

ASSESSING WILDLIFE VALUE ORIENTATIONS IN CHINA: AN EXPLORATION OF THE CONCEPTS AND METHODOLOGY

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Abstract.—The wildlife value orientation (WVO) construct has been used to describe deeply-held beliefs about how humans should relate to wildlife. As part of a larger effort to test the usefulness of the WVO construct across cultures, we conducted pilot testing of the construct in China. Sixteen mixed-method interviews were conducted in five cities/towns in China. Participants included individuals from both rural and urban areas with equal numbers of men and women. Interviews employed a 30-to-60-minute series of semi-structured, open-ended questions followed by 45 quantitative questionnaire items. The qualitative data were analyzed using open coding methods. The inter-rater reliability and inter-method-reliability of the initial conceptualization of WVO dimensions was analyzed, based on which a reconceptualization was developed and used to guide a secondary analysis. The results as well as the strengths and weaknesses of the qualitative and quantitative methods were discussed.

1.0 INTRODUCTION

This study examines a developing conceptual framework of Wildlife Value Orientation (WVO) as well as the methodological issues in assessing WVO in a global context. The inception of the conceptual framework can be traced back to 1996 when Fulton et al. first proposed using wildlife value orientations to capture the patterns and direction of basic beliefs about wildlife. This body of research is embedded in a broader theoretical context of the value-attitude-behavior cognitive hierarchy theory in psychology.

The cognitive hierarchy structure is viewed as consisting of values, value orientations, attitudes, normative beliefs, behavioral intentions, and behaviors, each built upon another in an inverted pyramid structure with relatively few values forming the foundation and serving as the guiding principles for individual behaviors (e.g., Homer & Kahle 1988, Rokeach 1973). Values are theorized as fundamental, enduring beliefs or conceptions about preferred end states or preferred modes of conduct (Rokeach 1973). It is suggested that values concern broad and abstract notions that transcend situations; they are highly resistant to change and tend to be widely shared by people within a culture. Therefore, values are unlikely to account for much of the variability in low order constructs, especially more specific attitudes or behaviors which tend to be large in number, easy to change, and highly contingent on situations. Value orientations are theorized as clusters of interrelated basic beliefs within a given domain of interest (e.g., Homer & Kahle 1988). As an intermediate between fundamental values and more specific beliefs or attitudes, value orientations serve to strengthen and give individual meaning to the more general values.

Fulton et al. (1996) defined wildlife value orientations as “the pattern of direction and intensity among a set of basic beliefs regarding wildlife” (p. 29). One notion about the conception of WVO has received broad acceptance: WVO are composed of “dimensions,” or sets of basic beliefs about wildlife and human-wildlife interaction. Several dimensions have emerged from subsequent studies, among which utilitarian and protectionist value orientations had been reported predictive of specific attitudes toward hunting, fishing, and wildlife management issues, which in turn had influenced individuals’ corresponding behavior (e.g., Zinn et al. 2002, Zinn et al. 1998, Zinn & Pierce 2002). Teel et al.’s (2005) recent work in 19 states in the western United States revealed a similar bipolar dimension which they termed “mutualism-utilitarian.”

The WVO construct has been applied in many studies, most done in North America, showing WVO are

Table 1.—Wildlife value orientation concepts and definitions—initial conceptualization^a

WVO Dimension	Definition
Attraction/Interest	Interest in and a desire to know more about wildlife, including enjoyment of seeing wildlife, feeling that wildlife enhances life experiences, interest in learning about wildlife and their habitats and activities A non-religious spirituality element may be included which involves feelings of awe and wonder concerning wildlife and the natural world; a romantic idealism about the environment and wildlife
Caring	Personal emotional attachment to animals; animals make humans feel better and likewise humans want to help animals and prevent them from suffering
Mutualism	Humans and wildlife can interact peacefully; humans are not dominant over wildlife; human relationships with wildlife are similar to those with other humans; wildlife are often anthropomorphized in this view
Respect	Basic value (as opposed to a value orientation) that wildlife and their habitat should be respected and valued Respect may be expressed in many different ways: as a general respect for life; a more utilitarian respect which involves using wildlife in the proper way; a more mutualistic respect for interacting with wildlife and their habitat, etc.
Environmentalism	General concern for protecting the environment which can extend to preserving wildlife, feeling that humans are impacting the environment in a negative way through their actions
Rational/Scientific /Observation	Rational or scientific explanations about the way the natural world works and the way animals behave (as opposed to spiritual or religious explanations)
Spiritual/Religious	Viewing wildlife and the environment as created and controlled by a higher power(s); explaining the workings of the natural world and animal behavior through a spiritual or religious viewpoint (as opposed to a scientific or rational viewpoint)
Hunting/Fishing	Positive focus on wildlife as the object of hunting and/or fishing
Utilitarian	Wildlife exists for human use; human welfare is prioritized over that of wildlife
Concern for Safety/Fear	Fear related to interacting with wildlife, repulsion by wildlife
Faith in Technology	Belief that humans can solve any environmental problems by using science and technology

^a Adapted from the *Report on Interview Method Pretest Conducted by CSU*

effective in the prediction of wildlife-related attitudes and behaviors from participation in wildlife-related recreation (Fulton et al. 1996) to individuals' attitudes toward related wildlife management policies (e.g., Zinn et al. 1998). This effectiveness has lent great momentum to expanding the use of the theory in a broader context. As part of a larger effort to test the utility of the WVO construct across cultures, we conducted pilot testing of the construct in China. An initial conceptual framework and methodology were developed by a group of researchers at Colorado State University (CSU) based on an extensive literature review and the results from a pretest conducted among CSU students in 2004. The proposed WVO framework consisted of 11 concepts (see Table 1). A semi-structured interview involving storytelling and questionnaire surveying was employed

for eliciting wildlife value orientations. These suggestions were used as a guideline for the pretest we conducted in China during the summer of 2005.

2.0 METHODS

2.1 Data Collection and Study Sample

Culture-specific modifications were made to the above-mentioned interview protocol. Interviews employed a 30-to-60-minute series of open-ended questions asking participants to tell stories about their emotional experiences with wildlife. The four main questions were framed as "please tell me about your experiences with wildlife that make you happy/sad/angry/afraid." In order to provide a convergent validity check of interview techniques, participants also completed a 45-item WVO questionnaire that was designed to assess the same

Table 2.—The main characteristics of 13 interviewees

Place of Early Residence	Male	Female	Subtotal
Rural (village)	3	2	5
Urban (city)	1	3	4
County/Town	2	2	4
Subtotal	6	7	13

Table 3.—Results of initial coding^a

Code for WVO Dimensions	Number of Passages	Number of interviews with Passages
Utilitarian	58	11
Mutualism	7	3
Hunting/Fishing	13	7
Rational/Scientific/Observation	25	8
Faith in Technology	--	--
Spiritual/Religious	4	2
Environmentalism	19	7
Fear/Concern for Safety	62	13
Caring	19	6
Attraction/Interest	30	9
Respect	9	4

^a Due to low inter-rater reliability, only results from the first coder, i.e., the interviewer, were provided here

WVO construct and collect background information on participants.

A small convenient sample of participants was recruited with special considerations given to the following two theoretically relevant factors: gender and place of early residence. Sixteen interviews were conducted, and thirteen yielded usable qualitative data. The main characteristics of the 13 participants, with approximately equal numbers of men and women and individuals from rural, suburb, and urban areas, are shown in Table 2.

2.2 Data Analysis

The tape-recorded qualitative data were first transcribed into Word documents in Chinese. The interviewer and a naive coder then open coded all of the interview transcripts using deductive codes derived from the initial conceptualization of WVO. The definitions of the initial 11 WVO dimensions were used as a general guide for the meaning of the deductive codes. To ensure consistency in coding method, the two coders coded the first interview together before they independently coded the remaining 12 interviews. WVO dimensions were coded per passage. Typically one code was given for each passage. However, no code or multiple codes were given if the

passage revealed none or more than one wildlife value orientation.

After coding each interview, each coder subjectively scored the interview from 1 (very low) - 7 (very high) on each of the WVO dimensions. The scores were based upon the coder's impression of the interviewee's wildlife value orientations after considering the interviewee's comments in totality and the frequency and strength of the interviewee's expressions of each of the concepts. No summary score was assigned if the interviewee did not express a wildlife value orientation or make statements in opposition to a wildlife value orientation. Scores were exported into SPSS 12.0 and inter-rater reliabilities were calculated. Meanwhile, the responses to the 45-item questionnaire were entered into SPSS12.0 by a third researcher. The results from this initial coding of qualitative data and the results from survey items were used to calculate inter-method reliability.

3.0 RESULTS FROM INITIAL CODING

The results from initial coding are presented in Table 3. The results yielded low inter-rater reliabilities for most of the initial 11 wildlife value orientation dimensions, ranging from 0.05 to 0.66 with an average of 0.42. In

Table 4.—Wildlife value orientation concepts—reconceptualization^a

WVO Dimension	Description
Materialism	Focus on a utilitarian or dominant view of wildlife; view wildlife as a benefit or threat to food, shelter, economic survival, or a recreational resource
Mutualism	Humans and wildlife should co-exist in balance; believe that wildlife have rights like humans that deserved respect
Caring	Compassion and empathy toward wildlife; sense of companionship with wildlife; may include anthropomorphizing wildlife
Symbolic	Wildlife contributes to, signifies, and/or reveals important elements of social relationships and/or cultural institutions
Human safety/security	Concern for threats than wildlife may pose for human safety and security
Attraction	Degree of like, interest, or approach
Repulsion	Degree of dislike, disinterest, or avoidance

^a Based on WVO global dimension revisions, February 2006

light of this, only the coding results from the primary coder, i.e., the interviewer, were used for the following inter-method reliability analysis, which yielded acceptable inter-method reliabilities (> 0.80) for all wildlife value orientation dimensions.

4.0 REVISIONS TO THE WVO CONCEPTUAL FRAMEWORK AND DATA ANALYSIS METHODS BASED ON THE INITIAL CODING RESULTS

4.1 Reconceptualization of WVO Framework

The results from the initial coding suggested that open-ended questions about emotional experiences with wildlife were effective in eliciting information about wildlife value orientations. However, the relatively low inter-rater reliabilities as well as other problems revealed by the results returned from other countries suggested the need to revise the initial conceptualization of WVO to make it theoretically sounder and more cross-culturally relevant. For example, it became clear that the dimension of *Hunting/Fishing* was ambiguous in that very different value implications could be derived from it depending on the prevailing need conditions people experience in different cultures. Specifically, besides recreational hunting common in North America, there are still hunting for subsistence needs (Mongolia); hunting for supplementary food, additional income, or defending properties/crops (China); hunting special species for spiritual/social meaning or hunting as self-defense in life-threatening settings (Kenya). Other problems with the initial conceptual framework included overlapping

between dimensions, absence of certain concepts in interview data, and unbalanced instruments.

Based on an extensive discussion of the above-mentioned problems from the initial analysis, a reconceptualization was developed. The new WVO framework reduced the number of dimensions from 11 to seven (see Table 4). Five dimensions were eliminated for different reasons: *Environmentalism* and *Respect* overlapped with *Mutualism*, thus were removed to avoid redundancy; *Hunting/Fishing* was removed for the reason explained before; *Rational/Scientific/Observation* and *Faith in Technology* were deleted because these two concepts were not reflected or were rarely reflected in interviews. The remaining six dimensions were re-defined to reflect or incorporate new understandings of WVO concepts. One new dimension, *Repulsion*, was added to accommodate negative statements about wildlife such as dislike, lack of interest, or repulsion. The new conceptualization of wildlife value orientations is presented in Table 4.

4.2 Modifications to Coding Methods

The qualitative data from interviews were recoded using the deductive codes from the reconceptualization of wildlife value orientations. The definitions of the seven WVO dimensions were used as a general guideline for the meaning of the deductive codes.

It was decided that WVO dimensions would be coded per story (an extended account threaded by one common theme) in recoding instead of per passage (used in old

Table 5.—Results of recoding

WVO dimension	Frequencies ^a	Summary Score ^b	Inter-coder Reliability
Materialism	55	4.19	0.85**
Mutualism	25	2.54	0.88**
Caring	20	2.04	0.90**
Symbolic	6	0.58	0.60*
Attraction	30	3.00	0.47
Repulsion	24	2.50	0.28
Human safety/security	44	3.46	0.81**

^a Average frequencies of two coders across 13 interviews

^b Two coders' mean summary score

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

approach) due to the uneven length of passages across interviewees. Typically, an account of a story clearly expressed one WVO dimension. However, some accounts reflected multiple WVO concepts. In either case, each concept, i.e., WVO dimension, was coded once within the same story. Finally, a summary score from 1 (very low) - 7 (very high) was subjectively assigned to each new WVO dimension by the coder following the same rule used in the initial coding. If the interviewee did not express a wildlife value orientation or make statements in opposition to a wildlife value orientation, zero was assigned for the interviewee on this WVO dimension, indicating an extremely weak belief. This is based on the assumption that compared to explicitly-held strong or moderately strong beliefs, very weak beliefs (and those absent) would much less likely emerge during an interview of limited length (30-60 minutes). Given that some concepts were frequently absent from interview accounts, treating the absence of these concepts as missing and not giving a final summary score would artificially increase the mean of these concepts and create a false impression of the whole group holding a relatively strong belief in that WVO dimension. This approach can be vastly misleading because only the opinions of those participants holding strong or moderate beliefs would be considered.

All scores were exported into SPSS 12.0.

5.0 RESULTS FROM RECODING

The changes of conceptual framework used to analyze the qualitative data resulted in an inequivalence between

the two instruments, open-ended interview and survey items. Therefore, no inter-method reliability analysis was conducted in this secondary analysis. Inter-rater reliability was calculated using the recoded data. Table 5, which summarizes the recoding results, shows that high or acceptable reliabilities (≥ 0.6) were found for all dimensions except for *Attraction* and *Repulsion*.

6.0 DISCUSSIONS

The most important insight into methodology gained from this pretest is that using open-ended questions is an effective method to elicit information about wildlife-related attitudes and beliefs. Second, the qualitative data collection method appeared to work better across very different cultures. Compared to survey-item questionnaires, it was more culturally inclusive and thus could accommodate the diverse outlooks of multiple cultural groups. This strength, combined with "local" expertise, has effectively facilitated identifying WVO concepts, meanings, and experiences that differ across cultures. Third, given the complex theoretical and methodological issues involved in developing the WVO conceptual framework in a global context, multiple iterations are needed before a sound and cross-culturally relevant theory can be developed.

Regarding theory, the new conceptualization of WVO is a big improvement over the old one in terms of inter-rater reliability, suggesting the new approach greatly reduced measurement error. Nevertheless, the relatively low inter-rater reliabilities for a couple of WVO dimensions, namely, *Attraction* and *Repulsion*, call for

further examination of the framework (e.g., possible overlap between each of the two questionable dimensions and other WVOs; ambiguity of the concepts, and large random errors associated with the measurement of the two concepts).

7.0 CITATIONS

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