Review

PSYCHOLOGY LEARNING & TEACHING

Teaching Psychology for Sustainability: The Why and How*

Psychology Learning & Teaching
2016, Vol. 15(3) 214–225

DOI: 10.1177/1475725716648238
plat.sagepub.com
SAGE

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Abstract

The behavioral sciences can make vital contributions to environmental sustainability efforts, as relevant basic and applied psychological research has grown considerably over the past dozen years. Recently, conservation biologists, environmental policy makers, and other experts have recognized the importance of engaging with experts on human behavior (i.e., psychologists) in order to effect behavioral change in a sustainable direction. Lagging behind this trend, however, is the curricular integration of psychology and environmental sustainability in most psychology or environmental science/studies programs (ESS). Consequently, most psychology majors are graduating with no background in applying the field to promoting sustainability, and ESS students lack explicit education focused on understanding and changing human behavior. This paper provides an introduction to the rationale for integrating sustainability topics into psychology courses, and psychological concepts into ESS classes, along with some strategies for doing so at the level of individual course units as well as full courses.

Keywords

Sustainability, social dilemmas, environmental education, conservation psychology, ecopsychology

Although he was writing about the potential for a nuclear holocaust, Lifton's (1982) words remain just as relevant today: "We live now in a special realm of absurdity… poised to exterminate ourselves and the rest of the world" via the degradation of our very life support systems, by means of pollution and catastrophic climate change. Why, then, aren't we mobilizing a swift and sure response? The answer lies with human psychology. Not only are climate change, pollution, deforestation, species extinctions, and other so-called "environmental problems" all caused by *maladaptive human behavior* (Koger & Scott, 2007), the

*The authors presented sections of this paper at the *Vancouver International Conference on the Teaching of Psychology*, Vancouver, BC, 2015, July 25.

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basis of our relative failure to respond effectively, at least thus far, also rests within the thoughts, attitudes, feelings, values, norms, and decisions driving unsustainable actions (Gifford, 2011). Consequently, psychological research is critical to understanding why people behave in unsustainable ways, and for designing interventions to motivate behavioral change (Gardner & Stern, 2002; Kazdin, 2009; Koger & Winter, 2010; Scott, Amel, Koger, & Manning, 2016; van Trijp, 2014).

Paradoxically, however, the fundamental connection between psychology and sustainability is absent from most undergraduate curricula. The majority of Psychology majors graduate with no background in applying the field to promoting sustainability, and Environmental Science/Environmental Studies (ESS) students typically lack explicit education focused on understanding and changing human behavior (Koger & Scott, 2007). In the following sections, we will provide some background and strategies for rectifying this disconnect, both within Psychology and ESS courses.

Sustainability-Related Psychology

Research on the psychology of environmental sustainability emerged from three directions. The earliest psychological research on environmental issues originated in the 1970s, alongside growing public concern about air and water pollution and nuclear waste. Most of this research was conducted within the domain of *environmental psychology,* but only a minority of environmental psychologists study nature-related topics (e.g., how spending time in nature restores people's ability to pay attention and cope with stress (Berman, Jonides, & Kaplan, 2008; Gifford, 2014)).

In the 1990s, holistic thinkers calling themselves *ecopsychologists* began promoting the idea that modern living erodes people's connection to nature, leaving them developmentally deprived and psychologically distressed (Roszak, 1992; Roszak, Gomes, & Kanner, 1995). Convinced by this notion, some clinicians incorporate ecopsychological therapies into their practices. Their goal is to revive a connection to non-human nature that may help people feel better and also guide them to behave in more environmentally friendly ways (e.g., Buzzell & Chalquist, 2009). Empirical research testing the validity of the ecopsychological premise materialized over the past decade; for example, several researchers have created measures to operationally define "connection to nature" (reviewed in Tam, 2013).

A third label describes the work of researchers in traditional branches of psychology (primarily social, behavioral, and cognitive) who study how to promote pro-environmental behaviors (such as energy conservation) and decrease anti-environmental behavior (e.g., material consumption). *Conservation psychology* is defined as the study of the interactive relationships between humans and the rest of nature, with a particular focus on applying psychological theory and research to enhance conservation of natural resources (Saunders, 2003; see also Clayton & Myers, 2015). Some, but not all, environmental psychologists and ecopsychologists see their work fitting this definition.

Against this backdrop rest at least five arguments for teaching psychology for sustainability:

1. As noted above, *"environmental" problems are actually behavioral problems*. There is currently a profound mismatch between the ways in which humans (particularly in the U.S. and other Western industrialized nations) meet their needs and wants, and

the natural processes that maintain ecological integrity. ''Eighty-three percent of the world's population now live in countries that use more bio-capacity to support production activities than they have available within their boundaries. The deficit is covered through overexploitation... (e.g., through overharvesting and overfishing), net import of resources, and the use of the global commons (for instance, by emitting CO_2 from fossil fuel into the atmosphere)'' (Galli, Wackernagel, Iha, & Lazarus, 2014, p.125).

2. *What's bad for the planet is bad for human health and well-being*. For instance, rapidly accumulating evidence links chemical pollutants to birth defects, developmental/intellectual disabilities, Parkinson's disease, various forms of cancer, immunosuppression, and reproductive abnormalities (see reviews in Grandjean & Landrigan, 2014; Koger, 2009; Scott et al., 2016). Epidemic prevalence of mental health challenges such as depression, anxiety, and substance use/abuse is linked to materialistic values and resource overconsumption (Brown & Kasser, 2005; Kasser, 2003), and possibly to psychological disconnection from the natural world (Conn, 1998; Roszak et al., 1995). Perhaps most importantly, global warming is widely recognized as the ''biggest global health threat of the twenty-first century,'' including risks to both physical and psychological health (Costello et al., 2009, p. 1693).
3. In contrast, *what's good for the planet is good for human health and well-being*. Various ''sustainable'' practices including experiences in natural settings promote healthy child development, subjective well-being, and other measures of health promotion and reduced stress (reviewed in Hartig, Mitchell, deVries, & Frumkin, 2014). Likewise, a sense of connection to nature (''nature-relatedness''; Nisbet, Zelenski & Murphy, 2011) along with mindfulness practices are linked to pro-environmental behavior, health, and happiness (Ericson, Kjønstad, & Barstad, 2014).
4. Psychologists are increasingly applying their expertise to environmental issues, and certainly the urgency of the consequences of a changing climate speaks to the *relevance and timeliness of integrating psychology and sustainability* (Clayton & Myers, 2015; Harré, 2011; Jones, 2015; Koger & Winter, 2010; Scott et al., 2016; Swim et al., 2011).
5. There is a *moral imperative* for applying the accumulated wisdom from the behavioral sciences to solving contemporary social problems (Swim et al., 2011). Just as it is ''wrong to wreck the world'' (Moore & Nelson, 2011), we have a shared responsibility to help create a more sustainable society (see also Harré, 2011).

Although it would be naive to suggest that any one academic discipline will provide all of the solutions to contemporary environmental crises, psychology has a lot to offer for understanding the roots of environmental destruction, the psychological forces maintaining it, and what it will take for people to change. Ways in which the various sub-disciplines of psychology can be taught as they relate to sustainability are described elsewhere (Koger & Scott, 2007, 2013, 2014; Koger & Winter, 2010; Scott & Koger, 2014; see also http://teachgreenpsych.com); thus, we will not repeat much of that content here. Rather, the following sections focus on social dilemmas and some potential solution approaches because (a) these ''dilemmas'' underlie most if not all of our environmentally problematic behavior (Gifford, 2014); (b) students can easily relate to the concept, and there are a number of applicable class exercises (Koenig & Reyns, 2012; Koger, Scott, & Manning, 2016); (c) social dilemmas can be explored through the lens of many aspects of psychology as well as other

disciplines, including ecology, economics, politics, sociology, and philosophy; and d) they thus offer an opportunity to integrate across disciplinary "silos," which are less apparent in most researchers' current work (Gurung et al., 2014). In fact, both intra- and interdisciplinary collaborations are urgently needed in order to address pressing social concerns including climate change, pollution, and other environmental and public health challenges (e.g., Smith, Positano, Stocks, & Shearman, 2009).

We hope that instructors can use this material as a starting point for incorporating sustainability into various courses: As "units" in traditional psychology courses (Introductory, Social, Cognitive, Learning and Behavior, Emotion and Motivation, and Health), as a thematic application that is infused throughout an existing course, or as a full course. Please note that a thorough review of *Psychology for Sustainability* is available in Scott et al. (2016); see also Koger and Scott (2012) for an introduction to a special issue of *Ecopsychology* on teaching environmentally focused psychology; and note that Aronson, Wilson and Sommers (2016) and Myers (2012) address sustainability in their social psychology texts.

Me versus We: Social Dilemmas

Many aspects of "The American Dream" involve over-consuming and damaging limited resources, such as driving single-occupant cars, living in large homes, transporting highly packaged foods and other goods across long distances, and dumping toxic wastes into oceans and the atmosphere. These actions generally reflect the power of short-term, self-interest, where pleasure, status, and convenience trump the longer-term costs to be suffered by the larger group (Gardner & Stern, 2002). Such *commons dilemmas* occur when individuals are tempted by personal benefits to overuse and degrade a shared resource. Hardin's (1968) description of the "tragedy of the commons" is the classic example: If individual farmers who graze their cows on a limited piece of common land allow too many of their own animals to graze there, overgrazing will ruin the land for everyone. The immediate consequence benefits the individual, but the long-term consequences punish the group, usually including the self-interested farmer. Similarly, individuals find themselves in a *public goods* dilemma when they must decide whether to contribute to a pooled resource, such as paying higher taxes to fund the local bus system.

In general, these *social dilemmas* (also known as *social traps*) can be framed in terms of *operant learning* in behavioral psychology, where immediate reinforcers are more compelling than delayed costs (i.e., *self-control problems*; Skinner, 1953). Likewise, the perceived costs of behavior change represent a significant barrier, even given the promise of much larger ultimate benefits or averted punishers. Cognitive psychologists would point to *temporal discounting* to describe the supremacy of short-term self-interest. The potentially adverse, future consequences of climate change are discounted, particularly in comparison to the definite and immediate costs of taking action; that is, concrete current costs are much more salient than abstract future ones (Weber, 2010). These proximal factors are compounded by cognitive limitations on quantitative reasoning: it is difficult to comprehend abstract statistics about the number of people who will likely suffer from the impacts of global warming (Bennett, 2008); most people react more strongly to environmental threats after reading a story about a personally salient individual, rather than statistics concerning thousands or even a million potential victims (Slovic, 2007; Slovic & Slovic, 2004–2005).

From an evolutionary perspective, it was likely more adaptive for our ancestors to focus on immediate needs and risks rather than longer-term concerns. Planning and worrying for

the future are relatively recent functions made possible by the comparably young frontal lobes. Some researchers propose a dual-process or continuum-based model of cognition, placing automatic, intuitive, rapid, and emotional (i.e., evolutionarily older, including limbic system) processing on one end, and more deliberate, intentional, slow, and analytic (prefrontal cortical) mechanisms on the other (e.g., reviewed in Osman, 2004). Unsustainable actions may thus result from weak pro-environmental intuition or emotion; strong anti-environmental affect due to immediate, salient rewards such as pleasure from or convenience with the unsustainable option; along with rational analysis that reveals clearer benefits and typically lower costs for the unsustainable choice (Menzel, 2013). Comparably, Slovic and colleagues (2002) described the "affect heuristic": if people enjoy an activity, they judge the risks low and the benefits high, and vice versa (disliking an activity leads to high risk, low benefit judgments).

Although emotion can be a powerful motivator of behavior change in a sustainable direction (Weber, 2006), it also has the potential to overwhelm or produce psychic numbing (Gregory, 2003; Lifton, 1982) or other psychological defenses related to identity, emotional withdrawal, and resignation (Lertzman, 2012). To quote Skinner (1991), "the principle modus operandi of [environmental] organizations is to frighten people, rather than offer them a world to which they will turn because of the reinforcing consequences of doing so" (p. 28). In fact, messages about the predicted catastrophic consequences of climate change can actually *increase* anti-environmental behavior: Dire messages threaten people's "deeply held beliefs that the world is just, orderly, and stable. Individuals overcome this threat by denying or discounting the existence of global warming, and this process results in decreased willingness to counteract climate change" (Feinberg & Willer, 2011, p. 34). Such messages can also drive a more intense defense of the "American way of life" (i.e., cultural materialism), and attempts to enhance personal self-esteem, including via status symbols derived from material consumption (*terror management theory*; Dickinson, 2009). In other words, both personal and collective *defense mechanisms* (Freud, 1936/1946), including denial of responsibility, rationalization, distancing, and suppression serve to protect people from the internal conflict generated by knowingly engaging in unsustainable consumption practices (Norgaard, 2011; Stich & Wagner, 2012).

In addition to emotional defenses, a "finite pool of worry" (Weber, 2006), leads most people to focus on immediate priorities related to work and family, rather than risks related to climate change, which (so far) seem largely uncertain, delayed, or geographically distant (Gattig & Hendrickx, 2007; Leiserowitz, 2007). Sustainable action is thus unlikely to follow from fear-based appeals, particularly if people do not receive specific instruction about *why* and *how* to make changes (Grundy & Osbaldiston, 2006), if they have low levels of *self-efficacy*, or if they believe that the change will not make much overall impact (see review of motivational theories related to sustainable behaviors in Scott et al., 2016; Chapter 8).

Within the context of social psychology, social dilemmas reflect the *free-rider problem*, i.e., "if others aren't changing, why should I?" (Capstick, 2013). The *diffusion of responsibility model* is thus relevant. Frantz and Mayer (2009) applied Latane and Darley's model of helping behavior to the issue of climate change, arguing that (a) the "emergency" isn't (yet) directly salient; (b) it isn't clear who is responsible for taking action; (c) it isn't evident which behaviors are most impactful; and (d) infrastructure, convenience, habits, and (unsustainable) norms can all interfere with pro-environmental behavior.

It is clear that evolutionary/biological influences are compounded by a socio-cultural paradigm of individual rights and limited responsibilities, which leads to the incorrect but prevalent

assumption that one person's actions are insignificant (Smith, 2015; i.e., "a drop in the ocean" and associated fatalism; Capstick, 2013), along with other cognitive, emotional, and social mechanisms that can interfere with sustainable actions. However, this broad understanding of the influences maintaining social dilemmas can also inform strategies to overcome them, as reviewed in the following sections (see also Gifford, 2014; Osbaldiston & Sheldon, 2002).

Moving from Me to We: Solution Approaches

Hardin (1968) argued that governmental laws, regulations and incentives are needed to promote widespread prosocial behavior on the part of the public, and although these techniques can be effective, individuals can also take steps to narrow the gap between their own short- and long-term interests. For instance, one can deliberately alter short-term consequences to align with longer-term outcomes. Refusing to buy a parking permit at one's workplace to promote use of alternative modes of transportation; setting a limit on the amount of money one is willing to spend on gas, packaged foods, or other commodities; implementing a point/reward system for riding one's bike a certain number of times per week; or developing another "self-control project" to align with environmental concerns can alter behavior. Doing so not only reduces one's own *ecological footprint*, but also provides a *model* of sustainable behavior to friends and family; i.e., serving as an antecedent stimulus or *prompt* for eliciting similar behaviors from others, and thereby initiating *positive social norming*. Further, making change at any level is empowering and enhances feelings of *self-efficacy*, which creates a positive feedback loop (the more empowered one feels, the more action one is often willing to take).

Recent research suggests that it is possible to increase environmental engagement by promoting a future orientation (e.g., via priming techniques: "imagine your life circumstances four years from now"), while simultaneously minimizing immediate concerns ("e.g., overcoming opposition to the initial costs of solar energy production") (Arnocky, Milfont, & Nicol, 2013). Exposure to scenes from nature may also reduce temporal discounting. In one recent series of studies, participants who viewed photographs of landscapes from natural settings (vs man-made urban environments) were less likely to discount future rewards, measured by selecting a larger, delayed reward rather than a smaller, immediate one (van der Wal, Schade, Krabbendam, & van Vugt, 2013). The authors attributed their findings to participants' concern for the future, as opposed to self-control or mood. "This is an important result because *delay of gratification* is an essential ingredient for promoting individual and social change" (van der Wal et al., 2013, ital. added).

A number of approaches grounded in social psychology and social cognition can likewise contribute to "triumph over the commons dilemma," including reducing uncertainty about personal impacts; strengthening social relationships via a sense of belonging to community (*social identity*) and enhanced interpersonal trust; as well as incentives, including *social* and *intrinsic reinforcers* (van Vugt, 2009). Research suggests that when people are reminded of the personal relevance of their ecological harmful actions, they are more willing to forgo immediate benefits and make contributions for the benefit of the group, because they recognize that acting for the common good *is* acting in self-interest (Milinski, Sommerfeld, Krambeck, Reed, & Marotzke, 2008; Ostrom, Burger, Field, Norgaard, & Policansky, 2007). Likewise, studies have shown that people will forgo immediate personal reinforcers for longer term group goals if they identify with the group and feel responsible toward it (Dawes, 1980; van Vugt, 2002), rather than an "us vs them; their problem isn't my problem"

philosophy. Even in competitive situations where others are acting "greedy," people who hold pro-environmental values can exhibit self-restraint when the consequences of collective self-interest are salient (Sussman, Lavallee, & Gifford, 2015).

Although several thinking distortions can defend against anxiety and concurrently maintain social dilemmas ("I'm only one person;" "That's just human nature"), it is possible to undermine the commons dilemma by pointing out the flipsides (e.g., have students generate counter-arguments) (Smith, 2015; see also Lappe's (2011) description of thought traps and the conversely empowering "thought leaps"). Likewise, the predictions from *terror management theory* regarding attempts to enhance personal self-esteem when faced with anxiety concerning one's mortality can include efforts to leave a *legacy*, such as contributing to the sustainability of one's community and other prosocial behaviors (Wade-Benzoni, Tost, Hernandez, & Larrick, 2012). In general, *self-transcendent values* are associated with pro-environmental behavior (e.g., Milfont, Sibley, & Duckitt, 2010). Relatedly, Weber (2010) concluded that actions stemming from "moral or social responsibility may hold out the best prospects for sustainable action," rather than affect- or analysis-based decisions. Some studies suggest that morality can be *induced*, for instance, by sermonizing about "group benefit, exploitation... ethics, and so on" (Dawes, 1980, p. 188), or by promoting altruistic ideals and the Golden Rule (Edney & Bell, 1983).

Because "what's good for the planet is also good for us" (Scott et al., 2016), recognizing the personal and short-term benefits of sustainable lifestyles may ultimately over-ride the short-term hedonic pleasures obtained via materialism and consumption; i.e., pursuit of *eudaimonic well-being* via values clarification and committed action (e.g., Kashdan & Ciarrochi, 2013). Positive feedback loops can support this relationship: Prosocial behavior increases subjective well-being, which, in turn, promotes more prosocial behavior (Ericson et al., 2014). It is possible that spiritually-oriented initiatives emphasizing mindfulness, interconnectedness with both human- and non-human nature, sense of community, and belief in something greater than one's self may enable a collective "recovery movement" that holds promise for escaping the grasp of social dilemmas (Koger, 2015). Calling for a "Golden Rule 2.0" could help inspire acting towards future generations in ways one would have liked prior generations to act (Revkin, 2010).

Mindfulness practices are receiving much research and popular attention for their positive effects on physical and mental health, and may be a critical skill for promoting sustainable behaviors for a number of reasons (reviewed in Ericson et al., 2014) relevant to resisting social dilemmas:

- Being "here and now" enables greater intentional deliberation and evaluation of the consequences of one's actions, including environmental impact (vs unconscious, habitual and unsustainable behaviors):
- Mindfulness can help avoid the "hedonic treadmill" of prioritizing materialistic consumption and financial wealth:
- Mindfully clarifying and acting in accordance with core values is intrinsically reinforcing, and can promote sustainable behavior; and
- Mindfulness can stimulate empathy and compassion, including for non-human nature.

Experiences in natural settings, including outdoor mindfulness-based practices, have important therapeutic and restorative impacts via reducing sympathetic nervous system activity (Park, Tsunetsugu, Kasetani, Kagawa, & Miyazaki, 2010) and restoring attentional capabilities (Kaplan, 1995; Staats, van Gemerden, & Hartig, 2010). In contrast, when one is

stressed or cognitively fatigued, it is much easier to fall into social traps. Conceivably, positive experiences in nature can also foster a sense of *place attachment* that can lead to altruistic efforts to protect and preserve those areas and their inhabitants (reviewed in Gifford, 2014).

Conclusions

Overall, it appears that *localization* efforts focused on people's "everyday behavior within place-based communities" are required, not only because of the "biophysical realities" of our time (i.e., declining material and energy supplies; DeYoung & Princen, 2012), but also because community-based initiatives can address the psycho-social-spiritual dimensions of a changing climate (Doppelt, 2012, 2016). Strengthening local communities and fostering social networks not only builds individual and collective *resilience* to weather the coming storms (Doppelt, 2016), but also reduces the likelihood of prioritizing self-interest (e.g., van Vugt, 2009). In something of a case study, a few residents of Martha's Vineyard spearheaded an initiative to improve the public bus system and expand community wind power (Nevin, 2005, 2010). By "thinking locally and acting locally," people can avoid the overwhelm and paralysis that can be associated with "thinking globally" (Kolbert, 2008). The Transition Town Movement represents another example, enabling locally based conversions away from fossil-fuel based economies and transportation systems (Hopkins, 2008).

Such *problem-focused coping* strategies can enliven and inspire, even in the face of daunting challenges. In fact, people are "at their best when they help themselves and help others, when they are called on to be creative and self-directed, and when they are tackling problems that are challenging, genuine, and meaningful. Human ingenuity, long aimed at crafting an industrial society, must now be aimed at crafting a durable civilization. The creative effort contains its own rewards" (DeYoung & Princen, 2012, p. xxiii).

We hope that by tackling these issues in their courses, instructors and their students will join us in educating for – and building – a sustainable future. If each of tomorrow's activists, politicians, scientists, and citizens is better educated about human behavior and its underpinnings, all will benefit.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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Britain A. Scott has taught a variety of introductory and specialized topics courses in social psychology, women's studies, and environmental studies. Her ongoing research projects center around three primary interest areas: physical attractiveness and media messages about beauty, the impact of pornography on cognitive function and social interaction, and humans' relationship with the natural environment.