

The Psychology of Ecology: measuring endorsement of sustainable policies and programs with attitude scales. William A. McConochie, Ph.D. 4/09

Introduction.

Ecology is "the science of the interaction and relationships between living organisms and their environments" (Websters, 1984). Ecopsychology may be defined as the science of the relationships between the human mind and the environment. As such, it is a huge topic, perhaps akin in scope to "TOE's", theories of everything, in physics. Professor David Uzzell at the University of Surrey in England opines that "All psychologists have a key role to play in understanding the causes and consequences of climate change and devising mitigation and adaptation strategies, programs and interventions at the global, regional, local and individual levels." (APA Monitor, 2008)

One approach to this potentially dauntingly large topic is measuring with questionnaires human attitudes about the environment and other subjects and exploring the relationships between these attitudes. This is the approach taken by the present author over several years recently. The findings have led directly to products of an applied nature, including rating forms for assessing the warmongering-proneness and constructive leadership attitudes of politicians and candidates for political office.

Traditionally, psychological journal articles begin with a detailed review of all relevant prior research on the topic studied. In the present case, because so many different psychological traits have been found to relate significantly to attitudes about the environment, this pattern will be abbreviated. The goal of the article is more to demonstrate the potential of the approach than to provide a comprehensive history of psychological research on human attitudes related to attitudes about a sustainable environment.

Two different questionnaire measures of attitudes about sustainability, ecology and the environment will be presented with reliability and validity data and practical implications will be discussed. Two additional brief questionnaires will be presented as examples of additional measures that focus on other facets of the topic.

This is an extremely important topic, given the urgency of environmental crises we face: global warming, increasing world population, increasing consumption of fossil fuels and production of their exhaust gases, degradation of environments, extinction of species, collapsing ocean fisheries, continuous warring between nations, disease epidemics, etc. Time may be running out on our ability to turn the ship of human behavior enough to avoid collapse of the environment upon we depend for our very survival as a species, some scientists warn.

Thus, it is important that we quickly learn about the psychology of ecology and how we can apply this understanding to practical, applied approaches to "turning the ship". The present article demonstrates how questionnaire measures of psychological traits can contribute to this effort.

Method.

The author as conducted numerous studies with questionnaires. The studies began with an effort to measure the Eidelson worldviews (Eidelson and Eidelson, 2003) and quickly progressed to include many topics, including warmongering, religious beliefs, endorsement of government types, human rights endorsement and endorsement of sustainable policies and programs, programs about sustaining the overall human environment in a livable condition for generations to come. The findings from these studies have been presented in papers at conventions, primarily of the International Society of Political Psychology. The findings are also presented in essays, reports lectures and manuscripts on the author's non-profit corporation web site, Politicalpsychologyresearch.com. Some of these are draft articles that have been submitted to peer reviewed journals.

These studies were initially conducted using paper and pencil questionnaires administered to church groups, college and university students, business executives and others, but in recent years have been done electronically, via questionnaires offered over the Internet and completed by community college students. Data is saved to file, downloaded, and analyzed by an SPSS statistical program. The study participants immediately receive a printout of their scores on the traits measured in the study and also receive a written summary of the overall study findings before the end of the current college course term, so they can learn from the experience. They receive credit in their courses for participating in the

studies. The courses are psychology classes taught by a colleague of the author. The typical study has measured several traits with well over 100 items. The items are presented in Likert scale format, usually with five options, strongly disagree to strongly agree.

Two different scales of traits or attitudes related to ecology, broadly defined, have been included in various clusters of studies. The first scale measures desires for national government policies and programs protecting the environment. The second is phrased in terms of desired general citizen behavior and is modeled after an international charter about protecting the environment, the Earth Charter.

Results.

The first of these measures, phrased in terms of desired government policy was the Sustainability Endorsement Scale, which is presented in Figure 1.

Figure 1. McConochie Sustainability Endorsement Scale.

Please indicate how strongly you agree with each of the statements below using this code:

Strongly Disagree	Disagree	Neutral or between 2 and 4	Agree	Strongly agree
1	2	3	4	5

My national government should support...

1. ...international treaties and efforts to reduce greenhouse gasses and global warming.
2. ...international treaties and efforts to reduce nuclear weapons and missiles that deliver them.
3. ...the United Nations with money and cooperation.
4. ...replacement of gasoline and diesel fuels with non-polluting fuels.
5. ...replacement of gas and coal-fired generators with non-polluting nuclear and solar generators.
6. ...restriction of harvesting from forests and fisheries to levels that are sustainable for generations (forever).
7. ...use of prime agricultural land for agricultural use only (forever).
8. ...restriction of use of fresh water resources (rivers and wells) to sustainable levels (forever).
9. ...development of reasonable population limits and helping communities maintain them.
10. ...a national health care system that provides basic, affordable care.

11. ...local community rights to restrict the broadcasting or marketing of products that have been shown by research to promote violent thinking and behavior.
12. ...local community rights to restrict the marketing or broadcasting of products that have been shown by research to promote criminal sexual behavior.

Clusters of numbers from 1 to 5 are presented opposite each item in the left column in paper and pencil questionnaires and "buttons" are presented in electronic presentations. On a sample of 383 adults from many studies the minimum score was 45, maximum 60, mean 45.0 and standard deviation 7.5. The Cronbach Alpha reliability coefficient was .76, which is rather modest, but proved to be high enough to reveal substantial correlations between this measure and other traits. The adults were from college and university classes, churches, a business executive association and other groups, ranging in age mainly from 18 to 86, mean 29.7, standard deviation 15. 45% were males. The sample had a mean education of 14.3 years, s.d. of 2.9 years. The subjects included many from outside the United States, including Nigerians in Nigeria and many foreign university students at the University of Oregon.

The relationships between the traits were virtually the same in all of these studies, so the results from all of the studies combined are representative. Validity data for this first scale is presented in Table 1. All of the scales listed in this table are presented in detail in a manual on the author's web site (McConochie, 2007). The sample of subjects is that described above.

Table 1. Pearson product moment correlations between sustainability endorsement and other scale measures. Sample size 383.

Scale.	Sample item	r
1. Endorsement of public democracy government model	<u>Public democracy.</u> Elected officials run the government to serve the current and long-term best interests of the community overall, including sustainable programs such as conservation of resources and control of pollution and global warming. No one special interest group or groups are favored."	.43**
2. Endorsement of more democratic forms of government	Five item scale, including the item above and ones measuring endorsement of anarchy, monarchy, military dictatorships, and special interest group democracy.	.54**
3. Warmongering	Measured with a scale of 20 items such as "War is a	-.69**

endorsement.	noble and glorious activity."	
4. Social disenfranchisement	This is an 80-item scale measuring the 5 facets of the Eidelson worldviews: Injustice, Helplessness, Vulnerability, Distrust, and Superiority at both individual and group levels.	-.62**
5. Endorsement of anarchy	One of the five items in the second scale above.	-.37**
6. Endorsement of military dictatorship	One of the five items in the second scale above.	-.48**
7. Endorsement of tribal democracy.	One of the five items in the second scale above: " <u>Tribal democracy</u> . Elected officials run the government to serve the short-term economic interests of the special interest groups ("economic tribes") which helped them get elected.	-.29**
8. Big Five Extroversion	Measured by a single scale item in Likert format.	.09
9. Agreeableness	"	.35**
10. Conscientiousness	"	-.03
11. Emotional stability	"	.23**
12. Openness	"	.11*

These validity correlations can be considered underestimates of the true relationship between endorsement of sustainability and these other traits, as the reliability of the sustainability scale was rather modest, .76. Corrected for attenuation, the correlations would be higher.

We see in Table 1 clear and substantial relationships between desired government policies promoting sustainability and attitudes about other important political issues. As validity data was similar across all groups in this study, this may mean that what is being measured by the various scales are rather fundamental human dispositions. Endorsement of sustainable policies and programs seems to reflect a "pro-social" disposition, as it correlates positively with endorsement of more democratic forms of government, especially government that serves the common good rather than special interest groups. And endorsement of sustainable policies correlates negatively with endorsement of warmongering and other traditionally more dangerous forms of government, such as military dictatorships.

It also appears to correlate positively with the Big Five personality traits of Agreeableness, Emotional Stability and Openness, all of which tend to reflect pro-social dispositions, as these three Big Five traits correlate negatively with measures of criminality and all of the Big Five correlate positively with enjoying various work behaviors.

The second measure of ecologically relevant attitudes was a 16-item scale measuring desired general citizen attitudes about the environment, which may be referred to as the Ecology Endorsement Scale. This scale was included in a series of studies focusing on religious beliefs and human rights. The scale is presented in Figure 2.

Figure 2. Ecology Endorsement Scale.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

- 1 2 3 4 5 1. All beings are interdependent and every form of life has value regardless of its current worth to human beings.
- 1 2 3 4 5 2. Everyone has the duty to prevent environmental harm.
- 1 2 3 4 5 3. With increased freedom, knowledge and power comes increased responsibility to promote the common good.
- 1 2 3 4 5 4. We should adopt at all levels sustainable development plans and regulations that take into consideration environmental conservation and rehabilitation.
- 1 2 3 4 5 5. We should manage the use of renewable resources, such as water, soil, forests and marine life, in ways that do not exceed rates of regeneration and that protect the health of ecosystems.
- 1 2 3 4 5 6. We should carefully conserve and manage our extraction and use of non-renewable resources, such as fossil fuels and minerals.
- 1 2 3 4 5 7. We should prevent and minimize pollution in any part of the environment.
- 1 2 3 4 5 8. We should reduce, recycle and reuse materials used in production and consumption.
- 1 2 3 4 5 9. We should promote the active participation of women in all aspects of economic, political, civil, social and cultural life.
- 1 2 3 4 5 10. We should affirm the right of indigenous (native) peoples to their spirituality, knowledge, lands and resources and to their related practices of sustainable livelihoods.
- 1 2 3 4 5 11. We should promote local, regional and global civil society, and promote the meaningful participation of all interested individuals and organizations in decision making at the local, regional and global level.
- 1 2 3 4 5 12. We should encourage and support mutual understanding, solidarity and cooperation among all peoples and within and among nations.
- 1 2 3 4 5 13. We should implement comprehensive strategies to prevent violent conflict and use collaborative problem solving to manage and resolve environmental conflicts and other disputes.
- 1 2 3 4 5 14. We should demilitarize national security systems to the level of a non-provocative defense posture and dedicate money saved to constructive

uses, such as restoring damaged environments or national health care systems.

1 2 3 4 5 15. We should eliminate nuclear, biological and toxic weapons and other weapons of mass destruction.

1 2 3 4 5 16. We should strive for a sustainable global community, honoring the efforts of the United Nations and supporting appropriate international treaties.

This scale is based on the Earth Charter (See References for web site). In a sample of 115 adults, 68 parishioners from two mainstream protestant churches and 47 students from a local community, the scale has a Cronbach Alpha reliability of .92. All of the items in the scale correlate at the .01 or better significance level with the total score made up of all the items, indicating that they are all part of this trait as measured. Examination of the item content reveals attitudes of a very comprehensive attitude about ecology. The items reflect desires for a stable, civil and sustainable social world, as well as a world protected from degradation of the physical environment. This pro-social element is also reflected in validity data, as presented in Table 2.

Table 2. Pearson Product Moment Correlations between Ecology Endorsement and Other Attitudes. N = 115 except for the Big Five traits, N = 34 college students from a separate study.

<u>Trait</u>	<u>Trait description</u>	<u>r</u>
Age	Self-explanatory	.24*
Gender	"	-.04
Years of education	"	.01
Warmongering	A 31-item scale with content such as "My national government should do whatever best serves our nation's interests, at the expense of other nations, enforced by military action if necessary."	-.60**
Positive foreign policy endorsement.	A 12-item scale with content such as "In foreign policy, our nation should help other nations with peaceful means rather than military ones."	.65**
Human Rights Endorsement (less	28-item scale modeled after the U.N. Universal Charter of Human rights and	.72**

16 items from the Earth Charter)	the Universal Declaration of Human Rights by the World Religions (Christian), with items such as "Everyone is equal before the law and entitled to equal protection before the law."	
Kindly Religious Beliefs	13-item scale with content measuring one of two religious beliefs factors. Items such as "Any specific personal religious beliefs are appropriate and acceptable as long as they respect human dignity and welfare."	.54**
Religious Fundamentalism	18-item scale measuring the second of two basic factors. Content such as "There is only one true god (or God) that all people of the world should worship."	-.50**
Verbal Intelligence	12-item scale with items such as "Viruses are larger than bacteria" and "The Empire State Building is in the capital of New York."	-.03
Citizen participation in government.	5-item scale with content such as "The government should encourage citizens to be informed and participating in government decision-making...."	.46**
Big Five Agreeableness	Single item scale with five levels of endorsement.	.01
Extroversion	"	.10
Conscientiousness	"	-.01
Emotional stability	"	.01
Openness	"	.28

As in the first study presented above, endorsement of protecting the environment, respecting ecology, appears to be substantially related to other politically important traits: endorsement of a positive and helpful foreign policy, endorsement of human rights, and endorsement of increased direct citizen participation in government decisions. Constructive ecology attitudes are also substantially related to basic religious beliefs, with fundamentalists opposing concern for environment protection and those of the kindly beliefs orientation supporting it. Ecology concern does not appear

to be strongly related to the Big Five personality traits in this study, though these traits were again measured with only one item each, which may not have provided very reliable measures.

Endorsement of a positive ecology appears unrelated to either education or verbal intelligence in this study. This suggests that attitudes about the environment and about ecology in general may not be very malleable. Approaches other than education may have to dominate successful efforts to protect the environment from catastrophic, progressive degradation.

Frequency Data.

How many people endorse sustainable policies and programs? One way to measure this is to calculate the percentage of questionnaire subjects who endorse five-option Likert scale items at the Agree or Strongly agree level.

In the studies above, the mean item score is computed for each scale. As the middle of this scale is Neutral and valued at 3, one can use a cutoff of 3.5 as the level above which persons can be assumed to be "for" the trait measured. For example, in a government referendum issue put to voters, options are typically either for the referendum or against it. The voter must choose either For or Against, there is no "Maybe" option on the ballot. Thus, 3.5 seems a reasonable cut-off to differentiate persons for or against a trait.

Frequency data for a sample of traits in the first and second studies is presented in Table 3.

Table 3. Frequency data of persons endorsing traits.

Study	Sample size	Trait	Percentage with mean item score of 3.5 or higher (Agree or Strongly Agree)
#1	383	Sustainability endorsement	65%
		More democratic forms of government endorsement	67%
		Endorsement of public	82%

		democratic government (serving the common good, not special interest groups)	
		Warmongering endorsement	5%
		Social disenfranchisement, individual level	1%
		Social disenfranchisement, group level	< 1%
#2	115	Ecology endorsement	98%
		Citizen direct participation in government decisions	81%
		Human rights endorsement	98%
		Peaceful, helpful foreign policy endorsement	88%
		Kindly religious beliefs	98%
		Religious fundamentalism	0%
		Warmongering endorsement	3%

This frequency data suggests that by far the majority of citizens support sustainable policies and programs and deep respect for the environment. These findings are compatible with those of other surveys. "Nearly two out of three American adults see global warming as a very serious problem that threatens future generations...." (APA Monitor, 2008b.

Endorsing sustainable attitudes appears to be a pro-social disposition, as the majority of citizens also endorse democracy serving the common good, direct participation of citizens in government decisions, human rights, a peaceful foreign policy and kindly religious beliefs. A small minority of citizens feel socially disenfranchised and endorse fundamentalist religious beliefs and warmongering. In other studies by the author, 6% fundamentalists and 89% of the kindly religious beliefs orientation is typical.

This frequency data is encouraging in the sense that it seems to indicate that a strong majority of citizens desire sustainable policies and programs and have deep and comprehensive respect for the environment. Thus, while sustainable attitudes seem relatively unrelated to education and intelligence, the job for social activists need not be so much one of teaching people the importance of sustainability and protection of the environment. The majority of people already hold such attitudes.

Thus, social activists need not be so much concerned with convincing people that they should care about this sustainability but rather figuring out how to mobilize citizens to be more directly involved in government decisions. For example, activists can promote new forms of political parties that depend upon public polls for platform planks. Public polls can be expected to confirm that the majority of citizens want effective sustainable government policies and programs.

Activists can also promote constitutional changes that require direct public voice on major national government policy issues. Such changes could effectively disengage special interest group money from government decisions that currently promote warmongering, dependence on fossil fuels, and indifference to population growth and other forces that are causing progressive degradation of the environment.

Examples of hypothetical additional measures.

The two scales presented above are phrased in terms of expectations of one's national government and of general ethical principles, respectively. There are other ways such scales can be focused, which might reveal additional insights. Scales could ask citizens what specific actions they would be willing to take to facilitate sustainable communities, or what actions they are taking at present. Items reflecting these two orientations are presented in Table 4 as food for thought for researchers who might be interested in pursuing further studies.

Table 4. Sample questionnaire items assessing current and willing sustainable behaviors.

Current:

1. I recycle cans, bottles, newspapers and cardboard rather than throw them in the garbage.
2. I deliberately substitute florescent light bulbs for at least some of my prior incandescent bulbs.
3. I cluster my errands to reduce the number of trips I have to make per week.
4. I turn the heat down in my dwelling at night.
5. I turn the heat down in rooms I'm not using in my dwelling.

6. I use canvas bags for my groceries to avoid wasting paper or plastic bags.
7. I save and reuse empty cans, bags and other things.
8. I have limited, or plan to limit, the number of children I will bear to help limit world population growth.

Willing:

Assume that your national government was designing a program to promote more sustainable programs. Please indicate your attitudes about sustainable behaviors by indicating how strongly you agree or disagree with the statements below, using this code (5-option Likert scale):

1. I would be willing to reduce my use of private transportation by 10% to live within fuel rationing enacted by my national government.
2. I would be willing to reduce my consumption of beef to help reduce the amount of methane released into the environment.
3. I would be willing to pay \$3.50 per gallon for hydrogen fuel instead of \$3.00 per gallon for gasoline to help reduce the amount of carbon dioxide and other gases that increase global warming.
4. I would be willing to reduce by 10% my use of water for cooking, laundry, watering, etc. to help conserve it.
5. I would be willing to reduce my use of electricity by 10% to help save energy as part of a national program.
6. To help conserve energy as part of a national program, I would be willing to wear warmer clothes and turn the heat down 3 degrees in my dwelling.
7. I would be willing to reduce the frequency with which I purchase a new vehicle or take long trips to help reduce my consumption of natural resources.
8. I would be willing to reduce my food consumption by 10 per cent to help save resources.

Conclusion.

Psychologists can study citizen attitudes about sustainable policies and programs with questionnaires of various type, yielding data with various implications. The above studies imply that the majority of people already endorse sustainable programs and that amount of education and intelligence are not major determinants of these attitudes. Rather, other

attitudes seem to underlie them, specifically pro-social and anti-social ones. The majority of citizens want more direct say in government. Empowering them politically is a practical focus encouraged by these findings.

While the present studies yield findings that are compatible with other studies, they are not of strictly random design. Replication on larger, more diverse and more randomly selected populations is advisable. If the present findings are confirmed, energy can focus on how to empower pro-social citizens to be more effective politically. Time is of the essence. We owe it to ourselves, other species and to future generations to keep our shoulders to the wheels of progress.

References:

APA Monitor, October, 2008, p. 36,
<http://www.apa.org/monitor/2008/10/climate-change.html>.

APA Monitor, October, 2008b, p. 36,
<http://www.apa.org/monitor/2008/10/climate-change.html>.

Earth Charter: (www.eathcharter.org/files/charter/charterpdf)

Eidelson, Roy and Judy, (2003). Dangerous Ideas, *American Psychologist*, Vol. 58, No. 3, pp. 182-192.

McConochie, William A., (2007). Manual, Political Psychology Scales, Politicalpsychologyresearch.com, Publications page.

Webster's II New Riverside Dictionary. Berkley Books, New York, 1984.