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Original Research

Relationship of Sustainable Behavior, World-Mindedness, National and Global Identities, Perceived Environmental Risk and Globalization Impact Among College Students in the United States

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ABSTRACT

Purpose
This study examined the relationship of world-minded value orientation, national and global identities, perceived environmental risk and impact of globalization to self-reported sustainable behavior

Methods
The sample was composed of 298 college students from an ethnically diverse mid-size private university in California (United States). The variables that were examined as possible predictors of self-reported sustainable behavior were: world-minded value orientation, global-human and national sense of belonging/identity, perceived environmental risk, and globalization impact in general and on one's country. The internal consistency of the measures used to assess the seven variables ranged from 0.73 to 0.83.

Results
The strongest predictors of greater self-reported sustainable behavior were perceived positive general globalization impact and greater perceived environmental risk, followed by a stronger sense of national belonging/identity and global belonging/identity. There were notable relationships among the predictor variables: 1) National and global belonging/identities were moderately correlated suggesting their co-extensive nature rather than polarization, 2) More positive impact of globalization in general and on one's country were positively correlated, 3) Stronger world-minded value orientation was related to a stronger sense of global belonging/identity, and 4) Stronger sense of global belonging/identity was associated with higher perceived environmental risk.

Conclusion
The results are discussed in the context of the superordinate goal theory.

Keywords
Sustainable behavior; World-mindedness; Global identity; Risk perception; Globalization.

Abbreviations
SB: Sustainable Behavior; GGI: General Globalization Impact; IOC: Globalization Impact on Own Country; GB: Global Belonging/Identity; NB: National Belonging/Identity; WM: World-Minded Value Orientation; PR: Perceived Risk from Harmful Environmental Conditions.

INTRODUCTION

Climate change and the escalating threat of environmental degradation as consequences of human behavior continue to be challenges that transcend national boundaries and pose an existential threat to humanity.[1-3] There are growing efforts at the political, systemic and economic levels to try to understand and promote pro-environment policies, means of production, and consumer and public behavior.[4-7] There has also been an increasing recognition of the need to study psychological factors, norms, and attitudes in understanding motivation behind sustainable behavior.[8,9]

There has been increasing literature to suggest that higher perceived environmental threat tends to be associated with more environmentally friendly action,[10,11] consumption of goods,[12] and positive social values.[13,14] Also, stronger identification with and sense of belonging to the global-human community tend to be related to more sustainable behavior.[4,15]

The superordinate goal theory proposed by Sherif[16] stipulates that perception of a generalized threat tends to engender cooperation, group cohesion, common group protective actions, and a stronger sense of collective affiliation and belonging. This is true in national politics where the perceived presence of outside threat is used to bring together rival factions and feuding groups, and promote nationalism, national unity and cohesion.[17] Extending the theory to imply that global impact of climate change and environmental degradation represent a threat to all of humanity should lead to a stronger sense of belonging to the human community and encourage sustainable behavior to mitigate their negative impact.[10,11,14,18] An earlier study by Der-Karabetian[19] has shown in multiple countries that a greater perceived nuclear threat to all of humanity is associated with a stronger world-minded value orientation that embraces all of humanity.

Based on the implications of superordinate goal theory this study examines the relationship of psychological variables to self-reported environmentally sustainable behavior in a sample of college students in California (United States). The variables that were hypothesized to be associated with environmentally sustainable behavior (SB) were (a) General Globalization Impact (GGI) and Globalization Impact on Own Country (IOC), (b) Sense of Global Belonging/Identity (GB) and National Belonging/Identity (NB), (c) Degree of World-Minded Value Orientation (WM), and (d) Likelihood of perceived risk from harmful environmental conditions (PR).

METHODS

Participants

The participants were college students from an ethnically diverse (43% Hispanic) mid-size university in southern California (*N*=298). As Table 1 shows, the mean participant age was 22.73 years (*SD*=7.28). Of the total sample, 65% were female, 80% were born in the United States, 90% were undergraduates, 79% had travelled abroad, 42% had voted in the last five years, and 53% had done volunteer work for a pro-environment organization.

Measures

Table 2 shows the seven measures used in the study including a number of items, internal reliability of each measure, the mean and the standard deviation for each measure. The internal consistencies (Cronbach's *alpha*) ranged from 0.73 to 0.83 across the seven measures for the sample used in this study. The correlations of social

Table 1. *Participant Demographics*

			N	%
Age	Mean=22.73	SD=7.28		
Sex				
Female			194	65
Male			104	35
Country of Birth				
United State			239	80
Outside the United States			59	20
Student Status				
Undergraduate			270	90
Graduate			28	10
Travel Abroad				
Yes			235	79
No			63	21
Voted in the last five years				
Yes			124	42
No			171	58
Volunteered for pro-environment organization within past year				
Yes			130	53
No			139	47

Table 2. *Number of Items, Cronbach's Alpha, Means and Standard Deviations of Measures Used*

Measure	Number of Items	Alphas (Reliability)	Mean	SD
1. Sustainable Behavior (SB)	6	0.83	2.97	1.08
2. Globalization General Impact (GGI)	12	0.86	3.11	0.77
3. Globalization Impact on Own Country (IOC)	8	0.73	3.07	0.72
4. Global Belonging/Identity (GB)	7	0.80	3.18	0.89
5. National Belonging/Identity (NB)	7	0.80	2.95	1.06
6. World-Minded Values (WM)	26	0.81	3.39	0.60
7. Perceived Risk (PR)	5	0.81	3.20	1.00

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desirability bias measure with the other measures were negligible with *r*-values below 0.20, and negative in some instances, suggesting minimal social desirability bias in responding to the measures.

Full descriptions of each of the measures, including the actual items used, may be found in Der-Karabetian et al.[11] Items on all of the measures were rated on a 6-point Likert scale, 1=strongly disagree, and 6=strongly agree. Here are two examples of the items for each measure, and the number of items in each measure:

Sustainable Behavior (SB) – 6 items: Sustainable Behavior Scale[4,11] was used to measure sustainable behavior that dealt with self-report pro-environment activities addressing consumption, conservation and recycling. Higher scores indicate more self-reported sustainable behavior. Example: "*Whenever possible I recycle paper, plastic and other material*," and, "*I try to save water and electricity as much as possible*." Cronbach's *alpha* for the current sample is 0.83.

Globalization General Impact (GGI) – 12 items: Globalization General Impact measure developed by Der-Karabetianet al[11] was used to measure the perceived impact of globalization around the world. Items include both negative and positive impact related to the economic condition, social welfare, political process and environmental problems. Four items are reverse scored. Higher scores indicate a more positive impact of globalization in general. Examples: "*Globalization contributes to better economic conditions for everyone*," and, "*Globalization has led to people working in bad and unhealthy work environments*" (Reverse scored). Cronbach's *alpha* for the current sample is 0.86.

Globalization Impact on Own Country (IOC) – 8 items: Globalization Impact on Own Country developed by Der-Karabetian et al[11] was used to measure the perceived impact of globalization on one's own country. Positively and negatively stated items deal with the economic conditions, social problems, damage to the environment and political involvement. Three items are reverse scored. Higher scores indicate a more positive impact of globalization on one's own country. Examples: "*Globalization has impacted the economy of my country positively by raising the standard of living*," and, "*Globalization has increased social problems such as poverty and crime in my country*" (Reverse scored). Cronbach's *alpha* for the current sample is 0.73.

Global Belonging/Identity (GB) – 7 items: Global Belonging/Identity was measured using a somewhat modified version of the Global-Human Identity scale developed by Der-Karabetian and Ruiz.[20] Items deal with effective sense belonging and common fate with all humans around the world. No items are reversed. Higher scores indicate a stronger sense of global-human belonging and identity. Examples: "*I feel I am related to everyone in the world as if they were my family*," and, "*I think of myself as a citizen of the world*." Cronbach's *alpha* for the current sample is 0.80.

National Belonging/Identity (NB) – 7 items: National Belonging/Identity was measured using the Affective National Identity scale developed by Der-Karabetian and Ruiz.[20] Items deal with the importance of citizenship, common fate and loyalty to one's country. No items are reverse scored. Higher scores indicate a stronger sense of national belonging and identity. Examples: "*My destiny is closely connected to the destiny of my country*," and, "*If I were to be born all over again, I would wish to be born in my country*." Cronbach's *alpha* for the current sample is 0.80.

World-Minded Value Orientation (WM) – 26 items: World-Minded Value Orientation was measured using the Cross-Cultural World-Mindedness scale developed by Der-Karabetian.[19] Items deal with a concern for the welfare of people around the world, sharing of resources, tolerance of diversity, and international cooperation. Thirteen items are reverse scored. Higher scores indicate stronger world-minded value orientation embracing all of humanity. Examples: "*We have a moral obligation to share our country's wealth with the less fortunate people of the world*," and, "*Our responsibility to people of other races ought to be as great as our responsibility to people of our own race*." Cronbach's *alpha* for the current sample is 0.86.

Perceived Risk from Environmental Degradation (PR) – 5 items: Perceived Risk was measured using the shortened version of the Personal Environmental Risk scale developed by Der-Karabetian, et al.[4,11] Items deal with potential hazards to self and family from environmental degradation on health and welfare. No items are reverse scored. Higher scores indicate stronger personal perceived risk from environmental degradation. Examples: "*It is possible that my family or I could develop health problems as a result of dangerous chemicals in the environment*," and "*It is likely that during my lifetime my family and I might experience serious water shortage, limiting use per household*." Cronbach's *alpha* for the current sample is 0.81.

Procedure

Institutional Review Board (IRB) approval was obtained before data collection. Data were collected through the Qualtrics online survey software, and through hard copy surveys that were administered in various college classroom settings. In the online survey, the order of the measures was randomized for each respondent. In the hard copy version, the Perceived Risk measure came last preceded by the measure on Sustainable Behavior. The data were collected during the fall semester of 2015 on the campus of a mid-size private university in southern California with an ethnically very diverse student body of about eight thousand students.

RESULTS

There were no differences between females and males on any of the seven variables. Also, having done volunteer work for the pro-environment organization was unrelated to self-reported sustainable behavior.

Table 3 provides the inter-correlations of the psychological variables and Table 4 shows the results of the standard multiple regression analysis where sustainable behavior was the predicted (dependent) variable. Check of the skewness showed that none of the variables exceeded + or – 1.00 suggesting symmetry. Values ranged from 0.20 to 0.69, with World-mindedness at -1.00. Because of the intercorrelation of the predictor variables multicollinearity was evaluated. It did not present a problem as the Tolerance values ranged from 0.44 to 0.77 and the corresponding values of VIF ranged from 1.4 to 2.3. All six of the predictor variables

Table 3. *Inter-correlations of Measures*

Measure	SB	GGI	IOC	GB	NB	WM
1. Sustainable Behavior (SB)	-					
2. Globalization General Impact (GGI)	0.60***	-				
3. Globalization Impact on Own Country (IOC)	0.39***	0.61***	-			
4. Global Belonging/Identity (GB)	0.40***	0.45***	0.39***	-		
5. National Belonging/Identity (NB)	0.48***	0.58***	0.39***	0.26***	-	
6. World-Minded Values (WM)	0.12*	0.28**	0.41***	0.37***	0.17*	-
7. Perceived Risk (PR)	0.46***	0.44***	0.42***	0.36***	0.29***	0.31**

*p<0.05; **p<0.01; ***p<0.001

Table 4. *Multiple Regression Analysis Predicting Sustainable Behavior*

Measure	B	SE	Beta	t	p	Partial r
1 Globalization General Impact (GGI)	0.51	0.09	0.36	5.56	<0.001	0.31
2. Globalization Impact on Own Country (IOC)	-0.001	0.09	-0.001	-.01	N. S.	-0.01
3. Global Belonging/Identity (GB)	0.18	0.06	0.15	2.93	<0.01	0.17
4. National Belonging/Identity (NB)	0.20	0.06	0.19	3.57	<0.001	0.21
5. World-Minded Values (WM)	-0.26	0.09	-0.14	-2.86	0.17*	-0.17
6. Perceived Risk (PR)	0.23	0.06	0.24	4.62	0.29***	0.31**

(F(6) = 40.85, p<0.001; adj. R2=0.45).

were significantly correlated with sustainable behavior, and the overall standard multiple regression models predicting sustainable behavior was statistically significant ($F(6)$=40.85, p<0.001; *adj. R Square*=0.45). Following are the individual predictor variable results from the multiple regression analysis:

(a) More positive Globalization General Impact was a predictor of more Sustainable Behavior (B=0.36, p<0.001).
(b) Globalization Impact on Own Country was not a predictor of Sustainable Behavior (B=-0.001). Although IOC was correlated with Sustainable Behavior (r=0.39, p<0.001), it did not appear to have a unique contribution to Sustainable Behavior.
(c) Stronger Global Belonging/Identity was a predictor of more Sustainable Behavior (B =0.15, p<0.01).
(d) Stronger National Belonging/Identity was a predictor of Sustainable Behavior (B =0.19, p<0.001).
(e) Contrary to expectations higher degree of World-Minded Value Orientation was a predictor of less Sustainable Behavior (B=-0.14, p<0.01). It had a low correlation with Sustainable Behavior (r=0.12, p<0.05).
(f) Higher Perceived Risk from environmental degradation was a predictor of more Sustainable Behavior (B =0.24, p<0.001).

It is noteworthy that Global Belonging/Identity and National Belonging/Identity were positively correlated (r=0.26, p<0.001), suggesting that these two identities are not polarized. Also, Globalization General Impact and Impact on Own Country were correlated strongly (r=0.61, p<0.001). Those who thought the impact of globalization was more positive for their own country tended to also see its impact to be more positive in general around the world, and vice versa. Moreover, Higher World-Minded Value orientation was related to stronger Global Belonging/Identity (r=0.37, p<0.001). Both of these variables were positively associated with higher Perceived Risk (r=0.31, p<0.01, and r=0.36, p<0.001, respectively).

DISCUSSION

The two strongest independent predictors of Sustainable Behavior were more positive Globalization General Impact and greater perceived environmental risk (PR) followed by a stronger sense of national belonging (NB) and global belonging (GB). Der-Karabetian et al[11] reported similar results in a United States sample where perceived risk, and national and global belonging were significant predictors of sustainable behavior. Der-Karabetian et al[11] and Der-Karabetian and Alfaro[10] also reported perceived environmental risk as predictors of sustainable behavior in samples from China, Taiwan, Netherlands and Brazil.

Consistent with Sherif's[16] superordinate goal theory, in the current study greater perceived risk from environmental degradation was correlated with stronger global-human identity and greater world-minded value orientation. Of course the direction of causality is reversible such that while the greater perceived risk may engender stronger affiliation with all of humanity, a stronger world-minded value orientation may increase sensitivity to the risks paused by environmental degradation and climate change. Along similar lines, Devine-Wright et al[15] in the United States, Devine-Wright[21] in multiple countries, Werff, Steg, and Keiser[22] in the Netherlands, Gatersleben, Murtagh, and Abrahamse[23] in the United Kingdom showed that individuals that reported stronger global place attachment and identity were more inclined to attribute climate change to human activity and engage in pro-environment behavior.

The moderate and significant positive correlation be-

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tween global and national identity suggests that these two identities do not have to be polarized. Feeling strong affiliation with one's national identity does not imply a rejection of one's global human identity; the two can co-exist. This is in line with other findings by Der-Karabetian and Ruiz[20] and Devine-Right et al[15] who also revealed this positive relationship. McFarland et al[14] while showing that blind patriotism and ethnocentrism are negatively correlated with identification with all of humanity, identification as Americans was positively related to identification with all of humanity. Der-Karabetian et al[11] also showed a positive relationship between the two identities (national and global) in the United States, China and Taiwan. Moreover, they showed that those who hold higher identities at the global and national levels compared to those who are low on both or high on one and low on the other tended to report more pro-environment and sustainable behavior. Consistently, in the current study those who had a stronger global identity and stronger national identity tended to report more sustainable behavior.

In this study perceived more positive impact of globalization was an independent predictor of greater tendency to report engaging in the sustainable behavior. This is inconsistent with findings by Der-Karabetian et al[11] and Der-Karabetian and Alfaro[10] who reported no predictive relationship between globalization impact and sustainable behavior in United States college student samples. This relationship needs a further inquiry for clarification. It is likely that perceived impact of globalization may be mediated by stronger global identity and higher world-minded value orientation that were predictors of sustainable behavior and were correlated with globalization general impact. Since the variables examined here were inter-correlated, future studies should examine the relationship of these variables predicting sustainable behavior in a structural equation modeling to identify direct and indirect paths of prediction and mediating factors.

CONCLUSION

Taken together, the current findings together with growing literature suggest that perceived risk from climate change and environmental degradation as well as stronger identification with humanity at large tends to promote and encourage more sustainable behavior.[24] One of the implications of these findings to increase sustainable behavior is raising awareness of the risks of climate change and raising one's sense of belonging to all of humanity and global citizenship through education, exposure to the pervasive impact of climate change around the world, and through community-based intervention for sustainable behavior and development.[25,26] Effective community-based intervention to foster sustainable behavior has involved providing along with trash bins, separate bins for recyclable material like cardboards, cans, glass bottles, etc., and bins for green refuse. Also, successful has been providing feedback to residents on their utility bills regarding their use of water, gas and electricity compared to the overall average and to their efficient neighbors. It is encouraging to see a growing trend to provide sharable bicycles scattered around college campuses and city streets where people can borrow bicycles for a small fee to go around and then return them to a convenient location.

CONFLICTS OF INTEREST

There is no conflict of interest in the data collection and reporting of the results of this study.

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