

TEACHING RISK COMMUNICATION TO ENGINEERING STUDENTS

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Abstract - Risk communication carries a high potential for failure. Not only is the content usually difficult to comprehend and to compress, but the source and the receiver are almost always mismatched in level of expertise, available resources, relationship to power structures, and expectations. Add to this the fact that risk communication frequently takes place in a situation charged with emotion and ambiguity, and the demands may appear overwhelming. This presentation outlines a course in risk communication for junior/senior level engineering students

Scholarship on risk communication provides insight, but the results are scattered throughout the research literature of at least a dozen disciplines: rhetoric, political science, decision science, sociology, anthropology, mass communications, advertising, economics, marketing and consumer behavior, cognitive psychology, social psychology, linguistics, discourse analysis, health education, environmental health, law, and philosophy. Engineers-in-training can benefit from a pragmatic set of guidelines distilled from the research. To date, no single source sets forth both the conceptual foundations and the pragmatics of risk communication.

The recent work of Covello, von Winterfeldt, and Slovic suggests a taxonomy for focusing investigation into the rather amorphous body of literature and for ordering the resultant course materials fashioned from this effort. These communicologists describe the process as a dynamic interrelationship among four elements:

- *Source*: the risk communicator and the organization he or she represents
- *Message*: not only the content of the communication but also the assumptions and methodological predisposition that went into the risk assessment and the philosophical underpinnings of the risk management policy
- *Receiver*: the primary audience or the party at risk in the transaction, and a host of secondary audiences whose combined influence can be labeled as “public opinion”
- *Channel*: the means by which the communication takes place (e.g. written or oral, broadcast or narrowcast) and the role of intermediaries in the communication (as in news coverage)

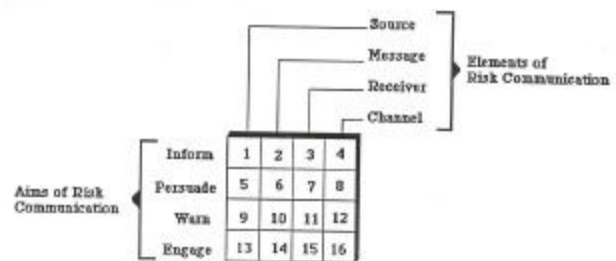
Adopting yet a different perspective, we can also identify four general types of risk communication, based on the “purpose” of the transaction:

- To inform or “educate” a particular public;
- To affect a behavior change or to encourage a protective

action;

- To communicate during a crisis, as in disaster warnings and emergency information;
- To encourage or facilitate joint problem solving and conflict resolution

Conflating both perspectives (rhetorical elements and the aim of discourse) into a matrix representation yields sixteen areas of interest for formulating guidelines and examining case studies (see figure).



For example, focusing on cell 5 foregrounds issues of source in advocacy communication, such as the credibility of the rhetor (ethos in classical terms) and the judicious use of “expert” testimony. With closer examination, each cell generates a number of compelling issues and observations from which to structure a course for engineering students.

Using a two-dimensional array captures issues and focuses attention. However, each item must be further examined, refined, or amended based on three social and institutional dimensions:

- *Legal Expectations*: The risk communicator must be aware of mandates and must understand the nature of compliance, both in letter and in spirit.
- *Ethical Responsibilities*: The risk communicator must acknowledge the high standards of professional conduct inherent in the role of purveyor of understanding and agent of social justice.
- *Political and Organizational Constraints*: In addition to serving as the defender of the public trust, the risk communicator is also an employee of a particular corporation or government agency. Ideally, the risk communicator mediates between the public good and the interests and investments of his/her sponsoring institution. In reality, filling this role of arbiter is contingent upon many tangible and intangible factors, such as amount of resources allocated and the corporate culture.

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