ENVIRONMENTAL PRACTICES AMONG THE USA AND RUSSIAN STUDENTS: CROSS CULTURAL ANALYSIS

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Abstract. This study provides a holistic approach in the form of a case study on the Colorado State University (Fort Collins, the USA) and Kazan Federal University (Kazan, Russia) students' environmental behavior practices. It discusses definitions of environmentally sound behaviors; examines some environmental behavior theories, offers an empirical data on the different types of environmentally sound behaviors, environmental lifestyle, environmental decision making, and environmental activism of the CSU and KSU students. In addition, the results provide a test of the validity of the game theory approach (Nishino et al., 2007) and norm activation theory (Schwartz 1977). Key practical implications for the policy and decision makers are discussed.

Keywords: environmentally sound behaviors, environmental lifestyle, environmental decision-making, environmental activism, environmental responsibility, game theory, norm activation theory, context variables

Introduction

Students of today are the future policy and decision makers. Thus, it is crucial to study students' behavior practices towards the environment and the meanings they imply to them because they will affect the future decisions concerning the natural resources.

Furthermore, every society has its own configuration of environmental risks, environmental agents and institutions, infrastructural support. Thus, studying environmental behaviors of students in different societies could provide a fruitful opportunity to capture various alternative models and approaches of reconceptualization the environmental discourse.

A literature review demonstrated that youth environmental behavior has been research topics for several decades in Russian (Yanitsky, 1998; Haliy,[1)] etc) and the USA (Meinhold & Malkus, 2005; Lee, 2008, etc). There has been substantial research compiled looking at youth and the environment (Howe et al.,, 1996; Lyons & Breakwel, 1994; Fien et al., 2002; Hausbeck et al., 1992). Compared to environmental awareness, Russian researchers pay less attention to the environmental behavior concept. Most of their work aim to analyze environmental movements (Nugaev, 1998; Yanitsky, 2002; Fomichev, 1995). The US environmental researchers are more likely to concentrate on a particular type of behavior; a remarkable number focus on recycling (Barker et al., 1994; Bratt, 1999). Few studies examine youth environmental behavior in cross-cultural perspective.

This particular study introduces a holistic comparative approach including the analysis of different types of environmentally sound behaviors of college students; environmental lifestyle, environmental decision making, and environmental activism. Furthermore, the relationship between game-theory and norm activation theory approaches and environmental behaviors are ana-

lyzed. Finally, students' incentives to perform environmentally sound activities are examined.

The study applies an interdisciplinary framework which draws on the field of Sociology, Environmental Studies, Comparative Sociology and Social psychology. From the practical point of view, the results of the study would be useful in building an efficient environmental policy of youth communities of the given regions.

The article is organized as follows. First, a literature review details previous work on the environmental behavior and lifestyle. A number of hypotheses are developed. Next, the study's methodology is outlined and the results of the research are presented. The paper concludes with recommendations for decision and policy makers.

Review of literature

Conceptualizing environmental behavior

Depending on the methodological orientation environmental behavior can be conceptualized in two main ways. In one line of research, environmental behavior defines by its impact: «the extent to which it changes the availability of materials or energy from the environment or alters the structure and dynamics of ecosystems or the biosphere itself» (Stern, 2000, p. 408). With this in mind, some behavior patterns can cause environmental change directly (e.g., waste disposal), while others can affect environment indirectly through shaping more broad context (e.g., tax policies, international policies, etc).

In the second meaning, environmental behavior is seen as behavior that is tackled with the intention to change the environment (Stern, 2000). While the impact-oriented approach is mainly concentrates on a negative effect on the environment, the intent-oriented approach is more likely to focus on a positive change through individuals' engagement in the environmentally friendly practices. Both definitions can be incorporated in my research, but for differ-

ent purposes. The impact-oriented approach can describe behavioral patterns linked to a broader environmental context, whereas the intent-oriented approach can reveal individuals' motives behind environmentally friendly acts.

Theories of environmental behavior

Environmental scientists dedicate considerable attention for studying the rationales behind the nature of environmentally friendly and environmentally hostile behaviors (McKenzie-Mohr & Oskamp, 1995; Stern, 2000, etc).

Some of them incorporate a game theory approach (Nishino et al, 2007). From this perspective, the main factor that motivates people to act in the environmentally sound fashion is the sense of resource exhaustion. However, environmentally responsible behavior itself is not profitable; self-interested behavior that disregards environmental issues usually brings high profit or other benefits to a particular person. However, as the resource degradation increases, group solidarity to save the resources enhances because it brings harm to people's self-interest. With this in mind, I hypothesize that students, who believe that the current environmental situation is aggravating are more likely to behave in the environmentally friendly fashion than their less environmentally concerned counterparts.

Some portion of environmental research shows the importance of control over the environment. Thus, according to the self-efficacy theory, people are more likely to be engaged in the environmentally friendly behavior if they feel that their behavior would make a difference (Rice, 2006). Similar, the norm activation theory (Schwartz, 1977) postulates that environmental sound behavior activated under two circumstances: (1) people must believe that an existing environmental situation poses harm to others and (2) they must believe that their personal actions can make the difference to prevent the harm. The more people feel their behavior can change the quality of the local environment; the more active is person's efforts to participate in environmentally

friendly acts. However, even if people feel they have control over the environment but are convinced that only business or the government can provide effective solutions, they might not engage in much pro-environmental behavior. In the literature this phenomenon is also called ‘‘faith in others.’’

Thus, the following is hypothesized that students who believe that they can personally influence environmental decision making are more likely to be more environmentally friendly than those who do not.

Environmental behaviors: different approaches

A wide range of subsequent environmental behavior studies reveals a discourse towards the relationship between environmental behavior and environmental awareness.

One portion of studies illustrates that environmental behavior defines and constructs environmental attitudes (Cornelissen at al, 2008). In this light of research, scientists refer to self-perception theory. This framework reflects the idea that people develop their attitudes towards the environment from the inclusion in environmental practices. «In situations where attitudes are to be constructed on the spot, or when existing attitudes are ambiguous or weak, people may derive their attitudes towards ecological behaviors from the frequency with which they involved in them in the past» (Cornelissen at al., 2008). People estimate the frequency of the engagement in the environmentally friendly practices by the frequency they come to mind. Based on this procedure, they build judgments of how environmentally aware they are.

The other studies demonstrate that environmental attitudes predict environmental behavior[2)] (Jurin, 2000). In this light, a theory of planned behavior (Ajzen & Fishbein, 1980) indicates that norms together with values and attitudes determine behavior intentions, which in term predict behavior practices.

However, being concerned about the environment does not imply that one is also willing to make personal sacrifices for the environment. In this sense, attitudes may directly influence behavior; but often they do not, because other forces are more influential. In that sense, a third group of environmental scientists stress the indirect correlation between environmental awareness and environmentally favorable behavior. People's willingness to be involved in the environmentally friendly practices is mediated by a lot of external and internal factors such as situational circumstances, individual differences, normative factors, physical setting in which people carry out specific environmental actions, etc (Stern & Dietz, 1994; Stern et al., 1995, etc).

Internal variables including environmental values (egoistic, social-altruistic, biocentric), attitudes and beliefs, and environmental knowledge exist within individuals. External variables lie outside the individual (Stern et al., 1995). There is evidence that each of these kinds of incentives can affect people's behavior under the right set of conditions.

Although situational factors are difficult to control and measure, my study embedded a scale indicating the main reasons of performing environmentally sound behaviours (ecocentric, egocentric, financial, infrastructural, cultural, ect).

Methodology

Variables

Different types of quantitative scales have been produced to study CSU and KSU students' environmental behavior practices. While some scales were incorporated from previous studies (Kim et al., 1989, etc), others were created specifically for the research project in hand.

Part 1. *Demographic Factors* referred to personal information about gender, age, ethnic origin, birth place, schooling, employment status, marriage

status, religion affiliation, family monthly income and social status. They were included as control variables.

Part 2. *Environmental lifestyle* section constitutes two blocs including environmental lifestyle and environmental activism. The environmental lifestyle section studies students' engagement in various environmentally friendly acts like recycling, driving less/ driving more fuel efficient cars, using less electricity, buying organic food, using energy saving light bulbs, conservation of water, etc. With the aim of adapting the questionnaire to the theoretical model proposed and analyzing the personal, behavioral, and contextual causal factors that affect people's behavior towards the environment, students are asked to name the main reason behind their engagement in these environmentally responsible behaviors. Furthermore, students are asked to think about their shopping and living habits over the last 3 years and choose whether they make major changes, minor changes or no changes to help protect the environment.

Part 3. *Environmental activism* is measured by asking students about their past experience in various types of pro-environmental actions like writing a letter of protest/signing up an environmental petition, organizing a protest on environmental issues, taking part in a protest on environmental issues, facilitating the social discussions on the environmental issues, participating in the social discussions on the environmental issues, etc. I also ask respondents whether they are belong to an environmental organization or club. Moreover, students' behavioral intention is evaluated by putting them in the imaginary situation and asking them about the pro-environmental actions they would undertake.

Part 4. *Environmental responsibility and decision making* are assessed with 5 scales. They measure beliefs about self-efficacy and personal responsibility with respect to the environment (Gallup 2001). To evaluate the ''bystander effect'' or "faith in other" (Granzin and Olson 1991), a measure of

belief about the government's/ environmental organizations' and business' role in environmental decision-making is analyzed. Moreover, the students are asked to evaluate the actions that need to be undertaken to manage environmental problems.

Sampling procedures and data collection

The empirical study involved the administration of a self-completion questionnaire to CSU and KSU students. In case of CSU students' data were collected from the middle of September to the middle of October 2009 and in case of KSU students - from the middle of September to the middle of October 2010. The researcher approached the classroom, introduced her and the study, and administered the survey to groups of students who completed them in the classroom. Students responded voluntarily and were not compensated for their participation. The total number of respondents for CSU sample was 450 students and for KSU was 650 students. The sample was representative of the actual number of students with regard to gender, college year and college affiliation.

Data analysis and findings

Descriptive statistics, *t*-tests, chi-square tests, correlations, analysis of variance (ANOVA), were conducted on the data. Descriptive statistics were provided to document the students' environmental behaviors, environmental responsibility, and environmental lifestyle. A series of *t*-tests, chi-square tests, correlations and analysis of variance (ANOVA) were used to determine whether significant differences existed within and between the groups of responses by sociodemographics. The calculations were carried out using the «Statistical Package for the Social Sciences» (SPSS 17).

Research demonstrates that both CSU and KSU students' environmental lifestyle experienced minor changes over the last 3 years; 48% of Russian

and 21% of the US students have made no changes at all. The rationale behind it could lay in the assumption that the US students' lifestyle in many respects has been already environmentally friendly, such that there was not so much need for big changes, except to sustain it. In Russian case the reason could lay in the assumption that not much new environmental infrastructure has been developed to support students' green practices.

To indicate the average number of environmentally friendly activities that students conducted over the last year and for the purpose of further statistical analysis, an index of environmentally responsible behavior was created. Thus, data shows that on average over the last one year CSU students performed five different types of environmentally responsible behaviors out of nine possible options whereas KSU students performed 3 different types of environmental behaviors.

More specifically, students were involved in the following environmental activities: cutting down energy consumption (83.6%), separation waste for recycle (74.2%), cutting down water consumption (68.7%), using the car less (59.8%), choosing an environmentally friendly way of travelling (56.9%), reduction the consumption of disposable items (56.1%), choosing locally produced products or groceries (50.9%), buying environmentally friendly products (39.9%). In general, CSU students demonstrated to be more environmentally active than KSU students: less than 3% of CSU students did not conduct any environmental activities for the past year compared to 14.5% of KSU students.

Furthermore, the research shows positive and significant correlation between the seriousness of the environmental situation and environmentally sounds behaviors. Those students who believe that the current environmental situation in all geographical levels is serous perform more environmentally sound practices than their less environmentally concerned counterparts (Table 1).

Table 1. One-way ANOVA: pro-environmental behavior by the students' perception of seriousness of the environmental situation

Variables		Environmentalindex (mean)	Significance
How serious do you think the environmental situation in the city or area where you live	Extremely serious	5.68	0.000**
	Somewhat serious	5.28	
	Not so serious	4.66	
	Not serious at all	3.24	
How serious do you think the environmental situation in the state where you live?	Extremely serious	5.73	0.000**
	Somewhat serious	5.23	
	Not so serious	4.29	
	Not serious at all	3.38	
How serious do you think the environmental situation in your country?	Extremely serious	5.68	0.000**
	Somewhat serious	4.52	
	Not so serious	3.63	
	Not serious at all	1.83	
How serious do you think the environmental situation in the world?	Extremely serious	5.41	0.000**
	Somewhat serious	4.15	
	Not so serious	3.07	
	Not serious at all	2.00	

**p < 0.01,*p > 0.05

My research is guided by a contextual theory, thus, I incorporated contextual variables aiming at studying students' environmental behavior models. Some of the contextual variables were created ad hoc based on the previous research on the subject while others were identified post hoc.

Students were asked - what was the main reason why you were engaged in the environmental activities? The results show that in both the US and Russian samples students' environmental behavior practices are mainly driven by social-altruistic values ("I do not want other people and the future generation to suffer from a bad quality of environment", "the planet, not just humans depends on our help"). While the US students are more motivated by monetary incentives and costs ("I want to save money") and habitual practices ("I got used to these activities from the childhood"), Russian students' environmental behaviors are more driven by self-egoistic values ("I do not want to suffer from a bad quality of environment"). The other stimulus which students

in both countries mentioned include: community expectations ("everybody is doing them in the place where I live"), infrastructural support ("it's very available"), social-psychological factors ("they make me feel good", "it's the right thing to do", "had a good experience with these activities in the past") and exercising political will ("things I could actually participate in").

To develop strategies to achieve sustainable lifestyle, we need to understand how people's environmental behavior can be influenced and structured. Thus, the analysis of the distribution of contextual factors among different types of environmental behavior allows us to examine the dominant incentive behind a particular kind of environmental practice and thus, to better affect it.

Research demonstrates that social-altruistic values are the main driver for all environmentally friendly behavior types, especially for reducing the consumption of disposable items. Apart from it, community expectation ("everybody is doing it the place where I live") is the more dominant driver for those students who recycle and reduce the consumption of disposable items; monetary incentives and costs ("I want to save money") are the more dominant driver for those students who cut down energy consumption and try to choose an environmentally friendly way of travelling; habitual ritual ("I got used to these activities from the childhood") is the more dominant driver for respondents who cut down their water consumption and buy environmentally friendly products marked with an environmental label, and finally self-egoistic values ("I do not want to suffer from a bad quality of environment") are the more dominant driver for students who chose locally produced products or groceries.

Students were asked about their activities to promote the environment as a social and political issue. Research illustrates that the US students are more active than Russian students. American students initiated environmentally friendly practices themselves. Thus, it is quite clear from the data that US

respondents organize a protest on environmental issues while Russian students participate in the protest. Similar, the US students wrote a letter of protest whereas Russian students signed an environmental petition, etc. were actively involved in the more direct forms of environmental engagement such as taking part in the protest on the environmental issues (9.5%) and organizing a protest on environmental issues (2,1%). Furthermore, one-fourth of the US respondents reported that they have been members of environmental groups whereas only 7% of the Russian students involved in a group or organization that works to protect the environment.

In both samples the students were more involved in the indirect forms of environmental collective actions such as participating in the social discussions on the environmental issues (41.3%), writing a letter of protest (19.8%), facilitating the social discussion on the environmental issues (9.5%). Consistent with previous research, this study suggest that the more demanding forms of participation such as taking part in boycott or demonstrations are less popular among all students.

Present research demonstrated significant differences in the environmental activism model among students with different environmental value structures. Thus, students with strong egoistic and social-altruistic environmental attitudes are more likely to be engaged in the environmental active behaviors than students with other types of values. The reason behind more active environmental engagement of the groups with egoistic and social-altruistic environmental values can be explained by their beliefs of the short-term and long-terms effects of environmental risks on themselves and the future generation. In addition, more active environmental engagement of these groups can be also a part of psychological benefits from expressing students' preferences through environmentally active behavior or enjoy the social benefits of participating with like-minded people (Lubell et al, 2001).

Moreover, students were asked whether there are enough environmentally friendly activities running in the place where they live. 70.7% CSU students and only 29% KSU students are satisfied with the number of environmentally friendly activities running in the place where they live.

Students who are not satisfied with the amount and the structure of the environmental activities were asked an open-ended question *"What particular environmental activities should be organized?"* The majority of American students demand organizing public environmental awareness campaigns while most Russian students identify the need for offering financial incentives (e.g.: tax breaks, subsidies) to industry, commerce and to citizens who protect the environment and having stricter laws to the environment.

There was also an opinion expressed that although there is sufficient number of activities running in the regions, few of them are efficient and environmentally sound by its main intent *"I think activities are in place but they are very inefficient. It's all about green washing… It seems they are to make us feel like there is environmentally friendly way of doing things when really there isn't. All talk."*

Data shows that US students saw 'people in general' (64.2%) in charge of the environment, while Russian students put emphasis here on the government officials (43.4.%).

Research demonstrates that while individuals are those agents that are responsible for taking care of the environment for the US students, environmental organizations are more efficient in this role (53.5%). Russian students give credit to government to solve environmental problems. Findings suggest that 69.3% of American students and only 25% of Russians are sure that they can personally influence environmental decision making.

This study proves H2 that students who believe that they can personally influence environmental decision making are more likely to be more envi-

ronmentally friendly (5.21) than those who do not (3.95) (Table 2). This correlation is more obvious in the US sample.

Table 2. One-way ANOVA: pro-environmental behavior by self-efficacy

"From your point of view, can you personally influence environmental decision making?"	Environ. behavior index; (means), the US sample	Environ. behavior index; (means), Russian sample	Environ. behavior index; (means), the whole sample	Significance
Yes	6.42	4.15	5.21	0.000**
No	4.97	3.78	3.95	

**p < 0.01,*p > 0.05

However, even if students feel they have control over the environment but are convinced that only business or the government can provide effective solutions, they might not be engaged in much pro-environmental behavior. Our data supports these findings: environmentally sound behaviors are less likely to occur when an individual recognizes other potential "helpers'' like government, business or environmental organizations (Table 3).

In order to build efficient environmental policy authorities should gain an understanding about the particular environmental activities that should be undertaken. The most effective way to learn what incentives can work is often to involve some people who are targets of behavioral change in actually designing the program through questionnaires. For that reason, respondents were asked the following question: **"**What actions do you think are important to undertake to manage environmental problems?"

Table 3. One-way ANOVA: Pro-environmental behavior by "faith in others"

"Who do you think is making more effort to look after the environment?", %	Environ. behavior index; (means) the US sample	Environ. behavior index; (means), Russian sample	Environ. behavior index; (means) the whole sample	Significance
Individuals/people in general	6.33	4.22	5.07	0.046*
Environmental organizations	5.97	3.76	4.87	
Government	5.12	3.98	4.00	
Business and industry	5.45	2.85	4.00	

**p < 0.01,*p > 0.05

Research shows that most of the US students put high priority on environmental education (61.9%) while most of Russian students prioritize stricter environmental law regulations (53.6%).

These findings are positively correlated with the existing data that a majority of Russians today support tough environmental regulations and spending on environmental protection. According to the national polls 77% of respondents agree that government regulation make the environment a much cleaner and safer place than it would be if businesses were left to their own devices.

Conclusions and recommendations

The following behavioral incentives can interact and affect each other to produce an efficient platform for environmentally sound practices development and maintenance.

The paper provides holistic insights, in a form of a case-study, on the CSU and KSU students' environmental behavior practices including environmental lifestyle, environmental responsibility and decision making, and environmental activism. Research presents a conceptual framework that empha-

sizes the determining roles of both attitudinal (environmental values) and contextual factors and especially of their interactions in the formation of environmentally sound behavior practices.

The research shows that the US students compared to Russians are more environmentally active; over the last year they performed 5 different types of environmentally sound behaviors out of 9 possible options while Russian students performed only 3 different types of environmentally sound behaviors. The main driver for such behaviors in both samples is social-altruistic values.

Furthermore, the US students were the agents who initiated environmentally active behaviors, for example, writing a letter of protest, facilitating the social discussion on environmental issues while Russian students favor more passive ways of taking actions including participation in the social discussions on environmental issues, signing a letter of protest.

The US students believe that individuals are the agents who should take care of the environment while Russian students believe this agent is the government. Besides, for Russian students the government is credible on solving environmental problems. Most American students are sure that they can personally influence environmental decision making while most of Russian students are not positive about it. My research revealed the validation of game theory and norm-activation theory.

Collectively, the results provide valuable insights on the different forms of environmental behaviors of Russian and American students. Historically more developed forms of democracy in the USA compared to Russia formed strong civil society institutions such as various environmental organizations network, environmental legislation and monitoring, etc. It was a ground for fostering active civic position of American students and for building confidence that they could influence environmental decision making. Most of Russian students until now do not have a will and experience in environ-

mental initiatives. In Russia an activity of individuals are regulated by the state norms and sanctions, thus collective and depersonalized decisions are dominated.

The supported hypothesis confirms the fundamental role of environmental values as the key stimulus of environmentally sound behaviors, traditionally supported in the literature, as a background variable which affects behavior domain. Along with it, the present study highlights and statistically supports the importance of analyzing of contextual variables in shaping environmental behavior.

This study highlights some key directions that should be considered by environmental policy and decision makers while promoting environmentally friendly behaviors. One of them is putting a high priority on environmental education and public awareness campaigns; cultivating greater environmental literacy through educational programs. Lack of information can be a drawback to environmental action because it is not always obvious to people how to behave environmentally friendly on their attitudes (Stern, 1999).

Making environmentally sound practices a convenient behavior by, for example, adapting necessary infrastructure (e.g. more convenient public transportation in case of CSU community) will motivate more people to actually practice it. In this case, students will be more willing to act in line with their environmental concern because the situations demand few sacrifices, rather than situations that involve major inconvenience.

Furthermore, some of the behavioral incentives suggested by students are based on reinforcement techniques. Positive reinforcement uses reward so that the person gains something valuable (e.g. money) for performing environmental constructive acts. Punishment means an unpleasant consequence occurs (e.g., a fine) as a result of undesirable behavior. Some of these reinforcement-based strategies (e.g., financial payments) have demonstrated consistent behavioral change. For example, Foxx and Hake offered people various

rewards to lower the number of miles they drove in private automobiles. The rewards led to a 20% reduction in miles driven, compared with a control group (Gardner & Stern, 1995).

The following behavioral incentives can interact and affect each other to produce an efficient platform for environmentally sound practices development and maintenance.

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NOTES

1. http://www.isras.ru/files/File/Publication/Polis/Halii_4_08.pdf [In Russian]
2. http://ohioseagrant.osu.edu/_documents/publications/TB/TB-067%20Teacher%20Education%20at%20Stone%20Laboratory.pdf

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