

# Environmental communication strategies: when is what appropriate?

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## Abstract

How do advocates for the environment best communicate the need to properly manage natural resources? Under conditions of high scientific and high social consensus, a reinforcement strategy would be suitable (i.e., incentives or laws). Under conditions of low scientific consensus and low social consensus, dialogic strategies ought to be followed (i.e., participatory decision making). Under conditions of high scientific consensus but low social consensus, communication could be educational and/or persuasive depending on the immediacy of the situation. This paper provides justification for the above thesis and an analysis of the facilitating factors and barriers affecting each of the four communication strategies listed above. Questions are raised about what constitutes consensus vis-à-vis the controversy inherent among scientists, policy makers, industry, and advocates over many environmental issues. Examples of industry versus advocacy controversy and confusion generated by ideological differences and conflicting scientific findings are discussed. Conclusions are suggested that treat the four communication strategies as phases that lead to support for environmental policy.

*Keywords:* environmental education, environmental communication, environmental social marketing, environmental behavior change.

## 1 Introduction

The criteria used to select environmental communication strategies are somewhat unique when compared to other forms of public communication. Environmental issues often generate abnormally high amounts of controversy. Issues are often emotionally charged and the rationale for solutions are frequently subjective. It is often difficult to choose when reinforcement (incentives or laws), persuasive, educational or dialogic (participatory) strategies are the most appropriate.



According to Focht [1], environmental issues can be assessed in terms of the degree that a) the scientific community and b) the general public agree amongst themselves about the cause/effect and solutions to an issue. He separates environmental issues into one of four categories.

- High scientific and high social consensus (e.g., the need to protect forested areas to control runoff and preserve water quality)
- Low scientific and low social consensus (e.g., ways to control nonpoint source pollution)
- High scientific and low social consensus (e.g., the need to control land fragmentation for protecting wildlife habitat).
- Low scientific but high social consensus (e.g., paper versus plastic as environmentally preferred packaging).

Focht [1] posits that under conditions of high scientific and high social consensus, environmental communication can ethically mandate a reinforcement-based course of action (i.e., incentives or laws). Under conditions of low scientific consensus and low social consensus, he suggests that dialogic communication strategies ought to be followed in which there are few preconceived outcomes (i.e., stakeholders discuss issues until they can agree on a course of action). Under conditions of high scientific consensus but low social consensus, he believes communication should be educational and/or persuasive to encourage action consistent with scientific knowledge. And under the unusual condition of low scientific consensus and high social consensus, any communication that might take place would be primarily ideological.

Focht's thesis is interesting and potentially helpful. Yet, a key question remains unanswered: what constitutes high and low consensus? True consensus will be all but impossible to achieve given the amount of controversy inherent in environmental issues. Much of the public sees environmental and economic issues as polarized. Answers derived from scientific methods of inquiry can be questioned. The validity and reliability of scientific methods are not absolute. Questions are often raised about the basic assumptions scientists make when testing their ideas. Science is susceptible to subjective assumptions, questionable interpretations, and controversy.

## **2 Environmental communication strategies**

### **2.1 Reinforcement strategies**

As Focht [1] states, under conditions of high scientific and high social consensus, it is ethical to mandate a required course of action. Change agents need to impress on individuals that negative consequences will be realized if they do not cease an undesirable behavior. A desirable remedial behavior is elicited and then followed with a reward (e.g., financial subsidy) or an undesirable behavior is exhibited and followed by a punishment (legal penalty). Extrinsic rewards can motivate an individual to perform the behavior repeatedly. Punishments will discourage the performance of a behavior.



Incentive based and regulatory strategies are often the strategy of choice when faced with symptoms of a “social dilemma”. Individuals strive to use their limited time and money in a manner that will enable them to get ahead. But sometimes this self-interest can lead to less than optimum management practices. The same principle can be applied on a larger scale. Companies and municipalities are also driven by self-interest. The deleterious practices by just a few can endanger the natural resources of many. Situations like these can potentially become social dilemmas.

Social dilemmas can be defined by two characteristics: (a) each individual, company or municipality receives a higher payoff for a socially noncooperative choice than for a socially cooperative choice no matter what others do, but (b) all are better off if all cooperate than if all do not (Dawes [2]). Common reasons for noncooperation include (a) the perception that the costs outweigh the benefits, (b) fear of sacrificing options or income by cooperating when few others actually do, and (c) the belief that a critical mass of people are already cooperating and one can “free ride” on these efforts with little notice or effect (Wiener and Doescher [3]).

Incentive based and regulatory strategies are frequently the choice of governmental agencies charged with protecting society against the potentially destructive actions of self-interest. Though these strategies can elicit a fairly rapid change in behavior and are therefore good when problems need a quick fix, the sustainability of incentive based and regulatory strategies is questionable because they are so cost and/or labor intensive. In addition, there is evidence to suggest that reinforcement strategies do not lead to permanent behavior change; i.e., individuals are apt to revert to their original behavior once the reinforcement is removed (Bettinghaus and Cody [4]).

Recently, an article in *The Economist* [5] suggested that a new evolving form of reinforcement may be the more efficacious route to environmental protection. The article lead with the belief that “today’s environmentalism is just another special interest”... where “mandate, regulate, litigate has been the mantra”... and goes on to say that “if environmental groups continue to reject pragmatic solutions”... “they will lose the battle of ideas”.

The reinforcement strategies that the article refers to employ market-based incentives that may be more sustainable than other types of incentive-based strategies (e.g., subsidies) as long as the correct market forces are in place. Examples include: assignment of property rights over commons such as fisheries, tradable emissions quotas, efforts to value services such as water filtration and flood prevention, or where a water utility might charge more per liter as consumption increases, therefore rewarding conservation behavior and penalizing over-consumption.

There is a current proposal under consideration that suggests that users of the Panama Canal should pay surrounding landowners to reforest the watershed to control siltation and nutrient overload that threatens the ability of commerce to move through the canal. If implemented, the scheme will have environmental, social and economic benefits. Another example using market-based incentives was the decision by the City of New York to pay farmers to protect their



wetlands whose filtering potential was considered a valued ecological service. This decision was significantly less expensive than building a multi-billion dollar filtration plant.

The challenge, according to *The Economist* [5], is to do good science so that good information can be used to set realistic prices that can lead to realistic cost:benefit analyses. Driving these initiatives is the realization that the environment can no longer be treated as a “free good”, that society needs a better understanding of what the environment does for it, and that there is a need to accept that the marginal costs of improvement may not be worth the cost (e.g., the incremental cost of removing the last percentage of a pollutant may not make sense).

## 2.2 Dialogic strategies

The effectiveness of dialogic strategies rests with the power of social norms that are created through open participatory discussion and serve as a model for individual behavior. This supports Ostrom’s [6] finding that successful resource management groups have strong norms that define proper behavior that are reinforced through observable actions. Focht [1] asserts that dialogic strategies are useful when there is low scientific and low social consensus – i.e., when no clear solution is evident and all concerned parties must participate in open discussion to arrive at an acceptable plan of action.

Considerable controversy can be expected under these circumstances. Ironically, economics and ecology, derived from the same root concept implying mutual reliance, are all too often polarized in today’s world. Advocates for industry and advocates for the environment frequently find themselves in adversarial positions portrayed as playing the role of defender or aggressor depending on the perspective.

An industry-under-siege/environmental advocate-as-aggressor perspective is reflected in a handbook still considered the primary guide to industrial environmental public relations (Harrison [7]). In this publication, Harrison offers the following comparison of factors affecting environmental communication by industry and environmental advocacy groups.

- Industry favors industrial growth while environmental advocates oppose industrial growth.
- The public has a general mistrust of industry while the public perceives environmental advocates to have high credibility.
- Relationship to government industry is regulated at many levels while environmental advocates are not regulated.
- Industry is not aggressive and seeks thoughtful coverage from the media while environmental advocates are aggressive and seek dramatic coverage.

In contrast, an environment-under-siege/industry-as-aggressor perspective is another viewpoint and one commonly exhibited by environmental advocates



such as participants of a listserv linking leading environmental communication academics in the U.S. For example, an announcement posted on the listserv about an upcoming International Greening of Industry Networking Conference titled *Sustainability: Ways of Knowing/Ways of Acting* elicited the following exchange (COCE [8]):

- Person 1: “Why are we posting this on our listserv? I would hope that we would not lend our efforts to help business and industry communicate their “green image.” I think it is relatively safe to assume that the purpose of conferences like this is to help business face environmental challenges more effectively, not develop more “sustainable practices” – or at least this is the role environmental communication would end up playing. Certainly the bridges built there are more likely to help businesses operate more efficiently, on their terms, not gain access for environmental advocates to the decision-making channels of industry”.
- Person 2: “There is a lot of greenwashing going on and I disagree with it, but unless we begin to work with industries and businesses that really are trying to green up their systems we are always going to be faced with confrontational issues. As communicators it is up to us to begin the process and begin going to these business conferences to learn how to deal with and understand the “other” side as we begin the process of getting them to become green”.
- Person 3: “Let’s face it, environmentalism is cluttered with ironies, and, in my presumptuous mind, any discourse that involves the threads of economics and environmentalism, woven and spun together by clout from business and industry, is not only ironic, but I have to presume that the economic thread will win out. Am I to believe that business will cut into its bottom line simply because it wants to be perceived as “sustainable” or that it’s “smart business.” I’m sorry but I have to be critical of such ironic discourse”.

In a recent keynote speech to the Society of Environmental Journalists (Moyer [9]), Bill Moyer, a leading American Journalist stated “our government and corporate elites have turned against America’s environmental visionaries”. “They have set out to eviscerate just about every significant (environmental) gain of the past generation and while they are at it they have managed to blame the environmental movement itself for the failure of the Green Revolution”. He goes on to provide evidence that the Bush administration has staffed key environmental positions with skeptics of environmental science and that industry uses Public Relations strategies to discredit hard science findings. The result, “in July of this year, ABC News reported that 66% of the people in a new survey said they don’t think global warming will affect their lives”...and “45% of Americans hold a creationist view of the world discounting Darwin’s Theory of evolution”. “I don’t think it is a coincidence that in a nation where nearly half



our people believe in creationism, much of the populace also doubts the certainty of climate change science". As a suggestion to journalists, Moyer states: "I wouldn't give up fact based analysis – the ethical obligation of journalists is to ground what we report in evidence. But I would tell some of my stories with an ear for spiritual language, the language of the parable, for this is the language of faith".

As described, when there is low scientific and low social consensus there will be considerable controversy, and dialogic strategies in which all concerned parties participate in open discussion to arrive at an acceptable plan of action will be necessary. The TAIERI Trust (TT) project, funded by the New Zealand Ministry for the Environment's (MfE) since 2001, is a good example of this strategy in action. The setting is the Taieri River, the third longest river in New Zealand, that travels 318 kilometres and drains 5,650 square kilometres before it enters the sea. The project is an effective vehicle for dealing with growing water quality problems in the Taieri River catchment associated with polluted runoff from farms, septic systems, and urban storm water. There is considerable public and scientific uncertainty surrounding these issues.

Project management is by a committee of agency resources managers, community members, university faculty, Iwi (indigenous people) and a full time salaried project coordinator and assistant. Representation from the various geographic areas of the catchment and the varied interests/motivations of committee members ensures that many views are considered.

The management committee's policy of advocating a single position on an issue only when there is total consensus among committee members is important for preserving perceptions of the TT as a neutral body. TT's role in information dissemination, public education and stakeholder communication, allows the project to fill a critical gap in the catchment – a gap that can only be filled effectively by a neutral body such as the TT that has no regulatory function.

A significant number of residents in the catchment believe that the TAIERI Trust has been highly successful in their efforts to improve working relationships among stakeholders. Efforts to establish an information exchange system have included the development of a project website, newsletters, workshops, agriculture show exhibits, and extensive media coverage. A considerable amount of effort was also spent working with primary school students and teachers including the development of a curriculum kit and video on the Taieri River. The effectiveness of these activities is reflected by the sizeable number of people in the catchment that believe the TAIERI Trust has helped raise awareness and understanding of environmental issues in the catchment (Tyson [10]).

Actions for environmental improvements have included prioritization of catchment areas/issues, development of model restoration sites, field days and planting days, and university research on riparian management. Annual reviews of project efforts have been conducted via community surveys and interviews with key stakeholders and results have been widely disseminated. In 2003, the TT project received a special Green Ribbon award from the MfE recognizing the project's national leadership role in Integrated Catchment Management, a strategy premised on dialogic participatory decision making.



### 2.3 Educational and persuasive strategies

Focht [1] posits that educational and persuasive strategies may be well suited when there is high scientific consensus but low social consensus. Educational methods are designed to promote changes in environmental awareness, knowledge, and skills. According to Archie et al. [11], educational approaches equip audiences with the background needed to make informed decisions about their own choice of behavior. The goal is to build capacity and commitment to engage in problem-solving and decision-making to assure environmental quality. The audience is usually a significant portion of the population (including youth). Outcomes may include environmental sensitivity and changes in knowledge and skills. The time frame is generally long-term because of the emphasis on broad changes across an extensive social framework. A wide range of issues lend themselves to this strategy, particularly those that are not immediate or acute. Communication channels generally rely on print media and written educational supplements.

The other strategy suited to conditions of high scientific consensus and low social consensus can be termed “social marketing”. Social marketing, a fitting label for persuasive communication strategies that promote ideas the same way marketers promote products, is a research based, audience focused approach to changing the way people act. Social marketing often starts with educational objectives (e.g., awareness and knowledge of an issue) and once this foundation is laid, shifts to a focus on motivational objectives (e.g., attitude and behavior change) (Tyson [12]).

Audiences need to perceive that the “benefits” associated with a proposed behavior exceed the “costs” if the new behavior is to be adopted. This supports Ostrom’s [6] contention that successful resource management groups perceive that the benefits of the resource cannot be discounted and costs of cooperation are low. The challenge is to identify pertinent benefits and costs so rewards can be optimized and barriers minimized.

Additional insight concerning social marketing is offered by Archie et al. [11]. The goal they say is behavior change. The audience is generally a specific target audience that shares common values, access points, or obstacles. Social marketing strategies are good when change is needed in the short-term and are therefore well suited to issues considered acute or critical. Social marketing employs all forms of marketing/advertising tools (i.e., interpersonal, group and mass communication channels).

The Eight Mile River Watershed Project conducted by the University of Connecticut Cooperative Extension System is a good example of a campaign that blended educational and social marketing strategies. The campaign addressed issues facing the conservation of forestland and wildlife in an area recognized by the Ramsar Convention as a wetlands system of international importance (Tyson and Worthley [13]). The campaign dealt with both acute and nonacute issues that generated a lot of varied public opinion. Yet, there was considerable agreement among project technical advisors concerning the required changes and the science supporting these interventions. The objectives of the campaign were for landowners with ten or more acres to do the following:



- Become knowledgeable about the importance of their land management practices in the context of the long-term health of the watershed.
- Become knowledgeable about resource inventory and stewardship planning, and the benefits of those activities.
- Show positive pre- to post-campaign changes in attitudes that are key predictors of stewardship behavior (anticipated personal and community consequences, perceived threats to self and community, and family and community norms).
- Assess conditions and compile an inventory of forest and wildlife resources.
- Formulate specific stewardship goals and develop forest stewardship plans.

Research was initially conducted to define the primary target audience, messages for this audience, and their preferred communication channels and sources of information. Those who showed strong inclination to protect land from development and develop forest and wildlife stewardship plans were chosen as the primary target audience (35% of the population). Findings showed that this group, compared to other segments, believed strongly that watershed resources were indeed at risk. They thought that rivers and streams, trees and plants, and production of forest products were at greatest risk; and they perceived that the top three benefits of forest stewardship planning were preserving natural beauty, insuring that heirs will be able to enjoy the land, and keeping drinking water safe. These factors became the content of campaign messages that were passed through mass channels for achieving educational objectives and personalized channels for achieving motivational objectives. Audio-visual channels were selected for conveying emotions associated with risk and written channels were selected for conveying detailed information. The primary sources of information were state and university specialists who the target audience indicated during initial research were the most credible.

An evaluation of project processes and outcomes was conducted at the end of the five year project that identified which messages and channels worked best and the extent to which project objectives were realized. The project turned out to be moderately successful in increasing landowner knowledge of watershed issues and resource evaluation and stewardship planning strategies. The success the project had in increasing knowledge was due mostly to field demonstrations and tours. The personal contact that landowners had with professional foresters at these events was key to teaching about complex tasks. The project was particularly successful in changing attitudes associated with the impact forest stewardship had on the community. This was an important factor because forest stewardship is inherently about caring for resources that extend beyond individual property boundaries. In the end, the number of completed resource inventories and stewardship plans increased significantly during the project. Nearly half the landowners that were surveyed reported completing some form of assessment and plan during the time of project.





### 3 Conclusion

Focht's thesis is interesting and potentially helpful. His thoughts on using reinforcement strategies when there is little controversy make sense (i.e., when there is high scientific and public consensus). His thought on using dialogic strategies when there is considerable controversy makes sense too (i.e., when there is low scientific and public consensus). Building on Focht's thesis, it is suggested that environmental advocates treat the four communication strategies that have been discussed as phases that eventually lead to support for environmental policy. If an issue has no evident scientific support, change agents should start with dialogic strategies. Once a critical mass of experts agree on the issues, change agents can pursue education or persuasive strategies. If the issue already has scientific support, change agents can start with an education or persuasive strategy. Once a reasonable degree of scientific and public agreement is achieved, reinforcement strategies can be used to ensure consistency in audience behavior and safeguard against free rider and social loafing tendencies.

Where Focht's thesis becomes questionable is deciding when exactly educational and/or persuasive strategies are called for. These are important and frequently used strategies by environmental advocates. As Archie et al. [11] suggest, educational strategies are suitable when issues are not immediate or acute and when the ability to think critically is the goal. Social marketing strategies are useful when issues are believed to be more acute or critical and targeted behaviour change is the goal. Focht's thesis for when to use educational or persuasive strategies is premised on defining what constitutes high scientific consensus. Yet, as mentioned earlier in this paper, scientific methods of inquiry can generate a lot of controversy.

A good illustration of this was displayed in a National Public Radio broadcast entitled *The Economy and Emissions* (Baron et al. [14]). Three economists from the Economic Strategy Institute (conservative), the Department of Energy (moderate), and Harvard University (liberal) debated the potential impacts of a potential treaty to prevent climate change. When asked about the effects on GDP, responses ranged from 2.5 to 3.0 percent below what it would be without the treaty, to no impact, to a gain of .69 percent. When asked about the effects on unemployment, responses ranged from a 1.8 million job loss, to a "net gain", to an increase of 1.2 percent. When asked about the effects on gasoline prices, responses ranged from 50 cents per gallon, to 6 to 12 cents per gallon, to about five cents. The models these economists use to make their predictions depend on the assumptions that are built into the models in the first place. For instance, regarding the issue of technological change, many studies assume companies will develop new, energy-efficient cars, appliances, and power plants at a steady rate. Other models assume the rate of innovation will accelerate.

A more recent example of how scientific findings can be controversial is evident in bestselling author Michael Crichton's new novel *State of Fear* (Crichton [15]) in which he brings into an imaginary setting the, what he considers, factual ideas that he has shared in congressional testimony and several speeches, including one to the Commonwealth Club in 2003 (Crichton [16]).



Both Crichton's nonfiction and fiction claim that environmental advocates base their opinions on unfounded religious-like myths and beliefs and that global warming concerns are overemotional, unfounded and need to be supported by objective science. In a Hartford Courant editorial (Thorson [17]), Professor of Geography Dr. Robert Thorson criticized Crichton for blurring the link between his fiction and nonfiction and doing what he considered a public disservice by minimizing the threat of global warming in his widely sold novel. Thorson emphasized what a broad consensus of world scientists believe, that high quality science has confirmed beyond any doubt that global warming is a real threat that requires cooperation from all countries to remedy. A recent special report in Rolling Stone states that the novel has been "roundly discredited by the scientific community" and named Crichton one of the top six public "misleaders" in this regard (Little [18]).

Lack of consensus about scientific findings and the resultant controversy that this generates weakens the potential strength of educational and persuasive messages. We must try to minimize the controversy surrounding scientific findings generated by economic versus environmental and industry versus advocacy interests.

The three most important variables that affect the efficacy of persuasive messages are source credibility, message quality and message discrepancy (Hamilton and Thompson [19]). All three need to be optimized to maximize chances of a persuasive strategy working. Source credibility is apt to be a function of two factors: perceived expertise and perceived trustworthiness. Complex issues demand a high level of expertise. Risky issues demand trust.

As stated earlier in this paper, campaign planners seeking to maximize the quality of their messages tailor their messages based on their audience's cost and benefit perceptions. The degree that the quality of these messages can be increased by stressing factual versus emotional elements is a topic of debate for Moyer (who claims environmental messages need more spiritual language) and Crichton (who claims they need less emotion and more fact) (see Moyer [9] and Crichton [16]).

Message discrepancy is the difference between the campaign's position on the issue and the audience's initial position. The audience of a campaign message is more likely to argue against a message and less likely to change when message discrepancy is great. This highlights the need for careful audience analysis early in the campaign planning process so that messages can be designed within an audience's latitude of acceptance. If the campaign is attempting to move the audience great psychological distances, then campaign designers are best to plan change in small minimally discrepant increments; perhaps beginning with educational strategies (informational objectives) and later evolving to social marketing strategies (motivational objectives).

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