Title:

Global Identity and Environmental Sustainability-Related Attitudes and Actions

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Global Identity and Sustainability

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Acknowledgments

This study was supported in part by a grant from the Precourt Energy Efficiency Center at Stanford University and a Stanford Interdisciplinary Graduate Fellowship award (Ms. Cornelius). We thank K. Farish Haydel and Susan Bryson for assistance with data analysis, Sally McCarthy for logistical support, Nicole Ardoin, PhD, K. Carrie Armel, PhD, and Wesley Schultz, PhD, for their input to the manuscript, and the high school students, teachers, and administrators who participated in this study.

Abstract

The global and trans-boundary nature of environmental sustainability challenges suggests a potential need for global identity, or connectedness to people around the world. Therefore, we hypothesized that higher levels of global identity would correlate with more positive sustainability-related attitudes and actions among adolescents. Public high school students (N = 152; mean ± standard deviation age = 15.5 ± 0.6 years) completed previously validated, self-report measures of global identity and sustainability-related attitudes and actions. Four randomly-selected classrooms of students (N=76) also repeated the same measures 7 weeks later. The global identity measure demonstrated adequate internal consistency and moderate seven-week test-retest stability. As hypothesized, global identity was positively and statistically significantly correlated with reported importance of environmental sustainability attitudes and behaviors. Global identity also showed temporal precedence over the 7 weeks. The results suggest the potential usefulness of considering and measuring global identity as a factor promoting environmental sustainability-related attitudes and behaviors.

Introduction and Background

Environmental sustainability is one of the most pressing challenges for humanity, requiring innovative means to address climate change, food, water, energy, poverty, and other interconnected issues without causing further damage to the planet (Matson, 2009; National Research Council, 1999). "Sustainability science" has emerged as a research paradigm that calls for collaborative and problem-driven approaches to solve complex nature-society problems (Clark, 2003; Kates et al., 2001). In essence, environmental sustainability confronts humanity with the task of reducing its impact on the earth. Moreover, disparate magnitudes

and distributions of human impacts appeal to cooperation beyond conventional boundaries and allegiances. For example, climate change may amplify existing injustices via the ways we adapt to impacts (Adger et al., 2006). Such complex, boundary-challenging issues may demand "a spirit of international cooperation and. . . recognition of . . . common planetary destiny" (Schneider & Lane, 2006). These features of environmental sustainability suggest that developing a global identity, or connectedness with people around the world, is a relevant perspective for inquiry.

Because research on individual behavior change shows potential for impact reduction to promote environmental sustainability, one useful way to investigate global identity may be to explore whether it relates to sustainability-related behavior. Modifying daily sustainability-related actions can reduce greenhouse gas emissions significantly (Gardner & Stern, 2008; Laitner, Ehrhardt-Martinez, & McKinney, 2009; Parker et al., 2006). In addition, the social and behavioral sciences are well equipped to help overcome barriers to behavior change (UNEP 2010; American Physical Society 2008; Swim et al., 2009).

Although modifying behavior is a promising strategy, adoption of environmental-sustainability attitudes and behaviors is not easy to achieve, so the field has room for new approaches. In this regard, global identity provides an opportunity for new research at the intersection of environmental sustainability and behavior. Previous research has conceptualized global identity in several ways and applied it effectively in various contexts. A review of this work indicates a lack of global identity research in the context of environmental sustainability, suggesting the need to investigate this potential relationship.

Cosmopolitanism is an early idea resembling global identity. It dates back to the Cynics of fourth century BCE and refers to being a citizen of the universe or cosmos (Appiah, 2006). Cosmopolitanism has three fundamental positions - first, the human being as

an individual, rather than the group or family, is the ultimate unit of moral concern; second, moral concern applies equally to every human being; and third, human beings are of special moral concern to everyone, not only to one's fellow citizens (Pogge, 1992). The idea continues to be important in political philosophy debates centering on human rights and justice, particularly when the focus is on how to assign moral value to human beings (e.g., Nussbaum, 1996; Waldron, 2000; Appiah, 2006; Calhoun, 2003; Featherstone, 2003, and Held, 2000). Sociologists also study cosmopolitanism, mostly in the context of understanding social roles in a global culture (e.g. Merton, 1968; Gouldner, 1957 and 1958; and Hannerz, 1990) and trans-national social movements (McAdam et. al., 1996; McAdam et. al., 2001, Tarrow & McAdam, 2005; McCarthy, 1997).

After World War II, researchers turned their focus to educational and cultural experiences that would foster "world-mindedness" in order to promote peace (Sampson and Smith, 1957). Like cosmopolitanism, world-mindedness means having values that rely on humanity rather than any one nationality as the principal frame of reference, in contrast to international-mindedness, which refers to interest in global events or news. Sampson and Smith developed a reliable and valid 120-point world-mindedness scale that covered eight categories: patriotism, religion, immigration, government, economics, race, education and war (1957). A cross-cultural world-mindedness scale was later developed by Der-Karabetien to study how people felt about nuclear threats (1992), illustrating the importance of applying world-mindedness to conflict at that time.

Der-Karabetian and Ruiz went on to create a scale to measure "global-human identity" in the context of acculturation of Mexican-American students in the United States (1994). They conceptualized global human identity as a sense of global belonging and awareness of the world's diversity. Students that embraced their Mexican and American culture – the bicultural group – scored higher on global-human identity, suggesting that

knowledge of more than one culture increases global connectedness. Arrow and Sundberg, studying global peace and conflict, support this notion in their discussion of how international identity – identification with all peoples of the world – forms (2004). They maintain that important pathways leading to international identity include relationships with people who live abroad, dual citizenship, and international travel (Arrow and Sundberg, 2004).

The United Nations (UN) offers the first conceptualization of global identity that relates to environmental issues. Global identity is described as "consciousness of an international society or global community transcending national boundaries, without necessarily negating the importance of state, nation, or domestic society" (Shinohara, 2004). The aim of such an identity for the UN is to foster cooperative action to counter the negative effects of global phenomena, such as war, AIDS, poverty, and environmental destruction, and to promote positive outcomes such as global justice (Shinohara, 2004; Great Transition Initiative et al., 2007). Environmental action in these cases can take the form of support for environmental agencies, and advocacy against environmentally destructive practices.

Environmental psychology research offers some concepts that may relate to global identity. These include sense of place and place attachment[1], which are linked to sustainability actions (e.g. Vaske and Kobrin, 2001), especially in environment education (Ardoin, 2009). Physical aspects of the environment can become imbued with symbolic meaning through direct experience (Tuan, 1977), and people form emotional attachments to landscapes and meanings, suggesting that landscape plays an important role in shaping and providing a platform for social aspects of place (Stedman, 2003). While these lines of research would be relevant if we were studying global attachment to the world's natural and physical features (e.g. Heise, 2008; Ardoin, 2009), this study focuses on a human-centered

[1] Trentelman provides an excellent and thorough review of the definitions, debates and approaches for sense of place and place attachment in different disciplines (2009).

approach to global identity that is not restricted by place.[2] In summary, this review of previous work points to a dearth of research on the application of global identity specifically to environmental sustainability.

Rationale for This Study

We theorize that global identity is relevant to promoting solidarity among people across national and other boundaries to combat environmental degradation and climate change. We propose that people who identify with humanity may be more likely to adopt or have already adopted environmentally sustainable lifestyles that, for example, mitigate greenhouse gas emissions to reduce human impact on the planet. Our views are grounded in the context of the prior research cited above, which suggests there is room for a correlation between global connectedness and local action aimed at positive global outcomes.

To explore the nexus of global identity and environmental sustainability attitudes and actions in particular, in this study we use an existing measure of global identity, previously validated among adolescents in the context of acculturation (Der-Karabetian & Ruiz, 1997). We first examine the psychometric performance of this measure in a current sample of adolescents and then, to test correlational validity, assess its relationship with sustainability-related attitudes and actions intended to reduce greenhouse gas emissions. We hypothesize that higher levels of global identity on this measure will correlate with more positive sustainability-related attitudes and a higher likelihood of taking greenhouse-gas-reducing actions.

[2] While a broader concept of global identity, one that involves attachment to global landscapes or species, is of immense interest, it is beyond the scope of this paper.

Method

We conducted the study with public high school students in Palo Alto, California enrolled in eight class sections of a required course not directly related to environmental sustainability. Student assent and parent/guardian written informed consent were required to participate. The protocol was approved by the school Principal and the Stanford University Panel on the Protection of Human Subjects in Research. Randomly selected classes of participating students completed a 20-minute, self-administered survey in their classrooms. Global identity was assessed with five questions from Der-Karabetian and Ruiz's (1997) study of acculturation in Mexican-American students using their original six-point Likert-type response scales ranging from 1 = disagree strongly to 6 = agree strongly.

1. I feel that I am living in a global village[3]
2. I feel that what I do could "touch" someone all around the world.[4]
3. I feel like I am "next door neighbors" with people living in other parts of the world.
4. I feel that I am related to everyone in the world as if they were my family.[5]
5. I feel that people around the world are more similar than different.

Questions about sustainability-related attitudes and actions were adapted from the Stanford Climate Change Behavior Survey, previously validated among college students (Armel, et al., 2011). Examples of questions include: 1) about what proportion of the time do you use a clothesline or hanger to dry clothes instead of a clothes dryer? (1 = never,…5 = all the time); 2) during the day, what do you do with your computer when you are not using it for 20 minutes or more? switch off instead of putting it to sleep or having it set to sleep automatically, leaving it on, with the monitor/display off (so the screen goes black), leaving it

[3] When participants asked, the phrase "global village" was explained as seeing the world as one big community.
[4] When participants asked, we explained this as "feeling close to people around the world through your actions."
[5] When participants asked, "related" was explained as a sense of being just as connected to people around the world as one feels with one's family.

on, with a screen saver that comes on, leaving it on, with the monitor on and no screen saver. (1 = never,…5 = all the time); 3) mark the answer corresponding to the number of one-way trips between your home and school in the past week by car, truck, or van (alone or dropped off by someone else), 0, 1-2, 3-4, 5-6, 7-8, 9-10, 11+; 3); 4) compared to other things in your life, environmental sustainability is: (1 = not at all important, 5 = the most important).

We constructed indices for snacks, meat, and energy-using appliance and device-related actions. We coded responses to follow the same direction with a higher number corresponding to a more sustainable attitude or action.

Results

Of a total of 229 enrolled students, 165 provided parent/guardian consent and completed the surveys. Thirteen students completed an insufficient number of survey items to be included in the analysis, for a final analysis sample of 152. Mean ± standard deviation age was 15.5 ± 0.6 years, and the sample was 58% female, and 43% white, 37% Asian, 3% Latino, 2% Pacific Islander, 1% African-American, and 14% Other.

A principal components factor analysis with Varimax rotation on the five global identity items yielded a single significant factor (Eigenvalue = 2.61; accounting for 37.3% of total variance), with all five items loading 0.44 or higher. The results were similar when tested for girls and boys separately. For girls the Eigenvalue of 2.82 accounted for 38.9% of total variance, with all items loading 0.39 or higher. For boys, the Eigenvalue of 2.59 accounted for 37.0% of total variance and all items loaded 0.53 or higher. Mean ± SD of the five-item measure was 3.27 ± 0.91; for girls 3.33 ± 0.90; and for boys 3.19 ± 0.93, not statistically significantly different by Wilcoxon-Mann-Whitney test, $p = 0.25$.

Cronbach's coefficient alpha demonstrated satisfactory internal consistency for the six-item Global Identity index in the total sample (alpha = 0.74), and separately for girls

(alpha = 0.75) and boys (alpha = 0.74). The stability of the global identity measure over time was assessed prospectively by repeating the survey seven weeks later in a subset of 76 students in four randomly selected classes. The measure produced moderate seven-week test-retest stability, Spearman intraclass $r = 0.53$, $p < 0.01$ ($r = 0.53$, $p < 0.01$ for girls and $r = 0.55$, $p < 0.01$ for boys).

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To test the potential relevance of global identity to environmental sustainability, we assessed correlational validity. First, we tested the association between global identity and concurrent sustainability-related attitudes and actions (see Table). As hypothesized, global identity was positively and statistically significantly correlated with reported importance of environmental sustainability, switching off energy-using devices when not in use, lower consumption of canned and bottled beverages, and greater use of a reusable drinking bottle. Correlations between the global identity measure and the four other measured actions were small and not statistically significant but in the expected directions.

We also tested whether the global identity measure predicted changes in sustainability-related attitudes and actions over the subsequent seven weeks in a longitudinal subsample of 76 students in four randomly selected classes. Results demonstrated that higher levels of global identity at one point in time (baseline) significantly predicted increases in favorable attitudes towards sustainability, increases in switching off energy-using devices when not in use, and increased use of reusable beverage bottles over the subsequent seven weeks. Correlations were not significant but in the expected directions for four of the other five actions assessed.

Discussion

This study tested an existing measure of global identity for its relevance to environmental sustainability-related attitudes and actions in a sample of public high school students. We found that the global identity measure exhibited good psychometric measurement characteristics in this new sample, with adequate internal consistency, moderate seven-week stability, and correlational validity with sustainability-related attitudes and some specific actions. In particular, global identity was positively and statistically significantly associated with concurrent attitudes about the importance of environmental sustainability, and actions involving switching off energy-using devices, reducing consumption of canned and bottled beverages, and increasing use of a reusable drinking bottle. Global identity at baseline also predicted increases in the importance of environmental sustainability, switching off energy-using devices, and using a reusable drinking bottle over the subsequent seven weeks, thus demonstrating temporal precedence, a necessary criterion for causality.

The single factor structure of the global identity measure as well as its internal consistency in this new sample were similar to results from past research with this same measure in a sample of Mexican-American adolescents (Der-Karabetian & Ruiz, 1997). Stability of the measure over seven weeks suggests that the global identity construct, as measured by this instrument, is moderately consistent over time. Results also demonstrated similar means and psychometric properties in both boys and girls in the sample, indicating this measure is appropriate for use in both sexes. The measure demonstrated correlational validity, confirming our hypothesis, with its associations, both concurrently and prospectively, with positive attitudes about sustainability and several sustainability-related behaviors or actions.

Broadly, this study begins to address the gap in research on global identity in the context of environmental sustainability. These results indicate that global identity could

occupy a promising niche in the interdisciplinary intersection between environmental sustainability and emerging behavioral science research. Environmental sustainability or sustainability science scholars and practitioners can extend this study in several ways, for example by using the construct in sociological, political, environmental ethical, social psychological, and anthropological studies, incorporating the construct in surveys for more applied settings (e.g. UN educational and development programs), and applying it to different populations (e.g. adults, seniors).

As hypothesized, our findings suggest that global identity has useful local behavioral implications evidenced by the changes in the specific daily sustainability-related behaviors studied here. This study not only extends past research on global identity, it also fits well with emerging research directions, such as behavioral approaches relating to sustainability. Recent research indicates that global social identity, a construct similar to the one examined here, is helpful in encouraging local cooperation toward global good (Buchan et al., 2011), reinforcing the findings we report here. The focus on local action is critical, but we also acknowledge the need for more research on global identity to foster political cooperation globally between nations, multi-national corporations and other influential stakeholders.

At the global level, scale may have interesting implications. For instance, Uzzell's research on the psychological and spatial aspects of global environmental problems reveals that environmental problems that are further away from the subject are perceived to be more serious, and that people feel more powerless as the scale of the problem increases (2000). Future work could explore whether scale issues affect global identity. Additionally, it would be useful to extend this research to investigate how global identity may offer an alternative or complement to place-based identities in place attachment and sense of place literature.

This study was limited by its relatively small sample size, particularly the longitudinal sample, use of only a single high school population, and a 34% non-participation rate among

all potentially eligible adolescents. A larger sample with greater age, geographic, ethnic and socio-demographic diversity would allow testing of these hypotheses for greater generalizability. However, while our sample did not include large numbers of African-Americans and Latinos, it did include a large proportion of Asians. A larger sample also might be able to test whether relationships differed in different subgroups of the sample, defined by demographics, social and cultural factors, as well as pre-existing attitudes and behaviors related to sustainability. Another limitation was the use of self-reports of attitudes and behaviors. While we have no reason to doubt the validity of self-reports from our sample, some attenuations of associations may have occurred due to measurement error, whether random or biased, from social desirability for example. That is another possible explanation for the variability in associations. While it is possible that our null findings reflected a true lack of association, it is also possible that some of the weaker associations were due to measurement error. It would be advantageous to test the relationships of global identity with objective measures of behavior. However, feasible, reliable and valid objective measures are not available for use in large population-based samples.

A particular strength of this study is the longitudinal data. Few studies of global identity, or other psychological factors thought relevant to environmental sustainability, have tested relationships prospectively, demonstrating temporal precedence. Temporal precedence is one key criterion for inferring causality, and defines global identity as a true "risk factor" for sustainability-related attitudes and behavior changes (Kraemer, 2001). However, while strengthening the results, the prospective correlations should not be over-interpreted as demonstrating causal relationships. The relatively short, seven week, follow-up might also have been too short to allow for sufficient changes in some of the sustainability behaviors. This is another potential explanation for some of the weaker relationships observed.

Overall, however, the results of this study suggest the potential usefulness of considering and measuring global identity in studies investigating determinants of environmental sustainability-related attitudes and behaviors. Future observational research can help examine whether global identity is associated with other sustainability-related attitudes and behaviors and different measures of these constructs. Such results would help examine the specificity of these relationships and whether the associations are reproducible in different samples and settings. These studies could also begin to investigate whether global identity is independent of other potentially-related constructs, such as empathy, altruism, and self-efficacy, in its relationship with attitudes and actions.

Moderator analyses will help researchers identify those pre-existing characteristics (moderators) of individuals, groups or settings that interact with degrees of global identity to predict greater or lesser associations between global identity and attitudes and actions. These studies help define those individuals, groups or settings that are potentially most appropriate to target with interventions designed to influence global identity. Mediator analyses would test whether global identity represents a potential mechanism or pathway to explain behavior or policy change in response to interventions, and/or the potential mechanisms linking global identity and attitudes and actions.

Finally, our results suggest that global identity may be an appropriate intervention target for promoting sustainability-related attitudes and actions. Experimental studies can test interventions to increase global identity and whether increasing global identity in turn leads to greater sustainability-related attitudes and behaviors. Only experimental studies can test causality and indicate whether this is a useful strategy. Experimental studies would also provide an opportunity to draw contrasts between global identity and other potential mechanisms underlying attitude and behavior change.

Conclusion

This study is the first to demonstrate the applicability of this global identity construct to environmental sustainability. An existing global identity measure proved psychometrically sound, internally reliable, moderately stable, and related to concurrent and future changes in sustainability-related attitudes and actions among public high school students. These results suggest that global identity may play a role in the development of sustainability-related attitudes and actions and may represent an important mechanism of change or intervention target to increase environmental preservation practices.

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