

## The Social Context for Climate Change Education

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Education is difficult. When twelve years of mandatory education in writing, for example, are apparently insufficient to teach people the correct use of apostrophes, how much more difficult to teach about a complex and contested topic like climate change. Although we typically think of education as primarily a process of increasing knowledge by transmitting information, the acceptance of an informational message incorporates emotional and behavioral components as well as cognitive ones. The strong emotional responses evoked by many issues of public interest, and by climate change in particular, are an inextricable part of the way in which people evaluate the information; if the educational message has really been conveyed effectively, there should also be some visible impact on behavioral responses. The real or implied presence of other people can affect cognitive, affective, and behavioral responses, and successful educational interventions require attention to all three aspects.

In addition to communicating knowledge about a topic, the educational process, by identifying some information as worth transmitting, conveys a powerful message about the priorities and perspectives of the educator. Thus the source of the educational message becomes a social actor, and the relationship between the educator and his or her audience influences the reception of the message. The process of education becomes a social interaction. The social aspects of the educational interaction can be a powerful tool to facilitate acceptance of the information, but they can also present barriers that inhibit acceptance. To maximize the effectiveness of education, we need to be mindful of the social context within which it takes place and the social identities of those who are participating in the process.

Although it seems straightforward, even the cognitive processing of an educational message is subject to social influence. The extent to which the information that is

received becomes part of what the recipient “knows” requires message recipients to attend to the information, understand it, and retain it. These will all be affected by the amount of attention recipients have to give. When there are multiple demands on their attention, or when their cognitive skills are fewer, the message should be simpler. When they are able to fully engage with it, the message can be more complex. The way in which people understand the message is also variable. People who have more experience with a topic may be put off if the message appears to gloss over some of the complexities, inferring that some relevant information is being withheld. The social context within which an educational message is received not only affects how much attention the message gets, but also the way in which that message is framed and understood, providing a narrative that serves to create meaning and determine what is remembered. Moreover, the social context can either facilitate or inhibit retention of the message. If other people discuss the message or otherwise provide reminders that prompt the recipient to give it more thought, retention is likely to be enhanced.

Emotional responses to a message may include fear, shame, guilt, or anxiety. Some emotional response is useful: it makes the message more likely to attract attention, avoiding the risk of complacency or unrealistic optimism. Too much fear or anxiety, however, can make people shut down in denial. If a message is too frightening, people would rather not think about it. Moreover, if people feel ashamed, and as if their lifestyles are being personally attacked, they are likely to respond defensively by trying to discredit the message and its source. The ad hominem responses to Al Gore following the publicity surrounding “An Inconvenient Truth” provide an example. Although Gore’s lifestyle was irrelevant to the truth of the message he was conveying, aspects of his lifestyle (e.g., the size of his house) were repeatedly criticized, as if that provided logical grounds for ignoring the message. Perceived attacks are particularly likely if one group perceives that the criticism comes from a different group: elite environmentalists attacking hard-working farmers, or pointy-headed New Englanders attacking Southerners. Opotow and Brook (2003) provide an example of how intergroup tensions between ranchers and environmentalists affect responses to a conservation agenda. Positive emotional responses are also possible, however. People may feel proud of what

they or their social groups are doing to address climate change, and working together with others to address the problem may enhance feelings of connectedness to others (Doherty & Clayton, 2010).

Behavioral responses are clearly important. Although we sometimes focus on the need to convince people of the facts as if that was the end goal, climate change education will only be effective if it convinces people to change their behavior, by modifying their unsustainable lifestyles and/or advocating for political and corporate changes. The informational content of a message is not necessarily enough to evoke a behavioral response. The impact of information about a problem on behavioral change is typically dwarfed by two more powerful factors: information about *how* to make a difference, and information about what *other people* are doing. Many people don't take action because they are uncertain about what action to take or feel incapable of taking effective action. Education should include some type of behavioral skills training that informs people what they should be doing to most effectively address a problem. In the best case, a perception of self-efficacy will become motivating to people and encourage them to learn more so that they can be even more effective. Information about what others are doing is both informative and motivational. Conformity is a very powerful force, and there is substantial research showing that people will behave in ways that are completely inconsistent with their own beliefs and values in order to follow social norms. Ironically, people are sometimes mistaken about what the social norms are. To be most effective, education should include not just information about the facts but examples of the ways in which people are working to address climate change.

Where does education about climate change occur, and how do these social contexts affect the cognitive, emotional, and behavioral response? Certainly a lot of information is communicated through the mass media: television, newspapers, and internet. Educational communication also occurs in both formal (schools and universities) and informal (zoos, museums, etc.) learning environments. One thing we know from the Six Americas report (Leiserowitz & Smith, 2010) is that people with different attitudes toward climate change get their information from different sources: for example, although both those who are

concerned about climate change and those who are dismissive get information from the internet and from friends and family, those who are alarmed or concerned are far more likely to consult television programs, government websites, and environmental groups, and those who are dismissive rely more on radio programs and on family and friends – sources that are less likely to challenge the person's existing beliefs and attitudes. Each social/informational context highlights different social roles and identities, and can lay the groundwork for acceptance or rejection of the message, by suggesting how much attention and trust are given to the informational source; by inciting a response that is angry and defensive or concerned and supportive; and by encouraging people to retain and act on the message or to forget or ignore it. The habitual behaviors that are associated with particular social contexts and cultures can present a profound barrier to behavior change, partly because these habits are so ingrained that people may not even recognize that there are alternatives. However, changing the behavior of key social actors can gradually establish a new social norm, without the need to separately convince each individual. McKenzie-Mohr has established an effective program for using the power of social influence to create through social marketing (2000).

In formal learning environments, students receive educational information from a teacher to whom they have given at least some authority. Because these educational messages are typically specifically designed for the type of audience they address, the recipients should be able to understand the message. The learning environment will also provide cues, such as signs around the classroom, or tasks, such as homework assignments, that encourage the retention of the message. However, students are also surrounded by peers who may provide competing demands for their attention. This is especially true for adolescents, who are typically alert to social norms and the social implications of behavior. Thus a key concern for educators in these formal settings may be to capture the attention of the audience by making the educational content vivid and self-relevant. Schools are constrained in their ability to create an emotional or behavioral context for the message. Telling students to be anxious, or to change their patterns of energy use, may be seen as having a political motivation or as intervening inappropriately in lifestyle choices. Unfortunately, a lack of emphasis on emotional responses or behavioral

interventions carries its own message: that climate change does not merit concern or require a response.

A large proportion of the information we receive comes through the mass media. But it is increasingly the case that, instead of listening to sources that are intended for a wide public, people seek out sources that align with their existing political and social positions. Even though there may not be any social context that is literally present, there is a vast virtual audience of like-minded others that has an impact on the content of the educational message. In addition to trying to convey accurate information, these media sources are concerned with retaining the loyalty of their audience. This competing motive may constrain their willingness to present the most authoritative or accurate sources of information; as a result, these channels may be limited in their effectiveness as ways to expose people to new information. Relatedly, of the principal channels through which information about climate change is conveyed, the mass media are probably the most likely to disseminate misinformation. This may sometimes be a deliberate attempt to maintain the loyalty of their audience, but more often it is probably the case that the media give an inaccurate *impression* rather than inaccurate *facts*. One example of this is the tendency, often seen on televised news, to suggest a misleading connection between local weather and global climate change.

If attention can be a hurdle in formal learning environments, trust may be the biggest concern when thinking about how to educate people via the mass media. Niche media are effective in part because they present authorities who are trusted by virtue of familiarity, or because they apparently share opinions and values with their audience – characteristics that may in fact undermine their ability to effectively evaluate the information. Even when mainstream media channels conscientiously try to avoid the problem of biased experts, they run into two problems. One is that they may attempt to provide “balance” by presenting two different positions on climate change, as if it were a matter of opinion rather than of evaluating the evidence. The media may also do this in an attempt to make the story more interesting, or in an attempt to pander to different audiences who may want their own “side” represented. In addition to inflating people’s

perception that the science behind climate change is contested, this tendency to present two sides also contributes to the perception that climate change is a partisan issue: a matter of competing ideologies rather than of weighing the scientific evidence.

A second problem occurs when the media do try to present the scientific authorities and comes from the scientists themselves. Understanding the message of scientists in some ways requires understanding some underlying assumptions and terminology that are not always familiar to the general public. Concepts of probability, peer review, computer modeling etc. may be unfamiliar to the audience and give the impression that scientists are not willing to stand behind their results. The typical scientific answer to a direct question about “Was global warming responsible for [an extreme weather event]” is likely to be “It’s impossible to link a specific event to global climate change,” an answer which the public might interpret to mean “No, it wasn’t.” If they want to educate the public, scientists should communicate their findings in ways that the public can more easily understand.

More insidious than misunderstanding is a perception that scientists are not to be trusted. Last year’s “Climate-gate” (which the media, notably, were largely responsible for creating and labeling) illustrated a willingness by at least some segments of the public to think that climate scientists have some sort of hidden agenda that leads them to doctor the evidence they present. It is unclear precisely what led to this perception, but part of the explanation is probably that this created a narrative story for the audience. Narratives, such as one about dodgy scientists trying to slant the evidence in order to further their careers, are more engaging and easier to understand and remember than a list of facts about increasing global temperatures and atmospheric carbon levels. The social groups that are associated with particular media sources may help to create narratives that create mistrust for certain figures, such as scientists or government officials. The media can be a more effective source of education if they present narratives that are engaging but do not cast the discussion as one in which two groups are competing for influence.

Informal learning environments are the most social contexts. People tend to visit places such as museums, zoos, and nature centers in order to have a social experience at least as much as to acquire information. Families are possibly the principal audience, but peer groups and couples also take outings to these locations. People tend to trust these sorts of environments, and in particular see zoos as nonpartisan organizations that are concerned about the environment. This presents a positive educational opportunity. The extent to which visitors attend to the educational message, however, is questionable. For example, most research shows that people pay little attention to informational signs.

The social goals of the visit, however, may provide an opportunity to promote education. Because their goals include socializing, visitors interact with the exhibits and with the messaging in some unexpected ways. Interactive signs are more likely to attract attention. In part this is because they are more engaging for individuals, but it is also the case that they enable physical or verbal interactions. Because families often have social interaction as their first priority, they will take advantage of educational opportunities that stimulate conversations or shared activities. In my own research (e.g., Clayton, Fraser, & Saunders, 2009), I have found that the overwhelming majority of zoo visitors use the animal exhibits as prompts for interacting with other group members, even if it is as simple as saying “Look at what that animal is doing” or pointing to the animal. Informational signs can be an opportunity for one individual to engage another individual in educational interactions, e.g. by sharing surprising facts or working together to address a question or puzzle presented by the sign.

Across all types of educational channels, social contexts also affect responses to climate change education by constructing and communicating relevant overarching values. In the short term, global climate change is unlikely to have a perceptible effect on most individuals. Thus concern about climate change requires concern about its impacts on a larger group that extends into the future. The extent to which people feel identified with such a group is likely to determine the extent of their concern. People who have a more self-centered focus of attention have been found to be less concerned about environmental problems, while those who are more concerned with the well-being of a

collective are more concerned. Extending one's scope of concern to include animals also predicts concerns about environmental issues (Clayton, 2008). Receptivity to messages about climate change is likely to depend on one's sense of membership in and identification with a community. But the social context can either highlight or minimize such a shared identity, encouraging people to think about their responsibilities to the collective as in Kennedy's "ask not what your country can do for you" speech, or alternatively encouraging them to focus on their own individual well-being. A program in Salina, Kansas, for example, recently found a way to encourage reduced energy use among a community of climate change skeptics, by emphasizing shared community values of independence, patriotism, and spiritual conviction (Kaufman, 2010).

In sum, educators of all sorts can be frustrated by the difficulty of trying to convey important audience to an audience that doesn't pay attention, mistrusts the information, or casts aspersions on the goals of the educator. But the social context can be utilized to encourage people to attend, to care about and engage with the information, and particularly to retain and act upon it. Incorporating the social context into educational messages may not increase people's tendency to retain specific facts about climate change. However, it is likely to enhance the likelihood that the core message will reach its target. Educators in all arenas need to think carefully about their goals --- to inform people about the reality of climate change, or about the nature of the scientific evidence for it? To empower them? Or to motivate action? – and design educational messages that utilize specific social contexts to achieve those specific goals.

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