Teaching Current Directions in Psychological Science

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Aimed at integrating cutting-edge psychological science into the classroom, Teaching Current Directions in Psychological Science offers advice and how-to guidance about teaching a particular area of research or topic in psychological science that has been the focus of an article in the APS journal Current Directions in Psychological Science. Current Directions *is a peer-reviewed bimonthly journal featuring reviews by leading experts covering all of scientific psychology and its applications and allowing readers to stay apprised of important developments across subfields beyond their areas of expertise. Its articles are written to be accessible to nonexperts, making them ideally suited for use in the classroom.*

How Psychological Science Can Influence Climate-Change Attitudes and Actions

by David G. Myers

Van Lange, P. A. M., Joireman, J., & Milinski, M. (2018). Climate change: What psychology can offer in terms of insights and solutions. Current Directions in Psychological Science, 27, 269–274.

Climate change has arrived. In 2017, atmospheric greenhouse gases, global temperatures, and sea levels all reached record or near-record highs, while winter Arctic sea ice hit a record low (Blunden, Arndt, & Hartfield, 2018).

This global phenomenon is a weapon of mass destruction. Weird weather — scorching heat, hurricanes, floods — has always occurred, but extreme weather happenings are now "beyond the bounds of natural variability" (AMS, 2017; NAS, 2016a). Worldwide, such events have contributed to increasing insurance losses from natural catastrophes, with 2017 setting a record in the number of more-than-billion-dollar weather-related US disasters (III, 2017; NCDC, 2017). Global warming also makes heat waves, droughts, wildfires, hurricanes, and floods more intense (NAS, 2016b). To deny climate change is to deny reality.

Climate change also portends psychological consequences:

- *Displacement and trauma.* If this century's predicted 2° to 4° Celsius increase occurs, we can expect drastic change that will force massive resettlement (de Sherbinin et al., 2011). Nathaniel Rich (2018) offers the prognosis:

If by some miracle we are able to limit warming to two degrees, we will only have to negotiate the extinction of the world's tropical reefs, sea-level rise of several meters and the abandonment of the Persian Gulf … Three-degree warming is a prescription for short-term disaster: forests in the Arctic and the loss of most coastal cities … Four degrees: Europe in permanent drought; vast areas of China, India, and Bangladesh claimed by desert; Polynesia swallowed by the sea; the Colorado River thinned to a trickle; the American Southwest largely uninhabitable.

When floods, drought, or wildfires force people to leave their homes and work, the common result is increased poverty and hunger, loss of cultural identity, and earlier death. For psychological health, climate matters in the following (and other) ways:

- *Conflict*. Much human misery — from financial recessions to wars — has arisen from climate fluctuations (Zhang et al., 2011). When climate changes, agriculture suffers and famine and epidemics increase, leading to increased domestic violence, ethnic aggression, land invasions, and civil conflicts (Hsiang, Burke, & Miguel, 2013). For social stability, climate matters.
- *Aggression*. In laboratory and field studies, heat amplifies short-term aggressive behavior. Hot days predict increased neighborhood violence and baseball batters hit by pitchers. Hot seasons, years, and cities experience greater violence than their cooler counterparts (Anderson & Delisi, 2011; Van Lange, Rinderu, & Bushman, 2017). For relationships, climate matters.

Given that climate change arises from human behavior, Paul Van Lange, Jeff Joireman, and Manfred Milinski ask:

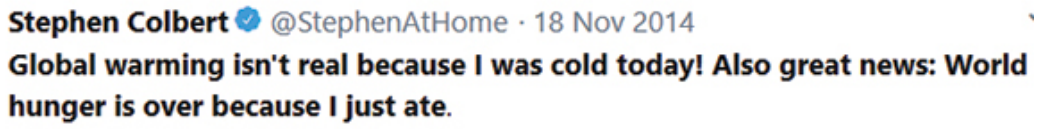
What can psychological science (and our teaching) offer?

Climate change, they note, pits

- *self-interests against collective interests* (a social conflict between the personal benefits and communal costs of, for example, one's gas-slurping SUV), and
- *short-term versus future interests* (a temporal conflict between the immediate benefits of consumption and its consequences for future generations).

To respond to these social dilemmas, the authors ask, how can psychological science promote belief in climate change as well as an intergroup and longer-term perspective on the issue?

Reversing climate skepticism. How can we close the troubling gap between scientific and public acceptance of human-caused climate change — with 99.9% of 24,210 climate-science articles, but only 62% of the US public, acknowledging climate change (Powell, 2015; Saad, 2017)? One biasing influence on public understanding is people's recent, local weather experiences. A winter blizzard, being cognitively available, dampens belief in global warming, which rises again with the advent of a blistering heat wave. To help students appreciate the distinction between local weather variations and global climate, a Stephen Colbert tweet might help:



Van Lange et al. also recommend persuading people with factual, concrete, locally relevant climate implications. Talk flooding risks to those in flood-prone and coastal areas and heat and agricultural risks to those in hotter climates. And we might add to persuade people by connecting with their values — discuss climate-change effects on the poor to Democrats and on national security to Republicans.

Promoting intergroup cooperation. Nations vary in their population density, wealth, and pollution. And nations (especially their competing representatives) often distrust one another. In addition to suggesting the seeking of superordinate, cooperative goals, Van Lange et al. encourage a competitive altruism, whereby cities or nations compete for prosocial reputations. Public rankings and "cleanest city" awards can harness intergroup competition for positive purposes.

During its recent water crisis, Cape Town, South Africa, put this reputational principle to work at an individual level with an online "City Water Map" that revealed (with a colored dot) whether individual households' water usage was within the water-restriction limit. The effort aimed not to "name and shame," but rather "to publicize households that are saving water and to motivate others to do the same" (Myers, 2018; Olivier, 2018).

Transcending borders of time. To promote long-term thinking, Van Lange et al. recommend focusing on the children who will live in the future climate (kinship fosters cooperation). Intergenerational fairness norms and the benefits of delayed gratification also can be invoked.

For class discussion. To prepare for discussion, students might be given a survey (ideally with anonymous Yes/No clicker responses) asking them what they understand about climate change. Is it happening? If so, are humans responsible?

Given the seriousness of climate change, students might then be asked to discuss, in small groups assigned aspects of the Van Lange article or as a class:

- Why does public opinion lag behind scientific understanding?
- How can people be helped to discount temporary, local weather — the cold day — when assessing global climate trends? Might there be useful metaphors or analogies (we judge a softball or baseball batter by batting average, not the last swing of the bat)?
- In addition to a "cleanest city award," might there be other similar ways mayors or corporate CEOs could be persuaded by reputational concerns?
- How might we frame climate advocacy effectively — by describing the greenhouse effect as a "heat-trapping blanket" and a carbon tax as "carbon offsets"?
- How can we most effectively focus people's concerns on their children's and grandchildren's future on the spaceship Earth? (Can such future concern be engaged for those without children?)

References

American Meteorological Society. (2017). *Human influence on climate lead to several major weather extremes in 2016*. Retrieved from www.ametsoc.org/ams/index.cfm/about-ams/news/news-releases/humaninfluence-on-climate-led-to-several-majorweather-extremes-in-2016

Anderson, C. A., & DeLisi, M. (2011). Implications of global climate change for violence in developed and developing countries. In J. P. Forgas, A. W. Kruglanski, & K. D. Williams (Eds.), *The Psychology of Social Conflict and Aggression* (pp. 249–265). New York, New York: Psychology Press.

Blunden, J., Arndt, D. S., & Hartfield, G. (Eds.) (2018). State of the climate in 2017. *Bulletin of the American Meteorological Society*, 99, Si–S332. doi:10.1175/2018BAMSStateoftheClimate.1

de Sherbinin, A., Castro, M., Gemenne, F., Cernea, M. M., Adamo, S., Fearnside, P. M., … Shi, G. (2011). Preparing for resettlement associated with climate change. *Science*, 334, 456–457.

Hsiang, S. M., Burke, M., & Miguel, E. (2013). Quantifying the influence of climate on human conflict. *Science*, 341, 1212.

Insurance Information Institute. (2017). *Facts + statistics: Global catastrophes*. Retrieved from www.iii.org/fact-statistic/facts-statistics-global-catastrophes

Myers, D. G. (2018, February 17). Persuading people in peril: The Cape Town experiment. *TalkPsych*. Retrieved from https://community.macmillan.com/community/the-psychology-community/blog/2018/02/17/persuading-people-in-peril-the-cape-town-experiment

National Academies of Science. (2016a). *Attribution of extreme weather events in the context of climate change*. Washington, DC: The National Academies Press. doi:10.17226/21852.

National Academies of Science. (2016b). *Assessment of approaches to updating the social cost of carbon: Phase 1 report on a near-term update*. Washington, DC: The National Academies Press. doi:10.17226/21898.

National Climate Data Center. (2017). *Billion-dollar weather and climate disasters: Overview*. Retrieved from www.ncdc.noaa.gov/billions/

Olivier, D. W. (2018, January 17). Cape Town's map of water usage has residents seeing red. *The Conversation*. Retrieved from theconversation.com/cape-towns-map-of-water-usage-has-residents-seeing-red-90188

Powell, J. L. (2015). The consensus on anthropogenic global warming. *Skeptical Inquirer*, 39, 42–45.

Rich, N. (2018, August 1). Losing earth: The decade we almost stopped climate change. *New York Times Magazine*. Retrieved from https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html

Saad, L. (2017, March 14). Global warming concern at three-decade high in U.S. *Gallup.* Retrieved from https://news.gallup.com/poll/206030/global-warming-concern-three-decade-high.aspx

Van Lange, P. A. M., Rinderu, M. I., & Bushman, B. J. (2017). Aggression and violence around the world: A model of CLimate, Aggression, and Self-control in Humans (CLASH). *Behavioral and Brain Sciences*, 40, 1–12.

Zhang, D. D., Lee, H. F., Wong, C., Li, B., Pei, Q., Zhang, J., & An, Y. (2011). The causality analysis of climate change and large-scale human crisis. *Proceedings of the National Academy of Sciences of the United States of America*, 108, 17296–17301.

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