

## LANGUAGE AND PERSUASION IN BIOTECHNOLOGY COMMUNICATION WITH THE PUBLIC: HOW TO NOT SAY WHAT YOU'RE NOT GOING TO NOT SAY AND NOT SAY IT

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This paper explores the role of language in biotechnology communication with public. Analyzing a USDA press release, rhetorical choices of organization, style, and diction that convey values and emotions contrary to content are examined. The effect of language is not usually considered in transfer models of communication.

*Keywords:* biotechnology; public communication; rhetorical analysis; organization; style; diction.

Cases abound, both in the United States (US) and abroad, of sciences and technologies that have been significantly slowed or completely halted by public opposition, despite arguments of validity and social and economic benefits (see for example, Bantz, 1981; Morone & Woodhouse, 1989; Katz & Miller, 1996; Hine *et al.*, 1997). Examining these and other cases involving scientific and technological accidents, researchers and scholars in linguistics, sociology, and rhetoric studying scientific and technical communication have traced at least a part of the problem to communication (Bytwerk, 1979; Farrell & Goodnight, 1981; Winsor, 1990; Herndl, Fennell, & Miller, 1991; Killingsworth & Palmer, 1992; Katz & Miller, 1996; Waddell, 1996; Guttman & Thompson, 2000). However, the important role that language itself plays in the perception, reception, and understanding of science and risk assessment is often overlooked by researchers, program administrators, and public officials who seek to communicate new discoveries, products, or advancing procedures with the public. This is especially the case with biotechnology communication, which still has been largely unexplored even by the many scholars now studying the use of language and persuasion in science.

The purpose of this paper is to begin to explore the role of language in biotechnology communication with the public by briefly analyzing in a particular press release how organization, style, and diction convey values and emotions that can undermine intended meaning. These are not problems of grammar or usage or mechanics or spelling, commonly associated with “bad writing.” Nor are these simply problems of clarity or logic. Rather, these communication problems are the result of rhetorical choices of organization, style, and/or diction that are ultimately based on unconscious and often flawed assumptions about the role of language, values, and emotion in communication and decision-making.

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While there are differences between other controversies and those surrounding the acceptance of agricultural biotechnology by consumers here and abroad, the general parameters of these controversies can reveal deep-seated assumptions, as well as the pitfalls of communication with the public. One almost universal feature is the public fear of possible long term and as yet unknown risks to health and the environment that no amount of scientific assurance seems able to assuage. Despite statements to the contrary by researchers and officials, the public by and large perceives decisions to be based as much on politics as science. The public questions the role of industry in the decision making as a conflict of interest. And organized protests, disruptions of meetings, threats of violence, and damage to equipment sometimes ensue.

For their part, researchers attempt to provide the public with clear, up-to-date information, and to explain the scientific logic of their reasoning. Government agencies attempt to deal with the crisis in public confidence by developing expensive public information and education campaigns. But these usually are massive failures. In the face of seemingly insurmountable resistance, early optimism on the part of scientists and public officials gives way to incredulity, outrage, and contempt for the public that now appears ill informed and unreasonable (Katz & Miller, 1996).

A press release delivered before the National Press Club by former Secretary of Agriculture Dan Glickman (1999) noted similar public reaction to the issue of genetically modified foods (GMFs): a fear of possible and as yet unknown long term risks to health and the environment; a distrust of the decision-making process that consumers see as much political and economic as scientific; and a distrust in the role of industry in developing biotechnology and assessing its safety. The speech also noted “great consumer resistance and cynicism toward biotechnology,” protests, and violence and damage to test plots overseas. To attempt to deal with these issues, the Secretary proposed five principles, including “complete and open public involvement; the establishment of ‘regional centers’ around the country;” and “a strong public education effort to show consumers the benefits of these products and why they are safe.” Despite public resistance, the speech attempted to express great optimism not only in biotechnology, but also its acceptance. “We have to ensure public confidence in general, consumer confidence in particular...I believe farmers and consumers will eventually come to see the economic, environmental, and health benefits of biotechnology products” (Glickman, 1999, p. 2).

Many possible variables might account for the failure of communication in a particular scientific controversy. But researchers have located as a probable contributor a set of assumptions about communication as a passive process of information transfer that underlies many public relations, education, and information campaigns (Katz & Miller, 1996; Waddell, 1996). These assumptions are perhaps most clearly understood in relation to Shannon and Weaver’s (1949; 1964) model of information theory developed at Bell Laboratory. This model, consisting of a sender, a receiver, a channel, a message, noise, and a feedback loop, has become the ideal of risk communication, widely adopted by industry and government agencies. In addition to the ideal of “senders” and “receivers” as objective and rational, the model assumes that language is a conduit (Reddy, 1993), and that listeners/readers are passive receptors. Thus, according to this model, if “information” is logically and clearly “transmitted” by senders, receivers will respond as rational components within the system (Simon, 1982; cf. Miller, 1990). In this model, values and emotions are “noise” to be suppressed or gotten rid of, and public resistance, in the face of scientific fact, is seen as totally irrational.

We see some of these assumptions about senders, receivers, and scientific facts in the press release delivered by Secretary Glickman. “We cannot let others hide behind unfounded, unwarranted scientific claims to block commerce in agriculture” (1999, p. 2). “We base our decision on rigorous analysis and sound scientific principles” (1999, p. 3). (The press release also acknowledges the limitations of the regulatory system). However, not only the content but the language of the release

itself communicates values and emotions that are neither neutral nor intended. In fact, the overall impression created by the arrangement, style, and diction of the first seven paragraphs—the all-important introduction—of the press release is one of overwhelming pessimism. In looking at arrangement, for example, notice in Excerpt 1 below how the questions in par. 6 negatively contextualize the positive statement in par. 7 “that biotechnology has enormous potential.”

**Excerpt 1: Excerpt from Glickman’s Speech, Revealing Values and Emotion in Arrangement.**

[par. 6] So, what do you think about this new carrot? Are we concerned about the environmental effects we still don’t fully understand? What about the farm workers who are now unemployed? Should one company have a monopoly on it? And finally, are you concerned about these issues and how it is produced? Would you still have eaten it if you knew about the kudzu gene? Should you have been told? Would you buy it?

[par. 7] Folks, this is the tip of the biotechnology iceberg. There are many more questions that haven’t been thought of, much less answered. But first of all, and if you come away with a dominant point from my remarks, it is that I want you to know that biotechnology has enormous potential.

In terms of the arrangement, the ordering of sentences and paragraphs, the negative content of par. 6 runs counter to the juxtaposed statement meant to be the dominant point, and to the purpose of the press release, which is to communicate “the latest advance from biotechnology” (par. 4, not reproduced here).

In fact, we can see in style, as well, that the dominant point of the introduction of this press release is not “the enormous potential of biotechnology,” but the opposite. Style also communicates values, whether intentional or not. Note, for example, the curious metaphor in par. 7: “Folks, this is the tip of the biotechnology iceberg.” This trope was meant positively, but is analogous to the Titanic. Historical and cultural associations accrue in syntax and expressions, here conveying a threat of an underlying problem. Together with the negative questions in par. 6, the message of the language itself is that biotechnology is very risky.

There is also a rhetorical effect called “presence” that is created through the repetition of words (Perelman, 1982). Like an iceberg, a lot of the “presence” of this press release lurks just below the surface of the content. Not as evident but very powerful, diction too communicates values and emotions. In Glickman’s press release, the “presence” of negative diction (they can be verbs, adjectives, adverbs, conjunctions, prefixes, suffixes, pronouns, nouns—any part of speech in any context) polarizes the language of the content. We turn to paragraph 3 in excerpt 2 below.

**Excerpt 2: Excerpt from Glickman’s Speech, Revealing Attitude in Parts of Diction (Boldfaced).**

[par. 3] “**But**, because this carrot does **not** require as much labor, the farmers have had to **lay off** hundreds of employees. **While** it does **not** require any chemicals to flourish, this new carrot does affect the environment by making it **difficult** for other crops or plants in close proximity to survive. And **though** it’s cheaper to begin with, it’s **only** available from one company, which could result in a considerable premium over regular carrot seed.

It doesn't matter what context these parts of diction occur in; the effect is cumulative (Perelman, 1982). In this release on biotechnology to the press and public, the arrangement, style, and diction of the rhetorically all-important introduction sets up a sense of failure before successes can be talked about.

My purpose here is not to critique the writing of the press release, but rather to suggest how values and emotions are mirrored in the medium of the language itself. Language is not a neutral conduit, through which communication clearly flows. Arrangement, style, and diction convey values and emotions. Speakers and writers have rhetorical choices about how to present ideas. However, the information transfer model of communication fails to account for the impact of the structure of language in the "communication equation," and how language itself communicates values and emotions, because it fails to account for the values and emotions of senders and receivers as valid "components" of communication.

Because values and attitudes are always audience dependent, they are relative variables not easily calculated in mathematical models of communication. Values and emotions are situated in specific contexts and for specific purposes in relation to specific groups that a more qualitative, rhetorical approach can better estimate (Rowan, 1994; Katz & Miller, 1996). Those values and emotions are deeply embedded in the language of scientists or officials or publics, and so are usually invisible to them. But other audiences may react to and interpret the language, values, and emotions in ways not anticipated or intended. No matter how logical or clear a "message" seems to one group, it may communicate and provoke different values and emotions from another. The values and emotions conveyed through organization, style, and diction may need to be accounted for to improve biotechnology communication with the public.

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