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33 *Educating Technical Communicators to Make Better Decisions*

CEZAR M. ORNATOWSKI

In this essay, Ornatowski, drawing on his work as both consultant and educator, argues that technical communicators are decision makers who have expertise in areas far beyond the scope of writing or computer skills. With knowledge and experience in such areas as team work and project management (p. 596 in this volume), technical communicators play a central role in shaping perceptions, "'diffusing conflict, and socializing readers into the knowledge and values' of a new technology or system" (Mirel, qtd. on p. 597). As teachers, if we accept his argument, we have to consider the impact on our pedagogy. We cannot simply train; we have to educate, and those we educate will possess more than skills; they will have the knowledge and qualifications to enter a profession, with the attendant responsibilities to society.

Several years ago, I found myself in the dual role of researcher and communication consultant at a large aerospace company in southern California. As a researcher, I was examining the generation and circulation of technical information in the company: who communicates what to whom, how, why, and with what results (Ornatowski 1991). As a consultant, I was asked to note major communication problems and advise management how to solve them. Somewhere in the middle of my almost two-year stint with the company, I experienced a kind of epiphany when one of the engineering managers concluded a team discussion of what constitutes good engineering reports with an insight: good communication means making better decisions.

In what follows, I want to argue that looking at technical communication in terms of making decisions, that is, looking at what decisions technical communicators make, what the scope is of those decisions, and what their implications are, provides a new and critical dimension to technical communication education.

From *Technical Communication* 42 (1995): 576–80.

Technical Communicators as Decision Makers

Technical communicators function in many decision-making capacities, some more and some less directly related to their responsibilities as communicators. As Deborah Bosley (1992) notes, technical communicators do many things in addition to writing: they function in interpersonal and intrapersonal contexts; negotiate workplace politics; collaborate with technicians, programmers, and engineers; achieve competence on a variety of computer systems; and manage team projects (Bosley 1992, p. 43). Green and Nolan (1984) report that technical communication positions above the entry level often involve communicators in project management and other management-level decision making. In all these capacities, technical communicators must make decisions that call for expertise and savvy in interpersonal relations, organizational politics, oral communication, teamwork, and project management.

In this discussion, however, I want to focus on the potential scope and significance of decisions technical communicators make *as communicators.* These decisions, I would argue, are no less—and perhaps even are more—complex than the ones made in nonwriting capacities but are less apparent and, therefore, often made unconsciously or by default—and thus, not really made at all. Yet, it is the capacity of technical communicators to make these sorts of decisions that constitutes the specificity of their professionalism. These decisions go beyond the "technical" aspects of preparing rhetorically successful documents (although they are implicit in the latter) and have technological, cultural, and political implications. In what follows, I will discuss these decisions briefly, assigning them to three categories.

Decisions Related to Technology

Technologies are not only products of esoteric, specialized "technical" knowledge. As research in the sociology of technology has begun to show, technologies are shaped by people working within social collectives and influenced by a multitude of cultural, political, and ideological factors (Bijker, Hughes, and Pinch 1987; MacKenzie and Wajcman 1985; Pinch and Bijker 1987). Technologies are shaped through the process of technology development. This process begins with front-end marketing and continues through product design and manufacturing to installation, training, and after-sale service. The process involves diverse groups and interests, often having different needs and objectives, such as different groups within the company (marketing, design engineering, manufacturing, and project management) and different stakeholders in the emerging technology (the producer, the government, regulatory agencies, contractors, and the customer). The factors that influence technology development include political and physical exigencies, market needs and conditions, institutional dynamics, established procedures and conventions, industry practices, and cultural beliefs and values.

The process of technology development is largely a process of negotiation and adjustment. As Stephen Doheny-Farina (1992) has recently argued, the entire range of activities involved in developing new technologies and their applications for the marketplace *"at their core . . .* involve individuals and groups *negotiating* their visions of technologies and applications, markets and users in what they all hope is a common enterprise" (p. 4). This enterprise is largely document and communication driven. Communication of information through different documents helps to create different representations of the emerging technology and to adjudicate between the different, often competing, interests and needs. Through this "interpretation, negotiation, and adjustment" (Doheny-Farina 1992, p. 6), both the emerging technology and its potential users are changed and adapted. In this process, technical communicators play a central role.

Of course, it may be argued that technical communicators do not really make any decisions in this process; they just do what they are told. I think, however, that it is the condition of their professionalism that they should know what they do. I will argue that point at more length at the end of this discussion.

Decisions Related to Culture

As sociologists of technology have demonstrated, technologies are also society shaping, that is, they influence, sometimes profoundly, the societies into which they are inserted (Winner 1980; Pacey 1983; Bijker, Hughes, and Pinch 1987). Think how our lives and our world have been changed by such technologies as the telephone, electric light, the automobile, and the computer.

A critical moment in this process of change is technology insertion: the adaptation of technology to perceived social needs as well as the adaptation of potential users to technology (Dobrin 1989). The critical moment in technology insertion is shaping the perceptions of potential users, as well as mutual adaptation of the technology, the needs and capabilities of the users, and the surrounding culture. In this shaping, technical communicators again play a central role. Barbara Mirel (1988) has shown, for example, how even a relatively "local" document, such as an office computer manual, may fulfill, in addition to its ostensible training function, "more subtle communication purposes of reducing uncertainty, diffusing conflict, and socializing readers into the knowledge and values" of a new technology or system (p. 287).

In addition, in a society increasingly driven by technology, the technical communicator is becoming an important voice in determining how the issues involving technology, as well as particular technologies, are framed and approached. In our culture, technical expertise and technical information constitute, along with science, primary discourses of authority on many matters. This authority is invoked to buttress claims and to support agendas, many of them not necessarily in and of themselves "technical." As Dorothy Nelkin (1992) notes, controversies over technologies often also reflect other issues and broader tensions in society: disagreements over the appropriate role of government in public life, the use of resources, and the impact of technology and technical expertise on the democratic process; struggles between

different visions of technology and its role in society; and disagreements over the shape of society itself. Therefore, technical documents often become statements in wider debates and arenas.

Decisions Related to Public Policy

Finally, technology is not individual pieces of equipment, just as a company is not an isolated enterprise, separate from its customers, contractors, investors, and the market. Technology comprises interlocking systems made up of hardware, software, institutions, and constituencies (Hughes 1987). These systems may be local (encompassing an office or a single community), regional, national, or even international in scope. Consider, for instance, the light bulb. The light bulb implies a larger technological system of power generation and transmission. This system, in turn, implies issues associated with the development and management of such large systems (i.e., issues of control, centralization vs. decentralization, and development policy). In addition, there are social and political issues related to the process of electrification and to choice of desirable power (i.e., coal, solar, or nuclear and issues of energy policy, public safety, and others) (Hughes 1983). Technological systems include both physical artifacts (for example, computers, coaxial cables, and data storage devices) and organizations (hardware and software manufacturers, data managers, financial institutions, and investors), networks, users, scientific and research components (R&D programs, universities, and professional associations and publications), and legislative artifacts (regulatory and proprietary laws, data protection laws, and rules and protocols for communication and data transmittal) (MacKenzie and Wajcman 1985; Pinch and Bijker 1987).

Viewed from the perspective of the technological system, the roles of technical communicators transcend mere transmission of information, just as the decisions they make go far beyond the "technical" in their scope and potential consequences. Technical communicators work at the intersection of the various components and impacts of the system: the technology; the organizations involved in its implementation and management; the various interests vested in the system or arrayed against it; and the various publics which the system impacts (Killingsworth and Steffens 1989; Bryan 1992; Nelkin 1992). It is from their position at this intersection that both the complexity of the technical communicators' task and the burden of their professional responsibility arise.

Communication of technical information helps to harmonize the various factors that make up the system into a working whole. In the course of this harmonization, technical communicators not only adjudicate conflicting interests and goals, create representations of emerging technologies, and shape the perception and reception of technologies, they also make judgments of value and decisions that involve uncertainty and risk. Although not all their daily decisions have the magnitude of the Challenger, the Three Mile Island, or the Exxon Valdez cases (Farrell and Goodnight 1981; Winsor 1988, 1990; Dombrowski 1991; Herndl, Fennell, and Miller 1991), most form links in a chain of relationships and consequences that reach far beyond the communicator's office door. As James Paradis (1991) has shown even a user manual for a power tool may have consequences unforeseen by its creator.

Conclusion

As Charles Bazerman (1988) notes, texts are meaningful only in context; it is difficult to understand what any text means without understanding the context within which the text serves as a significant activity. The contexts in which texts created by technical communicators serve as significant activities extend beyond the immediate circumstances of their writing. More important, the communicative decisions made by technical communicators have implications that go far beyond the physical considerations of document design, wording, or presentation. Not that these considerations are not critical; they are. However, they are critical precisely *because* their implications are so extensive and important. After all, that is precisely what technical communication as an organized profession has been trying to convince potential employers of for years.

The technical communicator, as I have argued, stands at the intersection of technology and its various producers, users, and publics. The communicator's decisions, just as the documents the communicator designs, are shaped by, and, in turn, shape, diverse needs and interests and have implications in the realms of technology, culture, and public policy. By virtue of their positions, the technical communicators have tremendous power in a technological society. To understand and use that power, communicators must be aware of the diversity of interests and stakes involved, of the purpose of the communication in regard to those interests, and of the implications of different communicative choices. As Carolyn Miller (1979) puts it, "to write well is to understand the conditions of one's own participation" in the social context in which one acts (p. 617). If technical communicators are not aware of these "conditions of their participation," they may unwittingly adopt what Steven Katz (1992) has called the "ethics of expediency," in which technical and instrumental imperatives override the human and social implications of decisions, and their communicative expertise may become, as Nelkin warns, merely "reduced to a weapon in the political arsenal of competing groups" (p. xix).

Thinking of technical communication in terms of "making better decisions" (however one may want to interpret this phrase in any concrete instance) complements and extends the usual way of approaching the subject of technical communication education. Typically, discussions of technical communication education take as their point of departure the tasks technical communicators perform and the skills they need to perform these tasks. From these, educators deduce the appropriate curriculum (for a review of various surveys of what technical communicators do and their implications for technical communication education, see Zimmerman and Long 1993). I call this

way of thinking about education "intensive," because it focuses on elaborating the number and specificity of areas of concrete "technical" expertise.

However, educators need to consider both what technical communicators *do* and the *meaning* of what they do. To get at this meaning, educators should consider the scope, effects, and implications of the decisions technical communicators are called on to make. Such a perspective involves discussions of technical communication education with issues of responsibility and ethics. That involvement, I would argue, marks the difference between education and training, just as it defines the distinction between being a professional and simply having a set of skills. I would call such an approach to education "extensive," because it engages judgments of value and quality. A more extensive education in this sense does not come merely from taking more courses; neither does it amount to simply another call for more liberal education. Rather, it is a matter of designing a curriculum that is extended along the lines outlined in this discussion and that deals with the full dimensions of what technical communicators do and the implications of what they do. It is, put simply, a curriculum that helps technical communicators make better decisions.

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