The Journal of Sociology & Social Welfare

Volume 40
Issue 4 *December - Special Issue on Animals: Redefining Social Welfare: Connections Across Species*

Article 9

2013

Environmental Beliefs and Concern about Animal Welfare: Exploring the Connections

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An online survey examined environmental beliefs and concern about animal welfare among 105 social work students in the U.S.-Mexico border region. Environmental beliefs were measured using items from the revised New Ecological Paradigm (NEP) Scale (Dunlap, Van Liere, Mertig, & Jones, 2000). Higher concern about animal welfare was significantly related to three dimensions of the revised NEP Scale: (1) belief in the fragility of nature's balance, (2) belief in the possibility of an ecological crisis, and (3) rejection of the notion that humans have a right to dominate nature (anti-anthropocentrism). The findings suggest that by making explicit connections between the needs of the natural environment, animals, and people, social work educators may foster a broader ecological worldview that encompasses the well-being of all species and ecosystems.

Key words: *animal welfare, environmental beliefs, NEP Scale, social work education*

To foster the well-being of individuals in a social context and society as a whole, professional social workers must give explicit attention to the health of the natural environment, including the welfare of all species (Besthorn, 2008). For the most part, however, the social work literature has treated the well-being of the natural environment and the well-being of other species separately. One body of literature focuses primarily on the roles of companion animals in human well-being (e.g., Faver & Cavazos, 2008; Risley-Curtiss, 2010), while the other focuses primarily on protection of the ecosystems that sustain human life (Besthorn, 2004; Rogge, 2008). What is unknown is

how social workers' beliefs and assumptions about the natural environment are related to their concern for animal welfare. To address this gap, this study used an online survey to investigate environmental beliefs and concern for animal welfare in a sample of social work students residing in the U.S.-Mexico border region.

Given the role of culture in shaping beliefs and attitudes, it is significant that this study was conducted in a Hispanic-serving institution in a geographic region with a predominantly Latino population. To provide the context for this research, it is necessary to review the potential influence of both demographic factors and social work values on students' environmental and animal welfare attitudes.

Environmental and Animal Welfare Attitudes among Latinos

Despite the history of environmental activism among people of Mexican descent (Peña, 2005), there has been relatively little research on Mexican Americans' environmental beliefs. Previous research suggests that Latinos are likely to view humans as connected to the natural environment, rather than separate from it (Lynch, 1993), and to have a more holistic, rather than dualistic, perspective on the relationship between humans and the environment (Corral-Verdugo & Armendáriz, 2000). Moreover, among people of Mexican descent in the United States, a view of land as the source of life has undergirded involvement in a wide range of environmental justice movements (Peña, 2005).

Studies examining the impact of acculturation on Latinos' environmental attitudes have yielded mixed results. One study found that the environmental attitudes of U.S.-born Latino respondents were more similar to those of non-Hispanic White respondents than to those of Latino respondents born outside the United States (Johnson, Bowker, & Cordell, 2004). A survey of Latino college students, however, found that generational status, as measured by the number of grandparents in the U.S., had less effect on respondents' environmental concern than other structural variables such as income and gender (Lopez, Torres, Boyd, Silvy, & Lopez, 2007). In general, research on Latinos, as well as other population groups, has found greater

environmental concern among women (Johnson et al., 2004; Lopez et al., 2007; Olli, Grendstad, & Wollebaek, 2001) and younger people (Johnson et al., 2004; Olli et al., 2001).

The effects of education are not entirely clear. While some research has found greater environmental concern among those with postsecondary education (Olli et al., 2001), other research has found postsecondary education to be correlated with environmental behavior but not environmental beliefs (Johnson et al., 2004).

A survey of the U.S. population conducted by the Pew Research Center in late 2011 provides more insight into the demographic correlates of environmental concern. In response to the question of "how serious a problem is global warming," women and younger people were more likely to believe that global warming is a "very" serious problem (Pew Research Center, 2011). Interestingly, respondents with a high school education or less and respondents who were college graduates were about equally likely to believe that global warming is a serious problem (40% and 39% respectively).

Turning to animal welfare attitudes, research suggests that women (Herzog, 2007) and people with low-income (Signal & Taylor, 2006) are more likely to have a positive orientation to animal welfare issues. Findings on racial and ethnic differences in attitudes toward animals vary somewhat depending on the issue being considered. A study that used an animal treatment scale consisting of one general item on "respect for the quality of life of animals" along with two items regarding the use of animals in agriculture found higher concern for animal welfare among Blacks than among other ethnic and racial groups (Kendall, Lobao, & Sharp, 2006). The same study also found that Blacks were more likely to agree that "people who abuse pets should suffer the same consequences as people who abuse children" (Kendall et al., 2006, p. 413).

Although some research has found differences between African Americans and Whites in attachment to companion animals (Brown, 2002), a study comparing six ethnic groups found no significant differences in the percentage who regarded their companion animals as family members (Risley-Curtiss, Holley, & Wolf, 2006). Moreover, a study focusing specifically on Latinos found that 92% of 132 companion animal owners considered their animals to be family members

(Faver & Cavazos, 2008). Clearly, additional research on ethnic group differences regarding a range of animal welfare issues is needed.

A study of social work practitioners found that while many have some knowledge about the human-animal bond, only a third of those surveyed apply this knowledge in their assessments (Risley-Curtiss, 2010). Moreover, beyond companion animal issues, little is known about social workers' concern about animal welfare.

Environmental Beliefs and the Social Work Perspective

Designed as a measure of environmental beliefs (Dunlap, 2008), the revised New Ecological Paradigm (NEP) Scale assesses "beliefs about nature and humans' role in it" (Dunlap et al., 2000, p. 428). The scale in its original and revised versions has been used to assess environmental beliefs in numerous geographical and cultural contexts (Dunlap, 2008). Of the five dimensions measured by the scale, three closely parallel themes that are implicit in social work's mission and made explicit in the environmental social work literature (e.g., Besthorn, 2008): "anti-anthropocentrism," "the fragility of nature's balance," and "the possibility of an eco-crisis."

Anti-anthropocentrism refers to rejection of anthropocentrism, which is "the belief that nature exists primarily for human use and has no inherent value of its own" (Dunlap et al., 2000, p. 431). Anthropocentrism has often been referred to as "human domination" or "humanity's right to rule over the rest of nature" (Dunlap et al., 2000, p. 427). Because the revised NEP Scale is designed to measure pro-environmental beliefs, high scale scores correspond to the rejection of anthropocentrism (anti-anthropocentrism).

A second dimension, "the fragility of nature's balance," refers to "humanity's ability to upset the balance of nature" (Dunlap et al., 2000, p. 427). A third dimension, "the possibility of an eco-crisis," refers to "the likelihood of potentially catastrophic environmental changes or 'ecocrises' besetting humankind" (Dunlap et al., 2000, p. 432).

These three dimensions of the revised NEP Scale are reflected in policy statements and review articles issued by the National Association of Social Workers (e.g., Besthorn, 2008;

Humphreys & Rogge, 2012; Rogge, 2008) and in the environmental social work literature (e.g., Besthorn, 2004; Besthorn & Canda, 2002; Besthorn & Saleebey, 2003; Kahn & Scher, 2002). These three dimensions are also highly relevant to concern for animal welfare because exploitation of the natural environment affects all species.

Although social work's primary focus is the well-being of people, anti-anthropocentrism is built into the basic assumptions of social work practice. Specifically, through reliance on an ecosystems perspective (Mattaini & Meyer, 2002), the social work profession affirms the interconnectedness of all life (Faver, 2011). Moreover, some social work scholars have called for explicit attention to the natural environment in social work theory and practice (e.g., Besthorn, 2004, 2008; Besthorn & Canda, 2002; Besthorn & Saleebey, 2003; Kahn & Scher, 2002; Rogge, 2008).

Consistent with the science of ecology, the assumption of interconnectedness implies that the well-being of any individual is inextricably bound to the welfare of the whole. As Besthorn (2008, p. 134) explained, "well-being and justice for all humans can only be achieved by working for well-being and justice on behalf of all the beings and sustaining creatures around us (plants and animals), and the encompassing planetary ecosystem" (p. 134). In short, to foster the well-being of people, social workers must care for the planet. Moreover, because of the interconnectedness of all life, humans cannot avoid experiencing the consequences of their actions toward other species and the environment. In other words, what we as humans do to others (other people, other species, and the planet), we do to ourselves (Faver, 2011).

An understanding of "the fragility of nature's balance" follows readily from the assumption of interconnectedness. Consistent with general systems theory, the social work curriculum emphasizes that an intervention in any part of a system reverberates throughout the system (Johnson & Rhodes, 2010). This principle encompasses the natural environment. Without explicit attention to the environmental impact of interventions, social workers may "inadvertently diminish the sustaining natural environment while trying to help people live better" (Besthorn, 2008, p. 134). Interventions that help people "in the short term" may "in ... the long run . . . degrade the world

upon which all depend for survival" (Besthorn, 2008, p. 134).

The reality (not just possibility) of a human-induced ecological crisis is addressed in the social work profession's official statement on environmental policy, which was first issued in 1999 (Humphreys & Rogge, 2012; NASW, 2006). The statement refers explicitly to the existing ecological crisis and articulates social workers' responsibility for environmental awareness and action. Moreover, the nature and extent of the ecological crisis has been elaborated by environmental social work scholars writing across curricular areas (Besthorn, 2004, 2008; Besthorn & Canda, 2002; Kahn & Scher, 2002; Rogge, 2008).

Despite a clear call issued by the environmental social work community, there is little evidence that environmental issues and perspectives are being integrated into social work education and practice in the United States. Significantly, there is no explicit reference to the natural environment in the 2008 Educational Policy and Accreditation Standards which the Council on Social Work Education (CSWE) uses to accredit social work programs (CSWE, 2008). Moreover, none of the Standards of Practice established by the National Association of Social Workers addresses the natural environment (NASW, 2006). On the other hand, the choice of "sustainable development" as a conference theme for the CSWE Annual Program Meeting in 2010 was a hopeful sign.

At the international level, there are more positive developments. During the first decade of the 21st century, the International Consortium for Social Development became the first social work organization to include environmental issues and sustainable development as a category for presentations at its biennial symposium (personal communication from anonymous reviewer, January 2, 2013). Moreover, the natural environment figures prominently in "The Global Agenda" issued by three international social work organizations: the International Federation of Social Workers (IFSW), the International Association of Schools of Social Work (IASSW), and the International Council on Social Welfare (ICSW). One of the top priorities for these three organizations in 2012-2016 is "promoting sustainable communities and environmentally sensitive development" (IFSW, IASSW, & ICSW, 2012). Overall, the "global agenda" of these organizations reflects an

understanding that human welfare is tied not only to social and economic conditions, but also to the natural environment. Equal emphasis on social, economic, and environmental conditions is considered a characteristic of sustainable development (Rogge, 2001).

To summarize, a holistic, pro-environmental perspective regarding humans' relationship with nature is consistent with the social work profession's assumptions of interconnectedness and interdependence. Despite this consistency, the importance of the natural environment has not been sufficiently integrated into social work education and practice, especially in the United States. What is unknown is whether the core assumptions of the social work profession are reflected in students' beliefs about the natural environment and their concern for other species.

Focus of Study

In a sample of social work students attending a Hispanic-serving university in the U.S.-Mexico border region, this study explored: (1) the impact of gender, age, and educational level (graduate or undergraduate student status) on environmental beliefs; (2) the impact of gender, age, and educational level (graduate or undergraduate student status) on concern about animal welfare issues; and (3) the relationship between environmental beliefs and concern about animal welfare issues.

Method

The University and Regional Context

The participants in this study were students enrolled in the undergraduate and graduate social work programs of a Hispanic-serving university located in the U.S.-Mexico border region. Of the students enrolled in the university at the time of the study, 88.7% were Latino, and 80.2% were residents of the county in which the university is located (UTPA, 2011). The poverty rate in the county is 34.4%, compared to a 16.8% poverty rate in the state. The county's population is 90.6% Latino, compared to 37.6% in the state (U.S. Census Bureau, 2012).

Data Collection Procedures

The data were collected through an online survey conducted during the fall semester, 2011. Distribution of the online survey was managed by the university's internet services department using SelectSurvey.NET software (Atomic Design, 2008).

On November 8, 2011, an e-mail message was sent to all social work students enrolled in the university inviting them to participate in an online survey and providing a link to the informed consent message and survey. The informed consent message gave students the options of declining to participate or proceeding to the survey. The informed consent message also stated that if there were any questions the respondents preferred to skip, they could simply leave the answer blank. Two follow-up invitations to participate were sent one week and three weeks after the initial deployment to all eligible students who had not declined the invitation to participate and had not completed the survey. The survey was closed on December 30, 2011.

The "forced anonymous" option of the survey software was used to ensure that the identities of those who responded, those who declined, and those who neither responded nor declined would not be available to the survey administrator or principal investigator. The study procedures were approved by the university's Institutional Review Board.

The survey was distributed to the university e-mail addresses of 303 undergraduate and 102 graduate social work students enrolled in the university in fall, 2011. Responses to some or all of the questions used in this analysis were obtained from 105 respondents, yielding a response rate of 25.9%.

Measures

Respondents were asked to indicate their gender, age, and whether they were a graduate or undergraduate student. The study did not collect data on ethnicity or income level, both of which have been found to be associated with environmental and animal welfare attitudes. A question about ethnicity was not included in order to protect the participants' anonymity. Combined with information on gender, educational status (graduate or undergraduate), and age, data on ethnicity would have made it possible to identify respondents who

occupied statuses that were a numerical minority in the sample. For example, combined information on these four variables would have made it possible to link survey responses to the identity of a respondent who was 56 years old, male, Anglo, and a graduate student (hypothetical example), given the rare occurrence of this set of characteristics in the sample.

In deciding which independent variables to include, the relative predictive utility of the variables was also considered. In the student population from which the sample was drawn, less variation in ethnicity was evident (based on the proportion of Latino surnames in the list of all social work students) than in the other three demographic variables of interest (gender, age, and educational status). Ethnicity was thus less potentially useful as a predictor of environmental beliefs and animal welfare concern. Nevertheless, omission of ethnicity in the questionnaire is an important limitation in the study.

The study did not collect data on income because students' income levels are likely to reflect their temporary status as students rather than their long-term social class status. Thus, students' income levels may not accurately predict their environmental or animal welfare attitudes. Asking students to report the social class status of their family of origin during their childhood would have yielded a measure of subjective social class. There is no precedent for examining the relationship between subjective social class and environmental or animal welfare attitudes. Given the lack of data on ethnicity and income, assumptions cannot be made about the proportion of Latinos in the sample or about the students' current or previous social class status.

In this description of measures, the variable labels are capitalized to correspond to the labels in Tables 1 and 2. The respondents were asked how concerned they were about animal welfare issues (ANIMAL WELFARE CONCERN). This item was adapted from an item used to measure concern about environmental issues in a study by Morrone, Mancl, and Carr (2001). The animal welfare item was constructed to tap level of concern about animal welfare issues in general without leading respondents to think about any particular animal welfare issue. The response alternatives for the item on animal welfare concern were "not concerned at all," "a little concerned," "moderately concerned," or "very concerned." The response

alternatives were coded from one to four, with four representing the highest level of concern.

To measure environmental beliefs, six items from the revised version of the New Ecological Paradigm (NEP) Scale (Dunlap et al., 2000) were included on the survey in this study. It should be noted that various versions of the NEP scale have been used in numerous studies, including cross-national research. In a meta-analysis of 68 studies in 36 countries using different versions of the NEP Scale, Hawcroft and Milfont (2008, cited in Dunlap, 2008) found an average alpha of .71, which reflects relatively high internal consistency. Using the same 68 studies, Milfont, Hawcroft, and Fischer (2008, cited in Dunlap, 2008) found that national-level NEP scores correlated in predictable ways with selected social and psychological variables; these findings lend support to the predictive validity of the NEP Scale items.

The NEP items selected for this study were devised by the scale authors (Dunlap et al., 2000) to measure "anti-anthropocentrism" (EXIST, MODIFY), "the fragility of nature's balance" (INTERFERE, BALANCE), and "the possibility of an eco-crisis" (ABUSING, CRISIS). In each pair, one item was worded in a pro-NEP (or pro-environmental) direction and the other was worded in an anti-NEP (or anti-environmental) direction. Each item had five response alternatives: "strongly disagree," "mildly disagree," "not sure," "mildly agree," and "strongly agree." The responses were coded from one to five, with higher scores representing the pro-environmental (or pro-NEP) stance. Thus, the three items worded in the anti-NEP direction (items 2, 4, and 6 in the list below) were reverse scored with "strongly disagree" coded as five. The pairs of items are listed below:

Dimension: Anti-anthropocentrism

1. Plants and animals have as much right as humans to exist. (EXIST)

2. Humans have the right to modify the natural environment to suit their needs. (MODIFY)

Dimension: Fragility of nature's balance

3. When humans interfere with nature it often produces

disastrous consequences. (INTERFERE)

4. The balance of nature is strong enough to cope with the impacts of modern industrial nations. (BALANCE)

Dimension: Possibility of an eco-crisis

5. Humans are severely abusing the environment. (ABUSING)

6. The so-called "ecological crisis" facing humankind has been greatly exaggerated. (CRISIS)

A preliminary analysis found relatively low internal consistency among the six NEP items (Cronbach's alpha = .562). Moreover, because the primary aim of this analysis was to determine how specific beliefs about the environment were related to concern for animal welfare, the six NEP scale items were treated as separate variables.

It should be noted that there is precedent for using a subset of NEP items in research and for treating the scale items as multiple variables (Dunlap, 2008). In a review of research, Dunlap (2008) reported that studies using five or more items from either the original or revised NEP Scales have been included in meta-analyses of studies using the NEP Scale. Moreover, the authors of the revised scale (Dunlap et al., 2000) suggested that the decision of whether to treat the NEP Scale as a single scale or as multiple variables should "be based on the results of the particular study" (Dunlap et al., 2000, p. 431). In the current study, the low internal consistency of the items (as reflected in the value of Cronbach's alpha, reported in the previous paragraph) and the purpose of the research justified their use as separate variables.

Results

Descriptive Measures

Of the 102 respondents who specified their gender and educational status, 85.3% were female and 76.5% were undergraduates. The participants' ages ranged from 18 to 68 years (N = 103), with a mean of 30.79 (SD = 10.002) and a median of 28.

Table 1 displays the mean scores for animal welfare concern and the six NEP items and shows the percentage of respondents who scored at the upper, pro-animal welfare and pro-environmental end of the continuum for each item (a score of 3 or 4 on the measure of animal welfare concern and a score of 4 or 5 on the NEP items). The level of animal welfare concern is high in this sample, with a total of 76.9% of the respondents reporting they are moderately or very concerned about animal welfare issues (Table 1). The percentage of respondents scoring in the pro-environmental range of the NEP items varies widely, from a low of 47.7% who reject the belief that "humans have the right to modify the natural environment to suit their needs" (MODIFY) to a high of 95.2% who endorse the belief that "humans are severely abusing the environment" (ABUSING) (Table 1).

Table 1. Descriptive Statistics for Animal Welfare Concern and NEP Items

	N	%	Mean	SD
Animal Welfare Concern	104		3.03	0.756
Moderately concerned		49.0		
Very concerned		27.9		
NEP Items				
MODIFY*	105		3.12	1.412
Mildly or strongly disagree		47.7		
BALANCE*	103		3.53	1.413
Mildly or strongly disagree		57.3		
CRISIS*	104		3.78	1.070
Mildly or strongly disagree		61.5		
INTERFERE	104		4.32	0.862
Mildly or strongly agree		87.5		
EXIST	105		4.62	0.859
Mildly or strongly agree		91.4		
ABUSING	105		4.59	0.781
Mildly or strongly agree		95.2		

*Item was reverse scored

Demographic Predictors of Animal Welfare Concern and Environmental Beliefs

Age and educational status (graduate or undergraduate student) were not significantly related to animal welfare concern. Compared to men, however, women scored significantly higher on animal welfare concern ($t = 2.099$, $df = 100$, $p = .038$).

There were no significant gender or age differences in scores on the NEP items. Educational status was significantly related to only one NEP item. Specifically, graduate students were more likely to disagree with the item stating that "the balance of nature is strong enough to cope with the impact of modern industrial nations" (BALANCE) ($t = 2.171$, $df = 99$, $p = .032$).

Table 2. NEP Items and Animal Welfare Concern (Pearson's r)

	Animal Welfare Concern	
	r	N
NEP Item		
EXIST	.330***	104
MODIFY*	.287***	104
INTERFERE	.197**	103
BALANCE*	.131	103
ABUSING	.118	104
CRISIS*	.344***	104

* Item was reverse scored. **$p < .05$, ***$p < .01$

Relationships between Environmental Beliefs and Animal Welfare Concern

Animal welfare concern was positively and significantly correlated with four of the six NEP items (Table 2). The four NEP items included one item measuring belief in the fragility of nature's balance (INTERFERE), one item measuring belief in the possibility of an eco-crisis (CRISIS), and both items assessing anti-anthropocentrism (EXIST and MODIFY) (Table 2).

Discussion

Limitations of the Study

This study focused narrowly on social work students enrolled in a Hispanic-serving university in a low-income county in the U.S-Mexico border region. Thus, the findings cannot be generalized to other regions with different demographic characteristics. Moreover, although the low survey response rate (25.9%) is not atypical for internet surveys (Kaplowitz, Hadlock, & Levine, 2004), generalizations cannot be made to the student population from which the sample was drawn.

The study's measures were also limited. The survey did not include questions on ethnicity and income, which previous studies have found to correlate with environmental and animal welfare attitudes. In an effort to make the survey brief and thus maximize response rate, the investigator included only six NEP items, and animal welfare concern was measured with a single item. The survey did not define "animal welfare issues" and did not provide a frame of reference for the respondents. As a result, the respondents may have interpreted the meaning of this item in different ways, and they could have answered with reference to either their personal feelings or their professional training.

Interpretation of Major Findings

In this sample, level of concern about animal welfare issues was relatively high. The demographic composition of the sample may explain this finding. Specifically, 85.3% of the respondents were female, and previous research has shown that women are more likely to have a positive orientation to animal welfare issues (Herzog, 2007). Indeed, consistent with previous research, the female respondents in this study scored significantly higher than the male respondents on animal welfare concern.

On five of the six NEP items, the majority of respondents endorsed a pro-NEP stance, and on two of the five, over 90% of the respondents were pro-NEP. This finding is consistent with a body of research suggesting that the ecological worldview measured by the NEP scale is increasingly endorsed across samples and populations (Dunlap, 2008; Lundmark, 2007).

While it is tempting to believe that environmental concern

is generally increasing, the reality may be more complex. For example, in a survey of the U.S. population, the Pew Research Center (2011) found that the percentage of respondents who believe global warming is a serious problem increased from 32% in 2010 to 38% in 2011. However, in 2006 the percentage was 43%. Thus, attitudes toward specific issues do not necessarily reflect a clear trend toward greater environmental concern.

Previous research has produced mixed findings regarding the relationship between postsecondary education and environmental concern (Johnson et al., 2004; Olli et al., 2001; Pew Research Center, 2011). In the current study higher educational achievement (graduate versus undergraduate) was a significant predictor of only one NEP item.

This study assessed three dimensions of an environmental worldview: (1) belief in the possibility of an eco-crisis, (2) belief in the fragility of nature's balance, and (3) rejection of the idea of humans' right to dominate nature. All three of these dimensions of an environmental belief system are found in the literature on environmental social work (Besthorn, 2008); however, concern for animal welfare was most consistently related to rejection of human's right to dominate nature (anti-anthropocentrism).

To understand this finding, it is helpful to explore the concept of anthropocentrism more fully. In the field of environmental ethics, anthropocentrism is at one end of a continuum representing types of relationships humans can have with the natural environment (Lundmark, 2007). In the anthropocentric worldview, humans are regarded as being separate from nature and having greater worth than other organisms.

At the other end of the continuum is ecocentrism, which views the natural environment as "complex webs of ecological interdependence" (Lundmark, 2007, p. 331). In the ecocentric worldview, humans are part of the environment, not separate from it, and therefore human welfare is bound to the welfare of the whole. In contrast to anthropocentrism, in which only humans have intrinsic value, ecocentrism grants intrinsic value and rights to individual organisms and collectives, such as species and ecosystems (Lundmark, 2007).

By granting rights and respect to individual members of other species, as well as entire species and ecosystems, the

ecocentric perspective makes explicit the connection between the natural environment and animal welfare. Strictly speaking, "anti-anthropocentrism," as measured in the current study by two NEP items, is not equivalent to ecocentrism, which is at the far end of the continuum (Lundmark, 2007). Nevertheless, it is not surprising that respondents who scored high on items measuring anti-anthropocentrism were more likely to report concern for animal welfare.

Implications for Social Work Education

Beliefs and attitudes are affected by a number of social, economic, and cultural factors. In light of the previously enumerated limitations of this study, much additional research is needed to understand the relationship between social work students' environmental beliefs and animal welfare attitudes. Among other variables, such research should explicitly consider the effects of ethnicity, income, and regional context.

In this study environmental beliefs were assessed using items in the revised NEP Scale (Dunlap et al., 2000) that coincide with themes in the literature on environmental social work (e.g., Besthorn, 2008). The results showed that concern for animal welfare was positively and significantly correlated with four of the six items used to measure environmental beliefs. The correlations were not strong, however, which suggests that social work educators could strengthen their efforts to apply the environmental social work perspective to an understanding of the connections among human well-being, the health of the natural environment, and the welfare of other species.

In integrating content on the natural environment and animal welfare into the curriculum, social work educators face the challenge of providing a context, or "frame," for their message that resonates with their target audience. Regardless of the complexity of environmental and animal welfare issues, the basic ideas need to be conveyed in a way that is simple and straightforward (Lakoff, 2010).

Social work educators can use a basic ecological concept, interconnectedness, as a "frame" for a three-fold environmental message: (1) because everything is connected, harm to the natural environment or other species hurts humans; (2) because everything is connected, social work interventions that

harm the environment, including non-human species, have long-term negative consequences for people; and (3) because everything is connected, ignoring the impacts of human activity on the natural environment precipitates ecological crises.

To foster a broader ecological worldview, social work educators may need to help students analyze the critical connections among the health of the natural environment, animal welfare, and human well-being. Indeed, environmental degradation, animal abuse, and human health are deeply intertwined. These connections are made explicit, for example, in analyses of industrial farm animal production, or "factory farming." Numerous studies indicate that the industrial farm agriculture system creates public health risks, threatens global food security through intensive use of natural resources, inflicts extreme suffering on nonhuman animals, and is a major source of the world's greatest environmental problems, including air, water, and land pollution, deforestation, water scarcity, loss of biodiversity, and global warming (Cassuto, 2010; Hicks, 2011; Pew Commission, 2008; Steinfeld et al., 2006; UNEP, 2010).

By highlighting the contrast between using the environment for human purposes, on one hand, and respecting the intrinsic worth of other species and ecosystems, on the other hand, the continuum ranging from anthropocentrism to ecocentrism can be useful in analyzing complex, interrelated environmental and social issues. Examining the connections among these issues may, in turn, foster broader concern for the natural environment and animal welfare. In the end, the effectiveness of social work practice in an era of environmental crises may be determined by the extent to which students achieve an ecological worldview encompassing the welfare of all individuals, species, and ecosystems.

Acknowledgement: The author is grateful to Jacqueline D. Muñoz for assistance with the research reported in this article.

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