males and females emphasize different concerns when thinking about moral conflicts.

Dunlap, J.J. (1989). Moral reasoning about animal treatment. *Anthrozoos*, 2(4), 245-258.

Interviewed eighth- and twelfth-grade boys to identify patterns in reasoning about animal treatment. Each boy was asked to resolve hypothetical moral dilemmas involving humans and dilemmas involving chimpanzees, dogs, and turkeys. Results showed that boys used consistent reasoning patterns and were able to coherently and rationally think about animal treatment decisions. The boys' reasoning about moral dilemmas involving turkeys was moderately less advanced than their reasoning in regard to dogs or chimpanzees. Their reasoning about human dilemmas tended to be more advanced than their thinking about animal dilemmas. In their thinking about animals, older boys generally used more advanced reasoning levels than did younger boys. Suggests that the ability to reason about animals, like the ability to reason in regard to humans, improves with age.

Ford, M., & Lowery, C. (1986). Gender differences in moral reasoning: A comparison of the use of justice and care orientations. *Journal of Personality and Social Psychology*, 50, 777-783.

Surveyed undergraduate college students on their personal moral conflicts to determine whether gender was related to moral reasoning. Results showed that though females appeared more attuned to care issues and males to justice issues in moral conflicts, no significant sex differences were found in students' use of the two orientations. Suggests that care is not an exclusive female orientation nor is justice exclusively male.

Gibbons, S.L., & Ebbeck, V. (1997). The effect of different teaching strategies on the moral development of physical education students. *Journal of Teaching in Physical Education*, 17, 85-98.

Tested fourth- through sixth-grade students in physical education class on their level of moral development to assess the effectiveness of two types of teaching strategies. Results showed that students exposed to both the "social learning" and "structural development" curriculums exhibited more improved moral judgement, intention, and behavior than those not exposed to them. Students in the "structural development" group showed gains in moral reasoning when compared to those in the "social learning" group.

Host, K., Brugman D., & Tavecchio, L. (1998). Students' perception of the moral atmosphere in secondary school and the relationship between moral competence and moral atmosphere. *Journal of Moral Education*, 27, 47-70.

Surveyed students 12 through 18 years old regarding moral behavior, moral reasoning, and their opinions on moral dilemmas to measure students' perception of the moral atmosphere in secondary school. Interviews asked for feedback from the participants' perspectives and from the perspectives of their classmates (i.e., what they thought their classmates would say or think). Results showed that schools

differed in their moral atmospheres. Discusses an off-shoot study that examined teachers' caring attitudes toward students and found that teachers' attitudes were related to the moral atmosphere as perceived by the students. Suggests that improving the attitudes and skills of teachers is an effective strategy for improving moral atmosphere in schools.

Kessler, G.R., Ibrahim, F.A., & Kahn, H. (1986). Character development in adolescents. *Adolescence*, 21(81), 1-9.

Tested high school students in three psychology classes on their level of moral reasoning after a three-week character development unit was incorporated into two out of the three classes to determine whether exposure to the program would enhance students' character development. Results showed that students exposed to the character development curriculum exhibited improved moral reasoning right after the unit that remained a month later. No gender differences were found with regard to character development. Suggests that an interactive program in which students discuss moral dilemmas has lasting effects on character development.

Krebs, D.L., Vermeulen, S.C., Denton, K.L., & Carpendale, J.I. (1994). Gender and perspective differences in moral judgement and moral orientation. *Journal of Moral Education*, 23, 17-26.

Surveyed undergraduate students on moral dilemmas to identify disparities in moral orientation. Results showed that no gender differences existed in students' use of care and justice orientations in solving moral dilemmas. Suggests that since males and females are more alike than different in their moral orientations, strategies to enhance moral development can be used across the sexes.

Leicester, M., & Pearce, R. (1997). Cognitive development, self knowledge and moral education. *Journal of Moral Education*, 26(4), 455-472.

Interviewed adults in continuing education courses to identify the courses' impact on participants' cognitive and personal development. Results showed that adult learners gained new levels of understanding and knowledge. Suggests that a distinctive type of learning takes place in adulthood.

Leming, J.S. (1998). Whither goes character education? Objectives, pedagogy, and research in education programs. *Journal of Education*, 179, 11-34.

Reviews a sampling of typical character education programs and describes their goals and effectiveness. Includes discussion of a two-year evaluation of the Acquiring Ethical Guidelines for Individual Development (AEGIS) program, which is integrated into schools' everyday curriculums. Though results were inconclusive for grades one, two, and three, students exposed to the program in grades five and six experienced improvements in social responsibility, ethical behavior, care, and consideration. Students in the Child Development Project, a school-wide program for grades kindergarten through six, have shown improvement in self-esteem, sensitivity and consideration of others' needs, interpersonal harmoniousness, and conflict resolution skills. Similarly, Project Essential, a curriculum for Kindergarten through twelfth-grade, makes use of stories, decision-making exercises, and group discussions, was found to improve students' use of self control, acceptance of responsibility, and respect for others' rights.

Lopez, B.G., & Lopez, R.G. (1998). The improvement of moral development through an increase in reflection. A training program. *Journal of Moral Education*, 27, 225-241.

Tested eighth-graders in a training program aimed at increasing problem solving and self-instruction to determine whether an increase in reflectivity promoted moral development. Results showed that students in the program spent more time on test questions and made fewer errors. Those students' moral development was also improved. Suggests that the teaching of problem solving procedures, the anticipation of consequences, and strategies for dealing with problems enable students to improve their moral judgement.

Nevers, P., Gebhard, U., & Billmann-Mahecha, E. (1997). Patterns of reasoning exhibited by children and adolescents in response to moral dilemmas involving plants, animals, and ecosystems. *Journal of Moral Education*, 26(2), 169-186.

Analyzes children's patterns of reasoning in group discussions to assess the morally relevant values and attitudes of children and adolescents with regard to nature. Participants were confronted with a dilemma involving a conflict between the interests of a child and those of a plant, animal, or ecosystem. Results showed that children commonly use anthropomorphism in reasoning with regard to plants and animals. Adolescents appeared to be consciously aware that environmentally responsible behavior involves personal costs.

Pratt, M., Golding, G., Hunter, W., & Sampson, R. (1988). Sex differences in adult moral orientations. *Journal of Personality*, 56, 373-391.

Interviewed adults about hypothetical and personal moral dilemmas to investigate sex differences in moral orientations and factors influencing any differences. Results showed that for individuals in middle-adulthood, men were more likely to give justice-oriented responses than were women. In a second study of parents and nonparents, female parents were less justice-oriented than were male parents. No gender differences were found in the moral orientations of nonparents. Shows that moral orientation varies with phase in the life cycle and parental status.

Rothbart, M., Hanley, D., & Albert, M. (1986). Gender differences in moral reasoning. *Sex Roles*, 15, 645-653.

Interviewed university students about three moral dilemmas to determine whether men were more justice-oriented and females more care-oriented. Results showed that, although both sexes frequently used both moral orientations, women were more likely to consider issues of care. Suggests that gender must be considered as a factor influencing moral judgement.

Schlafli, A, Rest, J., & Thoma, S. (1985). Does moral education improve moral judgement? A meta-analysis of intervention studies using the DIT. *Review of Educational Research*, 55, 319-52.

Analyzes evaluations of educational interventions aimed at stimulating development in moral judgement in junior high school students through adults. Types of programs evaluated included group discussions of moral dilemmas, psychological/personality development programs, and social studies and humanities courses. Results showed that effects of the programs were generally strongest for adults and least powerful for junior high school students. Programs of longer duration (13-28 weeks) had no more effect than those of medium duration (4-12 weeks). Moral education programs focusing on the discussion of dilemmas were found to be most effective in improving individuals' moral development, with those emphasizing personality development slightly less effective. Academic courses in the humanities and social studies did not appear to have any effect on the development of moral judgement.

Vitz, P.C. (1990). The use of stories in moral development: New psychological reasons for an old education method. *American Psychologist*, 45(6), 709-720.

Provides psychological evidence that narrative thought, as opposed to abstract propositional or scientific thought, and thus narratives themselves (written, oral, and cinematic stories) are major factors in moral development. Refers to Robinson and Hawpe's conclusion that stories, by explaining and illustrating rules or maxims, enable people to better understand generalizations about the social order. Concludes that stories represent people's moral choices and, unlike abstract rules or arguments, are more likely to engage the audience and guide moral development. Argues that narrative should play a significant role in character education.

Walker, L. (1989). A longitudinal study of moral reasoning. *Child Development*, 60, 157-166.

Interviewed sets of parents and children (in grades one, four, seven, and ten) two times separated by a two-year interval about hypothetical and real-life dilemmas to determine whether age or gender differences existed in moral development. Results showed gains in moral reasoning in all age groups during the two-year period, especially in children. No sex differences were found in the use of "justice" and "care" moral orientations.

Walker, L.J., de Vries, B., & Trevethan, S.D. (1987). Moral stages and moral orientations in real-life and hypothetical dilemmas. *Child Development*, 58, 842-858.

Interviewed sets of parents and children (in grades one, four, seven, and ten) to examine the relation between reasoning about hypothetical moral dilemmas and real-life ones. Results indicated that the hypothetical dilemmas elicited a higher level of moral reasoning than the real-life dilemmas. People at a high level of moral development used both "care" and "justice" orientations. Shows that the discussion of hypothetical dilemmas is an effective way to evoke moral reasoning.

Wark, G.R., & Krebs, D.L. (1996). Gender and dilemma differences in real-life moral judgement. *Developmental Psychology*, 32(2), 220-230.

Tested undergraduate students about moral dilemmas to determine the effects of gender on moral maturity and orientation. Results showed that when faced with personal real-life dilemmas, females made more care-based moral judgements than did males. Participants used different forms of judgement in response to different types of dilemmas. Implies that as children mature, their moral judgements become more complex and less of a measure of their level of moral development (i.e., they may not perform at their level of moral competence in everyday life).

Zanolli, K.M., Paden, P., & Cox, K. (1997). Teaching prosocial behavior to typically developing toddlers. *Journal of Behavioral Education*, 7, 373-391.

Tested several strategies for teaching prosocial behavior to toddlers exhibiting aggression, including the use of prompts, praise, and consequences. Results showed that adding tangible consequences to toddlers' actions increased the frequency of turn-taking and affectionate behaviors. Providing prompts and praise was not as effective.

## **Interaction with Animals**

*Anecdotal evidence of the strength of the human-animal bond and the benefits to people of interacting with animals abounds. The following studies have sought to identify the effect of interaction with pets and other animals in various settings on the development of children's social skills, empathic and nurturing behavior, and attitudes toward animals. In addition to generally confirming the benefits to people of interaction with animals, the findings of some of these investigations are relevant to the ongoing debate on the advisability of keeping classroom pets.*

Bailey, C.M. (1987). Exposure of preschool children to companion animals: Impact on role-taking skills (Doctoral dissertation, Oregon State University). *Dissertation Abstracts International*, 48, AAC8724466.

Assessed the impact of a preschool pet-care curriculum—with and without the inclusion of a component in which the children were exposed to a puppy—on children's affective, cognitive, and perceptual role-taking abilities. Pretest results showed that before the curriculum was implemented, children with pets at home had role-taking abilities equal to those of children without pets at home. Students in the group exposed to the puppy experienced improved affective role-taking abilities when compared to students in the group without the puppy. Suggests that exposure to pets through a structured curriculum can lead to increased empathy in children that will last over time.

Brucklacher, B. (1992). The effects of live- and stuffed-animal displays on the behaviors and attitudes of kindergarten students (Doctoral dissertation, The Pennsylvania State University), Dissertation Abstracts International, 53-05A, 1392, AAG9226656.

Tested 96 kindergarten students on their attitudes to animals before and after interaction with a live or toy guinea pig. Results showed students made more and longer visits to the live guinea pig than to the stuffed-animal toy. Animal-related attitudes did not change as a result of interaction with either the live or toy guinea pig.

Kidd, A.H., & Kidd, R.M. (1990). Social and environmental influences on children's attitudes toward pets. *Psychological Reports*, 67, 807-818.

Interviewed pet-owning and non-pet-owning preschool through high school students about affection for pets, ownership of pets by friends and relatives, contacts with nonfamily pets, and school and leisure activities relating to animals. Results showed that more children with pets than those without them liked pets, had favorable discussions about pets, did school assignments related to animals, read animal-related stories, enjoyed wildlife parks and zoos, and were aware of wildlife/pet differences. More children without pets had contact with neighbors' pets and reported knowing people who disliked animals than did children with pets. More boys than girls reported enjoying animal-related television programs.

Kidd, A.H., & Kidd, R.M. (1990). Factors in children's attitudes toward pets. *Psychological Reports*, 66, 775-786.

Surveyed children and their parents in pet-owning and non-pet-owning homes to investigate the effects of parental attitudes, family features, and the presence or absence of household pets on children's attitudes toward companion animals. Results showed that children in families with pets showed more interest in pets than children in households without pets. Children with parents exhibiting strong attachment to pet(s) reported more activities with and interest in pets than did children of parents who were indifferent or hostile to pets. There were no differences in these variables for children of large and small families. Though no gender differences were noted in the level of activities with pets, girls generally showed more interest in pets than did boys. In households with pets, girls showed more responsibility toward caring for their pets than did boys. Older children appeared to engage in more activities with and show more interest in their pets than did preschoolers.

Kidd, A.H., & Kidd, R.M. (1990). High school students and their pets. *Psychological Reports*, 66, 1391-1394.

Interviewed high school students from pet-owning families to analyze adolescents' relationship with their companion animals. Results showed that all subjects felt that their pets loved them and could communicate with them via natural behaviors and "body language." Ninety percent reported loving their pets and 76% reported missing their pets while away. Girls reported missing their pets more than did boys. Ninety-one percent of participants reported friendship, emotional support, and unconditional love among the psychological benefits of owning pets.

Kidd, A.H., & Kidd, R.M. (1989). Factors in adults' attitudes toward pets. *Psychological Reports*, 65, 903-910.

Surveyed adults about pet ownership, attachment, and marital status to investigate whether current pet ownership, childhood ownership, sex, and family size influenced adults' attitudes and attachment to pets. Results showed that present pet ownership was the most important variable in attachment to pets, with pet owners more attached than nonowners. Adults who had owned a pet in the past—particularly those who had owned a pet in childhood or adolescence as opposed to adulthood—were also more attached than those who had never owned a pet. Singles and those without children were more attached to pets than married participants or parents.

Kidd, A.H., & Kidd, R.M. (1987). Reactions of infants and toddlers to live and toy animals. *Psychological Reports*, 61, 455-464.

Observed 6-, 12-, 18-, 24-, and 30-month-old infants and toddlers in their homes with a parent, the family dog(s) and/or cat(s), and a mechanical dog and cat to determine whether live or toy animals were preferred. Results show that all 12- to 30-month-olds spent more time interacting with and showed more attachment behaviors toward the live pet than toward the mechanical pets. Six-month-olds did not show a preference. All children smiled at, held, followed, and verbalized to the live pets more often than the mechanical ones. Sex differences were also noted. Six- and 12-month-old boys showed more attachment behaviors than did girls, while 24- and 30-month-old girls showed more of these behaviors than did boys. Six- to 18-month-old boys laughed at, held, and followed their pets more often than did girls, while 24-month-old girls exhibited these behaviors more frequently than did boys.

Kidd, A.H., & Kidd, R.M. (1985). Children's attitudes toward their pets. *Psychological Reports*, 57, 15-31.

Interviewed 3- to 13-year-olds, 90% of whose families owned pets, regarding their interaction with and attitudes toward companion animals. Findings indicated that 61% of children believed their pets communicated in some way, with younger children more likely to respond that their pets could talk than older children. Fifty-one percent of children, particularly older children, reported that their pets could understand them. Nearly all children reported that their pets loved them and that they loved their pets, but boys were less likely than girls to say this. Thirty-two percent of participants cited psychological benefits their pets provided, such as happiness and comfort, and 15% said a pet gave them unconditional love.

Melson, G.F., & Fogel, A. (1996). Parental perceptions of their children's involvement with household pets: A test of a specificity model of nurturance. *Anthrozoos*, 9(2/3), 95-105.

Surveyed parents of preschool, second- and fifth-grade children to identify the role of pets and younger children in the development of nurturance. Results show that pet care generally increases with age. The amount of time spent with pets was found to be associated with children's expressed interest in animals. Though no gender differences were found in the frequency of play and caregiving to pets, girls were found to spend more time with babies and younger children and expressed more interest in nurture. Provides evidence that interaction with pets, which appear to be a "gender neutral target of nurturance," may be particularly important in the development of boys' nurturing behaviors.

Meyers, G. (1997). *Children and Animals*. Boulder: Westview Press.

Describes a year-long study designed to identify the effects of interaction with animals on children's attitudes, behavior, and social development. Preschoolers were observed interacting with various animals in a nursery school classroom. Results show that children become aware of an animal's agency or capacity to exert power, which helps them recognize their own power and influence over others. Children's desire to confirm their own agency usually motivates them to become nurturing toward animals, but can also cause them to treat animals inhumanely. When interacting with animals, children often engage in role-playing in which they act out animals' feelings and behaviors, thus relating to the animals on a personal level. Suggests that regular, supervised interaction with animals helps children develop empathy and social skills.

Nielsen, J.A., & Delude, L.A. (1989). Behavior of young children in the presence of different kinds of animals. *Anthrozoos*, 3(2), 119-129.

Observed day-care and kindergarten children's interactions with a live tarantula, a cockatiel, rabbits, dogs, and toy animals, which were introduced to their classrooms on two occasions to assess the children's behavior toward various types of animals. Results indicated that while toy animals were of little interest, live animals elicited direct verbal and tactile interaction. The dog and rabbits evoked more physical contact from the children than did the cockatiel or tarantula. The cockatiel and dog were most often approached. Though none of the children touched them, the cockatiel and tarantula generated the

most verbal behavior among the children. Shows that live animals facilitate social interactions among day-care and kindergarten children.

Paul, E.S., & Serpell, J.A. (1993). Childhood pet keeping and humane attitudes in young adulthood. *Animal Welfare*, 2, 321-337.

Surveyed college undergraduates and postgraduates about childhood pet ownership to investigate the possibility of an association between pet keeping in childhood and humane attitudes in young adulthood. Results showed that students' attitudes toward pets were positively related to the number of pets they had owned in the past, the number of pets their family had owned, and the number of pets that were important to them in some way during childhood. Students' reported concern about the treatment and welfare of laboratory, farm, and wild animals was also associated with involvement with companion animals in childhood. Members of animal welfare organizations and those who avoided at least one animal food product for ethical reasons reported having had more important pets than did those who were indiscriminate consumers of animal products. Suggests that having a pet in childhood helps people develop more positive and caring attitudes toward animals in adulthood.

Poresky, R.H., & Hendrix, C. (1990). Differential effects of pet presence and pet-bonding on young children. *Psychological Reports*, 67, 51-54.

Surveyed parents of three- to six-year-old children about children's relationships with their companion animals and their social competence to examine the influence of pets on the development of empathy, cooperation, and intelligence in children. Results showed that the more bonded a child was to his or her pet, the more cooperative, empathic and socially competent he or she was. No associations between the mere presence of a pet and these variables were found. Suggests that young children derive developmental benefits from a close relationship with a pet.

Poresky, R.H., Hendrix, C., Mosier, J.E., & Samuelson, M.L. (1988). Young children's companion animal bonding and adults' pet attitudes: A retrospective study. *Psychological Reports*, 62, 419-25.

Surveyed university undergraduate and graduate students about pet ownership, childhood and adult pet bonding, and attitudes toward pets to assess their attitudes toward companion animals. Results showed that women were more likely to express positive attitudes toward pets. Childhood pet ownership was associated with current pet ownership. Respondents who were more bonded to childhood pets showed more positive attitudes to pets in adulthood than those who were less bonded to their pets as children. Those who had pets earlier in life exhibited more positive attitudes to pets as adults when compared to those who had their first pet later in childhood. Suggests that childhood companion-animal bonding influences adults' contemporary attitudes toward pets.

### **Attitudes Toward Animals (General)**

*Although self-reported attitudes are often unreliable predictors of behavior, the development of positive attitudes toward animals has been an important objective of humane education for many years. The studies annotated in the sections on attitudes are investigations into the factors that may influence the development of attitudes relating to animals generally, wildlife and the environment, and the use of animals in research. Such factors include gender, pet ownership, and religious and political orientation. Understanding how and why children, adolescents, and adults feel the way they do about animals and animal-related issues can help humane and environmental educators tailor their goals and methods to the specific needs of their audience.*

Bowd, A.D., & Bowd, A.C. (1989). Attitudes toward the treatment of animals: A study of Christian groups in Australia. *Anthrozoos*, 3(1), 20-24.

Surveyed churchgoers about their attitudes toward the treatment of animals to investigate the role of theological orientation on attitudes to animals. Results showed that women showed more positive attitudes to animals than did men. The denominational membership of churchgoers was related to attitudes toward the treatment of animals. More theologically liberal groups (e.g., Quakers) tended to display more positive attitudes toward animals than did groups with more structured belief systems, such as Baptists.

Bowd, A.D. (1984). Fears and understanding of animals in middle childhood. *The Journal of Genetic Psychology*, 145(1/2), 143-144.

Surveyed fifth-grade students to determine associations between children's gender, experience with pets, and attitudes toward animals—and their reported fears of animals. Results showed no real gender differences in fear of animals. Children owning pets were less likely to express fears of animals or dislike of certain species. Reported fears of animals were related to children's expressed dislike of several species, including species perceived as nonthreatening. Suggests that contact with animals underlies more positive attitudes to animals and less fear of them.

Hills, A.M. (1993). The motivational bases of attitudes toward animals. *Society and Animals*, 1(2), 111-128.

Surveyed the urban public, members of a farmers' organization, and animal rights supporters to develop a theoretical foundation and framework with which to understand attitudes toward animals. Results showed that empathy was associated with support for the animal rights position. When compared to farmers and animal rights activists, the public appeared to take nearly a neutral position on values issues relating to animals. Individual members of the public showed much ambivalence, often agreeing with opposite arguments. Approximately 67% of the public felt that their beliefs about animals were "not too important" or "somewhat important" in relation to other concerns in their lives. Suggests that the urban public lack a consistent values basis for their attitudes and, as a result, public attitudes are likely to change depending on variables like the emotional appeal of a particular animal, the level of cruelty involved in the treatment of an animal, and prevailing social norms.

Kellert, S.R. (1985). Attitudes toward animals: Age-related development among children. *Journal of Environmental Education*, 16(3), 29-39.

Tested second-, fifth-, eighth-, and eleventh-grade students on the classification and behavior of various species and the origins of specific food products to examine children's knowledge and attitudes toward animals. Results indicate that most children have a limited knowledge of those animal-related topics. Most expressed negative attitudes toward predation and nutrient recycling and failed to appreciate their ecological value. Children were most knowledgeable about basic biological characteristics of animals. Rural children appeared to be particularly knowledgeable, with African-Americans and urban children scoring lower. Males showed greater knowledge, particularly about predators. Females generally expressed a more negative view of predators. With regard to attitude, children most commonly exhibited a "humanistic" attitude, showing most interest in and strong affection for pet animals.

Melson, G.F., & Fogel, A. (1989). Children's ideas about animal young and their care: A reassessment of gender differences in the development of nurturance. *Anthrozoos*, 2(4), 265-273.

Describes results from interviews of 85 children ranging in age from three to eight years regarding their ideas on the nurturance of puppies and kittens. Researchers sought gender differences in conjunction with age, pet ownership, and sibling status. Most of the children labeled pictures of puppies and kittens as "babies" and were able to generate various species- and age- appropriate descriptors. Indicates that, even at preschool age, children are capable of describing unique characteristics of animal young and of understanding caregiving methods for these animals. Second-grade males understood animal-related nurturance more than same-grade females and younger males.

Merckelbach, H., Van Den Hout, M.A., & Van Der Molen, G.M. (1987). Fear of animals: Correlations between fear ratings and perceived characteristics. *Psychological Reports*, 60, 1203-1209.

Surveyed University students about fear, avoidance, and perceptions of different small animals to determine whether people are predisposed to fear certain animals. Results showed that students' self-reported fear and avoidance of an animal was related to the perceived "strangeness" of the animal (e.g., "looks strange," "feels odd when touched," "makes strange noises"). Students expressed most fear and avoidance of the grass snake, rat, jellyfish, cockroach, and spider. For women only, fear was related to an animal's smell and predictability.

Ten Brink, B.L. (1984). Fifth grade students' attitudes toward ecological and humane issues involving animals (Doctoral dissertation, University of Texas at Austin). Dissertation Abstracts International, 45, AAC8421810.

Surveyed fifth-grade students about their experiences with pets, zoo visits, and attitudes to animals after a two-month period of caring for classroom animals. Results showed that students with pets at home and access to classroom animals had more positive attitudes regarding ecological and humane issues involving animals than did children with no access to pets at home or in the classroom. Experiences at zoos were not shown to affect attitudes. Boys expressed more positive attitudes to animals than did girls. Provides evidence of the value of pets and live classroom animals on children's attitudes toward animals.

Wells, D.L., & Hepper, P.G. (1995). Attitudes to animal use in children. *Anthrozoos*, 8(3), 159-170.

Surveyed secondary school students to investigate the influence of gender, age, place of residence, and pet ownership on children's attitudes toward the use of animals. Results showed that more than 90% of those surveyed owned pets. More rural children owned pets than did urban children, and rural children agreed more with the use of animals than did urban children. Males generally expressed more agreement with the use of animals than did females. More children disagreed with uses of animals involving death or injury as opposed to merely exploitative uses. Dog fighting was the most disapproved of use, followed by deer hunting. Dog shows and show jumping were most approved of. Pet ownership was generally not found to be associated with attitudes toward animal use issues. Suggests that strong attitudes to animal use are formed early in development.

### **Attitudes Toward Wildlife/Environment**

*Although self-reported attitudes are often unreliable predictors of behavior, the development of positive attitudes toward animals has been an important objective of humane education for many years. The studies annotated in the sections on attitudes are investigations into the factors that may influence the development of attitudes relating to animals generally, wildlife and the environment, and the use of animals in research. In regard to wildlife and the environment, such factors include gender, age, race, residence, income and education level, experience with animals, knowledge of environmental phenomena, political orientation, and the media. Understanding how and why people feel the way they do about animals and animal-related issues can help humane and environmental educators tailor their goals and methods to the specific needs of their audience.*

Arcury, T.A., & Christianson, E.H. (1993). Rural-urban differences in environmental knowledge and actions. *Journal of Environmental Education*, 25(1), 19-25.

Surveyed residents of 14 counties to determine whether residence and sociodemographic factors were related to environmental knowledge and concern, environmental world view, and involvement in earth-friendly activities. Results indicated that place of residence had generally little effect on the characteristics measured, whereas sociodemographic factors such as income, educational level, and gender had a significant effect. Income was positively related to global knowledge. Higher income respondents, for example, showed greater environmental knowledge than those with lower incomes; more highly educated

respondents scored higher on environmental world view and knowledge measures; and males had significantly greater global environmental knowledge than did females.

Arcury, T.A., & Johnson, T.P. (1987). Public environmental knowledge: A statewide survey. *Journal of Environmental Education*, 18(4), 31-37.

Surveyed Kentucky residents about their knowledge of environmental and energy-related issues to assess their general environmental knowledge. Results indicated that environmental knowledge is poor, an outcome roughly equivalent to results produced by national surveys. Respondents appeared to know less about state environmental issues than they did about national issues. More educated respondents expressed more environmental knowledge than less educated respondents, and women appeared less knowledgeable than men.

Bixler, R.D., Carlisle, C.L., Hammitt, W.E., & Floyd, M.F. (1994). Observed fears and discomforts among urban students on field trips to wildland areas. *Journal of Environmental Education*, 26(1), 24-33.

Surveyed staff members of outdoor learning centers about students' fears on field trips in wilderness areas. Respondents reported that students most commonly express a fear of snakes and, to a slightly lesser extent, insects. About 44% noted a fear of spiders in their students. Seventy-three percent responded that their students are fearful of exotic animals, and 31% observed a fear of mammals in general. Fifty-six percent reported a fear of plants and fear of getting lost. It was also found that many students referred to snakes and insects, dirt or mud, water, and various smells as "disgusting." Thirty-one percent of educators observed in students a general fear of being in the woods, with the same proportion noting fears relating to the trail and "nighttime." Twenty-nine percent reported fears relating to weather, 19% to sounds, and 33% of respondents noted a fear of strangers, with references made to "killers" and "crazy people." As for demographics of the students, gender was insignificant, but 47% of respondents associated urban residency with fearful responses of students. Suggests that urban students develop misconceptions about wildland areas before visiting nature centers.

Blum, A. (1987). Students' knowledge and beliefs concerning environmental issues in four countries. *Journal of Environmental Education*, 18(3), 7-13.

Compared five surveys conducted in the United States, Australia, England, and Israel on ninth- and tenth-grade students' knowledge of and attitudes toward environmental issues. Results showed that students' general knowledge was poor. Boys scored higher than girls did on factual knowledge in all countries, but no gender differences were found in attitude scores. Compared to the other countries, students in Israel (where biology in junior high school emphasizes ecology) scored high on ecological knowledge. In the countries where sources of environmental information was investigated (Australia, England, and Israel), the mass media were reported as the most important source, as opposed to school. Suggests that radio, television, and the press can be effective in drawing attention to a problem but are not suited to educate.

Caron, J.A. (1989). Environmental perspectives of Blacks: Acceptance of the "new environmental paradigm." *Journal of Environmental Education*, 20, 21-26.

Interviewed African-Americans residing in urban areas about local environmental problems (e.g., animal pests, excessive noise, garbage dumps, and abandoned homes) to measure perceived exposure to neighborhood environmental problems and compared their responses with those of a largely Caucasian sample. While results showed that the two groups' response pattern was generally similar and indicated a moderate acceptance of a pro-environmental perspective, specific differences were found on particular items. African-American respondents were more likely to favor humans' right to change the environment to suit their needs and showed less disagreement than the Caucasian group with the "anti-environment/man over nature" items. Suggests that African-Americans do not hold a negative view toward environmental protection.

Cohen, S & Horm-Wingerd, D. Children and the environment: Ecological awareness among preschool children. *Environment and Behavior*, 25(1), 103-120.

Interviewed children in preschool programs for three-, four-, and five-year olds, using pictures and drawings, to examine their ecological awareness. Results indicated a wide variation in children's performances. No differences based on age, gender, or setting were found in children's responses to the "discrimination" task, in which they were asked to compare two drawings that were identical except for evidence of trash, pollution, or overcrowding. For the "picture comprehension" task, in which children were asked questions regarding scenes depicting ecological events, 3-year-olds scored lower than 4- or 5-year olds, though all age-groups interviewed were generally aware of ecological events.

Dolin, E.J. (1988). Black Americans' attitudes toward wildlife. *Journal of Environmental Education*, 20(1), 17-21.

Reviewed two studies, Kellert & Berry (1981) and Washington (1976) about African-Americans' attitudes towards wildlife to characterize African-Americans' interest in and knowledge about wildlife. Results showed that African-Americans' interest in and knowledge of wildlife is limited, and much more so than that expressed by Caucasians. In the Washington study, most African-American respondents expressed interest in wildlife and natural resource conservation, but 62% reported a dissatisfaction with their current knowledge and understanding of wildlife. In the study by Kellert & Berry, African Americans expressed the least concern of any demographic group for the environment and wildlife. Educated and higher income African-Americans were found to be much less interested in, knowledgeable about, or involved with wildlife than were Caucasians of similar socioeconomic status. Differences in attitudes among all respondents of lower socioeconomic status were generally small.

Gigliotti, L.M. (1994). Environmental issues: Cornell students' willingness to take action, 1990. *Journal of Environmental Education*, 26(1), 34-42.

Surveyed undergraduate students to assess their attitudes toward environmental issues and potential solutions to environmental problems. Students indicated little difference in importance among the environmental issues presented (e.g., reduction of hazardous waste, improvement of air quality, and conservation of endangered species). When asked about preferred solutions to environmental problems, students chose "voluntary lifestyle change" as most acceptable. A decrease in governmental services to pay for environmental improvement was rated least favorable. When presented with a list of trade-offs, students chose "mandatory restrictions on hazardous household products" as most acceptable. Trade-offs affecting automobile use, job opportunities, and especially residence near a hazardous-waste treatment facility were least acceptable. Suggests that students understand that environmental issues are interrelated and deserve equal attention, but there is a need for educators to teach the value of accepting various trade-offs to increase environmentally-acceptable behaviors.

James, K. (1993). A qualitative study of factors influencing racial diversity in environmental education. (Doctoral Dissertation, University of Minnesota), Dissertation Abstracts International, 54-05A, 1947, AAC 9328350.

Interviewed people of color working in environmental education about their career paths and methods to improve racial diversity in the field. Results showed that common factors in participants' career selection included positive experiences in the outdoors, influential mentors, an inherent interest in nature or environmental concerns, an interest in science, reading, and a sense of cultural identity related to the environment. Factors reported to inhibit participation in environmental work included cultural differences, lack of exposure to nature, lack of factual information about environmental issues, racial stereotypes, and racism. Among actions that may lead to greater racial diversity in environmental education, participants reported the broadening of the scope of issues addressed by environmental education, seeking input on the issues and organizational policies from people of color, and providing role models from a variety of racial and cultural backgrounds.

Kidd, A.H., & Kidd, R.M. (1998). General attitudes toward and knowledge about the importance of ocean life. *Psychological Reports*, 82, 323-329.

Surveyed residents of San Francisco about their knowledge and attitudes regarding oceanic ecology, marine life, and previous visits to aquariums to determine the average American's level of awareness and knowledge of ocean life. Results show that 98% of citizens believe that oceans and marine life are necessary to human ecology and survival, and 67% reported that they identify with the goals of marine life protection organizations. Eighty percent had learned about the importance of the ocean from grade and high school courses and textbooks. More men than women attributed their oceanic knowledge to school, and more women than men acquired ocean-related information from television, newspapers, and magazines. Age-related differences in knowledge were also found, with those under 50 years old more accurately informed about oceanic biology and ecology than their over-50 counterparts.

Kidd, A.H., & Kidd, R.M. (1997). Aquarium visitors' perceptions and attitudes toward the importance of marine biodiversity. *Psychological Reports*, 81, 1083-8.

Interviewed aquarium visitors about their visit, other aquariums visited, marine-related activities, and how their perceptions of marine life may have changed during the visit. Results show that 71% of aquarium visitors owned pets during childhood, with 15% owning fish. Forty-two percent stated they had no background information about marine biology, while 18% had read "a few pages" on the subject in school textbooks. Although 78% reported that their knowledge and feelings about marine life did not change as a result of their visit, 21% said they learned a little more and felt more positive toward marine animals. Suggests that a more substantial and interest-stimulating account of material about oceans and marine biology should be included in school curriculums.

Kidd, A.H., & Kidd, R.M. (1997). Characteristics and motivations of docents in wildlife education. *Psychological Reports*, 81(2), 383-6.

Interviewed adult volunteer wildlife educators at a wildlife museum about their attitudes toward their work in order to characterize their motives for volunteering. Results show that most volunteers became interested in animals during childhood, with 93% having owned pets during childhood. Eighty-nine percent had parents or grandparents who exposed them to wildlife and showed care and concern for animals. The majority volunteered so they could share interests and concerns with others and considered their primary purpose to be teaching children about animal care and protection and nature. Eighty-four percent noted that they were previously trained to teach children and adolescents and had served in educational roles in schools, camps, churches, etc. Suggests that qualified volunteers in wildlife education could be most effectively recruited from schools of education and from grade school, church school, and teachers' aides groups.

Kidd, A.H., & Kidd, R.M. (1997). Characteristics and motivations of adolescent volunteers in wildlife education. *Psychological Reports*, 80(3), 747-753.

Interviewed museum-based wildlife education volunteers from 12 to 16 years old to assess their motives for learning and teaching about wildlife and the environment. The sample was approximately one-third male and two-thirds female. Most of the adolescents reported having developed an interest in wildlife prior to elementary school. While it was found that school activities had very little influence on volunteers' attitudes toward animals, the adolescents reported that their families were very important factors in the development of their interest in and concern for wildlife. Seventy-five percent had been taken to zoos, museums, and on camping trips by their parents. Ninety-five percent of the adolescents' families had one or more pets. Demonstrates the importance of families in the development of positive attitudes toward wildlife. Suggests that there is a particular need for the establishment of programs to educate youth about wildlife in urban areas where housing restrictions may limit pet ownership.

Kidd, A.H., & Kidd, R.M. (1996). Characteristics and motives of volunteers in wildlife rehabilitation. *Psychological Reports*, 79(1), 227-234.

Interviewed volunteer wildlife rehabilitators about pet ownership and their interest in wildlife rehabilitation to characterize their motives for volunteering. Results indicated that about 90% of participants had pets as children. Seventy-five percent reported that they had an interest in caring for injured wildlife since early

childhood. Respondents' motives for working in the field included a desire to help injured animals, enjoyment of hands-on nurturing, the opportunity for "making a difference," the fulfillment of concerns for the environment, and a belief in the importance of saving animals.

Kidd, A.H., & Kidd, R.M. (1996). Developmental factors leading to positive attitudes toward wildlife and conservation. *Applied Animal Behaviour Science*, 47, 119-125.

Interviewed 3- to 12-year-old museum visitors and their parents about pet ownership, zoo/museum visits, and favorite wild animal(s) to examine children's attitudes toward wildlife. Results showed that while 3- to 5-year-olds focused on animals' behavior and appearance, 6- to 8-year-olds exhibited perspective-taking as they displayed rudimentary elements of concern for wildlife and animal endangerment. Those 9 to 12 years old expressed empathy and altruism in their concern to protect and care for wildlife. Children's attitudes toward wild animals seemed to progress through the same stages of emotional and cognitive development as did their attitudes toward pets.

Kidd, A.H., & Kidd, R.M. (1995). Developmental factors in positive attitudes toward zoo animals. *Psychological Reports*, 76(1), 71-81.

Interviewed 3- to 7-year-olds and their parents at a petting zoo and at one of three zoo exhibits—monkeys, lions/tigers, and elephants—to examine the effects of distance, visibility, and tactile stimulation generated by animal exhibits on children's zoo experience. Nearly all the children reported that zoo visits were fun and about half reported having learned something new after each visit. About 70% chose the monkeys, big cats, elephants, and giraffes as favorite animals to visit. Younger children at the petting zoo watched the animals longer than did older children before petting them. Children at the petting zoo spent more time watching, smiling at, laughing at, and talking to the animals than did children at the traditional zoo exhibits.

Lien, J. (1992). Whales, fishermen, and marine parks: Attitudes toward conserving and managing our ocean's resources. *Marine, Lake, and Coastal Heritage* [Proceedings of a Heritage Resources Centre Workshop]. Department of Recreation and Leisure Studies and Heritage Resources Centre. University of Waterloo.

Discusses the effectiveness of a campaign to educate fishermen about endangered humpback whales and reports on a 1985 survey (Walter & Lien) of fifth- and ninth-graders' knowledge and attitudes about whales, oceans, and the effects of human activity on the ocean. Results showed that factual information about whales did not influence fishermen's attitudes. Students appeared to lack basic knowledge relating to energy and food webs. Ninth-grade students were generally more knowledgeable than fifth-graders. The greatest source of information about the ocean was school and television. Those living near the ocean scored lower on ocean knowledge than did children who lived inland. Attitudes toward the ocean were generally positive, but those living near the ocean were more likely to have a consumptive or utilitarian attitude to the ocean environment than were those living inland. Suggests that unguided direct experience with the ocean does not guarantee learning.

Lyons, E. & Breakwell, G.M. (1994). Factors predicting environmental concern and indifference in 13- to 16-year-olds. *Environment and Behavior*, 26(2), 223-238.

Examined the role of scientific knowledge, interest, and attitudes in the formation of young peoples' environmental views. Thirteen- to sixteen-year old students were surveyed about their level of concern relating to several environmental problems and their knowledge about and interest in science. Results indicated that older children showed more environmental concern than did younger children. Though no gender differences were found in students' levels of concern, girls tended to report that they knew less about industrial pollution than did boys. Students who expressed concern about environmental issues were generally of a higher socioeconomic class, had greater scientific knowledge, and watched science programs on television more often than did children who were indifferent about environmental issues.

Marcellini, D.L., & Jenssen, T.A. (1988). Visitor behavior in the National Zoo's Reptile House. *Zoo Biology*, 7, 329-338.

Observed visitor behavior at a zoo's reptile house to evaluate visitor preferences and investigate possible influences of gender, age, or group type (i.e., family group, peer group, couple, or single person). Results showed that most visitors were in family groups. No differences in time spent at exhibits among age, sex, or group type were found. Visitors spent more time viewing large animals (like crocodiles) than smaller species (amphibians and small lizards).

Morgan, J.M. (1987). Modifying children's attitudes and knowledge about snakes through interpretation (Doctoral dissertation, Texas A & M University). Dissertation Abstracts International, 48-12A, 3197, AAC8802118.

Tested fifth- through eighth-grade camping students on their attitudes and knowledge of snakes to evaluate the effectiveness of a program on snakes which included exposure to live snakes, a demonstration on snake behavior, and a slide presentation. Results indicated that the mere exposure to snakes did not improve students' attitudes toward the animals. The informational slide presentation increased students' knowledge of snakes but did not affect their attitudes. Students exposed to a demonstration of snake behavior combined with opportunities for contact showed an increase in positive attitudes.

Noe, F.P., & Snow, R. (1989). Hispanic cultural influence on environmental concern. *Journal of Environmental Education*, 21, 27-34.

Surveyed south Florida residents to determine whether differences in ethnic background influenced attitudes toward the environment. Results indicated that in the general south Florida population, more Hispanics than non-Hispanics oppose mankind's domination over the environment. Results of a separate field survey of boaters and park users indicate that Hispanics have a preservation ethic similar to that found in non-Hispanics in the general population. Suggests that Hispanic heritage and National Park use (e.g., boating) influences environmental attitudes.

Petrzelka, P., Korsching, P.F., & Malia, J.E. (1996). Farmers' attitudes and behavior toward sustainable agriculture. *Journal of Environmental Education*, 28(1), 38-44.

Surveyed farmers who practiced sustainable agriculture (methods that protect soil and water resources, promote human health, and support rural communities) about their use of these methods and demographics to examine the relationship between their attitudes and behavior and the role of social influences on their farming behavior. Results showed that attitudes were moderately related to farming behavior and social influences did not appear to play a significant role. Rather, farmers' age, income, and sources of farming information affected use of sustainable farming methods. Older, lower-income farmers who used sustainable agriculture sources of information generally reported lower chemical use than younger, higher-income farmers who used conventional farming sources. Suggests that educational programs providing farmers with information about the personal, community, and societal benefits of sustainable agriculture are needed.

Reade, L.S., & Waran, N.K. (1996). The modern zoo: How do people perceive zoo animals? *Applied Animal Behavior Science*, 47, 109-118.

Interviewed the general public and zoo visitors about their perceptions of and attitudes toward zoo animals and the conditions in which they live. Results showed that younger participants (20- to 39-year-olds) and females responded to zoo animals with more compassion and empathy than did older participants and males. When compared to the general public, zoo visitors tended to see the animals as better cared for, happier, and less bored. Zoo goers were also more aware of the importance of environmental enrichment to the animals. Older zoo visitors were more likely to see zoo animals as "very exciting" to observe. Among respondents at the zoo, their main motivations to visit were entertainment-based.

Richards, D.D., & Siegler, R.S. (1984). The effects of task requirements on children's life judgements. *Child Development*, 55, 1687-1696.

Tested children from four to seven years old about what objects in pictures and stories were alive. Children four to eleven years olds and college undergraduates were also asked to identify as many living things as they could and were later asked to explain their choices. Older children tended to include animals, trees, and other plants in their list of living things. More four- and five-year-olds judged that only people and other animals were alive than did six- and seven-year-olds, while a smaller proportion of younger children than older children judged that plants were alive. Shows that by the age of eight, most children recognize that both animals and plants are alive.

Riechard, D.E., & McGarrity, J. (1994). Early adolescents' perceptions of relative risk from ten societal and environmental hazards. *Journal of Environmental Education*, 26(1), 16-23.

Surveyed 11- to 14-year-old students about perceived risks of ten hazards (wild animals, fire, nuclear energy, pollution, drugs, other people, car accidents, war, storms, and, lack of food) to explore perceptions of relative risk among early adolescents. Results showed that war was perceived as posing the greatest risk, followed by nuclear energy. Pollution and other people posed the least risk. Wild animals were rated sixth. Females perceived car accidents and drugs as greater risks than did boys. Suggests that since (for example) more lives are claimed in car accidents in the U.S. than in war, a disparity exists between factual data and adolescents' perceptions of risk.

Scott, D. & Willits, F.K. (1994). Environmental attitudes and behavior: A Pennsylvania survey. *Environment and Behavior*, 26(2), 239-260.

Surveyed Pennsylvania residents about their level of agreement with ideas like the balance of nature and limits of growth to assess adults' pro-environmental attitudes and behaviors. Results showed that most respondents believed that people should live in harmony with nature, that humans are severely abusing the environment, and that the balance of nature is delicate. It was found, however, that residents were not likely to engage in ecologically oriented activities. Young, highly educated, high-income, politically liberal respondents were more likely to disagree with the idea that humans have the right to dominate other life forms. Females were more likely than males to report that they had purchased selectively with regard to the environment, while males were more likely than females to engage in environmentally responsible political behavior.

Sia, A.P., Hungerford, H.R., & Tomera, A.N. (1985). Selected predictors of responsible environmental behavior. *Journal of Environmental Education*, 17(2), 31-36.

Surveyed members of the Sierra Club and Elderhostel programs to investigate whether one's level of environmental sensitivity, knowledge of action strategies, sex role, and attitudes toward pollution and technology is predictive of responsible environmental behavior. Results showed that participants were highly educated. Highly active members were found to have substantial knowledge of and moderate skill in the use of environmental action strategies, a considerable degree of environmental sensitivity, a perception of being moderately effective as an individual but more so as a group member, a moderately negative attitude towards pollution, an ambivalent attitude towards technology, and were likely to be androgynous in psychological sex role. Perceived skill in using environmental action strategies, level of environmental sensitivity, and perceived knowledge of environmental action strategies were most predictive of environmentally responsible behavior.

Szgun, G., & Mesenholl, E. (1993). Environmental ethics: An empirical study of West German adolescents. *Journal of Environmental Education*, 25(1), 37-44.

Surveyed 12-, 15-, and 18-year-old students from Germany about ethical and emotional attitudes toward nature, environmental action, and the unacceptability of environmental destruction to assess their ethical and emotional concern regarding nature. Results showed that most students expressed consideration for

nature and sympathy for living things, but fewer reported enjoying nature. Fifteen- and 18-year-old females reported more ethical concern and enjoyment of nature than did males the same ages. Twelve-year-olds scored higher on those variables than did older students.

Thompson, J.C. Jr., & Gasteiger, E.L. (1985). Environmental attitude survey of university students 1971-1981. *Journal of Environmental Education*, 17(1), 13-22.

Surveyed undergraduate students about their attitudes toward environmental problems relating to food, household items, transportation, personal items, and recreation to assess their willingness to make personal sacrifices for environmental protection and make comparisons to the same investigation conducted 10 years earlier. Results showed that respondents were most reluctant to give up household items (e.g., clothes dryer, telephone, garbage disposal) to help solve an environmental/energy problem. As students' family income levels increased, students were less willing to give up most consumer items. Females and males were equally likely to make sacrifices for environmental protection. Students surveyed in this study generally favored materialistic considerations and took a more conservative approach to environmental and energy issues than did students in the 1971 study.

Westervelt, M.O., & Llewellyn, L.G. (1985). Youth and wildlife: The beliefs and behaviors of fifth and sixth grade students regarding nondomestic animals. (Report #498-443-42425). Washington, DC, U.S. Fish & Wildlife Service.

Surveyed fifth- and sixth-grade students about their orientations toward wildlife, preferences for wild animals, level of wildlife-related knowledge, and popularity of wildlife-oriented behaviors. Results showed that children had limited knowledge about wildlife and perceptions of wildlife were extremely diverse. Generally, children expressed sentimental affection for certain animals as opposed to having a naturalistic interest in wildlife. Most children disapproved of sport hunting, but attitudes were more favorable toward hunting for food. Children's wildlife-related behaviors consisted mostly of fishing, watching wildlife programs on television, and going to the zoo. To a lesser degree, students engaged in bird watching, hunting, or belonged to an animal-related club. Suggests that teaching strategies be developed using the humanistic orientation toward animals (an orientation that emphasizes the importance of individual animals and attractive species) to stimulate interest in wildlife and to help children identify with nature.

Vaughn, E., & Nordenstam, B. (1991). The perception of environmental risks among ethnically diverse groups. *Journal of Cross Cultural Psychology*, 22, 29-60.

Reviews evidence of ethnically-based differences in the perception of environmental risks. Results showed that members of ethnically diverse groups judge some risks (e.g., nuclear disposal) to be greater than do Whites. For other hazards, however, such as pollution in oceans and on beaches, ethnic groups show less concern than do Whites. Ethnic minority groups in the U.S. have shown a significant concern about nuclear power technology and resulting waste products. A 1989 study by Gallup showed that like the general public, many African-Americans and Hispanics have expressed increased concern about air and water pollution.

### **Attitudes toward Animal Research**

*Although self-reported attitudes are often unreliable predictors of behavior, the development of positive attitudes toward animals has been an important objective of humane education for many years. The studies annotated in the sections on attitudes are investigations into the factors that may influence the development of attitudes relating to animals generally, wildlife and the environment, and the use of animals in research. In regard to attitudes toward animal research, such factors include gender, political orientation, knowledge of and faith in science, and views about other social movements often tied to animal rights. Understanding how and why people feel the way they do about animals and animal-related issues can help humane and environmental educators tailor their goals and methods to the specific needs of their audience.*

Broida, J., Tingley, L., Kimball, R., & Miele, J. (1993). Personality differences between pro- and anti-vivisectionists. *Society and Animals*, 1(2)129-144.

Surveyed general psychology university students about various social issues to determine whether opinions about animal rights reflected differences in personality. Results showed that in general, those expressing opposition to animal experimentation were more politically liberal, ecologically concerned, and empathic than those who favored experimentation. Attitudes about animal experimentation were not found to be related to students' age, attitudes about abortion, or concerns about death. Females tended to show more opposition to animal research than did males. Those students more likely to be exposed to animal research due to the nature of their academic major were more likely to oppose animal research.

Pifer, L.K. (1996). Exploring the gender gap in young adults' attitudes about animal research. *Society and Animals*, 4(1), 37-50.

Analyzed data from a survey of middle and high school students to examine the development of attitudes about animal research. Results showed that gender and feminist attitudes had the greatest effect on opposition to animal research, with females and pro-feminists more likely to show opposition to animal research than males and those unsympathetic to feminism. Scientifically literate young adults were less likely to oppose animal research than scientifically illiterate students. Girls reported receiving less science resources from parents and less encouragement in science than did boys. Suggests that early socialization to success in science, scientific attitudes, and scientific literacy are related to attitudes to animal research.

## **Altruism**

*Altruism is the unselfish regard for the welfare of others and often motivates one to help another. The following articles examine various motivators of helping behavior and attempt to characterize predictors of altruistic tendencies. Though most of the studies focus on altruism as a motivator of helping behavior directed toward people, altruism may reflect a general humane sentiment transferable to nonhuman animals and the environment. It may be advantageous, therefore, for humane educators to explore ways of developing altruistic tendencies in young people.*

Barnett, M.A., & Thompson, S. (1984). The role of perspective taking and empathy in children's Machiavellianism, prosocial behavior, and motive for helping. *The Journal of Genetic Psychology*, 146(3), 295-305.

Tested fourth- and fifth-grade students and surveyed teachers about students' Machiavellian (manipulative) tendencies and their ability to empathize and take another's perspective in order to investigate empathy and perspective-taking as predictors of manipulative and altruistic tendencies and prosocial behavior. Results showed that highly empathic children showed less manipulative tendencies and were more likely to cite "other-oriented" reasons for their own helping behavior than were less empathic students. Teachers reported that highly empathic children were more likely than were students with low-empathy scores to help in situations in which another individual's need was subtle, though the difference between the two groups was not found in situations when another's need was obvious. Suggests that factors such as social norms regarding helping may be important motivators of children's helping behavior when the unfortunate other's plight is apparent.

Chambers, J.H., & Ascione, F.R. (1986). The effects of prosocial and aggressive videogames on children's donating and helping. *Journal of Genetic Psychology*, 148(4), 499-505.

Observed the donating behavior of third-, fourth-, seventh-, and eighth-grade students' following their playing of a prosocial videogame alone or cooperatively or an aggressive videogame alone or competitively. Results showed that children playing the aggressive game alone or competitively donated less than did children playing the prosocial game alone. No difference was found in the donating behavior

of those playing the prosocial game cooperatively and those not having played any videogame. Seventh- and eighth-graders made larger donations to a fund for poor children (for which they were given a predetermined amount of money after playing the videogame) than the elementary students. No sex-related differences were found in the children's donating behavior.

Chapman, M., Zahn-Waxler, C., Cooperman, G., & Iannotti, R. (1987). Empathy and responsibility in the motivation of children's helping. *Developmental Psychology, 23*, 140-145.

Observed preschool to sixth-grade students in distress situations involving a kitten, an adult experimenter, and a mother with an infant as potential recipients of aid to investigate children's motives for helping. Results showed that guilt was a factor in children's helping in all situations, whereas empathy and altruism played a role only with helping the kitten and infant. Guilt was associated with helping among the youngest (preschool and kindergarten) and oldest (fifth- and sixth-grade) children. No sex differences were found in the responses of children at each grade level. Suggests that a sense of responsibility for the individual in need motivates helping.

Cialdini, R.B., Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A.L. (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology, 52*, 749-758.

Tested female undergraduate psychology students on their empathic abilities and observed them watching an unfortunate other to determine what motivates helping: the students' desire to relieve their own sadness or the selfless desire to help the sufferer. Results showed that empathy for a victim increased personal sadness. Though students' sadness was related to their tendencies to help, empathy was not. Highly empathic students who were led to believe that their moods could not be changed by helping the unfortunate other were not helpful. Suggests that the reduction of personal sadness motivates helping.

Colaizzi, A., Williams, K.J., & Kayson, W.A. (1984). When will people help? The effects of gender, urgency, and location on altruism. *Psychological Reports, 55*, 139-142.

Randomly solicited assistance from the general public by telephone to investigate the effects of gender, urgency, and location on altruistic behavior. Subjects were contacted by an experimenter posing as a stranded motorist who dialed the wrong telephone number with no money to make another call or no change for a dollar. Subjects were then asked to call a number given by the experimenter and request assistance. Results showed that 70% of the experimenters were helped. Women experimenters were helped faster than were men. Phone calls were made faster when they were within the district of the subject and when an emergency existed (when the caller said he or she was out of money for another phone call) versus when urgency was low (when the caller said he or she had no change for a dollar). Suggests that amount of need and cost to helper influence altruistic behavior.

Cummings, E.M., Hollenbeck, B., Iannotti, R., Radke-Yarrow, M., & Zahn-Waxler, C. (1986). In: Zahn-Waxler, C. et al. (Eds.), *Altruism and Aggression*. Cambridge: Cambridge University Press.

Discusses findings from observational home and laboratory studies of possible mediators of aggression and altruism with a focus on early patterns of sex differences. In the home study, no major gender differences were found in frequencies and styles of aggression and altruism. The laboratory study showed that boys were more destructive of property and more physically aggressive than were girls. While boys' aggressive behavior showed continuity across situations involving different people (i.e., other boys, girls, adults), girls' aggressive behavior appeared to vary depending on the situation. Girls were somewhat more responsive to infant cries than were boys and boys were somewhat more reactive to their mothers' distress than were girls. For boys only, high levels of prosocial behavior were related to high levels of emotional expressiveness.

Fabes, R.A., Eisenberg, N., McCormick, S.E., & Wilson, M.S. (1988). Preschoolers' attributions of the situational determinants of others' naturally occurring emotions. *Developmental Psychology*, 24(3), 376-385.

Observed and interviewed preschoolers about the reasons for other children's naturally occurring emotional reactions and about their own strategies for helping others. Results showed that children's emotional reactions were most likely to be explained as the result of interactions with others. This applied more to anger and distress than to happiness or sadness. Students were accurate in identifying the situational determinants of other children's spontaneous emotional reactions. They were more accurate in judging the situational determinants of others' angry or distress reactions than they were in judging the determinants of others' happy or sad reactions.

Frydman, M., & G. Ritucci. (1990-1991). The development of the altruist attitude. *Western European Education*, 22, 35-51.

Observed sixth-graders confronted with situations of others in need of help (a cleaning woman falling, the noise of a fall followed by crying) after they were given a school-based program consisting of a series of activities focusing on helping behavior. Results showed that children receiving the program intervened quicker and more frequently than those not receiving the program. Children were more likely to help a same-aged companion than an adult. Boys intervened more frequently than did girls.

Kelly, C., & Kahane, J. (1989). A study of helping behavior among grade school children, junior high children and college adults. *Education*, 110(1), 94-7.

Observed 5- to 7-year-olds, 12- to 14- year-olds, and college adults in a library setting to investigate helping behaviors. Subjects were asked to watch a stranger's book and another's attempts to take it. Results showed that only the college group demonstrated a significant degree of helping behavior. A small proportion of children in the 12- to 14-year-old group did intervene, suggesting that with age comes a sense of responsibility.

Rushton, J.P., Fulker, D.W., Neale, M.C., Nias, D.K.B., & Eysenck, H.J. (1986). Altruism and aggression: The heritability of individual differences. *Journal of Personality and Social Psychology*, 50(6), 1192-1198.

Surveyed adult twin pairs on altruistic and aggressive tendencies to investigate the origins of individual differences in altruism and aggression. Results showed that about 50% of the twins' variance (deviation from average) in altruism, empathy, nurturance, aggressiveness, and assertiveness was due to genetics. The remaining variance was likely attributed to each twins' specific environment as opposed to their common environment. Women were more empathic and nurturing and less aggressive and assertive than were men.

## **Empathy**

*Empathy is the vicarious experience of the emotional state of another individual. The following studies investigate reactions to others in distress, the role of similarity of experience on empathy, and effects of gender and age on one's ability to empathize with another. Trends in these findings may provide a basis for education aimed at helping people become more sensitive to the needs of others, including non-human animals.*

Barnett, M.A. (1983). Similarity of experience and empathy in preschoolers. *Journal of Genetic Psychology*, 145(2), 241-250.

Examined the role of similarity of experience in young children's empathic reactions to others. Interviewed and observed preschool children watching a videotape of another child failing at a game after they played the same game, another game, or simply watched a game being played. Results showed that children

who had failed at a game reported feeling sadder after watching another fail than did children who simply observed a game. Observations of children's facial expressions revealed a similar pattern. Supports the idea that a young child's empathy with an unhappy peer will be heightened when the observing child has had a similar unpleasant experience.

Barnett, M.A., & McMinimy, V. (1987). Influence of the reason for the other's affect on preschoolers' empathic response. *Journal of Genetic Psychology*, 149(2), 153-162.

Interviewed preschoolers after presenting them with a pair of slide stories in which the main character acted in a way that made the character happy or sad to determine whether young children empathized more with a character whose feelings were associated with a "good" act. In one story from each pair, the main character was portrayed as having a socially acceptable or unacceptable reason for his or her feelings (e.g., happy after meeting a friend or happy after acting aggressively to another). After watching the stories, children were asked to point to the face of the character whose expression represented their feelings. Results showed that the children generally reported more empathy with the character who had performed an acceptable act than with the character who had performed an unacceptable act. However, that was not the case with younger boys, whose reported empathy was uninfluenced by the acceptability of the character's action. Observations of children's facial responses revealed that all children more frequently matched the feelings of a character whose feelings were associated with the performance of an acceptable act as opposed to an unacceptable act.

Carrell, L.J. (1997). Diversity in the communication curriculum: Impact on student empathy. *Communication Education*, 46, 234-44.

Tested university students to investigate the effect on empathy of integrating cultural diversity into the communication curriculum. Results showed that students completing a course in intercultural communication or interpersonal communication instruction infused with diversity (i.e., students with repeated exposure to multiculturalism) experienced gains in empathy as reflected in their attitudes and behavior. When compared to classes without a diversity component, none of those gains were demonstrated by basic course students who completed one speech on a "diversity and communication" topic or media students who produced a media segment on a cultural group different from their own. Suggests that the provision of repeated exposure to multiculturalism as well as instructor guidance and involvement in the form of classroom discussion is crucial in the development of students' empathy.

Eisenberg, N., Schaller, M., Fabes, R.A., Bustamante, D., Mathy, R.M., Shell, R., & Rhodes, K. (1988). Differentiation of personal distress and sympathy in children and adults. *Developmental Psychology*, 24(6), 766-75.

Measured heart rate while inducing sympathy or distress in adult psychology students, third-graders, and sixth-graders in an attempt to differentiate between sympathetic and distress reactions and to examine age and sex differences. Results showed that heart rate was generally higher when people talked about personally distressing experiences and lower when talking about sympathy-inducing experiences. Suggests that personal distress and sympathy are different emotional responses that can be differentiated among children and adults. Subjects' facial expressions showed high degrees of sadness and sympathy during the sympathy induction and the least distress during induction of neutral emotion. Females exhibited more facial sympathy and reported more distress than males. Adults generally demonstrated more positive feelings and less negative feelings than did children. Older children reported less sympathy than did younger children in the distress induction.

Fabes, R.A., Eisenberg, N., & Eisenbud, L. (1993). Behavioral and physiological correlates of children's reactions to others in distress. *Developmental Psychology*, 29(4), 655-663.

Observed and measured physiological correlates of third- and sixth-graders' reactions to a film depicting others in distress to examine relations of physiological factors to children's helpfulness as reported by their mothers. Results showed that younger children had higher variability in heart rate (which was associated with sympathetic reactions) than did older children. Girls who were likely to become distressed

by watching the film were rated as less helpful. Girls exhibited more sympathy than did boys. Younger boys were judged by their mothers to be less helpful than were older boys, whereas younger and older girls were reported to be equally helpful. For boys only, sympathetic responsiveness predicted helpfulness. Girls' physiological and observed measures of emotion were related more often than they were for boys. Suggest that children who can regulate their vicariously induced emotional responsiveness are likely to respond sympathetically to others, and that children who are prone to personal distress are more selfish and less likely to be motivated to help others than are those prone to sympathy.

Fabes, R.A., Eisenberg, N., Nyman, M., & Michealieu, Q. (1991). Young children's appraisals of others' spontaneous emotional reactions. *Developmental Psychology*, 27(5), 858-866.

Observed preschoolers and interviewed them about their understanding of others' spontaneous emotional reactions to examine how children's appraisals of others' emotional reactions varied with the reactions' intensity. Observation results showed that boys expressed more overt anger and less overt sadness than did girls. In their appraisals of peers' emotional reactions, children were more likely to accurately identify others' happy reactions than they were others' negative emotional reactions. While children showed a bias toward attributing the causes of others' emotions to external rather than internal factors, they were more likely to refer to internal states to explain others' negative emotions than they were to explain others' positive reactions. Suggests that young children's use of naturally occurring information regarding others' emotions depends on the emotion and salience of cues given by others.

Farver, J.M., & Branstetter, W.H. (1994). Preschoolers' prosocial responses to their peers' distress. *Developmental Psychology*, 30(3), 334-341.

Observed preschoolers' spontaneous responses to their crying peers to identify individual differences associated with age, gender, temperament, and other demographic factors. Results showed that children rated as easy in temperament exhibited more prosocial peer responses than children who were slow to warm up or difficult. Children with one or more reciprocal friend(s) exhibited more prosocial peer responses. No differences in prosocial responding related to age or gender were found. Suggests that socioemotional functioning with peers and individual characteristics affect children's responses to a peer's distress.

Hills, A.M. (1995). Empathy and belief in the mental experience of animals. *Anthrozoos*, 8(3), 132-142.

Surveyed farmers, animal rights supporters, and the urban public about their beliefs about the extent to which animals have mental experiences. Scenarios depicting emotion-eliciting situations involving animals were also presented to assess empathy, sympathy, and empathic distress, joy and anger. Results showed that empathy among the urban public and animal rights supporters combined was related to their beliefs about mental experiences of animals. Among farmers, though, those with high and low belief in animal mind tended to have weak empathy (particularly for farmers who raise animals on a large scale, usually in confinement). Suggests that high levels of empathy are necessarily associated with belief in the mental experiences of animals, but these beliefs are not sufficient conditions for the experience of strong empathy.

Howes, C., & Farver, J. (1987). Toddlers' responses to the distress of their peers. *Journal of Applied Developmental Psychology*, 8, 441-52.

Observed peer interaction among toddlers (16 to 33 months-old) in day-care classrooms to examine young children's spontaneous responses to their peer's crying distress. Results showed that 93% of peer responses to cries were prosocial in nature. Children who cried often responded more often prosocially to crying peers than did children who cried less frequently. Children were three times more likely to respond to the cries of a friend than to cries of other playmates. Boys consoled crying peers more often and behaved more prosocially than girls. No age-associated differences were found.

Miller, P.A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin*, 103(3), 324-344.

Analyzes research examining whether empathy and/or sympathy inhibit aggressive and antisocial behaviors. Results show that those exhibiting empathic and sympathetic responses show less aggression and antisocial behaviors. Child abuse was found to be associated with low levels of empathy and sympathy. No differences were found between males and females with regard to these relationships.

Poresky, R.H. (1990). The young children's empathy measure: Reliability, validity and effects of companion animal bonding. *Psychological Reports*, 66, 931-936.

Asked three- to six-year-old children to identify a character's and their own emotions while being read a series of vignettes with a child and a dog as characters to assess preschool children's empathy. Results showed that children with high empathy scores for the child character were more likely to empathize with the dog character. Older children expressed greater empathy than did younger children. Children who were judged by their mothers and home visitors as highly cooperative expressed greater empathy than children judged to be uncooperative. While children with pets in the home did not have higher empathy scores than children without pets, those strongly bonded with a pet showed greater empathy for the child character than did children without a pet.

Strayer, J., & Roberts, W. (1989). Children's empathy and role taking: Child and parental factors, and relations to prosocial behavior. *Journal of Applied Developmental Psychology*, 10, 227-239.

Tested six- and seven-year-olds about their empathic and imaginative-creative skills and surveyed their parents and teachers to investigate relations between children's empathy, role taking, and imaginative skills and identify the role of prosocial behavior in children's ability to empathize. Results showed that teacher reports of a child as creative and imaginative and children's ability to perform well on a structured imaginative-thinking task were related to children's empathy and role-taking abilities. A high frequency of parent-reported prosocial behaviors at home was also related to high empathy in children.

Ungerer, J.A., Dolby, R., Waters, B., Barnett, B., Kelk, N., & Lewin, V. (1990). The early development of empathy: Self-regulation and individual differences in the first year. *Motivation and Emotion*, 14, 93-106.

Observed 12-month-old infants viewing videotape of a peer smiling and laughing followed by videotape of the same peer fretting and crying to determine whether differences in physiological and emotional self-regulatory skills assessed at four to five months of age influenced individual differences in empathic responses. Results showed that when compared to children not showing personal distress in response to the video, children showing distress did not differ in their physiological self-regulation (i.e., regulation of sleep and feeding behaviors) at 4 months of age. But those showing distress from the video were less able self-regulate in response to the emotionally distressing event of being subjected to an unresponsive mother at 4-5 months of age. Suggests that individual differences exist in empathic responding in one-year-olds that are functionally analogous to the personal distress responses observed in older children and adults, and early self-regulatory competence is linked to individual differences in empathic responding at one year of age.

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology*, 28(1), 126-36.

Interviewed mothers of 12- to 13-month-olds who observed their children's responses to the emotions of others over the period of a year to investigate the development of prosocial and reparative behaviors in toddlers. Results showed that children showed more prosocial interventions (e.g., helping, sharing, and comforting others in distress) and empathic concern as they grew older. For witnessed (rather than caused) distresses of others, girls generally expressed more empathic concern than did boys. Suggests that children develop a capacity to intervene on behalf of others at age 2.

## Prosocial Behavior

*Eisenberg (1982) and Staub (1978), define prosocial behavior as voluntary, intentional behavior that results in benefits for another. Since the motive is unspecified and may be positive, negative, or both, prosocial actions are not necessarily altruistic in nature. Nevertheless, learning what motivates people to help others is of great importance to humane educators as they work to develop new, more effective methods for teaching children to be kind and caring in their interactions with animals and nature. The following articles include investigations into the effect of children's age, gender, and experience with animals on their tendency to behave prosocially.*

Bengtsson, H., & Johnson, L. (1992). Perspective taking, empathy, and prosocial behavior in late childhood. *Child Study Journal*, 22(1), 11-22.

Interviewed 10- to 11-year-old children about hypothetical situations involving unfortunate others to examine how aspects of perspective-taking in response to another's distress are related to prosocial behavior and empathy in late childhood. Results showed that children's tendency to think about the inner experience of unfortunate others was associated with the presence of prosocial behavior in boys only, and with empathy in boys and girls. Girls expressed more empathy for unfortunate others than did boys. Children exhibiting prosocial behavior tended to have a high level of concern for victims in the hypothetical situations and also showed an effort to understand the victimizer's point of view. Suggests that an empathic orientation in late childhood involves respect for an individual's right to be understood on his own terms in addition to sensitivity to another's distress.

Brody, L.R. (1985). Gender differences in emotional development: A review of theories and research. *Journal of Personality*, 53(2), 102-49.

Reviews available research on gender differences in emotional expression, recognition, and experiences. Data from a study by Cunningham and Shapiro (1984) show that males generally produced more frequent anger, less frequent sadness, and more intense expressions of happiness, anger, sadness, and fear than did females. But Camras (1977) and Golding (1982) found no gender differences in the intensity of angry, sad, interested, or happy facial expressions in preschool and young school-aged children. And Lewis and Michaelson (1983) found that nursery school girls tended to display more anger, intense fear, and happiness than did boys in their social interactions. Goodenough (1931) found that angry outbursts were more frequent among girls under two years old than they were among boys that age, and girls' angry expressions decreased sharply at two years of age.

Eisenberg, N., Lennon, R., & Roth, K. (1983). Prosocial development: A longitudinal study. *Developmental Psychology*, 19(6), 846-55.

Interviewed children over a period of three years from preschool to elementary school to examine the development of prosocial moral judgement and their mothers' child-rearing practices. The children were read stories and shown illustrative pictures, and their responses were observed. Results showed that from the preschool years to age seven or eight, there was an increase in children's expression of concern for others' needs and a decrease in their desire for selfish gain. There were no significant gender differences found in children's moral judgement. Mothers of children showing a high level of prosocial reasoning were generally nonrestrictive and nonauthoritarian regarding conventional aspects of their children's behavior, but were directive with regard to issues involving trouble or risk to the child. Those mothers were less likely to use guilt-inducing techniques in child rearing.

Eisenberg, N., & Miller, P.A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, 101(1), 91-119.

Reviewed research on the relation between empathy and prosocial behavior. Results showed that empathy was low to moderately associated with prosocial behavior and cooperative/socially competent behavior. Most indices of empathy were related to measures of prosocial or altruistic behavior.

Eisenberg, N., Shell, R., Pasternack, J., Lennon, R., Beller, R., & Mathy, R.M. (1987). Prosocial development in middle childhood: A longitudinal study. *Developmental Psychology, 23*, 712-718.

Interviewed children over a seven-year period to examine change in prosocial moral judgement, gender differences, and interrelations of moral judgement, empathy, and behavior in middle childhood. Results showed that stereotypical, approval-oriented, and pragmatic reasoning generally increased with age. Needs-oriented reasoning (showing concern for the needs of others) was generally highest in mid-childhood, when it leveled off. Hedonistic reasoning decreased with age. Girls used role-taking reasoning more than did boys. Reasoning involving sympathy and role-taking increased in early adolescence for girls only.

Eisenberg, N., Fabes, R.A., Miller, P.A., Fultz, J., Shell, R., Mathy, R.M., & Reno, R.R. (1989). Relation of sympathy and personal distress to prosocial behavior: A multimethod study. *Journal of Personality and Social Psychology, 57*, 55-66.

Measured changes in facial expressions and heart rate of second-graders, fifth-graders, and undergraduates watching videotapes depicting needy others to examine the relations of these indices to prosocial behavior in children and adults. Results showed that measures of sympathy were generally related to prosocial responding, whereas facial indices of distress were unrelated or negatively related. Adults' facial sadness and adults' and younger children's concerned attention tended to be related to prosocial tendencies. Facial personal distress in children tended to be associated with lower levels of prosocial behavior.

Eisenberg, N., Miller, P.A., Shell, R., McNalley S., & Shea, C. (1991). Prosocial development in adolescence: A longitudinal study. *Developmental Psychology, 27*(5), 849-57.

Interviewed children over an 11-year period to examine changes in prosocial moral reasoning and gender differences in prosocial reasoning in adolescence. Results showed that children's use of approval and stereotypic prosocial moral reasoning starts to decline in mid-adolescence. Girls generally exhibited a higher level of moral reasoning overall. In the older children group (mean age 15.75 years), helping was related to overall level of moral reasoning.

Eisenberg, N., Carlo, G., Murphy, B., & Van Court, P. (1995). Prosocial development in late adolescence. *Child Development, 66*, 1179-1197.

Interviewed children over a 15-year period to examine changes in prosocial moral reasoning and gender differences in prosocial reasoning in late adolescence. Results showed that the use of role-taking and empathy increased, whereas stereotypic reasoning decreased in use into adulthood. Hedonistic reasoning (for personal gain) increased slightly in mid-adolescence and continued to increase in use at early adulthood (ages 19-20) in response to dilemmas in which costs of helping were high. Measures of prosocial behavior and empathy were relatively stable over periods of at least four years, indicating that individual differences in these behaviors have a lasting quality in adolescence and young adulthood.

Forge, K.L.S., & Phemister, S. (1987). The effect of prosocial cartoons on preschool children. *Child Study Journal, 17*(2), 83-88.

Observed prosocial behavior in three- to five-year old preschoolers after showing them a prosocial or neutral animated or nonanimated program. Prosocial programs consisted of animated characters making friends, and Mr. Rogers welcoming a new neighbor and talking about the importance of being friendly. Neutral programs involved "Alvin the chipmunk" trying to impress a girl and his brothers convincing him to be himself, and the feeding of whales and dolphins at Sea World. Results showed that the prosocial programs elicited more prosocial behaviors than did neutral programs. No difference was found between animated and nonanimated programs.

Hampson, R.B. (1984). Adolescent prosocial behavior: Peer-group and situational factors associated with helping. *Journal of Personality and Social Psychology*, 46(1), 153-162.

Observed eighth-grade students performing helping tasks in a school setting to investigate children's helping behaviors and determine the role in prosocial behavior of one's status in a peer group. Students were asked to rate one another on helpfulness and popularity. Results showed that students' status in the peer group was associated with level and type of prosocial behavior performed. Popular helpers performed their helping behavior in more peer oriented situations, whereas less popular helpers were facilitative in more covert situations. For example, popular helpers were more verbally responsive to peers in distress, while less popular helpers were more likely to pick up papers for an adult. No major gender differences were found with regard to the performance of helping behaviors.

Miller, P.A., Eisenberg, N., Fabes, R.A., & Shell, R. (1996). Relations of moral reasoning and vicarious emotion to young children's prosocial behavior toward peers and adults. *Developmental Psychology*, 32(2), 210-219.

Measured prosocial behavior, self-reported vicarious emotion, and facial reactions of four- to five-year-old children viewing peer distress films. Results showed that the children's self-reports of vicarious responsiveness and facial reactions were related to higher levels of moral reasoning, whereas happy emotional responses to peer distress were related to a lower level of moral reasoning. Children's vicarious emotional responding (but not moral reasoning) was associated with their adult-directed prosocial behaviors. Suggests that sympathy and empathy may be linked with cognitive processes in preschool children and that they are associated with prosocial actions toward peers and adults.

Sharpe, T., Crider, K., Vyhldal, T., & Brown, M. (1996). Description and effects of prosocial instruction in an elementary physical education setting. *Education and Treatment of Children*, 19(4), 435-57.

Observed first-, third-, and sixth-grade physical education students' conflict resolution and other prosocial behaviors to examine the developmental effects of a proactive prosocial instruction one day per week in elementary physical education. Results showed an increase in leadership behavior and teacher-independent conflict resolution demonstrated by those receiving prosocial instruction in all grades. Suggests that prosocial instruction can promote prosocial development in elementary physical education and youth sports settings.

## **Cruelty to Animals and Violence to Humans**

*While the link between cruelty to animals and interpersonal violence has been the focus of philosophical and theoretical attention for centuries, scientific study of the subject is fairly recent (Ascione, 1993). According to Ascione, Thompson, & Black (1997), preventing and treating childhood cruelty to animals requires qualitative (i.e., talking with young animal abusers about their motivations) and quantitative (looking to statistics on abusers in order to develop a typology of the typical young animal abuser) approaches. The literature cited below, representative of both approaches, can help educators, animal welfare professionals, and social service providers gain a clearer understanding of the connection between cruelty to animals and interpersonal violence and become better able to recognize the warning signs of abuse.*

Ascione, F.R. & Arkow, P. (Eds.). (1999). *Child Abuse, Domestic Violence, and Animal Abuse: Linking the Circles of Compassion for Prevention and Intervention*. West Lafayette, IN: Purdue University Press.

A collection of studies, analyses, and essays about the connection between cruelty to animals and domestic violence, with sections on legislative and legal issues and community-based programs designed to place individuals at risk of victimization or violence perpetration in healing environments. Contributors include James Garbarino, Randall Lockwood, Andrew Rowan, and James Serpell.

Ascione, F.R., Thompson, T.M., & Black, T. (1997). Childhood cruelty to animals: Assessing cruelty dimensions and motivations. *Anthrozoos*, 10, 170-173.

Describes the testing of the Children and Animals Assessment Instrument (CAAI), an instrument for obtaining information and scoring the prevalence of animal cruelty among children 4 years of age or older and their parents. Children (75% were boys, average age was 10 years, and 65% had a family pet) in treatment programs for emotionally disturbed youth, incarcerated adolescents, and children with their mothers at battered women's shelters were interviewed. A Child Behavior Checklist was also administered to children to determine specific types of behavior children regularly performed. Among the dimensions of cruelty assessed by the CAAI were severity, frequency, types of animals abused and their perceived sentience, and children's remorse for their actions. Results showed that 44% of the children's scores on the Aggressive Behavior subscale of the Behavior Checklist fell into Borderline Clinical/Clinical ranges, and 56% of the sample answered "Somewhat or Sometimes True" or "Very True or Often True" to the item "cruel to animals." Children's performance on the CAAI showed that most children engaged in some cruelty to animals, and actions ranged from no instances of cruelty to severe, chronic, and recent cruelty toward a variety of animals, with the children expressing no empathy. Suggests that future research with more children create more categories of cruelty to animals (e.g., mild, moderate, and severe).

Ascione, F.R. (1993). Children who are cruel to animals: A review of research and implications for developmental psychopathology. *Anthrozoos*, 6, 226-243.

Reviews research on the relationship between cruelty to animals and antisocial behavior in adolescence and adulthood. Includes discussion of a number of case studies of cruelty to animals by children and adolescents displaying "malignant" aggression. Also sites a retrospective study by Ressler, Burgess, and Douglas (1988), which found that among convicted sexual homicide perpetrators, 36% were cruel to animals in childhood and 46% in adolescence. Data gathered in 1992 on Utah adolescents (nearly all were boys) being observed by the Division of Youth Corrections indicated that 21% of the youths undergoing evaluations and 15% of those incarcerated reported torturing or purposely hurting animals in the previous year. Observations during home interviews in Deviney, Dickert, and Lockwood's 1983 study of 53 pet-owning families in which children were abused or neglected showed that pets were abused or neglected in 60% of these households.

Felthous, A.R., & Kellert, S.R. (1987). Childhood cruelty to animals and later aggression against people: A review. *American Journal of Psychiatry*, 144, 710-717.

Reviewed research on the relationship between childhood cruelty to animals and later violence to people. In Macdonald's 1968 study of cruelty to animals and eight other variables thought to predict homicide, cruelty to animals was not found to be significantly associated with homicide offenders or inpatients in a VA hospital psychiatric unit who had threatened to kill. However, cruelty to animals was more prevalent than any other factor studied. In a 1972 study by Ciment et al., no discernable difference in childhood cruelty to animals was found among violent and nonviolent patients in a hospital emergency room. Hellman and Blackman (1966) found that 52% of aggressive prisoners and 17% of nonaggressive prisoners reported engaging in animal cruelty in childhood. Seventy-five percent of aggressive men and 28% of nonviolent men reported histories of triadic elements (bed-wetting, fire setting, and torturing animals). In the second part of their study, violent and nonviolent women were interviewed. Results showed that violent women were more likely to have been cruel to animals in childhood than nonviolent women, and this was the only childhood behavior that differentiated the two groups.

Kellert, S.R. , & Felthous, A.R. (1985). Childhood cruelty towards animals among criminals and noncriminals. *Human Relations*, 38, 1113-1129.

Interviewed criminals in prison and noncriminals in two states about aggressive behavior and childhood cruelty toward animals to examine the relationship between childhood cruelty toward animals and aggressive behavior in adulthood. Results showed that childhood cruelty to animals occurred to a greater degree among aggressive criminals than among nonaggressive criminals or noncriminals. Motivations for

cruelty appeared to include the need to control an animal, to retaliate against an animal, to satisfy a prejudice against a species or breed, and to express aggression through an animal.

Lockwood, R. & Ascione, F.R. (Eds.). (1998). *Cruelty to Animals and Interpersonal Violence: Readings in Research and Application*. West Lafayette, IN: Purdue University Press.

A compilation of articles and studies covering such topics as developmental psychopathology of animal abuse; relations between child abuse, elder abuse, domestic violence and animal treatment; measurement and reporting of cruelty to animals; and the role of the human-animal bond in people's use or maltreatment of animals. Included is a review of the case histories of 18 young animal abusers by Fernando Tapia, and an analysis by Alan R. Felthous and Stephen R. Kellert. of the psychosocial factors involved in selecting certain animal species for abuse.

Roscoe, B., Haney, S., & Peterson, K.L. (1986). Child/pet maltreatment: Adolescents' ratings of parent and owner behaviors. *Adolescence*, 21, 807-814.

Asked 18- to 22-year-olds to rate the seriousness of 20 vignettes on child/animal abuse and neglect to investigate older adolescents' assessment of various forms of child and pet maltreatment. Results indicated that the participants viewed each behavior as potentially harmful to a child's or pet's well-being. Child maltreatment was viewed with more disapproval than was animal maltreatment, and acts of abuse were rated more harmful than neglect. Though no age-associated differences were found, females rated most acts of cruelty/neglect as more harmful than did males.

Vermeulen, H., & Odendaal, J.S.J. (1993). Proposed typology of companion animal abuse. *Anthrozoos*, 6, 248-257.

Analyzes cases of animal abuse at four SPCAs over a one-year period and "spot checks" conducted by one SPCA in less privileged areas to investigate the nature of abuse and develop a typology of companion animal abuse. Results from analysis of cases showed that cruelty to dogs was most commonly reported (79.8% of animals). The majority (92%) of abusers were private citizens. The major types of reported abuse were restriction of movement, deprivation of food and water, abandonment, general neglect, failure to provide veterinary care, and assault. According to the spot checks, in which inspectors checked all residences in specific areas for animals and possible abuse, 40% of households owned animals. In 23% of these cases, abuse was identified. About 90% of the abuse involved dogs, and restriction of movement accounted for 84% of the abuse.