



Exploitative vs. appreciative use of nature – Two interpretations of utilization and their relevance for environmental education



Alexandra Kibbe^{a,*}, Franz X. Bogner^b, Florian G. Kaiser^a

^a Institute of Psychology, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany

^b Department of Biology Education, University of Bayreuth, Bayreuth, Germany

ARTICLE INFO

Article history:

Received 26 June 2013

Received in revised form 17 November 2013

Accepted 19 November 2013

Available online 25 December 2013

Keywords:

2-MEV scale

Attitude towards nature

Attitude measurement

Adolescents

Confirmatory factor analysis

Educational implications

ABSTRACT

Environmental attitudes traditionally are measured with quantification of Preservation and, Utilization (2-MEV). With a sample of 308 Irish students, we once again confirmed the 2-MEV model, with several negatively formulated Utilization items loading on the Preservation factor, and negatively, formulated Preservation items loading on the Utilization factor. Exploitative and appreciative Utilization are shown to be distinct by a slightly negative correlation which even disappears when controlled for Preservation. Multiple regression analysis showed positive predictive validity of Preservation in relation to the appreciative use of nature, but negligible predictive validity in relation to exploitative Utilization. Consequently, a clear message exists for educators when planning their environmental programs: The more people appreciate nature for personal benefits, the more they preserve the environment.

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Introduction

Environmental attitude is usually quantified as a self-interested anthropocentric and selfless biocentric domain (e.g., Bogner & Wiseman, 1999, 2002a, 2006; Milfont & Duckitt, 2004; Thompson & Barton, 1994). In this view, the selfless domain labeled 'Preservation' is defined by preferences to protect the environment. In contrast, the self-interested domain, labeled 'Utilization', involves preferences to dominate and exploit the environment and its natural resources. Both concepts, Preservation and Utilization, are represented in the current two-factor Model of Environmental Values (2-MEV). Although this two-factor model has repeatedly been independently confirmed (e.g., Boeve-de Pauw & Van Petegem, 2011; Johnson & Manoli, 2011; Milfont & Duckitt, 2004), all the items employed are positively phrased. None of the previous studies has focused on the direction of item wording. Rephrasing of items in order to provide a negative and positive phrasing balance may be necessary to improve the 2-MEV-scale. A simple change of wording in order to rephrase some items negatively may have no effect on the factor structure. A negatively rephrased Preservation item may still have the same semantic meaning and load on Preservation and a negatively rephrased Utilization item should still have the semantic meaning of

exploitative Utilization. However, it could also change its meaning: For instance, if the item: 'I love eating red cabbage' might change to: 'I do not love eating red cabbage', the item will not change to: 'I dislike eating red cabbage'; thus, the two negative versions could well load on different factors. The use of 'not' is in general and should use negative formulation using a semantic opposite.

The exploitative utilitarian domain remains a predominant issue in educational interventions with their specific intent to sensitize young people towards protecting behavior by avoiding anthropogenic interference as much as possible. Popular contents of environmental education programs regularly promote the reduction of the over-usage of the planet (e.g., Bogner, 1998a, 1999, 2002). However, this utilitarian domain has recently come under discussion because of its apparent behavior-irrelevance when seen in the context of exploitation. This may lead to unbalanced interventions when promoting ecological behavior. Previous findings have provided evidence for a significant correlation between the self-interested domain and ecological behavior, and when such correlations were found, they were negative (e.g., Kaiser, Oerke, & Bogner, 2007). Hence, traditional exploiting Utilization has no relevance for ecological behavior when controlling for Preservation (Kaiser, 2006). By contrast, if Utilization is regarded as an appreciative view, Kaiser, Hartig, Brügger, and Duvier (2013a) found a positive relation to ecological behavior. Appreciation of nature in their understanding is a positive attitude towards nature which develops from gratifying experiences in natural settings or with natural features. It is also

* Corresponding author.

E-mail address: alexandra.kibbe@ovgu.de (A. Kibbe).

expected to favor environmental protection (Hartig, Bowler, & Wolf, 1994; Nord, Luloff, & Bridger, 1998). In their study, Kaiser, Hartig, et al. (2013), Kaiser, Brügger, Hartig, Bogner, and Gutscher (2013) found a positive relation between environmental protection and appreciation of nature ($r = .51, p < .01$). People who appreciate nature also seem to be more motivated to protect the environment, while people who preserve the environment have greater connection with nature. To gain personal benefits from nature as a source of relaxation and inspiration – as a positive form of utilization – is another component in the environmental attitudinal space (Kaiser, Hartig, et al., 2013).

Utilization of nature is certainly somewhat ambiguous, although many researchers treat appreciation for environmental protection and appreciation for nature as the same attitudinal category. Bogner and Wiseman (2006), for example, did not distinguish between the attitudinal objects environment and nature in their model. The exploitative Utilization of natural resources in their model is part of the environmental attitudinal space. Recently, there has been little regard for nature as an attitudinal object in the literature of environmental psychology. This misconception has been revealed when implementing a two-dimensional model which treated appreciation for nature and appreciation for environmental protection as two separate attitudes (Kaiser, Hartig, et al., 2013). Within this distinction, environmental protection can be called Preservation and appreciation for nature is a different interpretation of Utilization. Preservation and appreciation for nature can be regarded as two different motivations behind environmental protective behavior. On the one hand, Preservation refers to the environment as an attitudinal object, and appreciation for nature obviously refers to nature. On the other hand, environmental protection has been empirically linked with self-sacrifice and selflessness (Kaiser & Byrka, 2011); and appreciation for nature and experiences in nature could be the basis for a more self-interested motivation for environmental protection (Hartig, Kaiser, & Strumse, 2007). This new interpretation of Utilization to achieve benefits using nature for recreation, relaxation and inspiration (e.g., Hartig, Kaiser, & Bowler, 2001; Hartig et al., 2007) differs from previous notions, e.g., of Bogner and Wiseman (1999), that have defined Utilization as an source for personal, predominantly economic, profit. Kaiser, Hartig, et al. (2013) found Preservation and the appreciative Utilization as positively associated with ecological behavior.

The traditional Preservation–Utilization model

Attempts to measure adolescent environmental attitude appear complex. For a long time, a well-known problem of such an empirical approach originates in its missing agreement of a standardized measurability (Hines, Hungerford, & Tomera, 1987; Leeming, Dwyer, Porter, & Cobern, 1993). Additionally, adolescent attitudes and values towards nature and environment have rarely been a focus of psychometric approaches. For instance, Leeming and colleagues (Leeming et al., 1993; Leeming, Dwyer, & Brackem, 1995) found not a single valid and reliable approach in their meta-analysis. Hence, Bogner and Wilhelm (1996) developed a factorized item-battery and subsequently revised it through its application to various pupil populations in Western Europe (Bogner, 1998b, 2000; Bogner & Wiseman, 1996, 1997, 1999, 2002b). Finally, by means of structural equation modeling, a scale valid for the entire European sample was identified (Bogner & Wiseman, 1999, 2002a, 2006; Munoz, Bogner, Clement, & Carvalho, 2009). This scale quantified aspects of ecological attitudes via first-order factors and based itself upon a theory encapsulating ecological attitude in two orthogonal higher-order factors: Utilization and Preservation. Utilization consists of primary factors (mostly composed of four items each) such as

Man over Nature, Human Dominance, Altering Nature and (negatively) Balance of Nature, while Preservation contains primary factors (also largely composed of four items each) such as Care with Resources, Intent of Support, Enjoyment of Nature, and Limits to Growth. The two-factor Model of Environmental Values (2-MEV) was formalized as determined by one's position on two orthogonal dimensions, a bio-centric dimension that reflects conservation and protection of the environment (Preservation); and an anthropocentric dimension that reflects the exploitation of natural resources (Utilization) (Bogner & Wiseman, 2006; Wiseman & Bogner, 2003). Consequently, the position of an individual within the two-dimensional Preservation/Utilization configuration is known and allows a classification according to Festinger's dissonance model (see Wiseman & Bogner, 2003) into one of four quadrants according to their endorsement or rejection of the two factors (Preservation, exploitative Utilization). Nevertheless, both theoretical orthogonal factors have turned out to be moderately negatively correlated in several studies (e.g. Johnson & Manoli, 2011) which in turn may imply a further psychometric fine-tuning of the battery.

However, the 2-MEV model has been repeatedly independently confirmed: Firstly, by Milfont and Duckitt (2004) with a New Zealand psychology freshman student sample. Secondly, in the US, Johnson and Manoli (2011) retested the model, when investigating the environmental attitudes of 9–12 year olds in the context of field center evaluation. Both studies reported a tendency to agree with Preservation and reject Utilization. Thirdly, a Belgian group studying Flemish secondary school students yielded a similar result, by confirming the two-factor structure even with an extended version (Boeve-de Pauw & Van Petegem, 2011). And finally, Borchers et al. (2013) replicated the model in a West African Sample by confirmatory factor analysis. Although the 2-MEV up to now finds itself in the exceptional situation of repeated independent confirmation, the item wording is still under discussion due to the predominance of positively phrased items (e.g. Bogner & Wiseman, 2006; Milfont & Duckitt, 2004). An earlier study concerning social desirability response set pointed to the need for rephrasing, since after controlling for gender, age and stratification level, lie scores presented themselves as significant predictors of Preservation (Oerke & Bogner, 2011). Although this study showed that, after including lie scores, the tendency towards higher Preservation scores in A-Level pupils disappeared, the item-set's imbalance still may present an open issue. Therefore, a rephrasing of several items is needed for valid measurement of environmental values and for evaluating the success of environmental education programs.

A rephrasing of items might not only prevent a social desirability issue, even more it contributes insights into the distinction and meaning of the two factors Preservation and exploitative Utilization. Refraining from exploitation might be the same theoretical domain as Preservation, and thus imply a single bipolar factor ranging from Preservation to Utilization. However, Wiseman and Bogner (2003) found respondents in all four quadrants, providing strong confirmation of the necessity of a two-factor solution.

Appreciation for nature as a form of Utilization

We conceptualize appreciation for nature as a positive attitude towards nature, which is the appreciative component in the environmental attitudinal space and is also expected to favor environmental protection. Previous research describes appreciation for nature as an abstract psychological concept which is probably beyond a person's own awareness (Schultz, Shriver, Tabanico, & Khazian, 2004). Mayer and Frantz (2004) emphasize the emotional component of connectedness to nature as a trait to

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