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Development of an Environmental Disposition Scale: A Guide for Fostering Sustainable Behavior

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DEVELOPMENT OF AN ENVIRONMENTAL DISPOSITION SCALE: A
GUIDE FOR FOSTERING SUSTAINABLE BEHAVIOR

by

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A thesis submitted in partial fulfillment of the requirements
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ABSTRACT

Promoting sustainable behavior or environmentally responsible behavior poses challenges because there is no overarching solution for behavior changes. Both surveys and interventions are context specific, meaning behaviors do not necessarily influence other behaviors and the same values, norms, and beliefs do not necessarily translate to the same level of sustainable behavior. Because there are regional differences in ideologies in the United States, a country level approach to encourage sustainable behavior would not be as effective as having interventions that directly correlate with the motivations that encourage environmentally responsible behavior. A survey conducted with undergraduate students at the University of Central Florida demonstrates that although values and beliefs are good predictors of sustainable behavior, norms and self-efficacy are more consistent predictors. Implementing strategies to increase sustainability norms and self-efficacy could improve environmentally responsible behavior for college students.

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INTRODUCTION

The United States of America may be united in borders and constitution, but the country

grows more polarized (Westfall, Boven, Chambers & Judd, 2015). Understanding what causes

this divide is important in the political sphere, particularly in the area of sustainability. However,

the variation of ideologies in America does not have to be a challenge to combat, but a tool to

utilize. Past studies of sustainable behavior attempt to create an overarching solution to promote

more sustainable behavior but more contemporary researchers assert that there is no one size fits

all answer for changing behavior (De Young, 2000; Lauren, Smith, Louis & Dean, 2019;

Osbaldiston & Schott, 2012; Steg & Vlek, 2009; Thogersen, 2004). Therefore, solutions and

interventions for promoting more sustainable decisions and behavior are more effective when

they are catered toward a specific group of people. Dividing the country into these groups allows

for more personalized interventions to promote sustainable behavior. The New Ecological

Paradigm (NEP) allows for countries to gather data about the population of how strongly it leans

toward the NEP or Dominant Social Paradigm (DSP). Although the NEP scale provides a

measurable index for biocentricity and anthropocentricity, it does not reveal the connections

between belief and behavior. Previous research of the NEP scale demonstrates that survey

context and content can affect answers on the scale, even after controlling for differences in

respondent characteristics (Pienaar, Lew, & Wallmo, 2013; Pienaar, Lew, & Wallmo, 2015; Zhu

& Lu, 2017). This further illustrates that motivation for environmentally responsible behavior

(ERB) is also context specific in that manifestation of ERB is multifaceted (Osbaldiston &

Schott, 2012) and one way of promoting ERB does not mean consequent behavior change in all

types of ERB. For instance, there are effective interventions for promoting recycling that are not as effective for promoting sustainable food choices.

Furthermore, the focus for promoting ERB has been on incentives and education (De Young, 2000). Although incentives are effective in immediate behavior change, people can be more motivated to achieve or obtain the incentive rather than want to act more sustainability. This means that when incentives are removed, the behavior can diminish because of the removal. Education is another popular choice for promoting sustainable behavior, since information on how to act more sustainability is not always known but can be both more time consuming and extensive than implementing incentives. However, education can be more effective for long term behavior change, particularly when mental models of specific behavior are adapted or changed (Newell, McDonald, Brewer & Hayes, 2014). The balance of reliability and durability are considered when deciding which intervention should be implemented. Reliability is measured by the extent of the behavior change and if the same intervention can create the same level of behavior change after a period of non-intervention. Durability is how effective an intervention is at maintaining the behavior after the intervention is concluded. According to the literature, incentives have higher reliability but not durability. Not much has been studied about the impacts of education because of the nature of such studies. Finding interventions or treatments to promote ERB that are both durable and reliable is beneficial for countries and states whose goals involve the economic, social, and environmental branches sustainable development because having both durability and reliability can reduce the long-term costs of intervention, allow people to self-maintain their behavior, and potentially reduce the rate of negative impacts on the environment.

According to the Brundtland Commission Report (World Commission on Environment and Development, 1987), "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." These include economic, social, and environmental efforts. Sustainable behavior can be looked at from both the societal level and the individual level (Fiksel, Eason & Fredrickson, 2012). The societal level can include infrastructure, policies, and norms whereas the individual level covers values, beliefs, and personal norms. Although both societal and individual factors influence a person's decision to act more sustainably, previous research has found significant correlations between the personality traits of individuals and reported environmental values and sustainable behavior (Milfont & Sibley, 2012). As an average of individuals in a country, specifically New Zealand, openness to experience, agreeableness, extraversion, and conscientiousness were found to be correlated with environmental engagement, albeit the last trait had less influence than the former three. Such personality correlations demonstrate trends that correspond with previous examinations of the Big Five personality traits in that agreeableness and openness were positively associated with environmentalism (Hirsh, 2010; Hirsh & Dolderman, 2017). However, this still does not provide ways to change behavior.

Theories Behind Behavior

Three major theories can be used to analyze behavior — the Theory of Planned Behavior (Ajzen, 1991), the Reasonable Person Model (Kaplan & Kaplan, 2009), and the Values-Belief-Norm theory (Stern, Dietz, Abel, Guagnano & Kalof, 1999).

The Theory of Planned Behavior posits that attitudes, subjective norms, and perceived control over behavior affect behavior and can be "found to predict behavioral intentions with a

high degree of accuracy" (Azjen, 1991). In turn, these intentions, in combination with perceived behavioral control, can account for a considerable proportion of variance in behavior. This theory focuses on rational choice and utility maximization and lends itself to explaining how sustainable decisions and subsequent actions are propelled by self-interest. Self-interest and altruism are traditional opposite ends of the spectrum but De Young (2000) proposes that they are not mutually exclusive. Self-interest is expanded to encompass not only one's self, but also those that an individual care about — this is not limited to people but can be expanded to incorporate animals and the environment. This, along with the trend that individuals with more altruistic and biocentric values are associated with sustainable behavior than those with traditional and egocentric values, can explain why utility can still be gained by acting more sustainably (Mayer & Frantz, 2004; Minton, Kahle, & Kim, 2015). Furthermore, these factors can combine with self-efficacy (Bandura, 2006; Bandura 2011) to account for variations in behavior.

The Reasonable Person Model contrasts the Theory of Planned Behavior in that the former discusses the irrationality of human behavior because of context specificity, and more specifically, environmental contexts (Kaplan & Kaplan, 2009). There are three components to the reasonable person model (RPM): mental model building, meaningful action, and being effective. The first of the three is what connects the Reasonable Person Model to both the Theory of Planned Behavior and the VBN theory. Mental models are representations of causal relationships and are derived from an individual's beliefs and norms (Newell, McDonald, Brewer, & Hayes, 2014). One's values, beliefs, and norms contribute to these mental models of sustainable behavior, hence VBN theory can be seen nested within the Reasonable Person

Model. Moreover, the personal norms and attitudes of the Theory of Planned Behavior also add to building mental models for sustainability concepts.

The Values-Belief-Norm (VBN) theory attempts to explain behavior in a different way than the theory of planned behavior and focuses on the foundational values that inform behaviors. Because initiatives to promote sustainable behavior focus on the normative level, the VBN theory assists in activating the norms that encourage ERB. Whitley, Takahashi, Zwickle, Besley, and Lertpratchya (2018) use VBN theory to investigate the social and psychological factors that influence five distinct sustainable behaviors. These behaviors consisted of "(a) support for political candidates who say they will strengthen environmental policies, (b) recycling, (c) electricity use, (d) food selection, and (e) transportation choices" (Whitley et al., 2018, pg 245). They found their results consistent with previous literature but the heterogeneous results from dividing typically aggregated ERBs demonstrate context specificity of ERBs.

<div align="center">Aims and Objectives</div>

Previous studies focus on general populations for which educational interventions may not be readily accepted. More contemporary research by Schutte and Bueller (2017) assessed self-efficacy and change-perception of individuals and the relation of the two with sustainable behavior, particularly sustainable consumption and purchasing. Rather than focusing on contributing more information to already established mental models of sustainable purchasing and concentrating on increasing self-efficacy for sustainability-related purchasing, the researchers were able to avoid psychological reactance, or behaving against suggestions, and decrease the effects of helplessness (Kaplan, 2000). Their study, however, addressed the general population with a large range of ages, with a mean age of 45 (Schutte & Bueller, 2017). As Whitley et al. (2018) find, there are not many studies that consider college students as a target

population. They assert that university students are a unique population because college is considered a transitional state in which values, beliefs, and norms are contested and in flux (Pascarella, Terenzini & Feldman 2005). This malleability allows for mental models to be modified, and such is the place for encouraging sustainable behavior.

Because ERB is context specific, interventions for promoting sustainable behaviors need to fit the values, beliefs, and norms of individuals to alter them. This study investigates the links among self-efficacy, openness to change, and ERBs among college students at the University of Central Florida (UCF). This study will combine Whitley et al.'s (2018) research and Schutte and Bhullar's (2017) studies to create an environmental disposition survey. To improve on previous studies, an analysis of university students in different regions need to be performed and compared to trends in the environmental and psychological literature. The researcher is interested in regional differences between UCF and Michigan State University (MSU). MSU is the college that Whitley et al. (2018) surveyed. UCF does not appear high on any university index for sustainability (AASHE, Sierra Club, The Princeton Review, & UI GreenMetric). These rankings could affect the norms of students about ERB and result in different motivations associated with each of the five ERBs that the study will investigate.

<u>Hypotheses</u>

The researcher will test the VBN model developed by Whitley et al. (2018). Hypotheses will be consistent with that of the two studies. The first set of hypotheses look at how values influence sustainability beliefs, norms, and behavior. Specific survey questions that measure beliefs, norms, and behavior are found in APPENDIX A: SURVEY QUESTIONS.

Hypothesis 1: Altruism values will be positively correlated with beliefs, norms, and ERBs

Hypothesis 2: Biospheric values will be positively correlated with beliefs, norms, and ERBs

Hypothesis 3: Egoistic values will be negatively correlated with beliefs, norms, and ERBs

Hypothesis 4: Traditional values will be negatively correlated with beliefs, norms, and ERBs

Hypothesis 5: Openness to change values will be positively correlated with beliefs, norms, and ERBs

In addition to the influence of values, the researcher is interested in the effect of beliefs on norms and behavior and the effect of norms on behavior.

Hypothesis 6: Sustainable beliefs will be positively correlated with norms and ERBs

Hypothesis 7: Sustainable norms will be positively correlated with ERBs

Because self-efficacy is not discussed in Whitley et al.'s (2018) study, the researcher is interested in the relationship between self-efficacy and ERBs.

Hypothesis 8: Self-efficacy is positively correlated with ERBs

Finally, the researcher is interested in the potential regional differences of the VBNs of college students.

Hypothesis 9: UCF students do not form the same associations of VBN and ERBs as MSU

METHODOLOGY

To directly compare results of this study to previous studies, a survey was created based on Whitley et al.'s (2018) survey and piloted with the Interdisciplinary Research Methods Summer 2019 class and the Foundations to Environmental Studies Fall 2019 class. The survey was edited so that statements were clearer and attention checks were added to prevent survey fatigue from corrupting the data. The updated survey included the five criterion variables that previous studies looked at: pro-environmental policy support, recycling, energy conservation, sustainable food choices, and sustainable transportation. The predictor variables of values, beliefs, norms, and self-efficacy were also included. Values is separated into five sub-values: traditional, biospheric, altruistic, openness, and egoistic. See APPENDIX A for the complete survey. The survey was distributed through SONA, UCF's psychological research database where students could get credits for completing studies. The survey was also distributed through the Interdisciplinary Studies Office for students to take in Spring 2020. The survey was optional, and participants were not financially compensated. The researcher uses Pearson's correlation coefficient to test the hypotheses.

The Values scales were tested for reliability. Like Whitley et al.'s (2019) results, the traditional scale had a Cronbach's alpha below 0.70. In addition, this study's egoistic scale had a reliability score lower than 0.70. A factor analysis was then conducted on all Value items and found that it only supports 4 measured variables. However, it should be mentioned that biospheric questions and altruistic questions were measured as the same variable and not traditional and egoistic. Whitley et al. (2018) addresses this as altruism was divided into humanistic and biospheric altruism for their study. The scales were maintained for the sake of comparison with correlations of the previous study. Correlations were performed using Pearson's

correlation coefficient with a significant level of .05. Although a Bonferroni correction could

have been performed to account for the high numbers of correlations, researchers (Cohen 1994;

Feise, 2002; Rothman, 1990) argue that the correction would increase a type II error, the chance

of false negatives.

RESULTS

There were originally 171 participants, of which 157 completed the survey ($N = 157$).

Participants were mostly white ($N = 113$), followed by Hispanic and other ($N = 20$), African

American ($N = 14$), and Asian ($N = 10$). The participants were mostly female ($N = 111$).

Participants were asked to provide their age ($M = 21.6$, $SD = 4.03$) with an age range from 18 to

48. UCF's average undergraduate age is 22.6 so the sample is a fair representation of the age of

undergraduate students (see Table 1). The descriptive statistics for the scales can be found in

Table 2.

Table 1: Demographic Characteristics of Respondents

Total *N*	157	%
Race		
White	113	72
Hispanic & other	20	12.7
African American	14	8.9
Asian	10	6.4
Gender		
Female	111	70.7
Male	45	28.7
Other	1	0.6
Housing		
On Campus	19	12.1
Off Campus	81	51.6
With Family	46	29.3
With Roommates	54	34.4
Alone	8	0.05

Table 2: Descriptive Statistics of Values, Beliefs, Norms, and Behaviors

Variable	Mean	St. dev.	Min	Max
Policy				
Beliefs	5.91	1.09	1	7
Norms	5.00	1.02	1	7
Behavior	5.2	1.82	1	7
Self-Efficacy	4.57	1.68	1	7
Recycling				
Beliefs	6.29	0.89	1	7
Norms	5.35	0.98	1	7
Behavior	5.33	1.39	1	7
Self-Efficacy	5.69	1.46	1	7
Energy				
Beliefs	6.32	0.83	1	7
Norms	4.86	1.09	1	7
Behavior	6.00	1.18	1	7
Self-Efficacy	5.97	1.13	1	7
Food				
Beliefs	5.91	1.13	1	7
Norms	4.25	1.20	1	7
Behavior	4.58	1.77	1	7
Self-Efficacy	5.35	1.54	1	7
Transportation				
Beliefs	6.00	1.04	1	7
Norms	4.46	1.34	1	7
Behavior	4.00	1.79	1	7
Self-Efficacy	6.01	1.30	1	7
Values				
Traditional	4.14	0.74	1	5
Biospheric	4.32	0.79	1	5
Altruistic	4.25	0.76	1	5
Openness	4.21	0.79	1	5
Egoistic	2.60	0.83	1	5

<u>Policy</u>

The results indicate that those who adhere to traditional and egoistic are not significantly correlated with supporting pro-environmental policy candidates. On the other hand, biospheric, altruistic, and openness to change were all significantly correlated with voting for pro-environmental policy candidates. Pro-environmental policy beliefs also showed a significant positive correlation with traditional values, altruistic values, openness to change values, with

biospheric as the highest correlation. Self-efficacy was also positively correlated with supporting policy. Pro-environmental policy beliefs and personal norms also significantly correlated with support for pro-environmental candidates (see Table 3).

Table 3: Correlations for Policy

Variable	Beliefs	Norms	Behavior
Values-traditional	.256*	.280**	.047
	.001	.000	.561
Values-biospheric	.543**	.265*	.381**
	.000	.001	.000
Values-altruistic	.484**	.337**	.320**
	.000	.000	.000
Values-openness	.485**	.390**	.325**
	.000	.000	.000
Values-egoistic	.061	.066	-.131
	.446	.411	.103
Beliefs		.414**	.496**
		.000	.000
Norms	.414**		.413**
	.000		.000
Self-Efficacy	.489**	.371**	.486**
	.000	.000	.000

* significant p < .05; ** p < .001

Recycling

The results indicate that those who adhere to traditional and egoistic are not significantly correlated with supporting pro-environmental recycling behaviors. On the other hand, biospheric, altruistic, and openness to change were all significantly correlated with supporting pro-environmental recycling behaviors. Pro-environmental recycling beliefs also showed a significant positive correlation with traditional values, altruistic values, openness to change values, with biospheric as the highest correlation. Self-efficacy was also positively correlated with supporting pro-environmental recycling behaviors. Pro-environmental recycling beliefs and

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personal norms also significantly correlated with support for pro-environmental recycling

behaviors (see Table 4).

Table 4: Correlations for Recycling

Variable	Beliefs	Norms	Behavior
Values-traditional	.421**	.320**	.106
	.000	.000	.188
Values-biospheric	.538**	.296*	.332**
	.000	.001	.000
Values-altruistic	.475**	.322**	.253*
	.000	.000	.001
Values-openness	.397**	.291**	.208*
	.000	.000	.009
Values-egoistic	.008	.294	-.093
	.919	.411	.247
Beliefs		.362**	.471**
		.000	.000
Norms	.362**		.392**
	.000		.000
Self-Efficacy	.570**	.287**	.481**
	.000	.000	.000

* significant p < .05; ** p < .001

Energy

The results indicate that those who adhere to egoistic are not significantly correlated with

supporting pro-environmental energy behaviors. On the other hand, traditional, biospheric,

altruistic, and openness to change were all significantly correlated with supporting pro-

environmental energy behaviors. Pro-environmental energy beliefs also showed a significant

positive correlation with traditional values, altruistic values, openness to change values, with

biospheric as the highest correlation. Self-efficacy was also positively correlated with supporting

pro-environmental energy behaviors. Pro-environmental energy beliefs and personal norms also

significantly correlated with support for pro-environmental energy behaviors (see Table 5).

Table 5: Correlations for Energy

Variable	Beliefs	Norms	Behavior
Values-traditional	.367**	.244*	.240*
	.000	.002	.002
Values-biospheric	.512**	.195*	.361**
	.000	.014	.000
Values-altruistic	.469**	.172*	.352**
	.000	.031	.000
Values-openness	.438**	.160*	.302**
	.000	.045	.000
Values-egoistic	-.026	-.023	-.499
	.746	.776	.247
Beliefs		.180*	.543**
		.024	.000
Norms	.180*		.442**
	.024		.000
Self-Efficacy	.665*	.254*	.367**
	.000	.001	.000

* significant p < .05; ** p < .001

Food

The results indicate that those who adhere to egoistic are not significantly correlated with supporting pro-environmental food behaviors. On the other hand, traditional, biospheric, altruistic, and openness to change were all significantly correlated with supporting pro-environmental food behaviors. Pro-environmental food beliefs also showed a significant positive correlation with traditional values, altruistic values, openness to change values, with biospheric as the highest correlation. Self-efficacy was also positively correlated with supporting pro-environmental food behaviors. Pro-environmental food beliefs and personal norms also significantly correlated with support for pro-environmental food behaviors (see Table 6).

Table 6: Correlations for Food

Variable	Beliefs	Norms	Behavior
Values-traditional	.212*	.297**	.169*
	.008	.000	.035
Values-biospheric	.524**	.205*	.366**
	.000	.010	.000
Values-altruistic	.484**	.077	.167*
	.000	.340	.037
Values-openness	.441**	.150	.272*
	.000	.061	.001
Values-egoistic	-.096	.078	-.155
	.232	.331	.053
Beliefs		.252**	.578**
		.001	.000
Norms	.252*		.405**
	.001		.000
Self-Efficacy	.664**	.390**	.704**
	.000	.000	.000

* significant p < .05; ** p < .001

Transportation

The results indicate that those who adhere to traditional, egoistic, altruistic, and openness to change were not significantly correlated with supporting pro-environmental transportation behaviors. On the other hand, biospheric was significantly correlated with supporting pro-environmental transportation behaviors. Pro-environmental transportation beliefs did however have a significant positive correlation with traditional values, altruistic values, openness to change values, with biospheric as the highest correlation. Self-efficacy was also positively correlated with supporting pro-environmental transportation behaviors. Pro-environmental transportation beliefs and personal norms also significantly correlated with support for pro-environmental transportation behaviors (see Table 7).

Table 7: Correlations for Transportation

Variable	Beliefs	Norms	Behavior
Values-traditional	.287**	.353*	.105
	.000	.002	.190
Values-biospheric	.523**	.286**	.180*
	.000	.000	.024
Values-altruistic	.507**	.144	.013
	.000	.073	.876
Values-openness	.466**	.207*	.103
	.000	.009	.197
Values-egoistic	.015	.155	.026
	.851	.052	.748
Beliefs		.394*	.390**
		.024	.000
Norms	.394**		.425**
	.000		.000
Self-Efficacy	.735**	.300*	.314**
	.000	.001	.000

* significant p < .05; ** p < .001

DISCUSSION

The VBN model for sustainable behavior is effective in understanding the relationship between an individual's attitudes toward environmentally responsible behavior. Unlike other studies that lump ERBs into one scale, this study separates the behaviors into more digestible behaviors for participants to report. To address the hypotheses of this study and compare the results to those of Whitley et al. (2018), analyzing the strength of the relationship between values, beliefs, norms, and self-efficacy to behavior is valuable. For the first hypothesis, altruistic values did in fact positively correlate with pro-environmental beliefs, three out of the five norms about the target behaviors, and four out of the five target behaviors. For the second hypothesis, biospheric values were positively correlated with belief, norm, and behavior. Hypothesis three was not supported as the results demonstrate that egoistic values were not negatively correlated with beliefs, norms, or behaviors. Most of the egoistic value correlations were weak positive correlations, unlike Whitley et al.'s (2018) results. Furthermore, traditional values were not completely negatively correlated with beliefs, norms, or behavior. The data shows that traditional values were positively correlated with beliefs, norms, and behavior. One possible explanation is that because both Michigan and Florida are swing states (Strömberg, 2008) each state's values may not be indicative of how readily people from Michigan or Florida engage in environmentally responsible behavior. Because Florida is a swing state but is also facing the impacts of climate change and sea level rise firsthand, the positive correlation of traditional values with pro-environmental behavior may not be that surprising.

Higher scores for Openness to change values were strongly correlated with voting behavior, recycling behavior, energy behavior, and food choices, but not for choosing transportation that was better for the environment. This could be explained by the larger effect of

external factors that deal with transportation behavior, such as lack of transit infrastructure or bike-friendly streets. Hypotheses six and seven were also supported, with norms being a more consistent predictor for sustainable behavior than beliefs or values.

Limitations

There are many limitations to this study. As mentioned previously, a factor analysis conducted on all Value items and found that it only supports 4 measured variables. However, it should be mentioned that Biospheric questions and Altruistic questions were measured as the same variable. Whitley et al. (2018) addresses this as altruism was divided into humanistic and biospheric altruism for their study. Another limitation is that the number of participants was not enough to perform an accurate SEM. Further research needs to be performed for better comparisons to Whitely et al.'s (2018) study. In addition, using self-reported data as a means to measure behavior poses many risks such as the effect of social desirability.

Future Research

For future studies on campus, collecting the actual recycling audits or energy consumption in dorms would be more accurate measures of actual behavior. Because there was only one self-efficacy measure for each of the five targeted behaviors, there needs to be further research in the relationship between the self-efficacy of sustainable behaviors and actual behaviors. This study also did not collect data regarding academic year at UCF, which would have provided a more accurate comparison of the participants as a representative sample of the UCF undergraduate student population. Furthermore, by taking data on whether students grew up in Florida or came from out of state, identify as liberal or conservative, or Democrat or

Republican, more detailed correlations of how much individual differences of students affect values, belief, norms, and consequent sustainable behaviors.

Conclusion

The researcher found that students at UCF had different associations with ERBs than MSU, primarily with the lack of negative correlations between traditional/egoistic values with ERBs. Both norms and self-efficacy were significantly positively correlated with the targeted ERBs, which can help colleges implement programs or other strategies to promote sustainable behavior – whether by shifting to a sustainability focused norming culture or improving the self-efficacy of students to effectively practice more sustainable behavior.

APPENDIX A: SURVEY QUESTIONS

1. Please specify your ethnicity.

    a. White

    b. Black

    c. Hispanic or Latino

    d. American Indian or Alaska Native

    e. Asian

    f. Native Hawaiian or Pacific Islander

    g. Other

2. What is your age?

3. What is your gender?

    a. Male

    b. Female

    c. Other

4. What is your major?

5. Please choose your current housing situation (choose all that apply).

    a. On-campus housing

    b. Off-campus housing

    c. Living with family

    d. Living with roommates

    e. Living alone

The following questions ask students about their values.

6. Please indicate how important each of these is as a guiding principle in your life (5-point

    scale ranging from Not at all important to Extremely important)

(Altruistic values scale)

Social justice, correcting injustice, care for the wear equality, equal opportunity for all

A world of peace, free of war and conflict

(Biospheric value scale)

Respecting the earth, harmony with other species Protecting the environment, preserving

nature Unity with nature, fitting into nature

(Egoistic value scale)

Social power, control over others, dominance

Authority, the right to lead or command

Wealth, material possessions, money

(Traditional value scale)

Honoring parents and elders, showing respect

Family security, safety for loved ones

Self-discipline, self-restraints, resistance to temptations

(Openness to change value scale)

A varied life, filled with challenge, novelty, and change

An exciting life, stimulating experiences

Curious, interested in everything, exploring

The follow questions ask about the beliefs (a-c), self-efficacy (d), and norms (e-h) of each behavior.

7. Please indicate how strongly you agree or disagree to the following statements about policy: (Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree)

a. Voting for political candidates who say they will strengthen environmental policies is a good idea.

b. Voting for political candidates who say they will strengthen environmental policies would make a difference.

c. I have thought a lot about supporting pro-environmental political candidates.

d. I know how to support pro-environmental political candidates.

e. My friends support political candidates who say they will strengthen environmental policies.

f. UCF students in general support political candidates who say they will strengthen environmental policies.

g. My friends vote for pro-environmental political candidates.

h. UCF students in general vote for pro-environmental political candidates.

8. Please indicate how strongly you agree or disagree to the following statements about recycling: (Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree).

a. Proper recycling is a good idea.

b. Proper recycling would make a difference.

c. I have thought a lot about properly recycling.

d. I know how to properly recycle.

e. My friends support recycling.

f. UCF students in general support recycling.

g. My friends recycle.

h. UCF students in general recycle.

9. Please indicate how strongly you agree or disagree to the following statements about energy: (Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree).

    a. Turning off the lights and other electronics when you leave a room is a good idea.

    b. Turning off the lights and other electronics when you leave a room would make a difference.

    c. I have thought a lot about conserving energy.

    d. I know how to conserve energy.

    e. My friends support turning off the lights and other electronics when they leave a room.

    f. UCF students in general support turning off the lights and other electronics when they leave a room.

    g. My friends turn off the lights and other electronics when they leave a room.

    h. UCF students in general turn off the lights and other electronics when they leave a room.

10. Please indicate how strongly you agree or disagree to the following statements about food: (Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree).

    a. Choosing food in order to help the environment (e.g., eat less meat, local food, less pesticides) whenever possible is a good idea.

    b. Choosing food in order to help the environment (e.g., eat less meat, local food, less pesticides) whenever possible would make a difference.

    c. I have thought a lot about my food choices.

d. I know how to choose foods that have less harm on the environment.

   e. My friends support choosing foods in order to help the environment.

   f. UCF students in general support choosing foods in order to help the environment.

   g. My friends choose food in order to help the environment.

   h. UCF students in general choose food in order to help the environment.

11. Please indicate how strongly you agree or disagree to the following statements about transportation: (Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree).

   a. Choosing transportation with lower environmental impact whenever possible (e.g., bus, bike, walk) is a good idea.

   b. Choosing transportation with lower environmental impact whenever possible (e.g., bus, bike, walk) would make a difference.

   c. I have thought a lot about my transportation.

   d. I know how to choose transportation with lower environmental impacts.

   e. My friends support choosing transportation with lower environmental impact whenever possible.

   f. UCF students in general support choosing transportation with lower environmental impact whenever possible.

   g. My friends choose transportation with lower environmental impact whenever possible.

   h. UCF students in general choose transportation with lower environmental impact whenever possible.

The following questions ask students to report their own behavior.

12. How often do you do the following? (Never, Not often, Sometimes, About half the time, More than half of the time, Most of the time, Always)

    a. Support political candidates who say they will strengthen environmental policies.

    b. Recycle your paper, plastics, and metal waste.

    c. Turn off the lights and other electronics when you leave a room.

    d. Choose food in order to help the environment (e.g., eat less meat, local food, less pesticides) whenever possible.

    e. Choose transportation with lower environmental impact whenever possible (e.g., bus, bike, walk).

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