University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Faculty Publications -- Department of English | English, Department of

1-1992

Categorizing Professional Discourse: Engineering, Administrative, and Technical/Professional Writing

Barbara Couture
University of Nebraska - Lincoln, bcouture2@unl.edu

Follow this and additional works at: https://digitalcommons.unl.edu/englishfacpubs

Part of the English Language and Literature Commons

Couture, Barbara, "Categorizing Professional Discourse: Engineering, Administrative, and Technical/Professional Writing" (1992). *Faculty Publications -- Department of English*. 71.
https://digitalcommons.unl.edu/englishfacpubs/71

This Article is brought to you for free and open access by the English, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Faculty Publications -- Department of English by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Published in *Journal of Business and Technical Communication* 6:1 (January 1992), pp. 5–37.
Copyright © 1992 Sage Publications, Inc. Used by permission.

Categorizing Professional Discourse: Engineering, Administrative, and Technical/Professional Writing

Barbara Couture
Wayne State University

Abstract
Rhetorical categories can and should be developed by scholars of professional writing to identify how values held within professions constrain the ways discourse is interpreted in organizational settings. Empirical research (conducted by the author and others), discourse theory, and pedagogical practice in professional writing strongly suggest that at least three categories of professional writing exist: engineering, administrative, and technical/professional writing. The author demonstrates this claim and distinguishes the characteristics of these three categories. Engineering writing is shown to respond to professional values of scientific objectivity and professional judgment as well as to corporate interests. Administrative writing reflects the locus of decision-making authority and promotes institutional identity. Technical/professional writing aims to accommodate audience needs through complying with professional readability standards. Future research should focus on defining the characteristics of these varieties more precisely. Articulated definitions of these three varieties of professional writing can help scholars and practitioners better understand how discourse is framed and interpreted in organizational settings.

In "The Construction of Knowledge in Organizations," Dorothy A. Winsor speculates about the true cause of the communication failures that led to the explosion of the space shuttle *Challenger*. She argues quite effectively that the failures did not occur because information was not passed from the engineers who knew the limits of the O-ring technology to the NASA administrators who approved the launch, but rather because the information that was passed on was not interpreted for the administrators: The engineers did not frame the data as knowledge and hence administrators did not interpret the data as showing reason to delay the launch. Winsor concludes that the space shuttle failure challenges scholars of rhetoric to assist

The author wishes to thank Jone Rymer for her helpful comments on an earlier draft of this article.

writers in constructing "knowledge so that we might lessen [writers'] chances of experiencing regret when the truth finally becomes known" (18). In other words, rhetoricians should have revealed to the *Challenger* engineers how to explain the failing O-ring technology to their managers so that they could make use of this information without regret.

Winsor is asking for a kind of knowledge about writing in the professions that has thus far eluded scholars—that is, categorical knowledge about the character and function of professional writing in the settings where it is written and read. Categorical knowledge about the character and function of discourse is an understanding of how conventional textual and contextual elements can prefigure the ways in which discourse is interpreted. Faulty categorical knowledge about written communication among engineers and administrative managers, I would argue, caused the *Challenger* engineers to fail to communicate and interpret technical data so that their administrative managers could act appropriately; it likewise led the managers to evaluate incorrectly the communications of the engineers. Administrators failed to see how the engineers' statements of technical results and conclusions should motivate managerial action; the engineers failed to see how motivation for administrative action had implications for interpreting technical fact; and each group failed to understand how to make their claims readable to the other through professional/technical communication. These communication failures might be attributed in part to readers' and writers' unfamiliarity with conventional frameworks within which knowledge is communicated and interpreted from different professional perspectives.

In this article, I present an argument for categorizing writing in the workplace as it reflects rhetorical constraints associated with three professions—engineering, administration, and technical/professional writing. My discussion begins with an overview of the function of categorizing discourse types in research on writing, with particular attention to developing categories that are linked broadly to a profession. This section concludes with an illustration of how research on rhetorical categories motivates the integration of knowledge in our field. The argument continues with a demonstration of how scholarship and pedagogy in professional communication point to the three rhetorical categories of engineering, administrative, and technical/professional writing. In defining and explaining these three categories, I refer to a study of my own—a stylistic-preference survey. My interpretation of the survey re-

sults moves freely between reference to discourse theory and empirical findings; I claim that interpretation that emphasizes the interplay of both forms of scholarship is necessary to advance research in our field.

An Argument for Categorizing Professional Writing

Both theoretical and empirical research in professional writing has suggested that the functions of written discourse can be categorized. However, no scholars have attempted to confirm whether accumulated research demonstrates that categories of writing in the workplace exist. Such study is necessary both to forward an integrated picture of what research is saying about writing in the workplace and to assist scholars in finding the ground where empirical and theoretical research meets. At least two factors direct our efforts to investigate discourse categories: (a) our common understanding of how empirical and theoretical scholarship work together to form the knowledge base of professional communication and (b) our common understanding of the function of categorizing discourse types.

To integrate effectively the findings of theoretical and empirical research conducted on writing we must know how both varieties of scholarship are combined to develop knowledge. In their review of research methods in composition, Lauer and Asher argue that rhetorical theory raises conceptual issues that provide the hypotheses for empirical research:

> Rhetorical inquiry suggests behaviors, environments, or populations for empirical study. It prompts coding schemes, survey categories, and evaluative criteria. It provides hypotheses for experimental research. In return, empirical research refines rhetorical theory, helps verify or repudiate it, and identifies important variables that contribute to new theory formation. (6)

The schemes, categories, and criteria of theory may be found valid through checking them against empirical observation. Our judgment about the validity of theoretical claims involves an accumulated sense of both the relationship of such claims to empirical observation and of the role of theory in advancing knowledge in our field.

Theoretical claims about rhetorical practice generalize with a broad stroke what empirical investigation can confirm in detail. One con-

firmed generalization that distinguishes professional writing from general writing is that professionals in the workplace respond to particular audiences as opposed to a general audience (see Mathes and Stevenson for a pedagogical elaboration of this claim). Empirical investigation of this "particular audiences" claim has resulted in confirmation, articulation, and modification of this generalization (see, for instance, Odell et al.; Broadhead and Freed) as it distinguishes professional writing from composition and literary writing.

The process of integrating the claims of theoretical and empirical research requires each variety of research to ***gesture*** toward the other; theory at times must play the role of explaining an empirical finding and likewise an empirical finding at times must suggest new theoretical claims. These alternate activities form a continuous process that is fundamental to creating knowledge in all disciplines. For this process to occur, however, scholars must assert categorical claims that define professional writing and its contexts, and they must modify and abandon such claims when empirical evidence warrants it. This recursive process has not developed fully in professional writing because too few scholars have attempted to categorize theoretically the content and contexts for professional discourse.

Our failure to define categories of professional writing results, I believe, from a misunderstanding of the function of developing categories in our discipline. One current development that exacerbates our aversion to developing categories is the discrediting of rhetorical theory that holds that conventional forms or foundational meanings can explain the interpretation of particular discourses. In the wake of deconstructionist literary critique, rhetoricians are reluctant to believe that categorical knowledge can explain the dynamics of discourse production and interpretation. Thomas Kent, for instance, argues against treating "discourse production and discourse analysis as codifiable processes, processes derived from the idea that language possesses a foundational or conventional center of some sort" ("Beyond System" 492). Kent claims that the search for a center that relates language to reality in a predictable way is misguided; he cites contemporary theory that resists the classic foundational interpretation of discourse structure and concludes that although the fact that language conventions exist cannot be denied, "after we make this claim and after we demonstrate that the claim possesses validity, we have said nothing about the nature of language" (505). Kent argues that our creative and interpretive acts are

not explained by a categorization of language codes but rather by "paralogic" skill that enables us to "ceaselessly shift ground in our guesses about how others may be interpreting our language code" ("Paralogic Hermeneutics" 35). The key to understanding language, then, lies in an examination of the paralogic act of moving in, among, and through interpretations to settle on a preferred meaning when reading or writing.

The resolution to Kent's difficulty with explanations of discourse that rely on conventional meanings or categories of discourse lies in reconceiving the function of categories in rhetorical theory. We need to view rhetorical categories as positions within which the meaning of a particular discourse takes shape. The positional function of rhetorical categories is to reveal interpretive frames that help explain what particular instances of discourse mean. In other words, rhetorical categories are markers or signposts that help us locate a position among a range of meanings within which most interpretations of a given discourse are likely to lie. Rhetorical categories are not technical labels for conventional discourse meanings confirmed through empirical observation. Rather, categories of discourse represent a marriage of empirical observation and rhetorical theory; they move freely —paralogically if you will—between both ways of seeing the world.

A few scholars have, in fact, integrated empirical observation with theoretical claims to develop categories of writing that are defined by profession. Carolyn Miller and Jack Selzer provide a clear example in a recent study of topics in engineering discourse. Miller and Selzer begin with the claim that Aristotle's rhetorical topics specify genres, institutions, and disciplines. The topics correlate with "a situation-dependent complex of subject matter, rhetorical convention and purpose which characterizes a genre"; they refer to political institutions, or "clearly delineated occasions for public discussion of political decisions"; and they point to "first principles *(archai)* of disciplines" (313).

Miller and Selzer's reading of classical rhetoric is integrated with an analysis of modern-day engineering transit reports. The authors show that the content of the engineers' transit reports is divided into generic subject areas common to a transit-development plan, that the tenor of the reports reflects institutional relationships between the engineering firms authoring the reports and the public bodies that requested them, and that the information in the response reflects disciplinary knowledge specific to the field of transportation engineering. In short, beginning with the premise that generic, institutional, and disciplinary constraints define

special topics in engineering reports, the authors find data in the transit reports that prove special topics defined by these constraints exist.

Miller and Selzer's discussion of "engineering reporting" assumes that this variety of discourse is a valid category representing a kind of written discourse produced by engineers: Their conceptualization of engineering reporting is neither confirmed nor invalidated by the particular instances of engineering discourse they analyzed, but rather it is enriched and elaborated through an application to instances of discourse whose meaning can be explained by their interpretive frames. Hence their theory that special topics guide engineering discourse acts as a position within which the meaning of actual discourse is interpreted. Further, the topics that they identify in their examples elaborate the category of engineering reporting and serve as a schematic guide to explain the meaning of an instance of discourse.

The current difficulty that many researchers have with rhetorical categories lies in a misperception that categories explain the *whole truth* about discourse rather than provide a guide to it. Often, we confuse rhetorical categories with technical categories, a problem particularly troublesome in studies of professional discourse. *Engineering writing,* for instance, can stand as a rhetorical category but not as a technical category. As a rhetorical category engineering writing is a positional heuristic that allows us to explain certain aspects of discourse practiced in the context of the engineering profession. In other words, the rhetorical category of engineering writing defines a set of meanings that act as positions that guide and mark our interpretation of specific communications. *Engineering writing* can also function as a technical label to group, quite simply, all the writing done by engineers. However, it cannot be articulated as a technical category of writing because we cannot generate a description that will predict with accuracy the meaning or form of a particular instance of discourse. In other words, we cannot devise a technical description of engineering writing that accounts for all the features of this writing that it is possible to produce in the professional context of engineering.

To function as a rhetorical category, engineering writing must be elaborated conceptually as an explanation of certain properties of the discourse to which it is applied. These explained properties may or may not be seen in the actual writing and rhetorical practices of all engineers. In essence, engineering writing as a rhetorical category stands for a communal understanding of what this kind of writing and its practice is generally like—an understanding that is shaped both by the

interpretation of the discourse practices of a profession and the development of rhetorical theory. At the same time, engineering writing as a rhetorical category is believed to represent something essential, informative, and explanatory about the actual writing of engineers. Hence we are seriously interested in its relationship to empirical data as well as in its theoretical development.

Empirical data enhance the elaboration of rhetorical categories and contribute to our accumulated sense of what such categories mean. To that end, empirical data that may not be sufficient to complete a technical description may be sufficient to contribute to the meaning of rhetorical categories. Hence case studies of individual writers' practices or surveys of the behaviors of groups of writers in a particular profession may advance explanations of discourse that we call engineering writing, scientific writing, literary writing, legal writing, academic writing, or other varieties. These and other rhetorical categories have been and will continue to be developed as explanations of discourse behavior. They have no technical accuracy; rather, they serve as heuristics to explain the meaning of individual discourses.

Our knowledge of categories of professional writing has been gained through teaching, observing, and practicing discourse in several professions. The discussion following this section demonstrates that our accumulated scholarship, teaching, and practice point to rhetorical categories associated with at least three professions: engineering, administration, and technical/professional communication. This accumulated knowledge helped me explain similarities I found among the discourse strategies of professionals who work in these fields-similarities observed through a modest empirical study of their stylistic preferences. My empirical findings served as a catalyst to examine whether scholarship in our field confirms that rhetorical categories exist that are linked to these professions, and, furthermore, my subsequent interpretation of this scholarship suggested an explanation of my findings.

The stylistic-preference survey was conducted as part of a larger survey of the writing practices of over 431 professionals employed in over 30 organizations in the Detroit area.[1] For the larger survey, subjects identified themselves as occupying one of 33 different jobs, which were distributed among the following different job categories: administrators (30%), writers and technologists (19%), engineers and architects (19%), scientists and mathematicians (10%)) health professionals (6%), marketing professionals (4%), police and corrections officers (4%), so-

cial workers (3%), and others (5%). The 33 jobs and eight job categories chosen for study have been identified by the U.S. government Bureau of Labor Statistics to involve writing and to offer employment for college graduates ("Job Outlook in Brief").

In conducting the style survey, I aimed to determine whether writers working in the same profession could be shown to prefer the same rhetorical strategies, regardless of the particular context for writing. To test this speculation, I presented subjects with pairs of sentences that covered the same content in alternate forms. All options were adapted from a variety of documents written in the workplace and covered topical content that is common to many organizational settings. For each pair of sentences covering the same content, respondents selected the stylistic option that best characterizes the writing they do at work. Hence writers' choices reflected their dominant stylistic preferences for writing done in their profession, given that no particular situational constraints were specified. The sentence pairs represent five oppositional relationships between the writer and the context for writing that have conventionally been associated or dissociated with writing in certain professions. As shown in Figure 1, the sentences represent the writer's rhetorical choice to directly or indirectly

1. acknowledge a group in authority
2. acknowledge an individual in authority
3. assume personal authority
4. assume corporate authority
5. emphasize corporate identity.

For my comparative analysis of stylistic preferences, I studied the responses of professionals who had identified themselves as administrators (n = 127), engineers (n = 83), and technical/professional writers (n = 65). These professional groups were chosen for comparison because their responses differed significantly from the aggregated responses of all other groups and because writing in these professions has been addressed frequently by both scholarship and pedagogy in professional communication. The latter criterion was consistent with my objective to interpret my results in the light of accumulated perceptions about writing in the professions. In the discussion that follows, I define engineering writing, administrative writing, and technical/professional writing as rhetorical categories; demonstrate how these categories are supported by scholarship and pedagogy in professional communica-

1. Acknowledging Group in Authority
   A. Direct acknowledgment: "The Presidential Review Board approved the report."
   B. Indirect acknowledgment: "The report was approved by the Presidential Review Board."
2. Acknowledging Individual in Authority
   A. Direct acknowledgment: "Robert Burgess, the new president, advocates tight budgeting, reallocation of resources, and a hiring freeze."
   B. Indirect acknowledgment: "Tight budgeting, reallocation of resources, and a hiring freeze are advocated by Robert Burgess, the new president."
3. Assuming Personal Authority
   A. Assuming authority: "I recommend that the Company adopt Plan B."
   B. Abdicating authority: "It is recommended that the Company adopt Plan B."
4. Assuming Corporate Authority
   A. Direct identification with corporate authority: "The Alpha Company has had problems controlling air pollution, but we believe they are within federal guidelines."
   B. Indirect identification with corporate authority: "The Alpha Company has had problems controlling air pollution, but in the view of this department they are within federal guidelines."
5. Emphasizing Corporate Identity
   A. Emphatic corporate stance: "We process more orders now that we have introduced a new product line."
   B. Nonemphatic corporate stance: "The addition of our new product line has resulted in increased order processing."

Figure 1. Stylistic Preference Survey Options

tion; and interpret my survey results within the constraints of these categories.

Engineering Writing

Scholarship in professional writing defines the rhetorical category of engineering writing as constrained by two sets of opposing values in the engineering profession: (a) scientific objectivity versus professional judgment and (b) corporate authority versus public responsibility. These values have been discussed extensively in academic and professional literature on the *ethos* of engineering, and tensions among them are reflected in scholars' characterizations of engineering writing as a category.

Research in the sociology of science has confirmed that objectivity, as embodied in the scientific method, is well established as a disciplinary

value in science. Behind the scientific method lie four "moral imperatives" (Merton, quoted in Stehr 174) that bolster the objective stance that has been associated with both engineering and scientific writing: "universalism," or the acceptance or rejection of scientific claims according to "impersonal cognitive criteria"; "communism," or the communal agreement among scientists not to withhold information; "disinterestedness," or the control over individual motivation; and "organized skepticism," or the social agreement to subject knowledge to common scrutiny against "technical norms" (Stehr 174). Stylistic features associated with the objective stance include the impersonal passive and the nonevaluative declarative; the latter feature echoes the seventeenth-century rational ideal "to return back to the primitive purity, and shortness, when men deliver'd so many *things*, almost in an equal number of *words*" (Sprat 113).

Taking up the positivist stance that objectivity has a correlate in language, teachers of writing in the technical professions-specifically engineering-for years have advocated objectivity as a standard for effective writing and have attempted to demonstrate empirically its validity. In a survey of documents from 300 industries and government agencies, Walter claimed to have found, among other things, "a style that was predominantly objective and impartial, a style that sought to present information accurately and concisely, without an emotional dimension" (245). Despite current emphasis on the social construction of knowledge, some instructors still hold fast to the belief that "if we wish to communicate technical information truthfully then our message should be faithful to our observed or conceived reality" (Buehler 131).

The belief that scientific objectivity constrains engineering writing has permeated instructional practice, confirming some academics' stance that engineering writing is distinguished by its objective perspective. W. Earl Britton, in the mid-1960s, delivered one of the more famous iterations of this view in his attempt to define technical writing, which then was associated most often with the profession of engineering. Britton, a professor of engineering English, notes that technical writing should be considered a form that crosses many disciplines; however, it has been assumed by many that "engineering has a monopoly on the form," due to the "emphasis upon engineering subjects in technical writing" (338). In describing technical writing, Britton promotes ideals that reflect the constraint of scientific objectivity that has been associated with the engineering profession. Britton claims that

writers of technical discourse "are limited by definition to describing and interpreting objectively observable facts about the matter under consideration" (336). Further, they are urged to write with precision, accuracy, and the intent to "convey one and only one meaning" (338). These ideals are appropriate, Britton claims, for communicating information about a variety of subjects that are "related to science . . . by method of approach" (338).

Britton's claim that the technical writing practiced by engineers (or anyone else) can maintain objectivity has been challenged by other teacher-scholars. Rubens claims that the attempt to maintain objectivity is a well-codified symbolic fiction that causes personal conflict for engineers as writers. The goal of objectivity is achieved symbolically through maintaining "two unwritten but implied rules" about personal expression that create an apprehension about author identification: "It is permissible and even desirable to ignore the author's identity, voice, or stance; and the best method for communication is to devalue the individual as both writer and reader" (334). Rubens notes that the engineer's adherence to the objective style can have a number of effects with ethical implications, including "personality devaluation" and "the suppression of the author and a discernable 'voice'" (332).

Also, the belief that writing must be objective conflicts with another engineering value that shapes writing: professional judgment. This value has a long and proud history in engineering, documented nostalgically by Walter James Miller. In a sentimental review of engineering prose spanning from the writings of Frontinus, designer of the Roman aqueducts, to those of Arthur E. Raymond, Vice President of Douglas Aircraft, Miller praises engineering as a noble and poetic profession characterized by vivid technical reporting, filled with personal conviction. Modern texts on technical reporting interpret this emphasis on judgment as the engineer's responsibility to make a purposeful use of observed facts. For instance, in their seminal text *Designing Technical Reports,* Mathes and Stevenson define the technical report as "the processing of information by an engineer in his or her professional role, the processing designed in response to a stimulus from the organizational system and embodying designs to modify the behavior of the system in purposeful ways" (6).

The engineer confronts the opposing values of scientific objectivity and professional judgment when asked to make a recommendation in a technical report. On one hand, the objective style demands removing

oneself from one's prose. On the other, professional judgment demands personal involvement and direct expression. Mathes and Stevenson tell their readers: "The reader must know immediately what the author intends. Thus we may say that because your aim as [an] engineer is accuracy, precision, and certitude, to fail to state the most basic aim of a report is fundamentally unprofessional" (28). In a chapter on sentence editing, Mathes and Stevenson advise student engineers to aim for directness, including the choice to state "I decided" as opposed to "It was decided" (154). However, the opposing values of objectivity and judgment both constrain engineering writing and help to account for the reluctance of some engineers to deliver recommendations up front or to assume personal authority by using the active voice (see Brown and Herndl).

The rhetorical choice not to assume personal authority directly revealed a difference between engineers and other professionals in my study of the writing practices of professionals in the workplace. When given the choice to assume personal authority by stating "I recommend" (Figure 1, 3A) or to downplay personal authority by stating "It is recommended" (3B), over half of the engineers I surveyed (58%, $n = 81$) chose to downplay their authority In contrast, over three-quarters of the technical/professional writers (82%, $n = 61$) and over half of the professionals in other occupations (55%, $n = 283$) chose to assume personal authority. The significant difference ($p < .01$) between the engineers' responses and those of professionals in all other occupations surveyed suggests that a professional constraint is at play, one consistent with the opposing values of objectivity and judgment that rhetoricians claim characterize the ethos of communication in engineering. Further investigation of rhetorical choices that put personal authority at risk may reveal more about how these values shape engineering prose as a rhetorical category.

Another set of opposing values that scholars suggest influence engineering writing are those of corporate identity and public responsibility. Unlike science, the integrity of engineering as a profession is diluted significantly by corporate influences (Lipson). Scientists rigidly train recruits in academia, establish close working relationships between mentors and apprentices, and maintain a strong sense of public responsibility through refereed review of scientific publications. Lipson suggests that engineers are variously trained, they maintain a strong loyalty to the organizations that hire them, and traditionally follow a career path

into management—all this creates potential for loss of professional integrity (16–18).

Some scholars have claimed that the dynamic opposition of corporate and public responsibility both defines and problematizes engineering writing. Carolyn Miller interprets the corporate influence as part of a larger, more insidious influence of technology on the social conscience of the engineer. She argues that engineers' technological problem solving eliminates the occasion to question the relationship of organizational goals to larger societal issues. As a case in point, Miller notes that a highway engineer who is assigned to solve a transportation problem asks a limited range of questions; the engineer "does not ask questions or seek answers about whether a bus system or bicycle paths or a change in commerce or tax structures might better serve whatever transportation problem is being dealt with" (C. Miller 235). In other words, engineers' choices in proposing solutions to problems are circumscribed by the organizational system that has provided the tools and the decision-making framework within which the engineers must work.

Zappen argues that engineers are in a position to take public stances on their work but avoid this responsibility. He attributes their reluctance

> in some measure to the education and professional experience that prepares scientists and engineers to think and to communicate within the context of some institutional community, but that renders them at best uneasy and at worst helpless and confused when they step, as they must, outside that community. (Zappen, "Discourse" 9)

Zappen further argues that our institutional view of engineering and science follow from a long association of technology "with historical determinism and logical empiricism" that denies the political nature of technical communication ("Rhetoric" 29). The scientific method has been associated traditionally with the philosophical goal of bringing mankind together to work for the "good of all"—a perspective espoused by Francis Bacon. This traditional view of science has discouraged members of the technical professions from seeing their work as embroiled in public debate. Yet dispute over the aims of engineering and over solutions to specific problems is a contemporary fact that Zappen notes is personally affecting "the professional lives of many scientists and engineers, particularly beyond their entry-level positions in organizations" ("Rhetoric" 30).

These scholarly perspectives on engineering writing suggest that the opposing constraints of disinterested public service and organizational loyalty create professional conflicts for writers in the engineering profession: Corporate interests are likely to influence rhetorical choices as strongly as an altruistic interest in societal needs. These conclusions suggest an interpretation of some of my survey results. As noted earlier, I found engineers reluctant to adopt a strong personal stance, preferring the disinterested "It is recommended" (Figure 1, 3B) to "I recommend" (3A). However, engineers' choices of stylistic options that support organizational goals are more typical of all the other professional groups I surveyed.

Engineers, like most other professionals who write on the job, are equally inclined to acknowledge directly or indirectly the authority of an institutional group, such as a presidential review board. Of the engineers responding (n = 81), 54% chose the direct statement that reports decisions of the presidential review board in active voice (Figure 1, 1A), and 46% chose the opposing indirect statement in the passive voice (1B). Of all the other professionals surveyed (n = 348), 57% chose the direct statement (1A), and 43% chose the indirect statement (1B). Also, like most of the other professionals surveyed, engineers chose to acknowledge directly in the active voice the decision making of an important administrator, such as a company president. Of the engineers responding (n = 82), 82% chose the active statement (2A), and 18% chose the passive statement (2B). The percentage distribution of responses to this item was the same for all other professionals surveyed (n = 345).

Engineers also showed similar preferences to other professionals when presented with the stylistic option to assume corporate authority and to emphasize a corporate stance. Of the engineers who responded (n = 80), 75% preferred to state "we believe" (4A) when reporting the decision of a department, whereas only 25% chose to indirectly identify with a corporate unit by stating "in the view of this department" (4B). Of all the other professionals who responded (n = 347), 74% preferred to use we as opposed to 26% who preferred to use the third person. Yet, when they were given the option to identify emphatically with a corporate stance, engineers and most other professionals surveyed preferred less emphasis. Only 29% of the engineers (n = 80) and 33% of the other professionals who responded (n = 347) preferred to emphasize corporate we by using it twice with active voice in a statement about increased productivity (5A), whereas 71% of the engineers and 67% of the

other professionals surveyed preferred a less direct statement in passive voice which reported the success of "our new product line" (5B).

These results show that engineers, like most of the other professionals I surveyed, moderately acknowledge assertions that identify their views with corporate positions. The results may suggest that engineers affirm corporate identity in their communications, but perhaps no more strongly than do most other professionals working for organizations. It would be useful to conduct further empirical studies of the ways in which corporate interests constrain the writing of engineers in an effort to reveal more specifically engineers' characteristic responses to organizational pressures.

This summary of perspectives on how writing is shaped by the profession of engineering identifies several factors that distinguish engineering writing as a rhetorical category. Writing in this category reflects a disciplinary goal that information should appear to be objective. At the same time conclusions based on objective information should demonstrate professional judgment. These requirements limit rhetorical choices to language that signals objectivity with little reference to a personal stance except where a decision based on professional competence is required. Engineering writing, like writing associated with other professions practiced in organizations, is likely to endorse corporate goals. This endorsement is expressed through use of corporate *we* and direct acknowledgement of the policies of institutional authorities. Rhetoricians who interpret the appropriate aims of engineering writing claim that this writing should balance corporate loyalty against the disciplinary goal to work for the good of society. Yet they find that engineering writing in actuality is more likely to reflect corporate ambitions than scientific altruism. Identification with corporate aims, however, does not make engineering writing a subcategory of administrative writing, as this latter category has been constructed in rhetorical scholarship—administrative writing expresses a far more dominant response to organizational values.

Administrative Writing

Unlike engineering prose, administrative writing does not respond to an epistemic domain, such as science; rather, it chiefly reflects the pragmatic functions of business organizations in their struggle for

identity, recognition, and market share. Scholars of business communication, organizational theory, and rhetoric have characterized two constraints that shape administrative prose: (a) a loyal attachment to corporate identity and (b) a risk-taking drive to assert power through individual decisions.

Administrative writing has been popularly assessed as jargon ridden, although jargon is far from the only feature that establishes this writing as a rhetorical category. Both the use of abstract, overnominalized prose and passive constructions—which fail to name the person responsible—produce the indirect style that Whyte characterized 40 years ago as "businessese." The effects of this style can be stultifying, entrenching corporate identity so well that, as Whyte claimed, no one individual appears responsible for anything:

> Almost invariably, businessese is marked by the heavy use of the passive construction. Nobody ever does anything. Things happen and the author of the action is only barely implied. Thus, one does not refer to something, reference is made to; similarly, while prices may rise, nobody raises them. (79)

Whyte's purely impressionistic characterization of business prose is an index of a rhetorical category at work--one whose nature has survived more sophisticated scrutiny. Both Redish ("Language"; "Writing") and Locker note that there are cultural imperatives in organizations that encourage jargon and indirect expression in business writing, and Selzer extends these imperatives beyond style to arrangement.

Redish observes that young workers in organizations "have no background to counterbalance the influence of the organization's tradition and culture" and "look to the organization's earlier products as models" ("Writing" 102). Besides attributing a depersonalized style to the "typical" tradition of "business, government, technical, and legal writing" (109), Redish also notes that writers who focus on their own concerns in large organizations can eliminate their concerns for the reader: "[Writers in business] often include content that readers do not need and leave out content that readers do need. The problem is that they are focusing on putting down what they know rather than on addressing the reader's concerns" (109).

Locker cites saturation with tradition as the inspiration for jargon-ridden prose, as well as general malaise. To use conventional terms and phrasing does not require much thinking: "Using jargon enables

authors to write or dictate quickly, without taking time to decide exactly what they do mean and how to say it effectively" (29). Whereas Locker, like Redish, claims that "inexperienced writers" tend to learn jargon "by copying existing correspondence" (28), Locker also claims that jargon is intractably persistent: "Because business people still learn to write by reading the letters their firms send out and receive, writers tend to use more jargon the longer they have worked" (42). Reliance on previous correspondence, regardless of effectiveness, may also reflect the business administrator's insensitivity to possible infelicities of style. Leonard and Gilsdorf compared the responses from 400 executive vice presidents and 400 members of the Association for Business Communication to questions concerning common usage errors. They found that "the responses of academics differed significantly from those of executives, with the academics being more bothered on all but two of the questionnaire items" (154). The influence of professional values on writing style is certainly implied, if not confirmed, by these results.

The tendency to depersonalize writing—a feature commonly chastised by business writing teachers—may have an important role in the very function of administrative prose. Redish claims that the inaccessibility of depersonalized prose may solidify corporate identity, because bureaucratic style may "emerge at least in part from a desire among members of a group to be seen as separate" ("Language" 164). Yet the tendency to write in general terms about events—eliminating a personal perspective--can also emerge from a desire to meet readers' needs. As Selzer points out in a speculative essay on arrangement in business prose, writer-centered narratives that focus on the authors' personal discoveries, particularly arrangements that "recapitulate their own activities . . . or reenact the processes they went through to make a discovery or [which] offer a series of roughly coordinate reminiscences … seem to emphasize just the wrong thing: the writer, not the message, and its audience" (49). At the same time, he notes that one can remove focus from the writer by adopting general patterns of arrangement suitable for certain recurring situations. In short, arranging business writing is a function of manipulating such generalities—particularly, generalities recognized by management. This very function of arrangement identifies administrative prose as a rhetorical category—one characterized by bureaucratic, self-effacing style and conventional arrangements that are easily recognized by all within an administrative organization.

The work of organizational theorists further explains rhetoricians' characterization of the constraints that shape administrative writing. Writers' willingness to assume corporate identity in their administrative prose may well be a function of perceived authority or power. The relationship between communication and power in organizations has long been a theme for scholarly speculation, although little work examining the role of communication in administrative performance actually has been done (Trujillo 96). Conrad and Ryan assert that power is assumed through four "symbolic forms: justifying, rationalizing, threatening, and promising" (243). Interestingly, each of these activities implies direct individual action. Yet the power that can be assumed by workers is rarely autonomous. As Conrad and Ryan point out, the authority for decision making does not come "from the power implicit in material action," but rather "the right to participate in decision making depends on the bequest of management" (249). In other words, one's actions alone do not make one powerful in an organization; rather, the right to make decisions gives one power, and this right is allowed or disallowed by management. Applying these findings to administrative writing, we might draw two conclusions: (a) One can claim managerial power as personal power through identifying with the corporation in writing, or (b) one can subjugate personal power to institutional authority through the same means.

We can evaluate writers' assumption of corporate identity in administrative prose through attending to the use of personal pronouns, particularly corporate ***we*** and authoritative ***I.*** In an essay on the phenomenon of corporate identification in business writing, Cheney notes three functions of the use of ***we*** in business prose: (a) to assert "common ground," (b) to identify a common opponent, or (c) to link individuals to a corporate interest (148–49). He claims that the intent to show that a company is a product of its employees is often expressed through the ubiquitous use of ***we*** in house organs (150–51). Cheney has found that ***we*** also is frequently used in company policy statements: "Uses of this strategy allow a corporation to present similarity or commonality among organizational members as a taken-for-granted assumption. To the extent that employees accept this assumption and its corollaries unquestioningly, they identify with their corporate employer" (154).

The more overt use of *I* with active voice has still other implications about the power of the individual in administrative writing. In his sweeping account of the business prose of executives of the 1950s,

Whyte claimed that the use of *I* in combination with overly terse, active, and emphatic language gives the false impression of action and decision making (81). Others who have given anecdotal accounts of executive style remark on the liberal use of rhetorical figures and stimulating images. Walter James Miller cites personal conviction and metaphorical vividness as a feature of the decision maker's prose. He uses as an example an inspirational speech delivered by Arthur E. Raymond, past vice president of Douglas Aircraft, who drew a bold analogy between a state-of-the-art aircraft and Bach's *Well-Tempered Clavichord.* Miller describes Raymond as "a well-tempered personality who will not, in the name of technical caution and objectivity, surrender the human right to over-all perspective" (W. J. Miller 214).

In a more recent anecdotal account of administrative style, Kallendorf and Kallendorf discuss how the "intelligence, goodwill, and character" of someone "whose ideas deserve to be taken seriously" are reflected in executive writing (43). They cite a potpourri of speeches and letters, including the following passage taken from a speech delivered by the president of Wesley-Brown Enterprises to the American Society for Hospital Public Relations in 1982:

> *I don't think I'm* the only one for whom your industry is *like a kaleidoscope* bursting with confusing fragments. *I don't think Americans know* there's a big merger movement going on in the health-care industry-with profit-minded and non-profit-minded *circling each other warily like IBM and AT&T. I don't think Americans buy* the idea that medical costs are *not* … one of the principal driving forces behind inflation. (38)

In their analysis of italicized phrases in the above passage, Kallendorf and Kallendorf cite the use of parallelism, anaphora, simile, and personification "to drive [the] point home and give it urgency" (38). Surprisingly, they ignore the repeated use of *I,* the active voice, and agents in the subject position-markers traditionally associated with a direct or authoritative rhetorical stance.

The authoritative, direct approach admired in these anecdotal accounts has been examined in more detail in a study of the influence of *high impact* versus *bureaucratic style* on the reading efficiency of naval officers. Suchan and Colucci asked 262 naval officers to read two memos with similar content, one written in the high-impact style and the other in bureaucratic style. The high-impact memo used concrete language, active verbs, first- and second-person pronouns, and stated the bottom line up front. The bureaucratic memo used long and complex sentences,

passive verbs with implied subjects, abstract language, no personal pronouns, and buried the bottom line. Although they found that the officers read the high-impact memo more efficiently, they also found that the officers preferred the bureaucratic style. Suchan and Colucci concluded that the officers preferred the bureaucratic style because it "reflects the language customs of the Navy" (474). Further, officers "equate the syntactic and organizational complexity of the bureaucratic style with intelligence and competence" (474); and bureaucratic "businessese" can be advantageous: Suchan and Colucci report one officer saying that the bureaucratic style "enables you 'to cover your stern, and that's smart, shrewd writing if you want to survive in the Navy'" (474).

The results of my survey of administrators' rhetorical preferences can be interpreted within the constraints of the rhetorical category of administrative writing sketched above. The administrators I surveyed identified strongly with corporate values: Of those administrators who responded (n = 127), 60% chose to acknowledge a group in authority, such as a presidential review board, by reporting their decisions in active voice (Figure 1, 1A), whereas 40% elected the passive statement (1B). With the exception of writers, administrators preferred the active statement significantly more often than did all the other professionals (n = 239), 47% of whom preferred the active sentence (1A) and 53% of whom preferred the passive sentence (1B) ($p < .01$). (Writers preferred the active sentence more often than did all groups surveyed; see discussion later.) Also, of the administrators who responded (n = 125), 84% preferred to acknowledge with active voice the decision making of a new company president (2A), and only 16% preferred to report the president's decisions in the passive voice (2B). This response parallels the preferences of all other professionals (n = 302), 81 % of whom preferred to use the active voice (2A) and 19% of whom preferred to use the passive voice (2B).

Interestingly, administrators' responses did not differ significantly from those of other professionals when asked whether they prefer to assert personal authority by stating in the active voice "I recommend" (3A) or to defer it by stating in the passive voice "It is recommended" (38). Of the administrators responding (n = 127), 54% preferred the active statement (3A), and 46% preferred the passive statement (3B); of all other professionals responding (n = 298), 57% preferred the active statement (3A), and 43% preferred the passive statement (3B). I did not collect the responses of executive officers, but rather those of experienced

professionals who identified themselves as administrators, mostly middle managers. The reluctance of nearly half of these administrators to favor the use of *I* possibly could indicate that middle managers reserve *I* for executive decision making or that they defer to the tradition of passive, bureaucratic style.

When given the choice to assume corporate authority by stating directly "we believe" (4A) instead of indirectly referring to "the view of this department" (4B), administrators chose "we" significantly more often than did all other professionals. Of the administrators who responded (n = 127), 84% chose the direct statement (4A), and 16% chose the indirect statement (4B); of all other professionals who responded (n = 300), 70% chose the direct statement (4A), and 30% chose the indirect statement (4B) ($p < .001$). However, when given the option to emphasize corporate productivity by using "we" twice with active voice (5A) as opposed to making a less direct statement in the passive voice about "our new product line" (5B), 73% of the administrators (n = 126) and 66% of all other professionals (n = 301) chose the less emphatic statement. The aggressive use of *we* in the statement "We process more orders now that we have introduced a new product line" may assert a level of decision-making authority that the middle-level administrators who responded thought inappropriate for them to adopt.

The accumulated empirical descriptions and theoretical accounts of constraints on administrative prose suggest that corporate identity directs administrative writing. Its manifestations include a preference for jargon—which solidifies the corporate community—a reliance on standard patterns of arrangement, and a marked use of corporate ***we.*** The prominence of both ***we*** and *I* in administrative writing reveals the author's ability or willingness to assume individual authority in an organizational setting. However, the tendency toward direct expression, in general, is balanced against the bureaucratic tradition of using jargon and passive voice. Research has shown that the use of indirect, bureaucratic language can become more entrenched with experience. Further, this type of language may be favored by administrators because it conveys respect for institutional traditions. In short, administrative writing demonstrates writers' allegiance to corporate practice, displaying overtly both their authority within an organization and loyalty to institutional goals. Acknowledgment of corporate practice also marks technical/professional writing, but its manifestation in this discourse is distinctive.

Technical/Professional Writing

Technical/professional writing is that variety of writing in the workplace that is constrained by the occupational responsibilities of *career writers,* a term I shall use to refer to those professionals in organizations who write on technical/professional subjects for a living (see Couture and Rymer). Technical/professional writing may respond to situations similar to those addressed by engineering and administrative writing, but it is shaped by different contextual influences. Unlike engineering and administrative writing, technical/professional writing has been defined as a rhetorical category by career writers' perspectives on effective written communication and by rhetoricians' perspectives on the role of the technical/professional writer in organizational contexts. In making this distinction, I am suggesting that these constraints form a position within which we determine what writing guided by this rhetorical category means. In elaborating the rhetorical category of technical/professional writing, I am not advocating a monolithic description of all writing done in technical/professional contexts—a stance that would be indefensible given the scope of written discourse to which this label can apply. Rather, I am defining a positional heuristic that may help us to interpret some aspects of the actual writing done in the workplace when it is dominated by the professional concerns of a career writer.

Over the past decade, both scholars and practitioners of technical/professional writing have formed a conceptualization of this category based on certain presumptions about the career writer's role in organizations. The career writer who produces technical/professional discourse is characterized as someone who is highly motivated to attend to matters of effective and readable writing style. Although systematic analysis of the writing processes of career writers is sparse, the little data that is available confirms an interest in standards of effective written communication. Little and McLaren reported the results of a survey of 122 technical writers in the San Diego area and note that these career writers consider expertise in language skills, grammar, and mechanics to be of primary importance in their work and that they desire even more training in "language control" over matters of "both style and format" (19). In a discussion of the appropriate goals for graduate programs in technical communication, Meese and Wahlstrom emphasize that career writers "must understand common rhetorical principles of audience analysis" and "strategies of persuasion and teaching,"

and, further, they "must know the current genres of the workplace, those used in industry and government and also in academic and research settings" (24). In short, Meese and Wahlstrom assume that this knowledge is prerequisite to producing effective professional/technical writing.

The major professional organization of practicing career writers also defines technical/professional writing within the context of a writing career. The Society for Technical Communication (STC) assumes that the responsibility of a career writer is "to communicate technical information truthfully, clearly, and economically" ("Code for Communicators" 5). Writing that meets this objective follows readability principles supported by research. As scholars who have examined readability research are aware, we are a far cry from determining textual conventions that make a document more readable. Early empirical research suggested that short sentences, short words, active voice and subject-verb-object word order characterized readable prose. These conclusions have been challenged by more recent psychological reading theory. Huckin points out, for instance, that readability is a function of psychological factors that influence readers' readiness to accept a text.

Nevertheless, the STC strongly advocates the ***readable*** style identified in early research as an immutable standard for meeting readers' needs. Technical/professional writers are advised to

- use language and visuals with precision
- prefer simple, direct expression of ideas
- satisfy the audience's need for information, not [one's] own need for self-expression … . ("Code" 5)

These guidelines, which appear in STC's "Code for Communicators," demonstrate many of the linguistic variables that career writers are told make writing more readable. Statements are in the active voice, agents are generally in the subject position, strong verbs head bulleted phrases for emphasis, and sentences are short.

When academics and career writers describe organizational writing outside of the context of a technical profession such as engineering, they tend to focus on its readability and utility. These goals follow the Document Design Guidelines recommended by the American Institutes for Research Document Design Project, staffed mainly by a group of academics turned career writers and writing consultants:

> Guideline 1. Address the reader directly, by name, or by using a pronoun.
> Guideline 2. Write in the active voice.
> Guideline 3. Use action verbs rather than nouns made out of verbs when you can. (Goswami et al. 110)

The rationale for encouraging these readability standards is that research has shown that they make a text more clear and easier to process. The Document Design Project staff defend their guidelines as follows:

> - First, experienced writers and editors widely agree that these principles strongly influence the clarity of prose. The principles have all been included in writing and design manuals aimed at practitioners.
> - Second, researchers have investigated how these principles affect how easily people understand text.
> - Third, we have found many instances of the problems that these guidelines help solve in student papers and in the writing of professionals in government, business, law, and other fields. (Goswami et al. 109)

Although applied to technical/professional writing done by both career writers and other professionals, these guidelines highlight in particular a professional value for career writers: to accommodate the readers' needs as opposed to the writer's personal need for self-expression.

This orientation to serve another is captured as a professional value in Dobrin's proposed definition of technical writing: "Technical writing is writing that accommodates technology to the user" (242). In glossing the parts of his proposed definition, Dobrin explains that "accommodation" implies not only the overriding "invasive quality of technology (even to technologists)" but also "the self-effacing role technical writing plays" (243). According to Dobrin, the career writer producing technical discourse is not presumed to assert authority as a technical professional, as might the engineer who also does writing on technical subjects; rather the technical writer's role is to defer to the reader as user. The term user underplays the importance of the text in relation to the device or system it explains. Further, this term underplays the importance of the author: Technical/professional writers write to make technology useful to another, not to express themselves.

Other researchers who have studied writing in the workplace have further distinguished technical/professional writing as a category constrained by the role of a career writer in the workplace. The rhetorical task of the career writer is interpreted as one of effacing one's own

identity to best accommodate the professional needs of a variety of audiences. The broad range of accommodation required is substantiated by current research on the job duties of career writers. Reporting on a detailed year-long study of the business and technical communication market in Boston, Buchholz found career writers' responsibilities to cover a wide variety of written communication skills, as well as organizational and administrative skills: "A technical communicator. . . may write press releases, product brochures, scientific articles, software documentation, and newsletters. Thus one individual may act as a technical writer, journalist, and marketing communicator" (28). Although Buchholz analyzed career writers' positions separately as they fell into the specific categories of technical communication, publishing, public relations, marketing, development, and training (12), he noted that "even so-called disparate communication positions often invoke similar functions" (28). All career writing jobs not only required excellent writing and editing skills, but also "analytical and research skills" (15), teamwork, and a variety of organizational and project management skills. In short, career writers are expected to adjust and accommodate to a wide variety of working situations, assess the requirements of these situations, and unfailingly meet the communication needs that arise in each. This role of endless accommodation both to organizational constraints and to specific readers shapes academics' and practitioners' perceptions of the profession *career writer* and constrains the rhetorical category of technical/professional writing.

My own survey of the stylistic preferences of career writers is consistent with the characterization of their discourse as more readable and accommodating than engineering and administrative writing. Career writers are far more conscious of adhering to readability standards established by research than all the other professionals I surveyed. Despite their varied writing tasks and organizational roles, these writers, when given no particular situational constraints, relied on these readability standards to guide their rhetorical choices. Just 51% of all the other professionals I surveyed (n = 366) preferred to use active voice to announce the decision of a group in authority (Figure 1, 1A); 49% preferred the passive voice (1B). Yet 84% of the career writers (n = 63) preferred the active statement (1A), and only 16% preferred the passive statement (1B) ($p < .001$). Further, whereas just over half, or 52%, of all other professionals (n = 364) preferred to assume personal authority with the active "I recommend" (3A) and nearly

half, or 48%, preferred the passive "It is recommended" (3B), a full 82% of the career writers (n = 61) preferred the active statement (3A), and just 18% preferred the passive (3B) ($p < .001$). Most interesting, technical/professional or career writers were more willing than all other professionals to identify with corporate goals by repeating "we" with the active voice. Over half, or 56%, of the career writers (n = 63) preferred to state "We process more orders now that we have introduced a new product line" (5A), and just under half, or 44%, preferred "The addition of our new product line has resulted in increased order processing" (5B). In contrast, only 28% of all the other professionals (n = 364) preferred the former statement (5A), and nearly three-quarters, or 72%, preferred the latter statement (5B) ($p < .001$). The hesitancy to identify strongly with corporate *we* apparently was overcome by most of the career writers I surveyed when the choice to repeat "we" with active voice was put against a choice to use the passive voice. Career writers did not differ significantly in their preferences from other professionals when the style preferred by the latter group followed readability guidelines. Of the career writers who responded (n = 63), 83% preferred to use the active voice to announce the decisions of an individual in authority (2A) compared to 73% of all other professionals (n = 364). Also, of the career writers who responded (n = 62)) 73% preferred to assume corporate authority and use the first-person *we* with the active voice to announce a decision of a department (4A) compared to 83% of the other professionals (n = 365).

Interpreting my survey findings within the meaning of technical/professional writing as a rhetorical category, we can conclude that readability standards and the desire to be accommodating to both the reader and the organization influenced the career writers' rhetorical choices. I suspect, in fact, that technical/professional writing exists in the minds of career writers as a rhetorical category. Readability standards are a major constraint on the ways in which meaning is expressed in this form of writing. These standards are often repeated in the professional literature of technical/professional writers and are reinforced by traditional practice and empirical research. The fad that readability standards also promote a direct, assertive style may be irrelevant to their association with technical/professional discourse. Because career writers endorse technical/professional writing that aims to be readable and accommodating, those rhetorical choices believed to achieve readability and responsiveness to situational constraints are the assumed tex-

tual constraints of this category. In short, technical/professional writing as a positional heuristic defines a set of meanings and textual forms that identify writing with the valued professional concerns of a career writer.

Conclusion

The three rhetorical categories that I have sketched in this article offer positional heuristics that we can use to explain and interpret the writing of individuals in the workplace. These categories are framed by one common situational constraint—writing for organizations within a profession—and by several distinguishing constraints related to values promoted within different professions. I believe that the distinguishing constraints that shape engineering, administrative, and technical/professional writing can be articulated more fully through future empirical study and theoretical scholarship. Researchers might compare organizational writing in a form shared by all three varieties—perhaps the short memo, for instance—and examine how the categories of engineering, administrative, and technical/professional writing explain individual instances of this form. The purpose of such research would not be to examine these categories as they measure up to the actual writing of any individual or group of professionals, nor would it be to prove that one category excludes or includes another; rather, research should be conducted to elaborate on the set of meanings gleaned by scholars and practitioners from their accumulative observations of writing in the professions. These accumulated meanings form rhetorical categories that are heuristic—they can be invoked or rejected to explain the writing of professionals on the job in particular situations.

As a way of emphasizing the explanatory value of these rhetorical categories, I will conclude by summarizing the categories as each might be applied to analyze how written communication failed to avert the *Challenger* disaster. As I noted at the beginning of this article, Winsor has claimed that the *Challenger* communications failed to frame data as knowledge so that it could be acted on appropriately. Among the impediments to successful communication were the "competing 'knowledges' [among the] different social groups" who addressed the O-ring problem (Winsor 11). Winsor clearly locates the meaning of these competing knowledges in the ethos of the engineering and administrative

professions. She claims that these professions value different kinds of data as valid evidence on which to make an informed decision.

Critical to a retrospective analysis of the decision to launch the shuttle craft is a memo written by "an MTI engineer about five months before the *Challenger*'s explosion" (Winsor 14). The memo is structured in a question and answer format as a response to an inquiry by a problem review board. In answer to the question regarding how long it takes a seal to reestablish contact should it become separated from the metal mating surfaces during motor pressurization, an MTI engineer wrote:

> Answer: Bench test data indicate that the o-ring resiliency (its capability to follow the metal) is a function of temperature and rate of case expansion. MTI measured the force of the o-ring against Instron plattens [sic], which simulated the nominal squeeze on the o-ring and approximated the case expansion distance and rate.
>
> At 100° F. the o-ring maintained contact. At 75° F. the o-ring lost contact for 2.4 seconds. At 50° F. the o-ring did not re-establish contact in ten minutes at which time the test was terminated.
>
> The conclusion is that secondary sealing capability in the SRM field joint cannot be guaranteed. (Presidential Commission, quoted in Winsor 14)

Although in retrospect the answer implicates the O-ring seal as a flawed technology that could cause a major disaster, the managers did not interpret the information given as such. Why?

A partial answer might be learned through analyzing the text in the light of the rhetorical categories of engineering, administrative, and technical/professional writing as I have sketched them. This passage illustrates the engineering ideal of scientific objectivity: Statements are limited to observable facts, actions are stated in the passive with agency hidden, and the conclusion expresses a professional judgment removed from both the personality and the person of the engineer. In short, the writing is highly responsive to the disciplinary demands of science and the professional ideals of engineering. The engineer gives a slight nod to the organizational complexity of his response in an introductory sentence addressed to the report's primary reader, a NASA engineer: "Per your request, this letter contains the answers to the … questions you asked at the July Problem Review Board telecon" (Winsor 14).

What we do not see in this memo is any identification with the organizational problem faced by the managers who must decide whether or

not to OK the launch. This memo was passed on by the NASA engineer who received it to his manager who "was not alarmed by the data and did not send on the memo" (Winsor 15). As Winsor points out in her analysis, "it would appear … that the meaning of these data was not obvious for those who read this memo when the memo was first written" (15). She notes that although it may be true that the managers had public and internal pressures to proceed with the launch, they also had evidence that the launch could succeed. The managers based their conclusions on the performance records for O-ring damage during previous launches; the records indicated that temperature was not the deciding factor to cause the O-ring's failure. The administrative decision to interpret past performance as more significant than test results may have been wrong but was not illogical given what we know about administrative communication.

Because administrative writing bows to tradition and institutional practice, the history of previous decision making would be more valued than a test result. Further, administrative writing appeals and responds to organizational identity. The engineer's memo quoted above lacks any textual signal of the author's identity with organizational problems or concerns. Interestingly, in her analysis of an MTI engineer's activity report on progress of the separate task force assigned to investigate shuttle safety problems, Winsor notes that the engineer identifies with MTI by repeating the pronoun we and regards the internal task force-also engineers-as a team outside MTI. It is possible to conclude that discourse interpreting the task force as an entity not identified with MTI caused the task force engineers to fail in their subsequent communications to fellow engineers and, in particular, to management.

Applying the third discourse category—technical/professional writing—to the *Challenger* situation, I note that the need to accommodate the reader, both through acknowledging the reader's need to use the information and through expressing it in readable prose, was not recognized by the *Challenger* engineers in their communications to managers. These typical concerns of the career writer come into play when the function of discourse to reach the reader is in primary focus. The rhetorical ideal of effective technical/professional communication dictates direct expression, active voice, named decision makers, and direct acknowledgement of the relationship between writer and reader. Interestingly, Winsor relies on these features when she writes an improved version of the MTI engineer's conclusion to the memo quoted earlier:

"The conclusion is that the secondary seal is not effective at temperatures below 50° F and thus the joint is highly vulnerable to catastrophic failure at such temperatures" (15). We might improve the accommodating character of Winsor's rewrite even further by revising the opening to say "*I* conclude that the secondary seal is not effective … ." The modified rewrite would have the powerful effect of communicating from three occupational perspectives—that of the professionally responsible engineer, the organizationally astute administrator, and the accommodating technical/professional writer.

Rhetorical categories identify meanings shared by groups that come into play when we interpret instances of discourse in professional settings. The more articulated our rhetorical categories, the more active the interplay between theory and practice can be. Serious work to develop rhetorical categories can create the potential for dynamic descriptions of professional writing and other varieties of written discourse. These descriptions explain how writing comes to express both the unique ideas of an individual and the common aspirations of a social group. Further, our integration of empirical findings with theoretical scholarship and intuitive judgment can lead us to describe professional writing in ways that are both more telling and more usable for those who teach and practice it. This, perhaps, is the most compelling reason to continue efforts to categorize professional discourse.

Note

1. The stylistic-preference survey reported here was developed by the author as part of the Writers' Survey (coauthors, Barbara Couture and Jone Rymer [Goldstein]). This research was supported by a U.S. Department of Education grant for the Professional Writing Project (codirectors, Barbara Couture and John Brereton).

References

Britton, W. Earl. "Technical Reporting." *On Writing, by Writers.* Ed. William W. West. Boston: Ginn, 1966. 335-71.

Broadhead, Glenn J., and Richard C. Freed. *The Variables of Composition: Process and Product in a Business Setting.* Carbondale: Southern Illinois University Press, 1986.

Brown, Robert L., Jr., and Carl G. Hemdl. "An Ethnographic Study of Corporate Writing: Job Status as Reflected in Written Text." *Functional Approaches to Writing: Research Perspectives.* Ed. Barbara Couture. Norwood, NJ: Ablex, 1986. 11-28.

Buchholz, William J. "The Boston Study: Analysis of a Major Metropolitan Business- and Technical-Communication Market." *JBTC* 3.1 (1989): 5-35.

Buehler, Mary Fran. "Rules That Shape the Technical Message: Fidelity, Completeness, and Conciseness." *Technical Communication* 33.3 (1986): 130-32.

Cheney, George. "The Rhetoric of Identification and the Study of Organizational Communication." *Quarterly Journal of Speech* 69.2 (1983): 143-58.

"Code for Communicators." *Intercom* 33.6 (1988): 5.

Conrad, Charles, and Mary Ryan. "Power, Praxis, and Self in Organizational Communication Theory." *Organizational Communication: Traditional Themes and New Directions.* Ed. Robert D. McPhee and Phillip K. Tompkins. Beverly Hills, CA: Sage, 1985. 235-57.

Couture, Barbara, and Jone Rymer. "Situational Exigence: Composing Processes on the Job by Task Value and Writer's Role." *Writing in the Workplace: New Research Perspectives.* Ed. Rachel Spilka. Carbondale: Southern Illinois University Press. Forthcoming.

Dobrin, David N. "What's Technical about Technical Writing?" *New Essays in Technical and Scientific Communication: Research, Theory, Practice.* Ed. Paul V. Anderson, R. John Brockmann, and Carolyn R. Miller. Farmingdale, NY: Baywood, 1983. .227-50.

Goswami, Dixie G, et al. *Writing in the Professions: A Course Guide and Instructional Materials for an Advanced Composition Course.* Washington, DC: American Institutes for Research, 1981.

Huckin, Thomas N. "A Cognitive Approach to Readability." *New Essays in Technical and Scientific Communication: Research, Theory, Practice.* Ed. Paul V. Anderson, R. John Brockmann, and Carolyn R. Miller. Farmingdale, NY. Baywood, 1983. 90-108.

"The Job Outlook in Brief." *Occupational Outlook Quarterly* April 1982: 7-25.

Kallendorf, Craig, and Carol Kallendorf. "The Figures of Speech, *Ethos,* and Aristotle: Notes Towards a Rhetoric of Business Communication." *Journal of Business Communication* 22.1 (1985): 35-50.

Kent, Thomas. "Beyond System: The Rhetoric of Paralogy." *College English* 51.5 (1989): 492-507.

Kent, Thomas. " Paralogic Hermeneutics and the Possibilities of Rhetoric." *Rhetoric Review* 8.1 (1989): 24-42.

Lauer, Janice M., and J. William Asher. *Composition Research: Empirical Designs.* New York: Oxford University Press, 1988.

Leonard, Donald J., and Jeanette W. Gilsdorf. "Language in Change: Academics' and Executives' Perceptions of Usage Errors." *Journal of Business Communication* 27.2 (1990): 137-58.

Lipson, Carol. "A Social View of Technical Writing." *JBTC* 2.1 (1988): 7-20.

Little, Sherry Burgus, and Margaret C. McLaren. "Profile of Technical Writers in San Diego County: Results of a Pilot Study." *Journal of Technical Writing and Communication* 17.1 (1987): 9-23.

Locker, Kitty O. " 'As *Per* Your Request': A History of Business Jargon." *JBTC* 1.1 (1987): 27-47.

Mathes, J. C., and Dwight W. Stevenson. *Designing Technical Reports: Writing for Audiences in Organizations.* Indianapolis, IN: Bobbs-Merrill, 1976.

Meese, George P. E., and Billie J. Wahlstrom. "Designing Graduate Programs to Prepare Communication Leaders of 2000+." *JBTC* 2.1 (1988): 21-35.

Miller, Carolyn R. "Technology as a Form of Consciousness: A Study of Contemporary Ethos." *Central States Speech Journal* 29.4 (1978): 228-36.

Miller, Carolyn R., and Jack Selzer. "Special Topics of Argument in Engineering Reports." *Writing in Nonacademic Settings.* Ed. Lee Odell and Dixie Goswami. New York: Guilford. 1985. 309-41.

Miller, Walter James. "What Can the Technical Writer of the Past Teach the Technical Writer of Today?" *IRE Transactions on Engineering Writing and Speech* EWS-4 (Dec. 1961): 69-76. Rpt. in *The Teaching of Technical Writing.* Ed. Donald H. Cunningham and Herman A. Estrin. Urbana, IL: National Council of Teachers of English, 1975. 198-216.

Odell, Lee et al. "Studying Writing in Non-Academic Settings." *New Essays in Technical and Scientific Communication: Research, Theory, Practice.* Ed. Paul V. Anderson, R. John Brockmann, and Carolyn R. Miller. Farmingdale, NY: Baywood, 1983. 17-40.

Redish, Janice C. "The Language of the Bureaucracy." *Literacy for Life: The Demand for Reading and Writing.* Ed. Richard W. Bailey and Robin Melanie Fosheim. New York: Modern Language Association, 1983.151-74.

Redish, Janice C. "Writing in Organizations." *Writing in the Business Professions.* Ed. Myra Kogen. Urbana, IL: National Council of Teachers of English/Association for Business Communication, 1989. 97-124.

Rubens, Philip M. "Reinventing the Wheel?: Ethics for Technical Communicators." *Journal of Technical Writing and Communication* 11.4 (1981): 329-39.

Selzer, Jack. "Arranging Business Prose." *Writing in the Business Professions.* Ed. Myra Kogen. Urbana, IL: National Council of Teachers of English/Association for Business Communication, 1989. 37-54.

Sprat, Thomas. *History of the Royal Society.* Ed. Jackson I. Cope and Harold Whitmore Jones. St. Louis, MO: Washington University Press, 1958.

Stehr, Nico. "The Ethos of Science Revisited." *Sociological Inquiry* 48.3-4 (1978): 172-96.

Suchan, James, and Robert Colucci. "An Analysis of Communication Efficiency Between High-Impact and Bureaucratic Written Communication." *Management Communication Quarterly* 2 (1989): 454-84.

Trujillo, Nick. "'Performing' Mintzberg's Roles: The Nature of Managerial Communication." *Communication and Organizations: An Interpretive Approach.* Ed. Linda L. Putnam and Michael E. Pacanowsky. Beverly Hills, CA: Sage, 1983. 73-97.

Walter, John A. "Technical Writing: Species or Genre." *Journal of Technical Writing and Communication* 7.3 (1977): 243-49.

Whyte, William H. "The Language of Business." *Fortune* 42 (1950): 113-17,134, 136, 138, 140. Rpt, in *Technical and Professional Writing: A Practical Anthology.* Ed. Herman A. Estrin. New York: Harcourt Brace & World, 1963. 78-92.

Winsor, Dorothy A. "The Construction of Knowledge in Organizations: Asking the Right Questions about the Challenger." *JBTC* 4.2 (1990): 7-20.

Zappen, James P. "The Discourse Community in Scientific and Technical Communication: Institutional and Social Views." *Journal of Technical Writing Communication* 19.1 (1989): 1-11.

Zappen, James P. "Rhetoric and Technical Communication: An Argument for Historical and Political Pluralism." *JBTC* 1.2 (1987): 29-44.

Barbara Couture is an associate professor of English at Wayne State University. She is editor of and a contributor to *Functional Approaches to Writing: Research Perspectives*; coauthor, with Jone Rymer, of *Cases for Technical and Professional Writing*; and author of several articles on composition, professional writing, and linguistic approaches to written discourse.