An exploration of the descriptive validity of surveys designed to measure psychological and economic definitions of environmental value

ANTHONY MICHAEL RYAN

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DECLARATION

This thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. In particular the nature of my collaboration with Clive Spash will be formally outlined at the end of chapter 1. The research reported in this thesis has not been submitted for a higher degree at any other university

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Anthony Michael Ryan

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Abstract

When responses to an environmental value survey are used to inform sustainability policy, the integrity of the policy framework requires the survey interpretation to have an acceptable level of validity. The thesis explores three interrelated research themes that examine challenges facing psychologists and economists who measure community environmental values with quantitative survey designs.

The first research theme examines the ambiguity and contested nature of the environmental value concept. In the sustainability domain, it is common practice for both psychologists and economists to administer an environmental value survey to a diverse population and then to only consider a single theoretical survey interpretation. Such an approach ignores the possibility that the survey questions will elicit response motives that are not formally accounted for by the researcher's theoretical framework. A review of the conservation psychology, environmental & resource economics and ecological economic literature reveals that each of these fields of inquiry put forward a different conceptualisation of environmental value. By formally describing the ambiguous and contested nature of the environmental value concept, the thesis outlines some caveats of a research approach that focuses primarily on assessing the face validity of a single interpretation.

The second research question explores the challenges confronting researchers who empirically assess the validity of environmental value survey interpretations. When an environmental survey is administered in a quasi-experimental design, research conclusions are likely to be subject to various validity threats that reduce the ability of researchers to make an empirically informed conclusion about the validity of a particular survey interpretation. Furthermore, the very act of assessing validity involves making subjective decisions as to what evidence to consider and how to weigh up the

overall body of evidence. When quasi-experimental survey responses are empirically assessed against only a single set of environmental value interpretation criteria, a combination of the subjectivity of the validity assessment process and reduced experimental control increases the vulnerability of researchers to the confirmation bias.

The third research question explores empirical approaches to examining the validity of environmental value survey interpretations and ways of minimising vulnerability to the confirmation bias. Three empirical studies are presented. One of the empirical studies examines the validity of the mainstream "value orientation" interpretation of the Awareness of Consequence scale, which is widely administered by conservation psychologists. Exploratory and confirmatory factor analyses support an alternative interpretation that posits that the Awareness of Consequence scale measures beliefs about the consequences of environmental action/inaction rather than supporting the mainstream "value orientation" interpretation. The final two empirical studies formally examine the validity of three interpretations of contingent valuation: the economic interpretation, the contribution model interpretation and the value pluralism interpretation. Both empirical studies support the value pluralism interpretation, which implies that economists in some circumstances would be better served by measuring community environmental values with a pluralism-as-a-methodology approach rather than insisting upon methodologies that measure community environmental values in monetary terms only.

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List of Abbreviations

AC	Awareness of Consequence
ACbio	AC scale items designed to measure biospheric value orientations
ACego	AC scale items designed to measure egoistic value orientations
AC scale	Awareness of Consequence scale
ACsoc	AC scale items designed to measure social value orientations
AGFI statistic	Adjusted Goodness of Fit statistic
AIC statistic	Akaike Information Criterion statistic
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
APS	Australian Psychological Society
AR	Accept Responsibility
ATD scale	Affinity Towards Diversity scale
BIC statistic	Bayes Information Criterion statistic
BSEA scale	Beliefs Supportive of Environmental Action scale
BSEI scale	Beliefs Supportive of Environmental Inaction scale
CBA	Cost-Benefit Analysis

Choice Experiment	CE
CFA	Confirmatory Factor Analysis
CN scale	Connectedness to Nature scale
CVM	Contingent Valuation Method
DC	Dichotomous Choice
DMV	Deliberative Monetary Valuation
EC-1 scale	Environmental Concern scale (Weigel & Weigel, 1978)
EC-2 scale	Environmental Concern scale (Schultz, 2000)
EE	Ecological Economics
EFA	Exploratory Factor Analysis
E&RE	Environmental & Resource Economics
FA	Factor analysis
GAC	General Awareness of Consequence
GFI statistic	Goodness of fit index statistic
ISEE	International Society of Ecological Economics
KMO statistic	Kaiser-Meyer-Olkin statistic
MCA	Multiple Criteria Analysis
NAM	Norm Activation Model
NEP	New Environmental Paradigm
NFI statistic	Normed Fit Index statistic
Principal Component Analysis	PCA

RMSEA statistic	Root Mean Squared Error Approximation statistic
SEM	Structural Equation Model
TLI statistic	Tucker-Lewis coefficient statistic
TPB	Theory of Planned Behavior
WTA	Willingness to Accept
WTP	Willingness to Pay
VBN model	Value-Belief-Norm model