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Peer Review in the Contemporary Corporation

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by

SHANNON WARREN WISDOM

Under the Direction of Lynée Lewis Gaillet

ABSTRACT

My dissertation explores the history, pedagogy, and practice of peer review in academia and in the workplace, so that I could suggest strategies for improving peer review in the contemporary corporation. Several scholars have studied collaborative writing—of which peer review is just one type—but few have specifically and *thoroughly* treated the subject of peer review. I surveyed the technical writers in my organization as well as other local writers about their thoughts on peer review. For improving peer review in the workplace, two predominant themes emerged: improve the corporate culture and assign a manager to the process. Therefore, I explore how to create a sense of community in the organization, and I propose a leader of the peer review process—the technical editor. My final chapter discusses the pedagogical implications of my study, and includes suggestions for preparing technical communication students (i.e., technical editors) for such a leadership role in the workplace.

INDEX WORDS: Peer review, Workplace writing, Collaborative writing, Technical editing, Workplace community, Technical communication, Value of technical communicator, Technical communication pedagogy

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Chapter 1: Literature Review

Abstract: My serious interest in peer review began in graduate school around ten years ago. When I decided to undertake this study, I had worked at my current organization, Hill Associates, for seven years. Hill Associates is a nationally recognized provider of telecommunications training; we write and teach our own course material. The variations in the peer review process there over the years prompted my renewed interest in the subject, and I decided to perform a study of the practice of peer review in my workplace and other local organizations. Before I describe this study in chapter 2, I consider the academic and workplace peer review scholarship, and how both inform workplace peer review practice. I summarize the scholarship below.

Peer Review Scholarship in Academia

The practice of peer review, just one part of the collaborative writing process, is not new. Some of the earliest accounts we have of it occurred during the country's colonial period within writing groups both inside and outside academic institutions. One of the earliest outside academia was Benjamin Franklin's Junto, a club established in 1728 to discuss readings, experiences, current events, and the members' original essays. Within academia, one of the earliest was The Spy Club, organized at Harvard in 1719; other groups followed close behind. Literary exercises--compositions, orations, music/drama productions--constituted societies' central activity; responding to one another's writing was a weekly routine through the middle of the nineteenth century (Gere 9-11). Although these latter societies underwent major changes in the late

nineteenth century due to the emergence of fraternities and the appearance of English departments of college campuses, some remained, acting like writing centers, where students could have their papers critiqued. The societies' practices were incorporated into the creative writing classroom at Iowa in 1897 and into secondary school classrooms around this time as well. The practices and resulting benefits were similar to those today, even though little of the modern research recognizes this.

> A century ago . . . advantages attributed to writing groups included increasing student motivation toward writing, and particularly toward revising, developing greater audience awareness, fostering critical capacities and intellectual precision, and creating a positive classroom atmosphere along with enhancing the self-image of individual students. (Gere 17)

One of the earliest examples of organized peer review in an academic setting is in George Jardine's classroom. Jardine, professor of logic and philosophy at the University of Glasgow from 1774-1826, developed a method of peer review that initially relied on ten or twelve of the best writers in the class (called examinators) to critique student papers. When he saw that these students' own writing was improving, he extended the exercise to all students. "Jardine's peer review plan illustrates two of the most prominent theories of modern collaborative learning: (1) that both weak and strong students can benefit from a peer-editing system, and (2) that learning is a social act" (Gaillet 104). He also emphasized such practices as loyalty and respect among students in their evaluations; anyone who disobeyed them would not be allowed to participate. Jardine's

main concern in creating such a system was offering his students a practical education; since most of them would be working together and learning from each other in the business world, they should be acquiring the necessary traits in the classroom.

Other early accounts of peer review are cited in the writings of early American educators. The first of the famous Harvard reports (1892) details the writing deficiencies of students entering Harvard, blaming the preparatory schools. It includes excerpts of student writing to illustrate these problems; one student, while complaining of limited writing instruction, admits that he and others organized a literary society to compensate for the "lack of the English department" (Adams et al. 81). The student appears to have benefited from the society, because he passed Harvard's entrance examination.

Robert Valentine describes the method of peer criticism he used in his classroom in the late nineteenth and early twentieth centuries in an article originally published in 1901. Before even writing the paper, the student was to "make a brief character sketch of some person to whom the theme is to be written" (460). Before the exercise, Valentine read these sketches and allowed students to choose a theme they wished to read. Each student then criticized one draft outside of class, for which he earned half the grade of his own paper; next, the writer, critic, and teacher consulted for five to twenty minutes about the draft. Valentine believed that the method could work in the hands of a "first-class teacher or a poor one," and that "under this system a poor teacher may possibly become less of a drag" (459). He cites several advantages of the exercise: the students learned much about expressing themselves to an audience, students were seen discussing their papers *after* class on the stairs, and the teacher's workload was lessened.

After these articles published around the turn of the 20th century, the scholarship on peer review disappears until the 1970s, coinciding with composition's period of stasis from 1920 until the 1970s, when literature teaching was considered the "serious intellectual occupation of the discipline" (Brereton 22). An important catalyst in its re-emergence was M. L. J. Abercrombie, a British biologist who is considered the modern practitioner of collaboration. During the 1950s, she devised a collaborative course for medical students; she found that students working together acquired good medical judgment and were able to make more accurate diagnoses faster than individuals working alone. Her research is documented in *Anatomy of Judgment* (1964), and it quickly influenced other educators to embrace collaboration.

Emphasizing the practice among writing students, Kenneth A. Bruffee's *A Short Course in Writing* has enjoyed four editions. His approach to peer review is similar to the peer-review process of professional journals; student evaluators write descriptive outlines and evaluative essays about the writer's draft. Peter Elbow's influential *Writing Without Teachers* was published the following year (1973). Instead of imitating other writing books in describing the characteristics of good and bad writing to teach writing, he proposes a method to give students more authority over their own writing. Here, he suggests the "teacherless" class, in which the teacher becomes a learner along with his or her students, and explains how to set up the class. Peer review is an important part of increasing students' authority while decreasing teachers' authority, and it is in this work that many of his influential, still utilized techniques for peer response appear: giving movies of your mind, pointing, summarizing, telling, and showing.

Also during the 1970s, Mary Beaven explains how to create a successful peer review exercise in “Individualized Goal Setting, Self-Evaluation, and Peer Evaluation.” She suggests that teachers start by working through a rating scale with the entire class and sample papers; once students understand the scale, have them break into small groups and begin. Her article also cites several studies which point to the high success rate of peer evaluation for many reasons: it opens students’ eyes to audience, it improves theme-writing ability as much as if not more than teacher evaluation, it helps students check their perceptions of reality, and it strengthens their interpersonal skills needed for collaboration and cooperation. However, she notes some disadvantages of peer evaluation as well, which I had not seen mentioned in the prior scholarship: it takes time, some teachers do not trust group work, and some students offer more harmful or incorrect criticism than helpful criticism.

The 1980s saw an increased interest in peer review, with several books and articles on the subject. Peter Elbow published another important book, *Writing With Power,* in which he devotes an entire chapter to “feedback.” He classifies it according to two types: criterion-based (focuses on content, organization, language, and usage, i.e., the writing itself) and reader-based (focuses on the effect the writing has on the reader). He mainly focuses on the virtues of the exercise, not giving much voice to possible disadvantages.

Just three years later, when the interest level was still high, *College Composition and Communication* included three interesting articles that discussed how peer review was not always the positive experience that most prior scholarship seemed to indicate. In

the first, “Direction and Misdirection in Peer Response,” Thomas Newkirk identifies a potential problem of peer evaluation: the peers may have different “values, interests, and emphases” than the writing instructors. To test this hypothesis, he conducted an experiment of peer grading and instructor grading of the same student papers. He found that the instructors and students often used different criteria when evaluating. This study raises many questions about the effectiveness of peer response; often the assignment “misdirects” student writers away from teacher expectations, and then the teacher faces a real problem: “allow the misdirection or veto a class decision” (310). He wants teachers, then, to avoid saying one thing and doing another, a possible danger of the exercise.

Similarly, in “Student Writers and Their Sense of Authority Over Texts,” Carol Berkenkotter examines what happens when students write for their peers (as opposed to the teacher-evaluator). She tape-recorded both the composing processes and peer group interaction of ten students. For the article, she chooses three cases that show writing for an audience of peers is not always beneficial, for varying reasons. One student, Stan, was quite defensive: When his peer evaluators told him they liked his idea, but that he needed to include more examples, he claimed he had “said what I needed to say” (313). And before even joining another group, he took the defensive: “None of the assholes in that class are going to agree with me. I hope to raise hell with this paper. Bull-shit. It’s my opinion. Everyone has their own opinion” (313). (We see references to such attitudes in chapter 2, when I summarize the responses from my questionnaires about workplace peer review.) Ultimately, Stan made only minor, surface-level changes suggested by his peer evaluators (i.e., spelling and grammatical errors). The author concludes that he “never

accepted the responsibility for critically reading his text, but was more concerned with defending his proprietary rights" (315). On the other hand, Pat had a clearer sense of his subject than his editors had: "Once he realized his subject, he became his own best audience" (315). His peers suggested that he write his narrative in chronological order and that he be less personal, but he had intelligent reasons for rejecting their advice. The author concludes that whereas some students are "other-directed," Pat revised "out of a sense of internal necessity" (316). Lastly, Joann almost allowed her peers' authority to replace hers over her own text. She revised six times over two and a half weeks to accommodate her peers' suggestions to "describe" more fully, even when she disagreed with them. Finally, she decided that some ideas did not call for more description, and she regained her authority. While the author offers no answers to any of these peer review problems, the article is enlightening as to other potential dangers of the exercise.

In the third article of the series, "Working with Peer Groups in the Composition Classroom," Diana George explains that even the best of groups has its problems. She offers useful suggestions for improving the quality of peer review in all groups: ask students to bring written questions about their own papers with them; have the writers summarize their papers (content and trouble spots) before reading them aloud to the group to provide a sense of direction for the group; tape the group sessions; when the group is not being taped, have them stop after discussing each paper and review that paper. She concludes that none of these techniques will work, however, unless the teacher has convinced the class of the value of peer review.

Nancy Grimm stresses the teacher's vital role in the peer review exercise as well. She has devised a list of guidelines which she distributes to her students before the exercise, so that they can familiarize themselves with them (e.g., Classwork should be oral; always begin by having the writer read his or her piece aloud while you follow along on your copy, marking places you want to discuss; allow for silence after the oral reading to give people time to formulate their response.). She also suggests that teachers occasionally become part of the peer group during small group conferences.

The skepticism about group work continues through the end of the decade and into the 1990s with two articles: John Trimbur's 1989 article "Consensus and Difference in Collaborative Learning" and Hepzibah Roskelly's 1992 article "The Risky Business of Group Work." Trimbur considers the criticism of collaborative learning, and more specifically, a key term, consensus. He discusses two lines of criticism: consensus stifles individual voice and creativity, and consensus communities do not allow for the reality of differences, ultimately isolating the communities from the rest of the world. He seeks to redefine consensus so that it may allow for differences. A 1993 article by Rebecca Burnett discusses how group members should delay consensus to allow them to engage in substantive conflict—voicing explicit disagreements and considering alternatives (discussed in chapter 3). Roskelly points to other risks of group work, although he ultimately argues for it: the teacher loses some authority, or collaborative assignments contradict themselves because the controls are too stringent, as in peer review, in which the teacher has designed the specific assignment (i.e., provided questions to answer).

Mara Holt has created one such detailed assignment; she explains it and her rationale in "The Value of Written Peer Criticism" (1992). She draws on Kenneth A. Bruffee's method detailed in his textbook *A Short Course in Writing*, mentioned earlier. His method is not too controlling; as stated, he simply requires the critics to write descriptive outlines of the writer's drafts and then evaluative peer critiques in the form of an essay for each paper edited. He does not provide a list of questions to answer; hence the critic has more authority over his comments. This freedom is precisely what Holt fears, however; the students may be left with nothing to say. Instead, she proposes combining his method with Peter Elbow's and Pat Belanoff's in *Sharing and Responding* (1989), which offers the students a much more detailed list of guidelines; many of these were originally published in *Writing Without Teachers* and *Writing With Power* (e.g., sayback, movies of the reader's mind, pointing, what's almost said or implied). Her method gives students something to say *and* forces them to write the equivalent of a professional peer review. The point here, though, is that she does not believe her students can guide themselves through a peer review exercise; that is her job. I agree, and so did the workplace respondents in my questionnaire; chapter 4 argues that the technical editor is the appropriate manager of the peer review process.

In "Peer Review and Revising in an Anthropology Course: Lessons for Learning" (1991), Anne Herrington and Deborah Cadman record the results of a semester-long study of peer review in a writing-intensive anthropology course. Here, too, the instructor "distributed a sheet of instructions stressing the importance of being constructive, of pointing to strengths as well as weaknesses, and of being specific" (186). The instructions

also stressed clarity, organization, and interest. However, unlike Holt, she did not provide a specific set of questions to answer; they were to respond to these general guidelines in an essay. The students were all juniors, so the teacher felt less need to offer specific step-by-step instructions for the exercise. On campus, it was widely recognized as a successful course, and for two straight semesters over 90 percent of the students said that peer review was valuable.

When discussing collaborative writing research of the twentieth century, we cannot forget Lunsford and Ede's *Singular Text/Plural Authors*. This work about collaboration is important because it is a work of collaboration; it is also important for its extensive bibliography. The authors discuss the history of collaboration, its significant proponents and opponents (with reasons from both), and ways to implement collaborative learning in the classroom effectively. They believe that for learning to be truly collaborative, teachers must let the students help form the assignments.

Peer review is still an area of research in the 21st century. In a 2002 article entitled "Introducing Engineering Students to Intellectual Teamwork," two university professors report on the early stages of a study of peer feedback in a mandatory undergraduate communication course for engineering students. The major goal of the course was to:

> facilitate the acquisition of domain-specific communication strategies (communication strategies acquired and used both in a disciplinary classroom and in the workplace within one's profession) necessary for students to successfully communicate in engineering, both in writing and orally (Artemeva 62).

Since there were so many students in the class, the teachers felt it necessary to introduce one type of intellectual teamwork—collaborative writing in the form of peer review.

The authors relied on the role of the instructor as Moffet defined it in *Teaching the Universe of Discourse* in 1968: the role of the instructor is to "teach students how to teach each other" (Moffet 196). In chapters 3 and 4, I argue that the role of the technical editor is to teach SMEs help each other and to facilitate their interaction so that they can more effectively collaborate.

The students began the semester with the typical anxieties of peer review (e.g., peers' competence in giving feedback, little or no feedback from the expert/instructor). However the authors found that the students' perceptions of peer feedback changed over the twelve weeks. The researchers devoted a lot of time/effort to creating a positive peer feedback environment. They responded to students' concerns about peer feedback quickly, modifying assignments, and allowing extra class time so students could become even more familiar and comfortable with the process. They instilled "in the students a sense of responsibility to each other." Ultimately, the students became less reliant on the instructor for feedback. I equate this to less reliance on the editor, freeing the editor for other, more constructive, appropriate editing tasks, or more focused work on the materials.

Stephanie Nelson's recent study of collaborative writing practices in the professional writing classroom examined whether exposure to such practices in an academic setting would encourage students to replicate them in a future workplace setting. She surveyed students in seven upper division professional writing classes over a

two-year period—some who were beginning the course (unexposed), and some who had completed it (exposed). Five classes used peer review and/or collaborative writing and two did not. Ultimately she concluded that exposure to collaborative writing practices in the classroom encourages students to seek the practices as professionals. Overall, students responded most favorably about peer review and senior colleague review, and less favorably about collaborative writing in groups. While the study does not address whether students became better writers or collaborators as a result, the author says that her experience (and that of other instructors and researchers) shows that students' writing improves as they become more experienced with collaborative writing practices.

Nelson stresses that in order for collaborative writing to succeed, groups need to be trained, provided with evaluation methods (she provides a sample of evaluation criteria for an assignment), monitored, and held accountable to one another. The facilitator of collaborative writing must provide structure and a coaching presence. I argue in chapter 4 that this person should be the technical editor. The author concludes her article by saying, "The impetus is also on organizations to transform collaborative writing activities, which are currently most often informal, one-to-one relationships, into core organizational practices by structuring, valuing, and rewarding them as such" (275). Similarly, respondents to my questionnaire (chapter 2) indicated that a corporate culture that rewards and encourages collaborative writing is key to a successful peer review practice. Chapter 3 discusses how organizations can achieve such a culture.

Online Collaborative Writing

While my study does not specifically address online peer review practices, I do include some scholarship here since so much of collaborative writing is done online today. Many of the articles compiled by Tim Roberts in a new book called *Online Collaborative Learning: Theory and Practice* address the role of the instructor/facilitator in online collaborative learning/writing. The articles attempt to answer some of the following questions: "how can groups with shared goals work collaboratively using the new technologies? What problems can be expected and what are the benefits? In what ways does online group work differ from face-to-face group work? And what implications are there for both educators and students?" (viii).

I found some of the articles more applicable than others. The first chapter details a study of students, many part-time, engaging in collaborative online projects. Students were to take on particular roles and responsibilities in the process of developing an educational multimedia product for a real client. The author relied on Jonassen's (1999) model for a constructivist learning environment, which is based around an authentic activity—a project, case, or problem that the learner must solve or resolve. A key feature of the model is to include related cases within the learning environment.

The authors learned that for online collaborative learning to be successful, the teacher/facilitator must do several things: Include a variety of opportunities for collaboration; provide an array of tools and allow students to choose among them; model and scaffold the use of tools; help students to develop effective online communications skills; and encourage a mix of face-to-face and online communication (Roberts 22). The

researchers found that open communication was critical to success and that one particular challenge to good communication with online tools was unresponsive group members. Sometimes the teachers had to intervene to perform a managerial function.

The chapter “Moderated Learner-Centered E-Learning: Problems and Solutions, Benefits and Implications” discusses collaborative environments, roles for online instructors, in particular, the role of instructor as moderator of learning, and the benefits and pitfalls with solutions associated with e-learning. The role of the instructor in such learner-centered environments is crucial and explored here. The authors suggest that the instructor move from facilitator, tutor, coach, mediator, provocateur, observer, organizer, or some combination. The instructor also must create a sense of community. In chapters 3 and 4, I argue that the editor should assume these responsibilities in workplace peer review.

The authors discuss Mason’s suggested three roles of the instructor: organizational, social, and intellectual. Of the three, intellectual is the most important. It involves activities such as asking questions, probing responses, and refocusing discussion, setting goals, explaining tasks and overlooked information, weaving disparate comments, synthesizing key points raised, and setting and raising the intellectual climate. “Instructors (and I would argue editors/technical communicators) need to become adept at promoting interaction, addressing multiple learning styles, performing needs assessments, and projecting a friendly image” (Thach in Roberts). Since I argue that the technical editor should assume these roles in the organization, our pedagogy must better prepare students to take on the roles, which I discuss in chapter 5. For example, technical

and professional curricula (TPC) must teach students to be better decision makers, not just certify them in certain software skills.

Another chapter in Roberts discusses students' frustrations with online learning, fear of working without the teacher as leader, achieving group consensus, feeling like they're always meeting with a group if the interaction is computer-mediated (everyone's always online). Again, for my study, the most valuable part of the chapter concerns the instructor's role. Instructors must attend to process issues reflected in the group's work, particularly as they relate to issues of authority and intimacy in the group. They must also not interpret any group behavior as a personal attack and be able to recognize and handle paradoxical movements within the group. Some online learners will want more specific guidance from the instructor; others will not. The instructor must not take sides, and be able to step back, in order to further group e-learning. An instructor who "constantly acts as a source of authority for the group will retard the development" of the group (Dirkx and Smith in Roberts 153). And, sometimes, the instructor will have to intervene to help make process improvements—without passing judgment on the actions of the group. As facilitator of the peer review process, the technical editor will need to tread carefully. The editor must remain diplomatic and sensitive to group members' feelings and egos. The technical editor must also consider many of the suggestions that I discuss in chapters 3 and 4 about negotiating conflict, creating a sense of community, and being diplomatic.

Other chapters in the book posit that online learning/writing groups need leaders as well, even if they aren't always leading. The leader will need to help structure the environment, set expectations, create a sense of community, and modify planned tasks in

order to make them more suitable for collaboration. Once the activities have been well designed and expectations have been set, students can have some good collaborative learning experiences without a teacher (Roberts 277). My study explore and builds on these notions.

Michael Bernard et al. also discuss online collaborative learning in “Does Computer-Mediated Collaboration Really Improve Group Communication?” The authors performed a series of studies on the use of text-based cooperative software for enhancing student collaboration in small classroom groups. Several studies found that computer-mediated (CM) groups started out performing the same as, or worse than, face-to-face (FtF) groups, but around halfway through the semester, the CM groups significantly out-performed the FtF groups. They believed it took some time for the CM groups to figure out how to interact, however, especially with the lack of facial cues.

The authors warn that the studies are still too small to conclude that CM mediums are better than FtF in dealing with collaborative learning. An interesting finding, though, is that the CM groups sought more help from each other, and less from the instructor, than the FtF groups. The authors believed this was true because the CM group members have to exert “much more cognitive resources just to communicate with the other group members and thus …become more group focused.” While I do not explore this notion further, this is an interesting observation for further study. Should the technical editor as facilitator of the peer review process encourage peer reviewers to use more CM interaction, to encourage them to rely on each other more, become more group focused, and be more productive and produce more quality work?

The articles in *Communications and Collaboration in the Online Classroom* also suggest that students in online communities can become more group focused and effective as a group than those who only engage in face-to-face interaction. Students seem more comfortable confronting each other via computer mediated collaboration than face to face. Online communities seem to make students feel more ownership in the communication and learning environment. Still, the teacher/facilitator does need to coach students/workers in online etiquette—how to respond to each other, give effective feedback, etc. Most of the work in creating an effective community is done up front, by the facilitator. Such findings can inform the responsibilities of the technical editor in the peer review process; if the editor is managing peer review processes that occur primarily online, he or she still must follow the suggestions I discuss in chapter 3, about creating a sense of community.

Editor Patricia Comeaux observes a theme throughout the articles in the work: Online instruction (CMC) affects the communication skills of instructors (in their instructional design) and students (in their interpersonal communication). The instructors must create clear, precise instructions online and help students understand the characteristics of the new communication environment. The advantage of an online learning community is that the communication exchange stays online (for the duration of the course and sometimes longer) and can be revisited. Instructors often revisit the data to improve their instructional practices. Likewise, technical editors can revisit peer review data to improve their managerial practices.

Lowry, et al., (2004) created an online collaborative writing tool called Collaboratus, which they describe in "Using Internet-Based, Distributed Collaborative Writing Tools to Improve Coordination and Group Awareness in Writing Teams." This article is more useful to discuss the direction of online collaborative writing tools, as opposed to how to facilitate better communication in online collaborative writing. The authors created a Java-based collaborative writing program to allow group writing activities to take place simultaneously: group brainstorming, group voting, group outlining, and group writing. It is an interesting tool, but a company has to be willing to invest in such a product. This is outside the scope of my study.

Within the scope of my study is that the authors believe many issues of collaborative writing need interdisciplinary research to be resolved (e.g., personality differences, group dynamics, trust, hidden agendas) (69). In addition to describing their online tool, the authors seek to provide the common ground for defining collaborative writing and other key terms and defining a taxonomy of collaborative writing—in terms of strategies (e.g., sequential writing vs. parallel writing), activities (e.g., brainstorming, outlining, reviewing), document control modes (e.g., centralized control and shared control), and roles (e.g., writer, editor, reviewer). Ultimately, they conclude that there are still many research opportunities in collaborative writing, as evidenced by the scant collaborative writing research that has been published in peer-reviewed journals (93-95). My research addresses one of these areas—primarily the role of the editor in the peer review process. In exploring this role, I also suggest many strategies for improving the overall peer review process.

Workplace Collaborative Writing Scholarship

Studies of workplace writing corroborate the pervasiveness of collaborative writing there and support the argument that professional writing courses must better prepare students for their transition to the workplace (Couture and Rymer; Faigley and Miller; Ede and Lunsford). Researchers have conducted ethnographies and case studies of workplace collaborative writing (Blakeslee; Cross; Doheny-Farina) and academic collaborative writing (Burnett). Chapter 3 of my project analyzes the collaborative writing scholarship as it relates to forming workplace communities and resolving conflict.

Colen and Petelin's 2004 article "Challenges in Collaborative Writing in the Contemporary Corporation" cites several studies that show how common collaborative writing in the workplace is and supports the claim that most people must write with some skill in order to succeed on the job (Odell and Goswami 221). They list the benefits of collaborative processes, which include higher quality documents, higher levels of motivation among group members, and co-writers who can also act as reviewers to provide valuable feedback. They also note the pitfalls, which include the complexity of coordinating a collaborative process, the longer time it takes to produce a collaborative document, and the personal conflicts that can arise because of egos, personality conflicts, and differing learning styles of group members.

Colen and Petelin note that in collaborative workplace writing, the "complexity or importance of the writing task influences the level of collaboration" and that "planning groups account for 50 percent of collaborative writing that occurs" (Couture and Rymer in Cross 140). Reviewing/editing is another type of collaboration. The authors also list

the interpersonal qualities and skills that contribute to successful collaborative writing, based on the work of Richardson: self-reflection skills, trust building skills, the management of defensiveness, and the ability to respond to others' communication, learning, and conflict styles, to name a few. The authors add to this list: team-reflection skills, the ability to assume multiple roles throughout a writing project (e.g., writer, editor, reader), and the ability to select the most satisfactory solution within a specific corporate context (140). I believe it will be the role of the editor to build these skills.

Additionally, the authors' experience suggests that "a role-based approach to revising and editing a document can provide more focused and efficient feedback in a collaborative writing situation" (141). For example, the author should create specific questions for review based on the reviewer's role in the corporation—a senior executive or another technical staff member. This way, the author gets more targeted peer feedback.

The authors suggest that future directions for studies of writing teams could include defining best practices (relating to the writing process, the group process, and group management) (142). I hope my project does just this—outline a best practice for peer review in the corporation, considering all the benefits, necessary skills, and pitfalls associated with the process.

A recent, often cited study of workplace writing is that of Geoffrey Cross. He performed a three-month ethnographic study of group writing involving a 20-person cross-functional core group and over 100 collaborators at a large corporation and made several interesting observations applicable to my study. His research (2000, 2001) discusses how the group ultimately formed a collective mind, and thus was able to serve

its purpose: “A collective mind is found in the heedful interrelation of group members. People are heedful when they are critical, careful, consistent, purposeful, vigilant, and conscientious” (Weick and Roberts in Cross 79 (2000)).

One important piece was making group participation part of job objectives, therefore tying it to raises and promotions. A second important piece was that project leaders “established a common form that facilitated the heedful interrelation of group members” so they could meet the needs of the organization (Cross 81). The group’s task was to collaborate on a service level agreement (SLA). First, project leaders took another company’s SLA and adapted it to make it fit the situation at the organization, and then all group members read the SLA, the document that became the common form. A third important piece was that group leaders used architecture of the workspace to motivate and mold group activity. They convinced the vice president to let them use a glassed-in conference room for the group’s meeting space. Moving into a conference room had been allowed only once before, so prestige was associated with the move, “energizing group members and rallying outsiders to the cause” (Cross 95). Cross stresses the group needed a tangible space, not just a virtual space (e.g., email, chat room), to form a subculture, to develop a vision of the vast project (96). Also in the room was an enormous chart and checklist of the group members’ progress. The chart—essentially a scoreboard—was visible to everyone passing by the conference room and helped motivate individual groups to complete their assignments, as they saw others completing theirs.

The three pieces above are important to my study. Currently, peer review is not tied to job objectives at my organization; there is little accountability for those editing

others' work or for the authors to heed the comments by the other reviewers. Second, once again, the importance of the project facilitator in collaborative writing—in my case, the role of technical editor in peer review—is stressed. The facilitator is responsible for framing, kick-starting, and maintaining the energy of the project. This means clearly defining the objectives of the exercise (i.e., peer review) and seeing them through. The editor must well-position him/herself as the leader who can be trusted in the exercise and who can justify the worth of the exercise. Finally, Cross suggests creating a tangible, separate space for a collective mind to form during group writing. The editor would need to consider how to create this space for peer review. Cross says a virtual space is not enough, yet many of our members of technical staff (and undoubtedly other subject matter experts at other organizations today) travel or even live remotely and thus must perform peer review virtually.

Worlds Apart, Dias et al., is a comparative study of writing in academia and matched workplaces: public administration courses and Federal government institutions, management courses and corresponding work settings, architecture courses and a firm of architects, social work courses and social work agencies. Their study focused on many aspects of writing, many of them social—how writing tasks originate, how writing is generated and proceeds, how writing is responded to and evaluated, writing in collaboration, and the kinds of writing produced, to name a few (11). Two questions emerged and became central to the study: 1) What functions did writing perform: social and cultural on the one hand (e.g., introduction into the ways of thinking and language practices of a disciplinary or professional community), and epistemic (i.e., supporting

thinking, planning, knowing, and learning)? 2) How do sociocultural settings shape writing practices (i.e., how is writing defined by the values and practices that prevail in university settings and in the workplace)? (15)

Their research included data gathering, document tracking, conducting reading protocols of designated readers, ethnographic observation of writers involved in tasks of composing, interviews, and participant validation. Ultimately, one of the book's goals is a pedagogical one, to suggest ways to better prepare students in academia for workplace writing. Also pertinent to my study is another goal: to determine "what workplace practices inhibit the full development and use of writing for productive work" and "what practices support the use of writing to promote workplace goals" (16). In the practice of peer review, workplace practices that inhibit the full development and use of writing for productive work include poor communication, egos, no sense of community among team members, and lack of trust and respect among team members. The opposite of these practices support the use of writing to promote workplace goals.

Dias et al. say that the workplace motive that "influences all other motives is the one of the highest status group within the institution" (115). Within my organization, that group is the Members of Technical Staff (MTS), the group that produces and teaches the organization's course material (that which separates our company from our competitors), and the group for which I will be recommending a more effective peer review process. As editor and facilitator of the process, I will have to be careful to tread lightly, and remember that my status/motive is not the same as that of the MTS.

The authors argue that ultimately the social motive of workplace writing is to get something done—but because there is more than one ideology at play in complex organizations and more than one thing to do, there is more than one social motive (117). In my small organization of 21 people, the publishing group and the MTS have different ideas about the course material and the processes adopted to publish it. It is the technical editor's job to negotiate the two ideologies to produce quality material.

Ultimately, the authors do not examine the actual writing that goes on in academia and industry as much as it examines what surrounds the writing—the social aspects: "Writing is bound up in situation" (222). The authors argue that writing in academia and writing in the workplace "can function effectively in their respective systems without necessarily bridging their two worlds" (223). However, to prepare students to enter the workplace, we need to move toward bridging the gap. Students rarely think of audience when writing an essay, as much as teachers do to encourage the process through peer review. Workers must think of audience, as that is why the business operates. In the workplace, documents have multiple readers, who all must be considered. An effective peer review process will encourage such a mindset. Finally, the authors say "that the embeddedness of writing in workplace practices ought to be replicated in school settings as well"; "constitute the class as a working group with some degree of complexity, continuity, and interdependency of joint activity" (235). I discuss some of these ideas in chapter 5, when I discuss the pedagogical implications of my study.

Susan Kleimann in "The Reciprocal Relationship of Workplace Culture and Review" in Spilka's influential *Writing in the Workplace* describes an 18-month

descriptive, qualitative study of the review process at a federal agency. While somewhat dated, this article is a specific study of the review process in a workplace setting, and I found some useful ideas for my study. Kleimann wanted to find out 1) How do organizational and divisional cultures affect the nature of review comments? 2) How do reviewers reflect the organization's culture in the style and content of their comments?

Kleimann noticed some differences among the divisions she studied regarding the review process. The division she found most collaborative, Division 1, held four beliefs: "writing and thinking are related processes, review in organizations produces institutional products, review is a negotiation process, and reviewers and writers can learn from each other" (61). The division that placed more value on hierarchy, Division 2, did not value collaboration as much. The emphasis is on "processing the report through the hierarchy rather than incorporating another perspective" (62). One writer in Division 2 believed "writing is not considered a way of knowing or coming to know…but the act of recording existing thoughts" (61). The value this division placed on hierarchy minimized the collaborative effort and that which writers learn from each other. This finding suggests creating a sense of equality, of community, among team members for a peer review process to succeed.

Kleimann found that the collaborative culture created written guidelines for their review procedure whereas the hierarchical culture did not. The written guidelines are distributed among all division members and "provide coherence to group perceptions of review" (63). She also found that the two cultures structured review differently. Division 2, the hierarchical culture, primarily relied on sequential review—one reviewer at a time

marked up and “finalized” a draft before passing it on, whereas Division 1, the collaborative culture, participated in concurrent review—one draft is completed and reviewed by four reviewers in four days, effective but possibly an overwhelming task if there are multiple comments to reconcile.

She also found that Division 1 had a better revision process. It incorporated consolidated comments into its review structure. Division 1 resolved all conflicting comments before the team received the comments, set revision priorities, and then allowed the team to judge the suggestions (64). Setting revision priorities provided direction and structure to the revision process. It also better enabled the group to meet deadlines. In chapter 4, I argue that the technical editor should be responsible for creating the collaborative culture, which Kleimann found had a more effective revision process.

Finally, Kleimann found that Division 1 called more face-to-face meetings when consolidated comments were required. Face-to-face resolution more speedily and effectively resolved any conflicts and also created more ownership of the written document. Because Division 1 had more face-to-face time and operated more as a team, these reviewers made fewer comments on a series of drafts. They were more likely to return the final decision-making about changes to the team. Division 1 was more likely to acknowledge the team’s expertise, and frame their comments more as questions and statements than as comments that set up a hierarchical relationship between the reviewers and the team (e.g., “I know and you don’t). In Division 1, even those at the top of the hierarchy framed more of their suggestions as questions because they viewed the team members as having more information than they did.

Ultimately, Kleimann concludes that a

> collaborative culture, which may exist within a hierarchical structure, emphasizes contributory expertise and thus produces a sense of ownership and responsibility. In contrast, a culture that devalues the contributions of some writers by emphasizing position undermines the responsibility of the individual writer and diffuses the power of collaboration (69).

From what I have read of current workplace writing research, these findings are not contradicted, just supplemented. The article also has important information for the editor as he/she creates a collaborative community for the peer review process and manages the process (e.g., the importance of calling face-to-face meetings to negotiate differences and structuring the review process, which involves creating written guidelines for a review process). Ultimately, the four beliefs of the collaborative group, Division 1, (mentioned earlier) are beliefs that the technical editor must instill in the peer review team members to create a collaborative community.

David Hutto's unpublished dissertation *The Rhetoric of Science Writing in a Laboratory at the Centers for Disease Control* is an ethnographic study of writing practices within one lab inside the Centers for Disease Control (CDC) in Atlanta, GA. The study focused on seven scientists over an eight-month period. In looking at the writing processes of the seven participants, Hutto focused on three broad questions: 1) what activities precede the decision to formally write an article; 2) what decisions about the text are made while writing; and 3) how do review and revision affect their writing (ii). I am most interested in the third broad question. Hutto found that the participants he

studied did not view the review and revision process fondly, but that overall, they found the review process helpful.

Review is inevitable in order to work as a scientist, so all the participants encounter it at various points in their careers. Several of the participants choose to participate in pal review before they submit an article to their supervisor or to a journal. In pal review, they choose someone they trust, someone whose style they like. Hutto observed that reviewer comments came in the form of safeguarding science (commenting on incorrect/misstated scientific content) and of addressing the writer's style. While some of the participants dread getting back review comments, Hutto discovered that peer review affected one of the participants positively, making him more "rhetorically conscious" (246). The participant said peer review makes him "much more careful…[I realized] you have to write in such a way that you have to anticipate potential criticisms of your work." After receiving extensive review comments for his very first article, in subsequent research, he was often able to realize the holes in his own document, and therefore know when he had to do some more experiments to fill those holes. He said, "I'd say [peer review has] changed my working process. I hope it's made me a stronger writer. I would really hope that I'll never see another set of reviews like this" (247). Some of the responses I received from my questionnaire (chapter 2) corroborate those above.

Professional Writing in Context by John Frederick Reynolds, et al., includes essays about workplace writing by four professors and one former professor. They have all, at one time, consulted in writing or worked as a writer outside academia. At the time

the book was published, contributing author Don Samson was a professor at Radford University in Virginia. Samson describes his experience as a writer/editor in high-tech firms (e.g., Martin Marietta in Florida). The technical writers he refers to do not have the technical expertise to write sections of technical documents—this is done by technical or business staff. The writers plan and schedule publication activities, assist other writers, edit text and graphics, and manage document publication; therefore much collaboration occurs between writers and the technical staff. Samson believes that most collaborative writing in high-tech firms faces problems "that can be solved easily if writers and managers anticipate them" (101).

Samson describes the peer review process in many high-tech firms as follows: "Often the only chance writers have to check their edited and prepared text and graphics is during the review of the first draft. In some firms, early drafts of collaborative documents receive superficial or uneven reviews, so writers need to be able to search out useful criticisms. The technical writer should be able to help writers do this" (110). Samson has found that often reviewers do not know how to perform a useful review—they may just read for typos instead of make suggestions about content and organization. In addition, technical staff often have difficulty identifying good reviewers for a document, so they ask technical writers to help identify effective reviewers. In Samson's experience, "for technical staff, the main challenge in preparing a collaborative document is juggling project responsibilities to find the time to write. For the document manager, the challenge is controlling the process, which gets more complicated as more technical staff, writers, and others are involved" (110).

Samson says that one impediment to the study of writing in professional settings has been terminology: technical staff do not view many pre- and post writing activities (e.g., invention, reviewing, and editing) as part of the writing process. I believe that it is the responsibility of the technical communicator to educate the technical staff about the entire writing process. The technical communicator (i.e., editor) is the expert in this area. Chapters 4 and 5 discuss why the technical editor is the appropriate person to facilitate the peer review process and why the technical editor should take a leadership position in organizations today.

In *Collaborative Writing in Industry*, Mary Lay and William Karis include essays on the collaborative process, the current issues of the industry, and the implications for the classroom, as well as case studies of collaboration. In one of the articles entitled "Collaborative Editing: A Combination of Peer and Hierarchical Editing Techniques," Henrietta Nickels Shirk studied both peer review and hierarchical editing (i.e., editing by a teacher, or a supervisor) in academia and the workplace. The 100 editors and writers from various industries felt that the peer review process had a couple of distinct advantages: it improved the author's own writing, and it improved the quality of documents. Many writers admitted that they invested more time in documents that they knew would go through a peer review process, both in creating them and in revising them. (One of my questionnaire respondents admitted this as well.) Shirk found that they "became more aware of their roles as writers when they [knew] they must deal with their peers…peer review is similar to peer pressure but without negative connotations" (249).

While some of the writers viewed peer review as a non-threatening activity, others thought that the process could be threatening: “When a peer critiques a peer’s work, the action itself seems to create an inequality in the relationship of the writer and writer-as-editor that many find creates personal tension” (250). Shirk found that “55 percent of respondents believed that a peer reviewer usually made suggestions that reflected personal preferences rather than improvements to the document” (250). This was particularly true in hierarchical editing. As a result, issues of document ownership and ego arise. One writer said he left a job because his supervisor insisted that he write in the passive voice. The respondents I interviewed also viewed the process as somewhat threatening (chapter 2), and I discuss how to address this pitfall in chapter 3.

Shirk’s respondents complained that another weakness of the process is that there is often too little time allotted for peer review. In many cases, a reviewer working on his/her own deadline does not have enough time to devote to effectively reviewing someone else’s work. Finally, some respondents revealed that during hierarchical editing, they may not receive any feedback from the reviewer, and the document gets published without any communication between the reviewer and the writer. This is often a problem in peer review as well; my study indicated that a manager of the peer review process is needed, which would address some of these issues; I explore this further in chapter 4.

Shirk’s study illustrates that communication is key in peer review, and my study emphasizes this as well. In Shirk’s study, editors and writers ranked the skills they needed to perform successfully in their jobs. Both groups ranked technical knowledge as least important, and interpersonal communication skills as very important (editors ranked

these skills as number 2 and writers ranked them as number 1). Thus, Shirk recommends that such skills should be taught in technical communication classrooms. She believes future collaborators and peer reviewers must understand differing communication styles and how to deal with them; one possible way to do this is to administer the Myers-Briggs Type Indicator to the students. Students can discuss with each other the results, building an appreciation for the differences among them. This will help them identify different communication styles in the workplace and know how to work with them. In addition, though, classroom workshops should take place in which:

> students role-play various editing situations in terms of their own and differing communication styles…Only by experiencing these differences within a reassuring workshop atmosphere…can students begin to overcome some of the barriers to effective editorial dialogue (256).

While my dissertation does not address administration of personality tests, I do agree that better communication is key for professional communicators, who will collaborate often in the workplace. In closing, Shirk suggests that the processes of peer and hierarchical editing not only help ensure the highest quality document; they also help improve the relationships among the people who create the document. She believes that "collaboration requires attention to both dimensions," the process and the relationships of those involved (258). Chapter 3 of my dissertation discusses how to improve the relationships among all document creators—including authors and reviewers. My conclusion discusses how educators can better prepare students for these types of workplace relationships.

Chapter 2: Peer Review in the Organization

Abstract: This chapter describes the nature of peer review in the organization, drawing upon my analysis of written questionnaires from members of technical staff (MTS) at my organization, Hill Associates, and from subject matter experts (SME) and technical writers from other local organizations. The responses I received corroborated many of my own observations and opinions, and sparked further questions and interest.

Personal Background and Corporate Profile

Until I began teaching English composition at a two-year college in Georgia thirteen years ago, I had never heard of peer review, or any of its other names (i.e., peer editing, peer response, peer criticism). None of my high school or college professors had ever set aside any class time for organized peer review, or suggested we have others read our writing outside of class. I can remember receiving positive peer feedback about my writing, though, on two occasions prior to using organized peer review in my classroom. The first was outside academia; a high school friend commented positively on what I had written on her birthday card. The second was in my junior year of college in one of the most difficult classes of my undergraduate career. Only after I asked my roommate to review my papers did I revise more effectively and receive the grades I desired.

In my master's program, my professors never encouraged peer review either. It was not until I began my doctoral program in 1995 that class time was set aside for it. And I have to admit, that when I saw it on the syllabus, I was terrified. I had been making my students do it for three years, yet I had never truly realized the fear associated with

the exercise. However, the experience was not that painful and once it was over, I realized that the exercise was beneficial in many ways: it had forced me to begin my paper early, it had given me ideas to improve development, it had illuminated some vague or weak arguments, and it had forced me to pay attention to my audience. And, I found that revising was much easier because I had specific points to improve; my revision now had a sense of direction.

Now, several years later, I work at an organization called Hill Associates, which writes and teaches its own course material on data and telecommunications topics. Founded in 1981, the company markets itself as a premier provider of such training. Our main competitor, TRA (Telecommunications Research Associates), also writes its own course material, but only in PowerPoint format. What separates Hill Associates from TRA and other competitors is the text that accompanies each visual.

Hill Associates' client list primarily includes major telephone service providers, wired and wireless, across the country. We teach a variety of students in various positions/levels in their companies—managers, corporate executives, and entry-level or experienced engineers and sales personnel. (Students are grouped into courses according to experience level.) When a client purchases a new course, or Hill Associates determines a certain topic needs to be developed to try to sell, a subject matter expert (SME)—at Hill Associates called a Member of Technical Staff (MTS)—is assigned the task. There are eleven MTS on staff (all male, identified solely for purposes of pronoun use). The MTSs are also our authors; there are no technical writers on staff.

Typically, an MTS creates an outline for the course, which includes several chapters, and after at least one other MTS/reviewer has approved it, the MTS/author begins work. In the past, when the review process was more structured, the author/MTS would submit the completed draft for a technical review—during which one or two other MTSs comment on the content, structure, etc. The commentary is performed either hard copy or electronically, and returned to the author, who reconciles the comments. While the entire process has never been closely monitored, today it is even less so. It is loosely organized, with few guidelines, for the reviewers or author; reviewers comment as they deem appropriate, and the author can ignore the comments if he chooses. Sometimes the author's ego prohibits him from making a suggested and necessary revision, and then, the students suffer. Recently, the lack of consensus after a review early in the process almost resulted in copyright infringement. I was editing course material due to ship the next day, and an MTS came to my office to ask a random question about our materials. While there, he recognized another client's copyrighted slides on my screen. He called the developer (another MTS) and asked why he had not removed or recreated the slides as initially requested. Ultimately they agreed on a solution, but at the last minute (and only because of luck). If the client would have found out, not only could Hill Associates have been in legal trouble, we could have ruined our working relationship with the client. Such a situation illustrates the importance of a more structured, closely monitored peer review process.

When the peer review process proceeds as it should (at my organization), the author engages the reviewers in face-to-face, phone, or email conversations to help him

reconcile their comments and complete the draft. The author then submits the draft to the technical editor. The technical editor at Hill Associates is responsible for a content (not the same level as the technical reviewers, though), stylistic, organizational, and grammatical edit. The editor is free to rewrite material, but the editor and MTS work very closely together to ensure that the editor does not alter the meaning of the work. Currently, I am the only technical editor on staff; we have had as many as four. I have been with the organization eight years and have created what I believe to be a successful relationship between the MTSs and myself. They have seen enough of my work, through exchange of drafts and face-to-face conferences, to feel confident with the changes I make.

After the editor and MTS have agreed on all the changes, our publishing department compiles the text and visual pages into chapters, and the chapters into volumes. Though each volume is like a book, expanding on a single topic (e.g., Internet Applications), each text and visual pair can be used anywhere else in our course material, in other volumes as appropriate. Most of our content is single-sourced, which makes the author's and editor's jobs even more challenging. All of our material must read like a single author wrote it. In addition, any of our MTSs must be able to teach all of our material. So, the text/visual content and volume organization must be clear enough for all the MTSs to understand.

The technology bust of the last few years has affected the amount of writing my organization has done. All writing activities, including that of peer review, have lessened. However, the industry is slowly recovering and my organization is undertaking a massive

update of our materials. These factors prompted my close examination of the peer review process at my organization. How can I help improve it? Do other organizations suffer from an ineffective process? If so, how can the process be improved? Or, what can organizations like mine learn from organizations with a successful process?

Since I had developed an interest in collaborative writing and peer review in graduate school, I was curious as to how collaborative writing theory and practice might inform this effort. According to T. Panitz in "Collaborative Versus Cooperative Learning: Comparing the Two Definitions Helps Us Understand the Nature of Interactive Learning,"

> collaborative learning is a personal philosophy, not just a classroom technique. In all situations where people come together in groups, it suggests a way of dealing with people that respects and highlights individual group members' abilities and contributions. There is a sharing of authority and acceptance of responsibility among group members for the group's actions. The underlying premise of collaborative learning is based upon consensus building through cooperation by group members, in contrast to competition in which individuals best other group members.

This approach—an approach to creating a community of reviewers that respect and trust each other, that share authority and responsibility for the group's work, that strive for consensus through cooperation—is the one I wanted to explore. I believe creating this culture is critical to an effective peer review process, even more critical than the actual questions asked/answered during the review.

I am also interested in how collaborative writing theory and practice inform the technical editor/MTS relationship. In the peer review process, what role should the technical editor play? Is the editor like the teacher in the collaborative writing classroom? This opens up many questions, as some argue the teacher should guide the activity and some argue the teacher should let the students guide themselves. According to Panitz, true proponents of collaborative learning believe that the "teacher is merely a facilitator; the group assumes almost total responsibility for the assignment." Will such a model work at my organization and similar organizations? Perhaps, if the technical editor helps create and nurture the appropriate environment in the first place. I discuss this topic further in chapters three and four.

This environment does not currently exist at my organization. While there is typically a technical peer review before the MTS submits the draft to the editor, the process is not taken seriously enough. Most of the academic scholarship suggests that students' own writing improves with peer review. This benefit would be key to any organization, where there are usually fewer editors than SMEs. If the writing is better to start with, the technical editor could devote more time to materials in the allotted project time, improving the quality of materials that much more, and as a result, improving the relationship with clients that much more. Perhaps the editor could manage/facilitate the peer review process from the beginning of the project, starting with the outline phase. The entire document creation could incorporate peer reviews. A technical editor myself, I am very interested in this approach. I elaborate on these ideas more in chapter four.

I began my project with the desire to improve the use of peer review in my organization, and offer suggestions to other organizations who find themselves in a similar position. I know peer review is valuable; I saw the value when I was teaching. I think the way my organization, and probably others, use it/have used it is too carefree, too lackadaisical, too naïve, not giving enough thought to the theory and its successful practice in the industry. My study addresses many of these issues.

Methodology

As mentioned, I began my project with my own beliefs about peer review in the workplace. Before turning to published research on the subject, I wanted to ask other colleagues (i.e., MTS) and technical writers their observations. I refer to the subject matter experts within Hill Associates as MTS; all of the technical writers I interviewed work outside of Hill Associates.

I performed indirective interviews, in which I relied primarily on open-ended questions to allow the MTSs and technical writers to thoroughly explain the peer review processes they have used. This method is more interviewee-centered; I wanted the interviewees to feel as comfortable as possible, so they would share their honest opinions with me. I devised a questionnaire of 13 questions and distributed it to the respondents via email. I felt that for the initial interviews, this was better than an oral exchange, as I might get more detailed responses; additionally, respondents could respond at their convenience. When necessary, I followed up with additional questions. I detail the responses later in this chapter.

Designing Interview Questions

For help designing effective interview questions, I turned to two texts, Earl McDowell's *Interviewing Practices for Technical Writers* (1991) and Arskey and Knight's *Interviewing for Social Scientists* (1999).

McDowell says that effective questions are "clear, non-threatening, capable of being answered, relevant to the purpose, free from unintentional bias, and simple" (29). Questions should also be limited to 20 words. He suggests following the guidelines below when developing questions:

1. Question clarity diminishes as the question grows longer.
2. Specificity refers to how well the interviewee can provide the information.
3. A question should focus on a specific dimension—unidimensionality. For example, how would a user respond to this question: Do the graphics and text provide a clear understanding of the process? The interviewee might feel the graphics do, but the text does not. The interviewer must develop two questions to obtain accurate responses.
4. The interviewer should word each question so that it is understood by the interviewee.
5. Each question should have a specific purpose.

Ultimately, McDowell says that questions have three functions: "gain information, motivate the interviewee to respond, and reveal information about the questioner" (30). I chose to use both open-ended and closed-ended questions.

Open-Ended Questions

Open-ended questions are by nature “broad and unstructured and provide the respondents with an opportunity to structure the answer the way they see fit” (30). They help establish rapport and trust during the interview. McDowell lists the advantages and disadvantages of open-ended questions:

Advantages

- Provide the interviewee with an opportunity to have his/her say.
- Are non-threatening to the interviewing parties.
- Enable the interviewer to gain background information on a topic.
- Elicit a wide variety of responses.
- Provide background for interpreting results.

Disadvantages

- Responses might consume a great deal of time.
- The responses are not quantifiable.
- Interviewer must be more skilled; otherwise, the interviewee might digress from the topic area.

To combat the possible disadvantages, I sent written questions via email. This way, I could study the responses for as long as necessary. I could then follow up as needed.

Closed-Ended Questions

Here, the interviewer has determined in advance the range of responses to a question. McDowell lists the advantages and disadvantages of these questions.

Advantages

- Are interpreted more uniformly by interviewees.
- Need less interviewing skill to ask closed-ended questions.
- Can eliminate some problems of definition and vocabulary.
- More questions can be asked in a shorter period of time.
- Are easier for most respondents to complete.

Disadvantages

- Answers might be incomplete.
- Interviewers talk more and might bias the responses of interviewees.
- Questions might be biased.

Both open- and closed-ended questions consist of primary and secondary questions. Primary questions are those that stand alone and make sense. Secondary questions reveal additional information about a topic. These questions are often referred to as probes. Nudging probes invite the interviewee to elaborate (e.g., “Tell me more, or please explain in more detail.”); hypothetical probes ask “what if”; reactive probes seek to discover interviewees’ reactions to specific statements (i.e., What types of working conditions make you unhappy?); and clearinghouse probes determine whether the interviewer has obtained all the necessary information (i.e., Is there any additional information you would like to add?) (33-34). Secondary questions help make the interview more conversational. I used some of these probes in my follow-up questions, which will be detailed later.

Arskey and Knight's *Interviewing for Social Scientists* also offered useful suggestions for designing interview questions (93-95):

- Vocabulary: Questions must be clearly understandable and appropriate for the social or cultural groups. Be careful about questions drawing on concepts—make sure they would be understood by all interviewees (e.g., sexual harassment).
- Prejudicial language: Use non-sexist, non-disablist, and non-racist language.
- Ambiguity: Avoid ambiguous language, so that all interviewees interpret every word in the same way.
- Imprecision: Terms or phrases such as "average," "a great deal," or "regularly" are vague, and hold different meanings for different people.
- Leading questions: Avoid leading interviewees toward a particular answer. Also avoid emotive language.
- Double-barrelled questions: Avoid asking two questions in one. Break the question into two.
- Assumptive questions: Avoid using questions that contain assumptions (e.g., Do you go to work in your car? assumes that the interviewee works and has a car)
- Hypothetical questions: While many interview textbooks will advise against hypothetical questions, these questions can provide useful information if the interviewees have direct experience with the issue being discussed. This is the case in my study.
- Personal or sensitive questions: Use these if the subject calls for them, and if the interviewer has established trust between him/herself and the interviewee.

- Knowledge: Do not assume certain knowledge on the part of the interviewee. In my case, I am assuming that all interviewees have participated in peer review at some point.
- Memory recall: Asking people to recall events from the past may not produce totally correct answers.

According to Arskey and Knight, I prepared a semi-structured qualitative interview. Such an interview involves primarily open-ended questions in a written questionnaire, and then follow-up questions to clarify any responses.

Several of Arskey's and Knight's recommendations could apply to face-to-face interviews or written questionnaires. They recommend opening with ice-breaker or easy to answer questions, which relate to the more "factual aspects of the situation or general background details" (98). (For example, in my questionnaire, I opened with: What is the purpose of a peer review process? See the rest of the questionnaire, p. 45, for the sequence of questions.) Then move on to the main questions, beginning with the simpler questions and progressing to more difficult, complex questions. Arskey and Knight say that it is important to remember that qualitative interviews are designed to encourage people to open up, so the interview questions should be flexible, not rigid. During the oral interview, interviewers must avoid imposing their own vocabulary and controlling the interview through language, as the point is to understand what the interviewee thinks. Interviewers should adopt the words and expressions that the informants use (100). Additionally, interviewers must always clarify the ambiguous phrases or concepts used by the informant. If they do not, "the subsequent analysis will be flawed due to

misinterpretations" (100). This advice applies to follow-up questions as well. For example, one of the respondents referred to the peer review process as "done properly"; I clarified his meaning of this phrase in my follow-up questions to him.

Arskey and Knight also emphasize the importance of building trust and rapport with respondents. They encourage interviewers to be open, friendly, and polite, and express gratitude to the respondents. They also encourage the interviewer to send a written thank you to all respondents. Since I interviewed many individuals with whom I have an established working relationship, I have built this relationship already. In my interviews with other individuals outside my organization, I discussed my background, and the purpose and context of my study in the body of the email in which I made initial contact. I explained what would happen with their questionnaires and sent each of them a copy of the chapter.

The Questionnaire

My questionnaire contained a variety of primary, open- and closed-ended questions. They are listed below:

1. What is the purpose of a peer review process?
2. What has been your role in the peer review process?
3. When you author (SME), how do you feel about having others read your work?
4. Describe the peer review process at your current organization.
5. Describe the peer review processes at the organizations you have worked for in the past (if applicable).
6. What are the primary advantages of a peer review process?

7. What are the primary disadvantages of a peer review process?
8. Do the advantages outweigh the disadvantages? Why?
9. Do the disadvantages outweigh the advantages? Why?
10. What specific experiences or factors led to the success of the peer review process(es) in which you have participated?
11. What specific experiences or factors led to the failure of the peer review process(es) in which you have participated?
12. How would you improve the peer review process(es) in which you have participated?
13. Under what circumstances should a company devote time and resources to peer review?

The Results

All fourteen individuals initially contacted responded to my questionnaires. The respondents included MTSs within my organization and several technical writers outside my organization. Everyone interviewed has acted as author and reviewer in the peer review process. (This answers question 2 of the questionnaire, so it will not receive further elaboration below. In addition, I combined some of the questions and answers for easier reading.) Below, I list each question and follow it with an analysis of all of the answers to each question.

What is the purpose of a peer review process?

I wanted to open the questionnaire by asking respondents to elaborate on what they thought a peer review process is, and its purpose. I thought this question would solicit a definition of the process, which I believed could vary greatly among individuals.

Common responses were to ensure accuracy and consistency; provide quality assurance; to ensure objectivity and reduce biases to produce a balanced product; to read for usability, to ensure that the content is developed effectively for the target audience (whether the audience consists of software users or classroom participants); and to ensure that an author's limited understanding of a subject does not impact the material.

A few comments differed, and I include them below. One MTS at Hill Associates states a belief not expressed by any others:

> I believe…the peer review helps with the initial creation; if you know your work is going to be reviewed by your peers, you might be more critical about your own work and produce a better quality output first time. There is the other side to this in that it may result in an individual thinking they do not have to be as careful or thoughtful as someone else will pick up the slack in the review. This depends on the review process and the culture.

The problem he notes is very real. I know of many cases of this, in which authors depend on later reviewers to catch their mistakes, not taking enough responsibility for their own work.

Another MTS comments that "at an underlying level the peer review process reduces the rework effort [in that it] supports better productivity from the contributors

while minimizing the impact on the review team." This primarily happens when the process begins early, so that the author gets feedback early in the draft process. A technical writer outside Hill Associates states, "In the private sector, peer reviews are important for improving the quality of proposals...the most important purpose is to improve the quality of proposals leading to a higher 'win rate.'" This respondent reminds us of the financial importance of such a process in the workplace.

Thus, some of the early positive thoughts that emerge about the peer review process are: it increases the quality of documentation, reduces biases in the material, directs the material at the target audience, and reduces the "rework effort." Some of the early drawbacks or areas in need of improvement are that it can result in sloppy work and that the culture of the organization often does not support the peer review process.

Describe the peer review process at your current (or past) organization(s).

The MTSs described the process much as I did earlier in this chapter, but a few noted that the process can vary depending on the scale of the project. Although the question seems objective, many opinions emerged about the process as well. According to one MTS,

> A simple review is often used for short documents. In this case one or more peers are selected by the author to provide a review of and comments on some form of document. For larger projects a more formal process may exist in which multiple reviewers are selected by people other than the author. If there are specific requirements for the review a process for the particular project may be defined. Frustration is more likely to

> come from this approach as the author may not select the reviewers. Also it is essential the process be understood and followed.

Therefore, in this MTS's opinion, the author should be able to select the reviewers, which implies some planning needs to occur. He also implies the process needs management, a leader to explain, track, and enforce the process.

Many other MTS's opinions surfaced as well; several complained, like I, that the process is flawed; much of the time it is ad hoc, not structured or formal. In fact, often the review is secondary and performed after the material is published. One MTS describes the current process as follows:

> Fractured, at best. Review may be bypassed completely if time does not permit. When time does permit, review is typically all over the map. Some reviewers I can count on to read the entire work, but the feedback is seldom very detailed. Other reviewers I know from the outset are not worth even making the request. Part of the issue is time: we are all so pressured to complete projects in short timeframes as we simultaneously teach that review becomes a secondary and, often enough, abandoned step. When it does occur, the review tends to be ad hoc. The reviewer gets all or part of the course, sometimes pipelined (in pieces); they are given a deadline for reading and returning review comments. Sometimes these are returned to the author, sometimes to the publishing organization. The author is under no obligation to act on the peer review.

Another MTS notes his frustrations with the current process. It is "somewhat abbreviated from past processes in that the author does not always get the final say." At some point in the review process, "time runs out," the comments are delivered to the publishing group, who "incorporate[s] them into the material, but I'm not sure who decides what goes (of the comments) and what doesn't go…" These comments bring up many important points. There is little or no structure, little or no follow-up, no accountability during the review process, and time constraints. A technical writer elaborates on the issue of time constraints:

> [The peer review process] is very specifically applied to our proposal development process. The larger and more complex the proposal, the more rigorous and structured the peer review process. Senior Management, as a matter of corporate policy, are always supposed to review a proposal before it is submitted. The process otherwise is less-defined, and more subject to the commitment of the lead proposal coordinator to make the time available for peer review. When the deadline is near, peer review procedures are among the first activities that are sacrificed to the clock.

Any workplace process operating against deadlines experiences time constraints. Peer review is one of the first workplace practices to be sacrificed when time begins to run out. A manager of the process, who will "watch the clock" to ensure there is time, is imperative.

In contrast to the MTSs at my organization, the technical writers from other organizations described the process as informal, flexible, ongoing, and "no big deal."

Opinion did not enter these individuals' responses to this question. One individual describes a process at a former job as "a matter of everyday life: engineering reviews, graphic and technical documentation reviews, logistics, and safety reviews all had a peer review component." Another technical writer shares his similar view:

> As an author or coauthor of proposals, I always seek out formal and informal peer reviews to improve my conceptual thinking as well as the quality of my writing. Similarly, I often serve as a reviewer for my colleagues, both formally and informally providing feedback on broad conceptualization as well as clarity of writing.

This writer is not intimidated by the process; in fact, he welcomes it. How can I encourage such an attitude?

While another technical writer said there is very little peer review at his current organization due to the nature of the business, he tells of a past process that "colleagues looked forward to. Management was not apprised of the outcomes; it got a bit competitive in a good way." I wanted to know more about this successful process, so I followed up with a nudging probe: "Can you explain the process in more detail?" He explained that typically three people read the material, in a serial fashion. No one person created or was responsible for the process; it was "sort of cosmic, started by someone who wanted a greater review. When others found out how useful it was, it just grew from there. Anyway, it just grew organically." The original author ensured the process's completion, not only because he/she benefited from the review, but also because the

review “motivated [the author] to finish on time for others, so that others would finish [on time] for them.”

I found many of the responses to this question very encouraging: the process can be a normal, everyday occurrence, one that is not intimidating, and “competitive in a good way.” These are the qualities of the peer review process I investigate further, so that I can offer suggestions for improving peer review in the workplace.

When you author (SME), how do you feel about having others read your work?

This is often a big issue in implementing a peer review process. I have admitted my own reservations about having others read my work, even though I know the advantages. Many of those I interviewed expressed the same concerns. One very highly respected MTS at my organization admitted,

> I don’t like it! I don’t like being wrong – it makes one look ill-informed. So, a peer review is essential because no one can be right 100 percent of the time. Sometimes one is technically incorrect, overlooks important points that should be included, produces biased material, has poor flow, etc. Once I get over my initial resistance I regard the process as a learning vehicle, as a way to improve future documents.

Another claimed that he preferred it, “because there is a greater degree of confidence in the quality of the work when my peers, who have similar or sometimes even greater knowledge than I, review and suggest improvements or affirm the quality of the work.” Others said they were fine with the process, but they did not like changes being made without approval; another said he was fine, but only when the reviewer is

qualified to review; another admitted he does not like it, but he realizes another set of eyes typically improves the product.

Appropriately, one MTS mentioned ego in response to this question, and how it enters into the process: “When you create content/code you tend to have a good deal of yourself in the product. Sometimes this is good and others it isn’t. When you are creating content you must set aside your ego for the good of the product. I am therefore obliged to have others look over what I do. I still may get a little irritated at the process sometimes, but I know it is good as a whole.” We will see the notion of ego arise in other responses as well.

Another MTS illustrates the advantages and disadvantages of peer review in a comment about how the process benefits the intended audience. He describes peer review as:

> the most frightening and rewarding experience at the same time. It is frightening to know that someone will critique your ‘masterpiece’ and yet it is rewarding to know that the intent of the process is to make the document better. We often forget that the purpose of writing is to have someone read it.

A technical writer outside my organization said, “[I am] pleased when anyone takes the time to read my work. Grateful they provide substantive feedback that helps improve my writing. Irritation and exasperation when the feedback is vague.”
Other writers said that they view it as a requirement; they could not do their work without it. So, why is the process of peer review so flawed at my organization, and I suspect, at

others as well? I believe it is primarily due to two issues: poor management and lack of the appropriate environment to foster its success. One MTS connects the peer review process to the workplace environment:

> The process does put pressure on you to perform. For me this is a good thing, I always perform better in pressure situations than when there is no pressure at all. I am the type to not want to be found lacking in my work. With this added pressure it is important for the environment to be a constructive one; otherwise no work would be done for fear of being overly criticized.

The lack of management and an inappropriate environment go hand in hand, as the manager of the process would be partially responsible for creating the constructive environment.

What are the primary advantages of a peer review process?

The overwhelmingly popular response is quality of the end product. Other advantages cited include consistency across an organization's documentation, currency, a fresh perspective from the reviewer, reduced errors, and knowledge sharing among peers (both of information and of ways for presenting technical information). The answers that varied from these popular responses came from the technical writers. One of them had this positive comment:

> Creativity is nourished by communications (best illustrated through the 'brainstorming' group exercise). Constructive peer review can tap the creative talents of others while strengthening the personal drive to exercise

> diligence and excel. Constructive peer reviews are healthy reminders that we always can and should learn from others (if you are the author) and that we always can and should teach others (if you are a reviewer).

The key words here are constructive and learning from others. An effective model of peer review must develop these attributes.

Two other technical writers both commented on the more abstract qualities of the process such as teamwork. I cover their responses in detail below. One commented that the process promotes teamwork, collaboration, and creativity (I did not hear it put quite this way from anyone within my organization.):

> The peer review process puts a model in place where the authors know ahead of time their work will reviewed by a colleague. There also needs to be process and procedures in place ahead of time. Be they a tool they use to assess each other's work or procedures or both. As for the creativity part, I have found since you will not be working in vacuum, often a synergy of ideas takes place when you review each other's work and share the feedback. I think it is the old sum of parts is greater than any one piece concept.

His response made me ask two other questions:

- In your experience, who has managed the peer review process?

  > I have found it really depends on the organization and body of work. In some cases, peer review was left up to the course developers or content authors. Our managers expected us to deliver a quality product. How we

> got there was really up to us. I think ideally, you need some sort of third party 'managing' the process. Even if the third party is another peer, having someone who can be objective is key. I have had success managing with a fellow peer. But that is hard. You need to also to have solid relationships for that.

- At what stage in document development did the management begin?

  > I think it works best no later than the first draft of work. It is more productive to get things reviewed right in the beginning than to wait until there is so much investment in the document it becomes overwhelming to rework it.

The idea of beginning the peer review process early in materials development emerges as a recurrent theme in the responses.

The other writer recounted one experience when a "strong communal spirit" developed during the peer review process. When I asked why he thought this occurred (as opposed to unhealthy competition and unproductive conflict), he attributed it to the individuals' strong relationships and common professional interests (i.e., all Society for Technical Communication (STC) members). I was curious as to whether the company did anything specifically to create the communal spirit, to which he replied, "Ha! Nothing." I was interested in hearing about this spirit, and about whether the group ever encountered conflict. I responded with a nudging probe: "Did conflict arise? How was it resolved?" He replied, "I wasn't privy at that level, so I couldn't say. However, I learned a lot by watching the process. If I was organizing a peer review process and a conflict

arose, I'd either be the intermediary or appoint someone else who was respected and knowledgeable." I explore one option for such an individual in a later chapter.

Ultimately, this writer felt that a peer review process, "Done properly, [can involve] a strong spirit of helping each other, learning from each other, and producing the best materials possible. The key seems to be in seeing the larger picture." I followed up, asking him to define a process "done properly" and "the larger picture." His answer to the first question stresses the importance of eliminating ego from the writing and review process:

> At my marketing firm that I recently sold but operated for over 16 years, we had an expression: 'Check your ego at the door.' It's all about the client, they are the ones who buy our work so that we can get paid and play with nice toys. I fostered that ever since the start of my company; if someone didn't subscribe, they either didn't last long or were never invited aboard. 'Done properly' then, means that the ultimate goal is to produce the best possible for the client.

The culture he promoted was of client first, employee second. No egos were allowed. He then explained how his company emphasized "the larger picture": "You might have to do some things now that you really don't want to do or even feel taken advantage of, but in the long run, they are good for business and client relationships." He would encourage employees to consider, "It's a year from now; how would you do it now?" He claims that "This long term perspective gave enormous clarity."

This larger picture is what my study addresses. It is not just about having a process that asks the reviewers to answer the "right" questions and to get the authors to incorporate the responses. It's also about encouraging this spirit of teamwork, of learning from each other, and helping one another. It's about putting the client first. That is why I devote an entire chapter to creating a sense of community within the organization.

What are the primary disadvantages of a peer review process?

Several individuals, inside and outside my organization noted that time (which relates to cost) is the primary disadvantage. Others include unqualified reviewers; addition of steps in the publication process; reviewers' biased opinions not ultimately improving the final product; the introduction of errors; the difficulty of managing the process, especially with limited resources; the time it takes to rewrite reviewed materials; and the assault on authors' egos that can occur during the process. The manager/facilitator of the peer review process must be mindful of all these disadvantages. The following chapters discuss strategies to help the manager avoid some of these disadvantages.

One MTS made an interesting observation about the extra time that the process can take: "In some cases it can result in sloppy work, relying on the peers to fix up work which if there is no formal process could result in limited peer review and hence no improvement being done." Therefore, authors may take advantage of the process, not taking their part of the process seriously. Such a review process is a waste of time in the first place.

A technical writer viewed the disadvantages as follows:

> [Peer review processes] take time. In proposal development, the deadline always imposes constraints, perceived or real, that tempt authors to avoid peer reviews. In the broader context, peer reviews represent a threat to one's self-esteem. Unconstructive feedback is destructive. Where those reviewing, and those being reviewed, feel a threat to their self-esteem or ranking in a group, peer reviews can become destructive battlegrounds of attack, defense, and counter-attack. An atmosphere of mutual support and self-confidence is critical. Keeping reviewers anonymous to the author and from each other is a poor, but effective, substitute for having a true atmosphere of mutual support.

When I followed up with this writer about how a company creates an atmosphere of mutual support and self-confidence, the writer responded,

> My company specifically avoids compartmentalizing its technical areas of expertise. While we have 'sectors' with sector coordinators, lists of who belongs to which sector are specifically prohibited and absent. Rather, technical experts are encouraged to associate around work opportunities. The company does not monitor or report on which sectors win the most work. This helps create an atmosphere of mutual support to contribute value to proposals. This is a characteristic of our corporate culture, specifically endorsed by and shaped by its president.

The lack of divisions in the organization promotes an environment in which everyone is part of one group: the entire organization. Everyone then works together to achieve the organizational goals; competition among employees is decreased.

Other technical writers had some very interesting input to this question. One said, "[The process] can be time consuming but effective project planning can account for that. It requires buy-in from all participants. (Maybe that is not a disadvantage but everyone has to agree to play nice and not take feedback personally.)" I asked three follow-up questions to this response. His answers follow each question:

- *How do you get the "buy in"?* I think buy in occurs if the following are in place: 1) Management is on board and supports it. Then people understand this is how the organization does business; and 2) The work environment is one where people feel safe and secure. And trust and respect each other.
- *How do you get participants not to take feedback personally?* You need to have a certain amount of trust and mutual respect built up between peer reviewers. Without that, this process becomes emotional. If the respect and trust is not there, leaders need to work on that first.
- *Have you experienced conflict during the process? If so, how was it resolved?* Oh yeah! If the parties cannot work it out themselves, they need some sort of mediation. Be it a manager or mutually agreed upon peer, people who come to conflict over this need support and assistance or the situation will escalate.

Another technical writer commented, "At its worst, the process can be cut throat with colleagues trying to out do each other, rather than focusing on the benefits the

process can bring to everyone involved." He personally had not seen this occur, but he had heard of situations in which it had. I would not describe the process as cut throat at my organization, but too many MTS focus on their own ego, and not on "the benefits the peer review process can bring."

Do the advantages outweigh the disadvantages?

For the most part, everyone answered yes, sometimes with qualifications. At Hill Associates, we primarily sell two products, our instructors' subject matter expertise and our training materials. Therefore, most MTSs view a peer review process as a way to improve one of our two products, and increase our potential to make more money. The return on investment is high. As one MTS puts it, "Our bread and butter is linked to quality. As soon as the market (and our customers) perceive us as 'just another trainer,' we will be out of business. Spreading knowledge also improves our ability as instructors."

Two of the writers agreed that the advantages outweigh the disadvantages. One expressed:

> No one exists in isolation from others. We need each other, and sometimes even bad feedback feels better than being ignored. Peer reviews can provide a structured and facilitated approach to improving the efforts of one member by tapping the expertise and creativity of others. The end result is a written document for sharing to a broader community.

The other writer answered with a resounding yes: “Absolutely! The quality and usability of material is much higher when content has gone through the peer review process. In addition,… I have found peer review reduces rework after material is released.”

The respondents who did not respond with a resounding yes (within and outside my organization, MTS and writers alike) cited situations in which the disadvantages actually outweighed the advantages: lack of strong process leadership, lack of supportive environment, the review process turning into gripe sessions rife with tension, and lack of commitment to the process. One MTS made the following observation concerning commitment:

> The process falls down if there is not a real commitment to it by all parties involved. Sometimes the reviewer simply gives the material a rubber stamp of approval. In this case no one benefits as there is no real review. A second manifestation of the issue can be when the reviewed is not committed to the process. Their reaction may be simply to accept all suggestions without the opportunity to discuss, debate, and potentially learn from the process. Bottom line is the process only works when taken seriously by all parties.

Therefore, according to this individual, and implied by others, an environment of positive, productive discussion and debate is crucial to the success of the process.

What specific experiences or factors led to the success of the peer review process(es) in which you have participated?

Common answers were egoless reviewers, qualified reviewers, reviewers and authors who respect each other, extreme organization, and willingness to pull together as

a team. As stated directly or indirectly in earlier responses, many of the respondents said that a corporate culture of respect is critical. One MTS at my organization put it this way:

> The author and reviewer have to have respect for one another and their capabilities. The reviewer has to understand the context in which the product is to be used and its purpose within the context. The author and reviewer have to be able to have open and frank discussions about the content.

During such open and frank discussions, conflict will inevitably arise. As some respondents indicated in earlier responses, someone must be in a position to mediate the conflict to ensure it remains positive and substantive, and does not damage working relationships.

One technical writer detailed the way that one organization developed a culture of mutual support:

> There was a strong sense that not having to report failings to management helped the process be honest and positive. Some people were concerned that their perceived deficiencies would result in poor performance reviews and hold them back professionally. That fact that it was between colleagues created a stronger bond.

The fact that the review team collaborated to improve the document (on their own) created group cohesion. Working together, they all made each other look better in the eyes of the organization.

What specific experiences or factors led to the failure of the peer review process(es) in which you have participated?

Often failures can be more instructive than successes. In response to this question, time was the chief complaint, with lack of management/management support a close second. Only one person—a technical writer—said he has never been involved in peer review processes that failed or were detrimental. At my organization a couple of the MTSs comments sum up everyone's feelings:

> Peer review failures come when the author is intransigent and the reviewers do a cursory review. Inclusion of 'this sucks' comments has led to numerous peer review failures and a tendency of the authors to avoid the process in the future. The interpretation of 'open and honest' comments is a key part in the success or failure of peer review.

> Indifference (in some cases), and lack of time in others. If the peer review process is not valued and supported from the top, and followed through on, then it becomes the whim of the reviewers, and whim is a whimsical thing. Another is human nature. When the author is free to disregard the peer review and go to publication anyway, there is little motivation for the peer reviewer to actually spend time doing the deed.

Another MTS agreed that there should be well-defined consequences for not meeting specific deadlines defined for the peer review process. He also felt that "there should be a way of measuring the quality of the peer review and have ways of including that in the performance of those involved."

One of the MTSs only found the process useful if he learned something (whether acting as author *or* reviewer):

> As a reviewer: Failure to incorporate any suggestions eventually leads to hand waving—superficial review for the sake of checking it off. Who wants to expend time and energy reviewing a document to see comments and suggestions immediately discarded? If authors don't learn (or are unwilling to learn!) from the review process then the time is not well spent. Future time lines can't be reduced.
>
> As an author: A worse situation is when the reviewer isn't serious and careful about the process. In this instance what's the point of the review? As an author I look for a critical review because I accept from the outset that the outline or draft isn't perfect. When the review comes back as 'It looks good to me,' it was a waste of time.

Again, the process must be taken seriously and be given careful consideration. These individuals want the reviewers to engage with the material and provide thoughtful feedback. However, even though they say they want this feedback, they have already expressed their discomfort with the exercise, and others have expressed their frustration with unconstructive and/or destructive comments. The company environment and lack of process management often contribute to the failure of the process. An MTS agrees:

> Failure can occur when the reviewer and [author] have conflict over ideas and cannot resolve the issues. That is why it is so very important that all

> truly understand the process and check [their] ego at the door. The reviewer and author need to listen to each other and try to see what the other is trying to say.

How would you improve the peer review process(es) in which you have participated?

Recurring themes here include better management; better selection of reviewers (only those who truly know the subject material and those who respect the author and the process); clearly defined expectations of the process; more time devoted to the process; and better communication. One MTS suggests that:

> Reviewers should be in on the development process from the beginning. They need to know the intent and direction of the course [content] to see if it hit the target. It is one thing to use course objectives to determine the basis of content but what if the objectives are wrong for what the course is intended to do? The developer/author and reviewer need to be teamed from the beginning.

Another MTS suggested that improvements in the corporate culture need to be made in order for a peer review process to be successful:

> For me the key is having a constructive environment and encouragement from management for the process to work. Projects with very formal review steps work for a while but real value comes from willing participation from all, which comes through the environment and culture.

Here, he states that the environment and culture are more important than the specifics of the process itself. I have believed this all along, which is why my next chapter is devoted

to creating a sense of community in the organization, to help the peer review process succeed.

A technical writer expanded on the use of tools to improve the peer review process, but notice how thoughts about participants' feelings arise:

> Technology tools now offer significant benefits to support review processes (e.g., Track Changes in Microsoft Word, embedded audio, Acrobat Reader, and Novell's Groupware), but reviewers and authors all need to understand and use them. Reviewers often feel imposed upon and resent being asked to use a particular technology tool. Authors similarly feel resentful if they get feedback in forms that seem confusing or unworkable to them. For example, some might be more comfortable with audio comments, than with written comments; some may prefer hard copy and some may prefer soft copy. Given the opportunity, I would train both reviewers and authors to use common technology tools and guidelines to support the review process.

Even in the discussion about tools, the technical writer maintains that the tool "must suit" the authors and reviewers. Another writer said he would improve the process by developing the soft skills of process participants and by creating a respectful, trusting environment. He has found that communication skills, trust, respect, and teamwork are crucial to the process, as well as "feedback loops, sharing of ideas, and quality checks":

> I have laid out each component of the peer review process with colleagues and managers, gathered their feedback, and shared their ideas. I have done

> this to assess the quality of [the material] too. If trust and mutual respect are in place, the peer review process constantly improves. I have also experienced total breakdown with the peer review process. Upon review as to why, the peer review process that was in place was okay, but the soft skills were not. Mutual respect and trust were lacking, and it made it almost impossible for the group to employ productive peer review without getting emotional and downright nasty.

I have encountered such a "breakdown," which is why I wanted to perform this study in the first place. I began this study to determine why it occurred and if I could help repair the process. From the above writer's comment, it is clear my organization is not alone.

Under what circumstances should a company devote time and resources to peer review?

Most respondents agree that all company material, internal and external, should receive some review, the level of which is determined by the document type and audience. One MTS's response summed up many individuals' responses to this question:

> The type and purpose of a product should dictate the level and detail of a peer review. For example, if people are learning from a document the review process should be comprehensive lest incorrect information is conveyed. If a company's reputation is based on the document content, then the review should be thorough. If the product is to be reused or repurposed it should be thoroughly reviewed. However, if the product is a 'throw-away,' then the review could be less stringent, but still done.

However, some respondents took the opportunity to summarize their feelings of the process, and the permeating theme of culture surfaced once again as the most critical factor to its success:

> [Peer review] needs to be part of the corporate culture with all materials, products, and services that are released to internal and external customers. This is a proactive approach to developing materials, products, and services. If an organization is not doing peer review in some manner they more than likely have larger issues that need to be dealt with first!

Therefore, to this writer, the culture that *accompanies* successful peer review is critical to an organization's overall success. But what are the "larger issues that likely need to be dealt with first?" I followed up with the respondent, to which he replied:

> Peer review, and similar processes, are part of the larger picture. Organizations that employ this on a micro level often have other initiatives in place on a macro level (i.e., peer-to-peer performance assessment, a quality process that goes from bottom up and top down etc., an open, honest, and professional work environment, high productivity, and few office politics). Management also work collaboratively with employees so peer review just becomes another natural part of the culture.
>
> When peer review is not in place, it is… a symptom of larger [organizational issues] (i.e., lack of respect and trust between employees,

> managers, and departments, the walls are up between work groups, the communication flow, if any, is lacking, and office politics abound).

Another writer returns to the issues of learning from the process and to developing the sense of trust and respect:

> The process is especially beneficial when there are seasoned professionals paired with many neophytes. The learning that can occur can be extraordinary—I've seen it in action. It must be nurtured, however, or the neophyte can easily be overwhelmed, so pairing people carefully seems critical to success. There must be a sense of trust.

When I asked, "Can you describe in more detail the learning you've seen from the peer review process?", he elaborated,

> You've just got to take the personality out of it, so that people's feelings don't get hurt or they respond as if you are attacking them. There is only one way to do this: you just have to know and respect each other. This is not an easy thing to achieve for most firms, simply because it is either not recognized as important or not valued. However, without that, it's difficult at best.

To take the personality out of it and foster an environment of mutual respect, this business owner/ technical writer instituted the following at his company: an office space with no doors—to promote open, frequent communication; a culture of peer review, in which everyone's work was reviewed by everyone else, on a regular basis; an attitude that the clients came first, and employees came second; a spirit of "working together to

get better"; an environment that emphasized promoting one another, not pointing out others' deficiencies; and finally, a culture in which all employees took credit for jobs well done. (We also saw this earlier, when another writer said his organization "does not monitor or report on which sectors win the most work, [which helps] create an atmosphere of mutual support…") This business owner led by example, and his employees followed his lead.

Conclusion

I began this study because of an interest in peer review since graduate school. An editor at a corporation that writes and teaches its own course material, I wondered how collaborative writing theory and other peer review studies could inform the unsuccessful peer review process at my organization and others like mine. What factors are key in improving the process?

Before turning to the published studies, I wanted to perform a survey of the writers in my organization and other local writers. I began with my own ideas and observations, many of which were corroborated in the study, but I also discovered new ideas, or discovered new ways of looking at my ideas. For improving the peer review in the workplace, the predominating theme that surfaced again and again was "improve the corporate culture." Create an environment of mutual respect, trust, and teamwork. Such an environment fosters good communication and an atmosphere in which employees check their egos at the door so that they can openly engage in healthy debate, without ruining any working relationships. Another popular theme that emerged was that poor management often leads to failed processes. Poor management often leads to the peer

review process being neglected altogether, and to conflict between author and reviewer(s). I believe these two issues—creating a sense of community in the organization and appointing a peer review process manager—contribute greatly to the success of the process. I focus on these issues in the next two chapters.

Chapter 3: Creating a Community in the Organization

Abstract: This chapter focuses on the first prominent theme that emerged from my questionnaire responses: to improve peer review in the workplace, improve the corporate culture. Here, I explore the social aspects of collaborative writing in the organization—specifically how to create a sense of community. Creating communities involves building effective teams—teams consisting of members that trust one another and that successfully negotiate conflict in order to produce high-quality documentation. Such communities can operate face-to-face, or online, but they share many of the same characteristics.

The responses I received emphasize the importance of mutual respect among reviewers and the necessity of mediated conflict resolution. Ultimately, all of the research indicates that a successful collaborative writing experience involves very careful planning.

Writing as a Social Act

Writing as a social act has received much attention in the field of rhetoric and composition, as has the notion of "community." "Several rhetorical theorists have traced the term discourse community back to the sociolinguistic term speech community" (Howard 62), but they have tried to distinguish the concept of a speech community from a discourse community "to signal the focus on the written rather than the spoken" (Freed and Broadhead in Howard 63). In his own research, Howard found that a "spatial view of community has dominated the communitarian literature" (64). In the early 1950s, Hillery

surveyed 94 definitions of community and found that “a majority of the definitions include area, common ties, and social interaction as important elements of the community” (in Howard 64). These are still important elements in discourse communities in the modern organization.

Lester Faigley has studied nonacademic writing as a social act. In “Nonacademic Writing: The Social Perspective” in Odell and Goswami’s pivotal *Writing in Nonacademic Settings* (1985), Faigley defines the social perspective of nonacademic writing as that which “forces researchers to consider issues such as social roles, group purposes, communal organization, ideology, and theories of culture” (236). He asserts that “writing is a social act that takes place in a structure of authority, changes constantly as society changes… and shapes the writer as much as it is shaped by the writer” (236). According to Faigley, research on writing from the social perspective seeks to answer some of the following questions: What constitutes a discourse community? How do individual writers come to know the beliefs and expectations of other members of the community? How do individuals cope with texts—how do they learn to read texts and make meaning in texts in a particular community? (241)

Odell’s article in the same work, “Beyond the Text: Relations Between Writing and Social Context,” also examines the social aspect of nonacademic writing; it considers the organizational context in which writers do their writing. He studied supervisors and administrative analysts in a state bureaucracy, whose principal tasks were to assess proposed legislation and to design procedures to implement legislation and agency policy. Odell observed the interaction between two discourse communities—the analysts

and the lawyers. The analysts used the interpersonal strategies below when discussing a piece of legislation with the lawyer who had drafted it.

- Paraphrasing or summarizing the lawyer's comments.
- Acknowledging her lack of knowledge or indicating an area in which she needed help.
- Avoiding arguments. During a disagreement, she did not attempt to defend her assertions against the lawyer's objections, but rather, indicated her willingness to check on the source of her information.
- Varying her role in the discussion. At times she allowed the lawyer to determine the direction of the discussion, but at other times she was very assertive about how the conversation would proceed and carefully tested the lawyer's assertions (261).

Ultimately, in successful interactions, both the lawyer and the analyst "behave in such a way as to encourage new information. In this manner, the analyst increased her chances of obtaining information that would let her do an important part of her job—assessing ways in which the legislation might affect her agency" (Odell 269). These interpersonal strategies led to successful collaboration across the two discourse communities.

Odell's research highlights another primary research question often asked when examining writing from the social perspective: What role does conflict play in successful collaborative writing communities? Rebecca Burnett has researched this area, finding that student teams must engage in conflict to produce high-quality materials. Ingram and Parker (2002), in their search for a gender-based communication style, found that gender

has less influence on team interaction than the way in which team members deal with conflict and issues of trust. This chapter examines writing from the social perspective, particularly the role conflict plays in successful writing communities, and how these communities negotiate and resolve conflict. My questionnaire responses and the scholarship emphasize that a peer review process can succeed only if the reviewers feel as if they are part of a strong, collaborative writing community. A successful peer review process will incorporate many of the tactics and ideas explored here for creating successful writing communities.

An Examination of Social Theories and Workplace Communities

Jo Allen and Carol Thompson's "Social Theories, Workplace Writing, and Collaboration: Implications and Directions for Research" describes five dominant social theories—structural-functionalist theory, conflict theory, interactionist theory, Marxist/critical theory, and feminist theory—to "explore the relationship between workplace writers (as a community)" (Allen and Thompson 174). The article is a follow-up to Faigley's "Nonacademic Writing: The Social Perspective" and Odell's "Beyond the Text: Relations between Writing and Social Context." Allen and Thompson use the term community to mean "a group that is…loosely bound by the same rules, contexts, understandings, and applications that has set it apart from other groups." The group is "not necessarily characterized by consensus, but by a familial ability to tolerate or adjust to each other's general expectations, attitudes, and behaviors" (175). This notion of consensus arises again and again in the workplace collaboration research.

Allen and Thompson begin by explaining their own collaborative effort in writing this article—Allen is a technical communicator and Thompson is a sociologist. They realized that in the process, they had to overcome differences and conflicts (which they note is a harsh term, given the "harmony of their effort"), and "reach agreement based on the conventions of their subcultures" (194). They say structural-functionalists would argue that "the agreement about the rules [of each subculture] is necessary in order for collaboration to occur" (194). Thus, each participant in a workplace community must understand and respect the background of other participants—important to establish early in the peer review process. The respondents in my study noted the same issue.

The authors note that not all collaborations are as harmonious as theirs, and can sometimes result in writers simply not being able to work together. In this situation, conflict theory would require viewing "collaboration as a series of differences, with the power elite model demonstrating that one collaborator has to win an argument about the structure of a sentence, the organization of text, etc." (195). Thus, although "conflict may sabotage the collaborative process, conflict theorists would argue that collaboration will always include conflict" (195). For example, the role of conflict theory in nonacademic writing is "situated in the writer/editor relationship. Evaluations of quality…become fertile ground for conflict, especially factoring in the theory's requirement of power as an essential component of relationships" (182). Therefore, workplace collaborators must accept that conflict is inevitable in some relationships and work to resolve it. The facilitator of the peer review process must be keenly aware of this issue and step in when

necessary to mediate the conflict. Chapter 4 argues that the technical editor should act as the facilitator, and why.

The authors also use interactionist theory to describe collaborative situations. Different people on project teams will have different, particular systems of working. For example, writers use certain symbols to denote weak areas (e.g., the highlighter tool) that they want to reconsider later. The successful formation of a community means "each participant's having to learn this system of symbols" (195). Interactionist theory also provides the opportunity to "investigate each member's attitudes toward the symbolic structure of writing and collaboration. For example, what does the schedule signify to the members—a good way to manage a project or a rigid timetable?" (196). Led by the technical editor, peer review team members must discuss possible pitfalls early and agree upon solutions.

Marxist/critical theories "allow us to sidestep the issue of negotiation altogether" (197). These theories recognize hierarchies of power within the enterprise and between the writers and the enterprise owners. They require "us to see the members of the group as tools for the goals of the organization. It may work to the corporation's benefit to have 'petty' conflicts within the team…because they distract the team from larger issues involving conflicts of interest or conflicts of ethics" (197).

Now that many collaborative teams comprise men and women, a consideration of collaboration from a gender perspective is necessary as well (Lay 1989, 1994). Research in the 1990s "still noted women students relegated to the position of 'clerical workers,' women being silenced or ignored in group interaction, and of women having difficulty

asserting themselves in mixed-group situations" (Flynn in Allen and Thompson 198). Allen and Thompson note that other researchers have addressed the ways women handle conflict in collaborative and management situations, combining gender theory with conflict theory (198). They note that it is also important to find out how often women assume the role of project leader in collaborative encounters? If so, is their work still devalued? Why or why not? My study does not specifically address these gender issues, but they are important issues for further study.

The authors feel their collaboration is best described in terms of the pluralist model (Lamb, 1991), which presents collaboration "as negotiation and reconciliation, rather than win/lose conflict" (195). In the pluralist model "the collaborator chooses her battles carefully," willing to give in some circumstances, and holding firm in others, and also "acknowledges strengths" of those with whom she collaborates (195). Although all the above social theories impact workplace communities, I believe the pluralist model is the one the technical editor must employ when facilitating the peer review process in the workplace, and the one the technical editor must encourage the peer reviewers to incorporate in their reviews. The successful peer review process will encourage negotiation and reconciliation of conflict, not strive to identify the winners and losers.

Types of Workplace Conflict

A prominent researcher of conflict in collaborative writing in academia and the workplace is Rebecca Burnett. She classifies workplace conflicts as affective, procedural, and substantive:

- Affective conflict: Interpersonal disagreement

- Procedural conflict: Conflict that relates to procedures that govern a group's operation
- Substantive conflict: Conflict concerning the substance of a document or presentation

Affective Conflict

Burnett says that one way to avoid affective conflict is for individuals to acknowledge their biases and prejudices and try hard not to let them interfere with collaboration. Another way is to "pay attention to differences and changes in 'footing' during collaboration. Footing is a term cultural anthropologists use to describe the underlying assumptions people make about a particular situation; these assumptions govern the way people act" (Burnett 2005, 167). As people work together, they learn more about each other, and their assumptions change. Being aware of these changes is critical to avoiding affective conflict.

Procedural Conflict

Burnett asserts that experienced collaborators begin a project by "agreeing on several key factors that affect procedures" (167):

- Meeting details
- Team roles and responsibilities
- Productive management of conflict (i.e., how to encourage substantive conflict, how to negotiate among alternatives and resolve disagreements)

According to Burnett, “open discussions about procedures can strengthen group cohesiveness, both the feeling of group identity and the group’s commitment to the task” (168).

Substantive Conflict

Experienced collaborators address substantive issues early and agree on:

- The purpose of the collaboration
- Project objectives and outcomes

However, Burnett asserts that collaborators should not reach consensus too quickly. To defer consensus, she believes teams should purposely engage in cooperative, substantive conflict, which she defines as voicing explicit disagreements and considering alternatives. Such productive discussions can “lead to increased commitment to the team effort and potentially a better product (171). She offers the following suggestions for engaging in productive, substantive conflict:

1. Ask provocative questions.
    a. Ask questions that focus on potential problems between various elements: “How can we explain these examples so the readers will be able to understand them?”
    b. Ask collaborators for elaborations, clarifications, and explanations of statements, and be able to offer your own.
    c. Ask for reasons to support arguments and work on developing and supporting well-formed arguments of your own.
2. Take a productive and critical perspective.

   a. Try never to settle on one solution or decision without having first considered a couple of alternatives.
   b. Assume the role of devil's advocate.
   c. When you disagree with something, say so; be able to support your disagreement and be able to offer alternatives.
   d. If other collaborators don't generate substantive conflict by raising alternatives and voicing disagreements about your ideas, bring up objections yourself.
3. Separate ideas and personality.
   a. Don't mistake an objection to your ideas as an attack on your character, personality, or intellect.

The investigation that results from substantive conflict helps "collaborators examine alternative views, bolster arguments against attack, refine explanations, delete weak positions, and clarify vague or misleading statements," ultimately leading to higher quality documentation (172).

Conflict Resolution in the Successful Collaborative Writing Community

Burnett discovered the effectiveness of substantive conflict during a descriptive study of selected upper-level business communication majors, which she details in "Conflict in Collaborative Decision-Making." For the study, she created a workplace simulation, which included a complex writing task, and documented the interaction among coauthors. Burnett observed that the two ways of deferring consensus through

substantive conflict—considering alternatives and voicing explicit disagreement—were "nearly always part of the decision making of coauthors who produced high-quality documents. In contrast, both types of substantive conflict were far less frequent among the coauthors that produced low quality documents" (160). Deferring consensus allowed the collaborators to "develop rationales for their ideas, identify the strengths and weaknesses of their individual and collaborative positions, and pose more effective arguments" (160).

Burnett says the results of her study suggest that workplace coauthors:

> should consider the potential value of engaging in substantive conflict as they collaboratively plan documents. Writing teams…in the workplace could focus on the *process* of collaboration, recognizing that the nature of their interaction and decision-making could influence the quality of the document they create (160-161).

She suggests that it is important for workplace collaborators to understand "all kinds of conflict and the relationship among them" so that they can allow substantive conflict to improve the process of decision-making (161).

An effective peer review process will engage reviewers/subject matter experts in substantive conflict—inviting them to consider alternatives and voice explicit disagreement early in the document development process. The technical editor will be responsible for guiding collaborators through the conflict and leading them toward effective solutions. The coauthors in Burnett's study were students, and they had to resolve the conflicts themselves, without a mediator or manager. The substantive conflict

they engaged in often meant longer planning sessions, which *sometimes* translated to higher quality documentation. However, Burnett says that "productive substantive conflict involves more than time; coauthors should deal in a serious way with topics of substance" (160) The students may have disagreed with one another, but "they also offered justifications and explanations, considered opposing views, and tried to create sound arguments" (160).

Bernhardt and McCulley describe how they encouraged substantive conflict in cross-functional, drug development teams in a pharmaceutical company in "Knowledge Management and Pharmaceutical Development Teams: Using Writing to Guide Science." The authors argue that "the writing and science benefit from processes that intentionally bring issues to the full team's consideration" (30). As writing consultants, they helped the teams capture their knowledge in "seed documents," which led to successful document prototypes and drafts. The seed document is the first step in a systematic document development process for new drugs.

While I focus on writing within a professional boundary—among Members of Technical Staff or Subject Matter Experts—mediated by the technical editor on the outskirts of this boundary, the article provides useful information about facilitating successful collaboration for all writing communities. The authors claim that cross-functional teams are recent innovations, and team members are still figuring out how best to work together to achieve a goal. Thinking of writing as a collaborative process, as opposed to an individual effort, does not come naturally, especially since most of the

authors within pharmaceutical companies are scientists and technicians, accustomed to working alone. In addition,

> Reviewers are unpredictable in their approaches to the documentation, with some going to the data first to gain an unbiased view, some going to the key study reports, and others going to top level summaries to get the big picture. The dossier must be accessible at all levels, must be internally consistent, and must convey the most important messages in emphatic positions. These complex situational demands pose complex challenges to the development team (24).

Therefore the new drug documentation has many different audiences, and must be understood by them all. The seed document helps achieve this goal.

The seed document approach makes writing a social activity from the beginning. The document consists of the following columns, which encourage conversation among team members:

- Issue column: Sets the challenging question
- Response column: Captures in a declarative statement the position the team will argue
- Rationale column: Captures their logical argumentation or support for this interpretation
- Support column: Lists studies, evidence to support the response and rationale

The seed document is issue-focused so that teams concentrate early on the most difficult development challenges. It addresses conflict early in that it allows the team to

explore differences in how the members define the key issues and determine what must be done to address those issues. The seed document encourages team members to participate early in invention activities (brainstorming the issues, working out tentative responses, identifying sources of support or gaps in support) and review activities (reviewing the seed document and crafting the language that captures the issues and responses). Early review activities "can evaluate whether the important issues have been addressed, and if the strongest arguments have been put forward. The author can resolve tough issues early on; the result is review sessions that go more smoothly" (29).

As much of the collaborative writing research suggests, this article also implies that an effective peer review process will involve a team approach from the outset. A core group of people should meet early in the process to establish the important issues that a certain document will address. They should reach consensus on an outline/seed document (i.e., resolve conflict) before the author even starts writing the actual document. During a review, the same core people review the content, which should result in fewer debates about the material covered and the way in which it was covered.

Bernhardt and McCulley note an example of poor documentation about a drug that lowered blood pressure, which resulted from ineffective team processes. Unfortunately the drug had to be taken twice a day to be effective and safe, and studies have shown that most people cannot remember to take a drug twice a day (once-a-day dosing has better results). Even so, this drug made it to the approval stage, at which point the marketing department said it would not be able to sell the drug. The authors cite the problem as poor communication among team members (e.g., the chemists and the

marketing people did not communicate early on, and the chemists did not know that there is a problem selling drugs that require two- and three-day dosing). The authors believe a seed document would have asked early on whether there were any issues associated with frequency and dosing; it would have also exposed "the alternative viewpoints, the conflicts, and the competing needs" and invited "debate [on] the issues until resolution" (29).

To make the seed document work in practice, teams need to do the following:

- Be willing to work cross-functionally to understand other areas and issues, and to see the value in bringing together people with differing expertise
- Be willing to be forthright about the development issues—be willing to put in writing the most troublesome and challenging development tasks
- Be willing to put partially formed responses, and very rough drafts, in front of other team members, for strategic review
- Be willing to return to the seed document periodically and evolving drafts to see that all issues are captured and that responses and support are lined up in the most effective arguments
- Be willing to work with the seed document, to know what represents current information (go online if necessary to get most current electronic documentation)
- Be willing to write reports that put main messages and issues in prominent positions, and that directly address the most troubling areas of development prominently and with the best available means of persuasion (32)

Such a process will need a leader, because every team will have members who do not support all of these actions; I believe the leader should be the technical editor. I discuss why in chapter 4. The authors cite one company they worked with that placed a technical communicator on each team as the documentation expert, which had positive results. This person acted as the report author and the person who "owns the seed document, who leads the team in electronic knowledge sharing and documentation practices, and who helps the team keep track of what they know and what they will argue" (33).

Palmeri's study of interprofessional collaborative writing in a medically oriented law firm (2004) also explores collaboration across professional boundaries, and the conflict that often results. He explores collaborative writing among nurse consultants, attorneys, and professional writers in a law firm. The nurses and the attorneys often engage in conflict, which sometimes negatively affect processes, but the conflict often results in documents that more effectively address the varied target audiences. The firm hires professional writers to mediate the conflict and merge the differing discourses into effective, persuasive documents. The article stresses that little research has focused on collaboration across professional boundaries, and while my study focuses on collaboration within a professional boundary, Palmeri offers useful, applicable information on professional communicators as mediators of conflict.

Palmeri first notes some of the disadvantages of conflict, which would apply even to collaboration among professional peers: "Conflict can slow down the writing process unacceptably and failure to resolve conflict can result in muddled, incoherent documents"

(54). However, there are advantages too. In the law firm, conflicts helped "ensure that the final documents spoke effectively to their diverse legal and medical audiences" (54). For example, whereas the attorneys preferred simple explanations and succinct summaries because they're mostly appealing to jury members, the nurses preferred to document detailed technical information, because they're writing for medical personnel. In one case, a nurse's information was useful in the deposition of medical personnel at a nursing home accused of wrongdoing; the information allowed the attorney to persuade a medical audience (the nursing home director) that her staff had failed. Palmeri notes that the firm encouraged such conflict because of the positive outcome—if it had forced the nurses to adapt their writing to a legal audience, it would have lost their valuable insight of the expectations of medical audiences (55). Thus, as Burnett notes, conflict can be healthy and effective, producing a better product. Even members of the same professional community will experience conflict, and it is something the technical editor can mediate, during the collaborative writing process.

In the law firm, the respected professional writers acted as mediators, creating final documents that combined the technical information from the nurses and a persuasive narrative style for the attorneys. Writers also acted as reviewers, reading for grammar and for readability (e.g., Does the document reach the intended audience?). Palmeri notes that for the relationship between the technical communicators and content specialists to be most effective, they must be able to spend time with each other discussing documents, and to be geographically located close enough to one another in the office to allow and

encourage informal conversations and open communication. A successful peer review process will incorporate these suggestions as well.

The Large-Scale Collaborative Writing Community

Geoffrey Cross is known for his studies of large-scale collaborative writing, but they have implications for group writing in corporations of all sizes. In *Collaboration and Conflict*, Cross details a five-month study of a collaborative writing effort at a large insurance corporation. He examines why the group writing of an executive letter was largely unsuccessful: one reason is that "participants did not anticipate many of the conflictive or accordant situations that arose and had no strategy for making the situations productive" (128). A "get-along attitude" was promoted, which often encouraged premature or unproductive agreement, or produced false results. Several factors that affected the group writing process—which consisted of poorly managed conflicts—are explored below.

- The hierarchical distribution of power, typical of large organizations, "excluded viewpoints that would have made the letter more successful" (129). Dissenting minority views were not preserved—as recommended by collaborative writing researchers—instead they were "pressured by higher ranking members to "buy in or get out" (94). Such conflicts were largely unproductive, "in some cases because the highest ranking disputant was not sufficiently informed of top management's views and in other cases because the information generated did not reach top management" (95).

- Ultimately, the letter conveyed an unbalanced perspective, because of conflicts over the degree of positive emphasis the letter should contain. Positive emphasis is advocated by business writing texts as *the* convention of business writing. While the CEO's candor and conservative, negative tone dominated initially, the President convinced the CEO that the letter should be much more positive and remove "all negatives." Cross asserts, "Had there been better communication and had participants identified and challenged the assumptions of the two stories, a more balanced perspective might have emerged, and the conflict could have been more constructive" (100).
- The group writing project suffered from inadequate direction. One editor said that "the thesis and outline for the letter should have been written in the planning meeting with the President and CEO so that ghost writers would have had a clearer direction" (101). Even though the executives may not have had all the information necessary at the beginning of the project, Cross states that "lack of top managerial input…allowed rival views to grow increasingly monovocal rather than to reshape each other through dialogue" (102). Burnett would call such reshaping substantive conflict.
- Conflict was often suppressed, which often became counterproductive "groupthink." According to Janis and Mann (1977), "groupthink can prevent coauthors from reconsidering ideas they had previously rejected, thus reducing the available options (in Cross, 1994, 103).

Cross mentions several other forces that contributed to the conflict that prolonged the letter's production:

- Serial communication
- Delegating of writing tasks (which increases the chain of serial communication)
- Different perceptions of audience
- Competing purposes of the letter
- Numerous audiences that would read the letter
- Changing cultural expectations (due to a changing organizational environment)

In discussing this last contributing factor—changing cultural expectations—Cross returns to the notion of substantive conflict. Whereas such a change often generates conflict, Cross believes the change could have had "heuristic benefits for the company had the cultures' tacit values been made more explicit and had group members been able to identify issues, and discuss, weigh, and select from or synthesize alternatives" (105). Ultimately, neglecting to openly discuss this cultural change resulted in a key audience being ignored in the letter.

More recently, Cross documented his study of writing in another large-scale corporation in *Forming the Collective Mind* (2001). This work describes and analyzes a three-month group writing process involving a 20-person cross-functional Core Team and more than 100 other collaborators at corporation of approximately Fortune-500 size. Cross tells the story of how a "data-processing (IT) department orchestrated the writing

of an SLA…to remain employed after a narrow escape from the ‘outsourcing’ axe” (8). The collaborative writing project encountered many obstacles and conflicts before finally succeeding.

The first project leader found it very difficult to get group members across the board interested, motivated, and engaged, and this project leader ultimately left to take over another department. Her replacement got the writing of the document put into the group members’ job objectives. Still, the group members resisted engaging in peer collaboration, so project facilitators ultimately assigned everyone tasks, trained core team members to lead collaborations, and oversaw the completion of the project (8). Cross’s study examines how the “group overcame its rejection of a teamwork approach to form a collective mind (term by Weick and Roberts, 1993),” that got the document done under a tight deadline.

Again, this study investigates issues related to forming a community of many members in a large organization, but the results can be applied to organizations of all sizes. How does a mediator or manager, in any size organization, facilitate the formation of a community, of a collective mind? Does the evolving formation of the document facilitate the heedful interrelation of the group members? Do physical surroundings help influence the formation of a collective mind? Does either face-to-face (FtF) communication or computer-mediated collaboration (CMC), or both, better contribute to the formation of a collective mind? Cross found that initially, both FtF and CMC failed, and succeeded only after the collaboration was provided its own space.

An important idea that emerges from Cross's study is that a common schema provides group cohesiveness. The organization's first planning meeting failed, because all group members had not read the SLA. Cross says, "Piaget noted that schemata must form in order for cognition to function because an integrated and differentiated schema 'presents a cohesive force. . .that is precisely the source of the assimilation of new elements'" (Piaget in Cross 171). During the first failed document planning meeting, "there was no shared schema in part because of a lack of heedfulness—few members had the draft fresh in their minds, and there were no copies distributed or referred to in the meeting." Only after group members had read the entire SLA, could they form a "reasonably common schema of the SLA. This common schema allowed assimilation and accommodation to occur as the group developed its document" (171). Bernhardt and McCulley use the seed document to encourage a common schema.

Lack of a clear schema at the organization "caused a lack of equilibrium—the [failed] meeting accommodated itself to each new topic with no continuity." Cross says that if a group only and constantly adjusts to the next topic, "total change" results (Piaget in Cross). Because the world is always new, it becomes incomprehensible. According to Piaget, there always needs to be a "combination of production (transformation) and conservation (something that remains unchanged throughout the transformation) occurring in knowledge structures. With only conservation, the world is rigid and unchanging" (Cross 171). Thus, if group members are to collaborate on a writing project successfully, they must first understand the starting point—what the existing document looks like, its content, *and* its ultimate purpose. Otherwise, there will be no group

cohesion and it will be unable to function as a successful community. This simply reinforces that for a peer review process to be successful, the group of reviewers, however small, need to understand the document's ultimate goals (of content, purpose, etc.) early in the process. The facilitator—the technical editor, as I argue in chapter 4—is responsible for planning/managing such early collaboration (outlining the document's goals in the design phase), which extends through to the peer review process.

Cross also posits that architecture played a role in creating a sense of community among the group writing the SLA. Writing at this particular organization was quite common, so it was difficult for this particular project to stand out. Project leaders convinced the Vice President to let the group use a high-visibility, glass-walled conference room (they denoted it the War Room) that "opened into the center of communication and power" (Cross 181). They wanted to let everyone in the organization know visually about the project. Cross believes that the SLA project's success was due in large part to this "innovative use of architecture" (181). Additionally, this conference room was normally available to everyone, so making it available to this group exclusively "signaled that the project was a priority, being given space over an extended time in the 'high-rent' district" (182).

A dedicated room helped make the project more tangible for group members. Cross tells of failed collaboration of students researched by Duin (1996). Students from Norway, Australia, and the U.S. used Internet Relay Chat and email to collaborate on course projects. The collaborations were not very successful because "there was nothing to gel the group" (182). According to Cross, virtual teams that meet only in technological

space may be dehumanizing, as Raymond and Cunliffe argue (1997). Ultimately, the appropriation of the War Room to the group project created a "we," a subculture: "The site provided not only a group vision of the project but also developed the group self-image" (183).

The project's use of the War Board in the War Room "provided coordination, coercion, competition, and affiliation in ways that helped bring the project to its conclusion" (184). The board helped provide structure to the project, which helped the group meet the project goals. Leaders did not have to harangue people who had not completed their tasks, because the project's progress was displayed on the board for everyone to see. According to Cross, "to chart the process for everyone to see is to take the public performance of writing a step forward (185). The "scoreboard" held people more accountable to their tasks than when no score is kept.

While the War Board fostered healthy/productive competition, it also created a sense of solidarity among team members. When group members have the same mental model of a task (which the board provided), they identify more strongly with the group, and even like and trust other group members more. Cross quotes Klimoski and Mohammed (1994), who noted, "cohesion may be a consequence of team mental models," bringing forth "high effort, coordinated actions, spontaneity, assertiveness, risk-taking, etc." They believed that shared models would increase group performance (in Cross 185). Cross says that while the SLA's group performance was not always perfect or cohesive, it did improve and conflicts decreased after the "textual and task models were completed and communicated" (186).

Ultimately, management is responsible for creating an environment for teamwork. Managers need to understand and allow for the time a collaborative process takes; when possible, management should also make group work/processes part of job objectives to ensure commitment. Additionally, managers or executives need to demonstrate their own commitment to the project group by participating in assigned events (Cross 194). In Cross's study, an organizational Vice President continually postponed the project closeout, which told group members he did not value the project. Therefore, one of the first steps a technical editor must take in establishing an effective peer review process is convincing upper management to convey both their support of the process and its importance to organizational objectives. In order for the technical editor to do this, the technical editor must first convince the organization of his/her value and that he/she deserves a leadership position in the organization. I explore this idea further in chapter 5.

Cross's Final Thoughts on the Collective Mind

Managing large-scale collaboration involves careful planning—setting reasonable deadlines, using liberal estimates. Cross suggests project leaders use an electronic shared calendar to schedule many people; such a tactic could be used effectively in smaller organizations as well, especially if some workers telecommute or travel. If group apathy is a problem, organizations can consider using the War Board. Facilitators, or "consensus makers, should be able to motivate the large group to meet its deadline. In hierarchical organizations, executive support is critical (e.g., putting the project into core team members' job objectives)." If group writers are not prereading the texts on which they are expected to collaborate, "facilitators could have the collaborators sign off on every

document discussed in each meeting" (214). Cross also suggests that large group organizers "prototype a smaller piece of the larger work all the way through the approvals stage" to try to avoid as many surprises as possible (214). The concepts of early planning, team member buy-in, and open communication continually resurface as crucial for creating the successful collaborative writing community.

What Constitutes a Successful Collaborative Writing Team?

A successful writing community must think of itself as a team with a common goal. Burnett's study of a dysfunctional team in turn highlights the components of a successful team. In "The Anatomy of a Dysfunctional Team," Burnett (1996) reports on a student team that worked for Ames Laboratory, operated by Iowa State University (ISU), as one of eight government-owned, contractor-operated DOE national laboratories. The team ultimately consisted of thirteen members: primarily undergraduate and graduate engineering students, as well as one marketing student and a technical communication student (this student was added halfway through the project). Ron Paulson, a faculty member from ISU's Department of Electrical and Computer engineering (also an Associate Engineer at Ames Lab), was designated as the student team facilitator. Because of the students' characteristics—academic excellence, maturity, and field experience—Ron made several assumptions about how the team would operate. He assumed they would be able to effectively figure out a purpose for their project, distribute tasks among team members, create a workable schedule, engage in problem-solving, keep detailed notes, and regularly communicate with one another.

An early problem surfaced, in that the objectives of the team were never clearly articulated. The three graduate students outlined the project plan, but all the student team members felt that the teacher (Ron) should have clearly established/documented the objectives. However, Ron wanted the team members to figure this out for themselves and purposefully did not intervene. When Ron recognized the team members needed help, he invited a master's student in technical communication who had recently completed a graduate course in collaboration and teamwork theories. Joining the preestablished team with preestablished roles was difficult for this student, even though the team recognized the value she brought to the team.

Basically, the team structure was nonhierarchical. Ron realized the structure might not be as efficient as a hierarchical one, but he hoped that it could "be valuable in meeting the pedagogical needs because students would gain experience in setting goals, establishing priorities, organizing schedules, and making decisions" for themselves (Burnett 133). Ron brought the group together "without giving the students any directive about team structure or organization, believing that having students decide what to do and how to do it was perhaps one of the most important parts of their learning process" (135). Ron only mandated two things, weekly meetings and notebooks, but he did not instruct students how to conduct/use them. Many of the students felt that the team would have been more productive if Ron had been more directive. Ron agreed the group needed a leader, but he wanted that leader to emerge from the team.

Often, the technical communication major, Christianna, was treated as the team leader: "What she considered normal behaviors (e.g., preparing an agenda for what she

wanted to cover in a meeting) were seen by team members as leadership behaviors" (136). Ron never expected a technical writer to lead a team of engineers, but she "forced the team to think about the end product and where they were going" (Paulson in Burnett 136). Ron was surprised and impressed by her impact on the process and the team: "Working with a technical communicator gave other team members a sense of unity as they argued and worked toward articulating their overall goal" (136). Ron realized that:

> The [engineering] students had few skills to reach initial agreement about procedural factors, and they had even fewer skills in raising and managing the substantive conflicts typically necessary in negotiating complex decisions. Without a leader, any models of productive team structures, or any training in team interaction, the members did not know how to deal with recurring problems (137).

Unfortunately, the planning of the final report (the team's deliverable) took place too late in the project. When the writer was added halfway through the project, members provided her their rough notes and drafts, but she interpreted them differently than they did. She created a table of contents, which did not match the team members' ideas. The team members realized they never clearly knew the report's purpose and audience, and this lack of planning began to affect the team. The team clearly needed an assigned leader, early in the process: "Ron had expectations that the IDMM team members could not possibly have achieved without learning some collaborative strategies and changing their view of writing to see it as an ongoing engineering responsibility" (Burnett 144). Ultimately, successful collaborators "need to understand more than their disciplinary

subject matter; they need the skill and sensitivity to communicate in their sociopolitical context" (Burnett 154).

Another pitfall of unsuccessful work groups is that they often follow the divide and conquer strategy (Lunsford and Ede 1990) in which a project leader assigns parts of a task to individuals. This strategy turns a collaborative project into "a set of individual projects or a project for which the leader is given primary credit or responsibility. Groups may lose opportunities to rethink entire projects in fundamental ways, missing input from individuals working in relative isolation" (Selber et. al. 265). Predetermined roles can affect collaboration as well. For example, writers or editors might sit silently and not enter conversations between subject matter experts and product managers, because of their perceived low status in the organization (266). I argue that editors have significant value in the organization, and should even take a leadership position there, in chapter 4.

In *Workplace Literacy*, Rachel Spilka offers the following advice to encourage smooth collaboration among team members and therefore create effective teams:

- Team members need to interact as equals. No single person should be in charge or control a project.
- Team members need to share responsibility for decisions. Whenever a conflict arises in decision-making, everyone in the team should be content with whatever decision is made.
- Everyone in the team should respect each other's contributions. Even if a team decides not to accept someone's contributions, the team should at least listen to and consider or discuss that person's ideas.

- Coordinators exist mostly to guide the team toward decisions by leading discussions and promoting team interactions. They should avoid making decisions on their own. Mostly they need to make sure a team effort proceeds smoothly, and avoid acting as superiors.
- Team members should make contributions that are approximately equal in value. No single person should shoulder the bulk of the work.
- If a conflict—or just tension—occurs in a group, the group needs to bring that conflict out into the open, discuss it as a group, and try to resolve it to everyone's satisfaction.
- Whenever group members are unable to resolve collaboration problems on their own, they should seek the help of a neutral mediator (Spilka 75).

Spilka recommends regular team meetings to promote good team communication, and she recommends the following strategies to ensure effective meetings:

- Give each member one or more tasks to complete before a meeting.
- Ask each member to bring something to a meeting.
- Have specific goals and tasks planned for a meeting.
- Arrange for each member to give their contributions to another team member if they know in advance that they'll have to miss a meeting.

Geoffrey Cross has found that successful group formation and preparation involves several key factors as well:

- A major factor should be their range and density of contacts, the number of informal networks they are in and the number of contacts within these networks.

Debs (1993) “stated that embedded groups are influential and allow writers to assume the role of ‘the organization’ in writing official documents” (Cross, 2001, 196).

- Group members from different departments should be good translators of their subcultures to the larger organization. “If collaborators are articulate and well trained, group schema and systems form, and other conditions are right, incorporating the perspectives of many networks of the organization into its documents would be valuable, particularly regarding corporate policies…and the culture” (196).
- Successful groups have a breadth and depth of subject matter knowledge.
- Diversity of media expertise is critical: Collaborative writing is interaction in at least two media—orality and writing (Cross 197). Some people are more skilled in one than in the other, so both are needed. Include one professional technical or business writer in the group.
- Group members must be committed to the group objective. The individual at times must subordinate him or herself to the group; choose team players.

Ultimately, Cross believes that group members must be trained in collaboration skills. They need a firm grasp of business writing techniques, and they need to understand how to problem solve and manage conflict. Group members should not avoid conflict, as research by Burnett shows that students who deferred consensus and engaged in substantive conflict were more successful than those who reached consensus early. Consensus avoids arguments and preserves group harmony, but the group becomes a

"closed system—not fully engaging in heedful interaction with others or with the outside environment" (Cross, 2001, 199). Chapters 4 and 5 recommend that the technical editor is the appropriate individual to lead group members in collaboration and facilitate effective conflict, by helping the team defer consensus until the important issues have been addressed.

"Beyond Teams" (1998) details a four-year study of successful collaboration in three successful professional service firms in the industries of health care, law, and investment banking. Based on almost 1,000 pages of transcripts, generated by interviews with over 30 junior and senior professionals at the three firms, the authors believe that:

> A pervasive ethic of collaboration lies at the core of their success. Each firm challenges the stereotype of a collection of self-centered, individual performers who identify primarily with their disciplines and secondarily (and impassionately) with their current institutional home. The collaboration is characterized by what can be rightly called an ethic—a system of moral principles and values grounded in a sense of calling and stewardship (34).

The authors found the interviewees excited about and committed to their collaboration: "They posited such collaboration as central to their capacity for creating and sustaining competitive advantage, individual learning, and extraordinary client service" (34). My study's findings can help all organizations create this ethic company-wide, but it can also provide ideas for creating this ethic among smaller writing communities within the organization; creating this ethic means making the smaller communities feel that they are

working to better themselves, and that their purpose is connected to that of the larger organization, and to the clients it serves. One of the respondents in my survey alludes to this concept in the following comment about the peer review processes in which he has participated:

> We all got to know each other very well, and all worked together for the betterment of ourselves, the company, and especially the client. We knew that if we took care of our clients by putting ourselves second, that all would work out. And it did. We had a wonderful thing going for a number of years, and had quite a following. I once met someone who had heard of my company but didn't know from whom, but the message about us was clear: the marketing firm with integrity. It just all has to be done in the spirit of working together to get better, and not to point out deficiencies.

The authors of "Beyond Teams" would call this type of collaboration relational, as opposed to the traditional collaboration they call transactional (i.e., primarily episodic or task or project focused). Relational collaboration "becomes embedded as an aspect of the firm's culture and lives beyond a single event or engagement. It establishes an infrastructure for working together that transcends specific teams and specific projects" (35). This collaboration "springs from the connections between people, connections rooted in and nourished by a set of organizationally sanctioned and explicitly shared values" (35). This collaboration also avoids pointing out deficiencies of coworkers/team members. Ultimately, firms with such a culture are able to attract, hire, and retain the best employees, those who possess the ability and desire to work with others.

The authors posit that the core community-wide, collaborative environment is a result of both "person-centered attributes" and "firm-level attributes." The person-centered attributes are:

- A sense of calling: Employees felt called to their vocation.
- A caring attitude: Employees care about each other, the organization, and the clients.
- Conscientious stewardship: Employees felt it was their responsibility to "preserve a legacy" for those to follow.
- Creative energy: Employees extended this to working with clients, not pushing on clients what the firm had done before, but working with the client to come up with innovative ideas.

Several firm-level attributes contributed to the core collaborative environment as well.

- Coherent intent: The firms had a clear purpose, which helped them "cement individual tasks, at every level, to the institution's central focus" (43).
- Capital learning and relationships: The firms invested in learning and "colleagueship."
- Congruent systems: Corporate decision-making, performance/reward, and recruiting must be congruent with the ethic of collaboration (e.g., one company stopped collecting data on who originated a client...because it was creating too much negative competition).

In terms of decision making, these firms were "governed by committees composed of elected colleagues" (46). Employees do not think of themselves as being

told what to do in their jobs; they consider that they are doing things for themselves. All of the firms studied stressed the importance of consensus decision making: “Managers accept that they cannot force their opinions on subordinates. They have to fight like everybody else with the ideas and the best ideas win” (46). Additionally, much like Burnett’s definition of substantive conflict, consensus did not suggest action only when everyone agrees; rather, “it…emphasized dialogue and faith in senior management’s willingness to listen and remember.” One investment banker said, “We operate in a consensus manner. We try to gain insight into people’s thoughts before we come to any policy.”

In transactional collaboration, teams succeed “by breaking the larger institutional whole into a series of small groups as a primary vehicle for accomplishing organizational aims” (49). While these team members might “develop a sense of allegiance and trust among their members,…they may or may not see themselves as linked with larger institutional intent or supported by firm-level infrastructure” (49). In fact, intra-company factions may result, because the teams ultimately isolate themselves and feel little connection to the larger organization.

In relational collaboration, on the other hand, “organizational strategic intent and infrastructure, as well as decision-making, reward, and recruiting systems involve and connect each individual with the whole” (49). To achieve relational collaboration, “the firm, as a whole, [must] act like an empowered, high-powered team” (49). Thus, the challenge is to “achieve effective decentralization (i.e., empowerment of small groups, etc.) and effective centralization (i.e., collaboration among teams to achieve firm-wide

intent).” The entire organization must be committed to creating an ethic of collaboration. As one author in the field of organizational culture says,

> There is a longing in each of us to invest in things that matter, and to have the organizations in which we work be successful…Our task is to create organizations we believe in…to be part of creating something we care about so we can endure the sacrifice, risk, and adventure that commitment entails (Block in Haskins et al. 49).

Thus, facilitators of the peer review process (i.e., technical editors) must try to create such an ethic of collaboration among group members. As one of the respondents to my questionnaire said, “It all has to be done in the spirit of working together to get better.” Facilitators must empower the small peer review groups as they are fulfilling the goal at hand—reviewing a document to improve its content—but also emphasize the importance of the peer review team to the larger organization. To do this, the technical editor must continually stress how the process impacts the success of the company, which in turn impacts the “success” of employees’ lives. Communicating company objectives and explaining how employees are crucial in meeting those objectives are steps in this direction.

Computer Mediated Communication in Writing Communities

My study offers general strategies that can be used in creating face-to-face or online communities, and I do not promote one community over the other. I include a section specifically about online writing communities, since many employees participate in online communities today. Essentially, online communities require the same careful

attention as face-to-face communities. Both need a facilitator to establish community guidelines and processes, to negotiate conflict, and to create a collaborative culture.

Studies of computer mediated communication (CMC) have varied in their findings concerning the effect of the CMC environment on the success of writing communities. Studies by Bernard et al., Walther et al., and Marshall suggest that CMC enhances student-to-student interaction. However, many studies have found that students working in computer-mediated environments experience more interpersonal difficulties. Students often feel more comfortable confronting each other and venting frustrations via CMC than in face to face (FtF) interaction (Chester and Gwynne; Worrall and Kline; Goldrick-Jones). CMC groups often take longer to reach decisions as well (Walther). Many researchers find that the online instructor must often intervene to facilitate group progress.

In “Building a Communications Learning Community,” Worrall and Kline ask: What can we do in a learning community with Web support that we cannot do in traditional classrooms? Research indicates that all learning communities can help students by providing additional emotional and academic support. The authors document a study in which students in two different, but complementary (one speech and one composition), required, introductory courses took part in a learning community. One used to be a prerequisite of the other, but it was decided that the skills learned in either course would help students in the other. To create a learning community, instructors had to:

- Define core values
- Identify thematic linkage between courses

- Define expected student learning outcomes
- Decide how student learning would be measured
- Define grading criteria
- Decide how the learning community grade would factor in course grading
- Obtain approval of division chair

The first step in implementing the community was getting the two classes to meet face to face. Follow up communication occurred via WebCT, with an assignment that dealt with introductions and a response to an introduction. Joint classes were held throughout the semester, and some class time/discussion time was devoted to explaining the assignments and the theories behind them.

Worrall and Kline designed the in-class and Web CT assignments around the idea of collaborative learning. Here, as Hiltz (1998) explains, "the role of the teacher changes from transferring knowledge to students to being a facilitator in the students' construction of their own knowledge" (4). The authors wanted the students to be more active participants in the learning community, so the role of the teacher had to change. Additionally, the authors used WebCT to engage students in computer-mediated communication. They chose three of the applications provided by WebCT:

- The calendar: They posted due dates, meeting places, and other important information.
- Email: WebCT provides a closed email system that facilitated group interaction and instructor/group interaction

- Bulletin board: Provides the core of the online collaboration for the learning community. It allows for the posting of entries under topic headings and for conducting threaded discussions.

Researchers Palloff and Pratt (1999, in Comeaux) found that the bulletin board provides a safe space for students to interact, encouraging them to reveal more than they normally would in face-to-face interaction (232).

The authors also created community by creating opportunities for the students to help one another. Since this learning community combined students from a speech class and students from a composition class, the speech students could perhaps help the composition students in the differences between oral and written communication. When reading the article, I noticed that the assignments posted to the bulletin board had clear requirements, even citing word count requirements for the student responses to one another. The authors also include examples of students interacting via the bulletin board at the initial phases of a project (i.e., an essay). The students feel comfortable asking each other's opinions about the content of their upcoming essays and how they should tackle them. Facilitators of online writing communities could employ these strategies and monitor the exchanges among members. Perhaps a program such as WebCT could provide a safe, convenient space for team member interaction.

The authors/instructors discovered one negative finding, however. They needed to make space for informal discussions of personal issues in an online course, as some students seem to forget the bulletin board is public. One woman used the bulletin board to vent her frustrations about finding a topic for her speech, other students and about men in

general, and other group members lashed out at her. Fortunately, the students resolved their issues without instructor intervention.

Overall, students had a positive experience in the online learning community course. They felt it offered air time to more students since the learning "wasn't limited to a finite period (class time)" (239). (Workplace communicators could engage in CMC outside normal office hours, if their work day is too busy.) The majority of students said they would take another learning community course and that they would recommend them to other students. Some students did say, though, that this course required more work than a traditional course, due to the number of collaborative assignments.

Cross (2001) cites a review of 18 experimental studies comparing CMC to FtF, which found the following important differences, listed in order of conclusiveness (Bordia, 1997, in Cross 205).

- CMC groups take longer to complete the allotted task.
- CMC groups perform better than FtF groups on idea generation tasks. "Group coalescence appears to grow with interacting groups, important because this develops ownership (commitment, awareness), but dangerous if the feeling of well-being turns into complacency" (Cross 206).
- There is greater equality of participation in CMC groups. Status differences might play a part in FtF interaction, but not as much in CMC groups.
- When time is limited, CMC groups perform better on tasks requiring less "social-emotional interaction" and worse on tasks involving more.

- People take longer to reach consensus in CMC groups—can be a good thing in collaborative projects (Burnett). By contrast, there is greater opinion change, and conformity to group decision in FtF groups, which can be a good thing if the project needs to meet a deadline.
- Understanding of the communication partner and task is poorer in CMC.

Cross says that the most promising use of groupware appears to be convening the large group in one room and combining FtF and CMC by having someone facilitate the interaction. The facilitator chairs the meeting, maintains the agenda, and changes it as necessary (207).

Amanda Goldrick-Jones, in her 2003 STC Region 7 presentation "…The Harder They Fall: Pitfalls of Online Team Writing Assignments," discusses an experience with online teams as instructor of a course on strategies for technical and professional communication. Even though she required the students to prepare for working in online teams, one of the teams experienced a great deal of conflict that had a negative impact on the assignment. As she prepared to teach her next online collaborative writing course, she realized she "needed to do much more than [previously] to raise awareness about interpersonal relationships, conflict, and the challenges of creating a learning community within a computer-mediated (CM) environment" (11). Therefore, she structured the course differently. This time, she required only one team project, instead of two; she required students to read articles on managing conflicts and teamwork before beginning their assignment; and she required student teams to create a "code of ethics" to guide their interpersonal interactions. After the project was completed, students were required

"to submit (1) a confirmation of their individual contributions to all other team members," copied to the instructor and "(2) a list of their individual contributions" to the instructor privately (11). Projects received a team grade. Even though the course only included one online assignment, student teams had to do more preparation-work and be more accountable to their teammates throughout the process (11).

This time, the online team experiences were more positive. Still, Goldrick-Jones found that online teams are at special risk because of the lack of interpersonal cues in comparison to that provided by FtF communication. Therefore, she asserts,

> A code of ethics for wholly online teams must be more than usually attentive to emotional factors. Such an ethic should raise consciousness about participants' feelings, and open up ways to help people in CM teams save face, bond with each other, express differing views, and feel valued (14).

As a result of her experience, Goldrick-Jones proposes an "ethic of care for online teams" (a concept credited to Carol Gilligan and Nel Noddings) (14). Basically, an ethic of care "represents an acknowledgment—often absent in CMC—that behind the emails and message-postings are human beings who should be treated…as we wish ourselves to be treated" (16). She quotes the general traits of an ethic of care from Cole and McQuin (2-3).

- A predisposition to nurture
- A ready capacity for emotional involvement

- A need to be sensitive about relationships and how they generate different varieties of responsibility to others
- A willingness to value particularity, connection, and context

She then connects these traits to online team ethics.

- Capacity for emotional involvement: Express concerns, keep communication open, have fun
- Sensitivity about relationships and responsibilities: Respect and dignity, listening, being sensitive to others' feelings
- Valuing connection and context: Work together, stay in touch, depend on each other (Goldrick-Jones 16)

Ultimately, Goldrick-Jones finds that people "writing and working together in a CM environment are more willing than not to assume responsibility for nurturing human relationships and to integrate that responsibility with traditional project priorities" (17). This applies not just to academia, but to the workplace as well; it applies to face-to-face collaboration and computer-mediated collaboration. If we create team assignments with such parameters, team members should more thoroughly enjoy the assignments, which ultimately lead to more successful assignments/projects. According to Karen Burke LeFevre, learning to write, create, and work together in communities "will do more than enable success in classrooms or careers. It is absolutely essential to achieving peace" (in Goldrick-Jones 17).

Conclusion

This chapter has explored the notion of community in workplace writing. It examines several studies regarding the formation of successful workplace writing communities—communities that use and resolve conflict effectively, to achieve positive results. All of the research shows that these groups need a facilitator early on—a technical communicator is often recommended—to help the team form a community and guide it through planning and completing the collaborative assignment. Such planning engages the team in productive conflict early, resulting in higher quality documentation. The research indicates that collaborative writing team members need the following to be successful:

- A clear schema/plan
- A devoted space to the project
- A leader
- An indication of how the project ties into company objectives
- An ethic of collaboration/care
- A visible way to track the project
- A safe space for interpersonal conflicts to arise/ get resolved
- The project/team objectives and instructions communicated early
- Respect from other members of the team
- Frequent interaction/open communication

The above characteristics inform the overall peer review process. Creating a successful peer review process is not as simple as creating good questions for the

reviewers to ask about a document's content. It is a complex process, which starts well before the document is even written, during the document's early planning phases. It is a process that requires a leader to create a sense of community among the team members/reviewers well before the actual reviewing begins. Creating this sense of community will make the entire process run much more smoothly and result in a higher quality product. More importantly, the sense of community will create happier, more productive employees—employees who feel a connection to the larger organization and to the clients it serves. The next chapter argues that the technical editor is the best person to create the sense of community among reviewers and to facilitate the entire peer review process.

Chapter 4: The Technical Editor as Manager of the Peer Review Process

Abstract: Earlier chapters have illustrated the problems that can arise during collaborative writing processes in the workplace. Chapter 2 detailed the survey responses about the advantages and disadvantages of the peer review process. Chapter 3 explored the prominent ideas that arose from the survey: to create a successful peer review process in the workplace, create a sense of community among team members, and appoint an effective manager. This chapter argues for the technical editor as the manager of the peer review process. I define technical editing, discuss the role of the technical editor in the modern corporation and the skills the technical editor typically possesses, explore the relationship between the technical editor and the subject matter expert (SME), and provide justification for the technical editor as facilitator/manager of the peer review process.

The Role of the Technical Editor in the Corporation

A Definition of Technical Editing

Even though employers recognize the importance and difficulty of workplace writing, little priority is placed on it (Davies and Birbili 439). Systematic training is typically prioritized over writing training. For this reason, technical communicators—writers and editors—play crucial roles in the modern corporation. Technical communicators often provide much-needed project management and help technology experts pay attention to their audience as they craft documentation materials. There is a

growing body of research on professional writing and entire journals devoted to technical communicators (e.g., *Technical Communication Quarterly, Journal of Technical Writing and Communication,* and *Technical Communication*). Technical editors are more and more common in the modern corporation, respected for their language skills, management skills, and people skills. This chapter explores why the skilled technical editor is the appropriate person to facilitate and manage the peer review process in the modern corporation.

Technical editing involves more than verifying language use, grammar, and punctuation. Judith Tarutz defines technical editing as editing material of "any specialized subject that addresses a specific audience, has its own jargon, and whose approach is objective" (4). Some of the skills technical editing involves are reading critically and objectively, reading from the audience's point of view, questioning what you read and reacting to it, and evaluating usability (Tarutz 4).

A beginning editor is typically classified as a copyeditor, an individual who is more responsible for style, grammar, and language use of a text than the technical content: "The primary qualifications for basic copyediting are to understand language and know its rules, and to be detail-oriented" (Rude 16). The copyeditor's task is to make the document correct, consistent, accurate, and complete, to ensure the document's readability. The copyeditor also gives instructions about "how to prepare the text for its final form" (Rude 65). Copyediting tasks and responsibilities do not require as much interaction with authors; changes made in this phase are often more rules-based (e.g., changes in grammar, punctuation, format). Copyeditors are also not as likely to be

required to possess project management skills—to oversee a project from its inception to its completion.

In 2001, Hill Associates hired a consulting firm to benchmark our job descriptions and salaries, based on national data. In contrast to the copyeditor, the successful Technical Editor must exhibit other skills besides editing:

- Manage product through the publishing process
- Interface with authors or other technical staff to provide or assist with rewrites of technical material
- Work with developers and publishing on project organization and procedures
- Possess excellent team work abilities

Moreover, the successful Senior Technical Editor is often responsible for managing the document life cycle, from inception to shipping.

Carolyn Rude's text *Technical Editing* supports the notion that the role of the technical editor is highly complex. She asserts that technical editors do not merely verify a document's technical content, but they also "must be able to imagine documents in use by particular readers, to use good judgment as well as handbooks of grammar, to manage long-term projects, and to collaborate with others" (3). According to Rude,

> Technical editors work on documents with technical subjects. Technical connotes technology, and typical subjects are computer science and engineering…but technical editors also edit in medicine, science, government and agriculture, education, and business. A technical editor may be employed in any field for which the documents aim to help readers

> solve problems or gain information. Because of the specialized subject matter, editors ideally have technical (subject matter) knowledge as well as language expertise (15).

Rude says that technical also refers to the "method of working with the subject matter—to analyze, explain, interpret, inform, or instruct…The art and skill of editing require specialized knowledge of the use and methods of making sense of information" (16). My organization hires language experts as technical editors and provides them subject matter training. This way, the editors are able to make sense of the highly technical subject matter of our training materials and revise our texts so that readers can understand them.

Why the Complex Role of the Technical Editor Should Include the Facilitator of the Peer Review Process

Editors are in a unique situation, between the author and reader, and they must be able to understand both. This "situation" contributes to the complexity of the editor's role. In "A Rhetorical Approach for the Technical Editor," originally published in 1980 and reprinted in 2003, Mary Fran Buehler asserts that a programmatic approach (knowledge of all rules involved—grammar, punctuation, house rules—and how to apply the rules correctly and consistently) is not enough for the technical editor. A good technical editor needs to take a rhetorical approach to editing—one that considers the rhetorical situation: the speaker or writer, the message to be communicated, the purpose of the message, and the intended audience (459). A peer review facilitated by the technical editor can help an organization's SMEs/writers more effectively consider the rhetorical situation: The technical editor can create questions for peer review that relate to the purpose and audience of the material, because technical communication curricula

often consist of courses in rhetoric and audience. Technical editors will likely have a better background in such areas than the subject matter experts/authors of the material.

Corbin et al. (2002) also note how the role of the technical editor has become more complex and challenging over the past few years. Editors are focusing more and more on content editing, collaborating closely with SMEs and technical writers. Don Bush, in several *Intercom* articles says that content editing "focuses on clarifying content" (Bush in Corbin et al. 287). Such an expectation of the editor elevates the editor's status and increases the editor's job responsibilities in the corporation.

Corbin et al. compare the typical software testing activities to technical editing activities. The authors posit that by "providing quality assurance through content editing, technical editors add value to the information development process and help to give users the quality content that they deserve" (287). The authors warn that peer review should not replace the technical edit performed by a professional editor; as Hackos observed (1994), writers/SMEs have varying editing abilities, with little clout to enforce standards.

The article implies that technical editors in many companies do not yet perform such content editing, and thus they are not providing quality assurance. The authors say, "It is time for technical editors to answer this call to arms, to step up to being *technical* editors, or more importantly technical *content* editors" (297). An effective peer review process, one that thoroughly examines content, would help technical editors provide quality assurance. However, before editors can address content in the peer review process, they must first address other factors—such as creating mutual respect among team members, resolving substantive conflict early and effectively (which includes

determining the document's purpose and goals), and fostering the idea that the work of the review team members impacts the entire organization. If these issues are addressed early, the actual content review will run more smoothly, as evidenced by studies by Bernhardt and McCulley and Cross (chapter 3).

A 1998 article entitled "Masters, Slaves, and Infant Mortality: Language Challenges for Technical Editing" discusses the role of the technical editor in the context of the field of linguistics and provides further evidence for the technical editor as leader of the peer review process. Heather Graves and Roger Graves explore how some contemporary language usage presents challenges for technical editing. The technical editor is the individual most responsible for the language in company documentation, and Graves and Graves argue such language shapes the audience's perception of reality.

The authors ask, "To what extent does technical language encode social meaning and what are the implications of such encoding for technical communicators?" (392). They examine this question to investigate the role technical communicators and instructors play as "gatekeepers and contributors to high quality technical documentation" (392). The authors explain how research in sociolinguistics, text linguistics, and language theory present new options for technical and professional communication pedagogy. They believe that language does not merely reflect reality but it also helps shape our perceptions of reality; they mention G. Lakoff, M. Johnson, and Lester Faigley, among others, as proof of this assertion. Ultimately, the research suggests that "technical language shapes and is shaped by social and cultural forces" (397). Thus, the authors argue that one role of the editor "concerned with the ethical use of language

may be to uncover and critique ideological assumptions embedded in them" (397). At my organization, we already edit for gender-specific names in case studies (e.g., use names such as Pat, Chris, and Terry) and for use of words such as "master/slave relationship," but other metaphors and examples used could be exclusionary, divisive, or sexist. Peer reviewers, and the editor, must be more cognizant of language usage (whether sexist, racist, or classist) in our materials and how it shapes reality for our audiences. This is a big responsibility, but one the editor is qualified to assume. Since the editor is responsible for the language of corporate documentation, it makes sense for the editor to manage the peer review process.

The editor's role is further explored in Rude's text *Technical Editing*. She seeks to prepare editors for their complex role as "information designers" (xxiii). Not only are technical editors responsible for crafting a grammatically sound, easy to understand document (e.g., by evaluating the grammar, punctuation, style, and structure and display of information), they also need to understand "the process of document development and how to work effectively on teams that include subject matter experts, writers, and graphic designers" (xxxiii). Rude conveys "an attitude of respect for novice editors and of editors for writers" and "encourages professionalism through such means as using the vocabulary of the field, making choices based on principles rather than preference, and managing work to respect deadlines" (xxiii).

To explain the "big picture of editing," Rude creates two scenarios of two technical editors at different companies—an in-house editor creating a printed manual at

a software company and a contract editor who edits computer programs and documentation.

The in-house editor, Kathy, works closely with technical writers. She reviews documents at the outline phase and then chapter by chapter as the writers complete them. She maintains close contact and open communication with the writers. They have mutual respect for one another's different abilities and skills. One writer says, "Kathy can better envision the document from the reader's perspective, from the big picture to the tiny details…Kathy makes the difference between a good document and an excellent one" (Rude 7). After Kathy edits a chapter and sends it back to the writer, the writer forwards it to the product team for a technical peer review. The very brief description of the peer review process indicates that Kathy does not read the peer review comments or edit the document after the peer review process. I believe this is a crucial responsibility of the technical editor. If we leave this up to the original author, it might get neglected. Too often in my organization, the author chooses to ignore the review comments because he/she does not agree with them or he/she does not want to change the material. A technical editor as the facilitator of the peer review process is less emotionally involved in the material, and is more able to be objective about the changes that would improve the material.

In the other scenario, the contract editor is responsible for creating a computer tutorial. The product team included thirteen people with different types of expertise and responsibilities, and most of them were working on multiple projects at the same time. The editor is the one person who interacts with all the other team members. She is

responsible for “coordinating the efforts of the other team members and for ensuring the completeness and consistency of the information produced collaboratively through division of labor” (Rude 8). She is also involved in the planning stages of the project. While this scenario does not mention a peer review process, it briefly alludes to the writers and editors at the companies sharing files; thus, there was close communication between them. There is a customer review, which consists of the customer, the programmer, and the editor. The customer makes suggestions, the programmer makes the online changes, and the editor reads the changes as they are made.

The two scenarios illustrate some important points about the role of the editor in the contemporary corporation. One, it is important to include the editor on the product team from the beginning of the project. If the editor is not brought on until the end, there is little time to make any design changes—changes more crucial to the document than grammatical or stylistic changes. In addition, introducing an editor early can create a better working relationship between the writers/SMEs and editors. If the editor is not included until the end, “writers, thinking they have finished a document, are discouraged to find out that the editor wants to change it” (Rude 11). Such a situation could definitely introduce tension between the writer and editor, so why introduce the possibility in the first place?

Assigning the role of peer review facilitator to the technical editor would introduce the editor to the product team early in the project, and put the technical editor in a credible position in the writers’ eyes. Because the editor is responsible for such a crucial part of the project—the peer review—the writers might view the editors more as

co-creators of the document. And, in the corporation's eyes, the editor has as much stake in the project as the writer(s). As Rude says, "When editors work at the front end of document development, they can prevent problems. They contribute to the vision, not just to the revision, of the document. They share responsibility for information design" (Rude 11). Currently, many technical and professional curricula (TPC) still require courses in rhetoric and audience, allowing editors trained in these areas to understand the broader vision of a document. Additionally, Johnson-Eilola has asserted that technical communicators are able to "manipulate, abstract, revise, and rearrange information, and that they "regularly take pre-existing knowledge about technology and explain it to others" (in Dubinsky 582). Such skills are crucial in helping company materials reach the intended audience. As a result, such skills also make technical editors suited for a leadership position in the peer review process. I explore the value of the technical communicator (which includes the editor) to the organization in chapter 5.

Carol Gerich's "How Technical Editors Enrich the Revision Process" supports the technical editor's early involvement in the vision and design of the document. A technical editor herself, Gerich cites research that indicates peer reviewers are not chosen based on strong editorial or writing skills, but because "the reviewer is assertive in suggesting changes when the meaning is unclear" (Winsor in Gerich 283). Gerich summarizes the work of Winsor, Haugen, and Walkowski, noting that revision is defined differently in academia and the workplace: "The substantive revising process esteemed by academics is not valued by nonacademics for bringing clarity and understanding to the text." Instead, editors are expected to revise once the writing is complete. Yet, though organizations do

not value revision, they have high standards for grammatical and language accuracy (Haugen). Therefore, to avoid trying to incorporate these standards at the last minute, when time is running out, Haugen suggests editors be more involved in the document design stage, not just the final product. Walkowski found that technical experts value editors for their language skills, but that they want more than copyeditors. They want suggestions for rewriting, restructuring, and reorganizing—more substantive editing, essentially. Such research suggests that SMEs would respect the technical editor in a leadership position for the product team.

Gerich developed a case study at Lawrence Livermore National Laboratory to explore how revision works within the collaborative team, specifically how scientific authors and technical editors approach revision. She wanted to investigate the role of editors and chose to study how a journal article is prepared for publication. She wanted to determine whether authors valued editors and also whether they wanted the editors to provide substantive editing or revising.

Gerich found that the authors frequently used their colleagues as reviewers, and that their supervisors also reviewed their articles, providing the final approval before the article was submitted for publication. Use of technical editors was optional, but encouraged. They were respected as collaborators and integrated into the review teams, but they functioned more as language specialists than as full team members. Her study contradicts the findings of previous research that showed that revision was not valued in the workplace. One of the authors believed that the review process (which included a technical editor) was responsible for all his articles being accepted for publication

without major revisions. The SMEs also believed it was important to keep the editors on site to facilitate personal relationships with the SMEs and to increase the credibility of the editors as reviewers.

The study asserts that the more complex the project, the earlier the editor should be involved. The authors in this study wanted more substantive changes from the editor; this research suggests that in other workplace projects, earlier involvement will likely increase the authors' receptivity to substantive change. Making the technical editor the leader/facilitator of the peer review process will include the editor in the project earlier and add to their credibility as reviewers and contributors.

Twenty years ago, Paradis and Dobrin also explored the workplace editing/reviewing process and documented their observations in "Writing at Exxon's ITD: Notes on the Writing Environment of and R&D Organization" in Odell and Goswami's pivotal *Writing in Nonacademic Settings*. At that time, "in-house writing and editing were hidden activities in industry" (Paradis and Dobrin in Odell and Goswami (1985)). This is not true anymore, evidenced by the many technical communicators—writers and editors—hired by many corporations today. While their study focused primarily on hierarchical editing, Paradis and Dobrin make some points that could still be relevant to peer review processes today. They found that "managers and supervisors often do not appreciate that editing documents provides them an important means of managing the work of employees—as well as shaping work results to fit established company objectives" (281). Such positive management is what I believe will result if the technical editor manages the peer review process in the organization. Since I ultimately argue for

the technical editor as the leader of the peer review process, the editor is in a good position to help shape company materials to fit the company objectives.

The authors performed a week-long study at the Exxon Chemicals Company in its Intermediates Technology Division (ITD), a Research & Development (R&D) division conducting process and product research for the larger organization. They studied the writing activities of 33 engineers and scientists. They performed interviews and observed several working groups. They asked:

- What roles do writing and its associated activities play in the life of an R&D organization?
- How do individuals interact in an industrial environment to produce internal documents? (283)

Paradis and Dobrin found that as ITD employees moved up the organizational chain, they spent less time writing and more time editing and reviewing other employees' documents, which implies that editing and reviewing are higher level skills than writing; therefore a technical editor in charge of a peer review process would have to be a more skilled, higher level employee, possibly even a supervisor. Still, staff engineers and scientists spent about one-fifth of their writing-related time reviewing the documents of fellow staff members (i.e., peer review). The authors believed that "this informal reviewing helped colleagues obtain technical accuracy, proper coverage, and sharper ideas" (284). Certainly, many organizations have seen these same benefits of a peer review.

The authors found that supervisors—middle management—had the most diverse job responsibilities and the most complex writing loads. They spent about half their time writing and editing documents:

> They were the main agents of document cycling, the editorial process by which they helped staff members restructure, focus, and clarify their written work. Nearly half the supervisors' writing-related job activities were devoted to this editorial procedure (285).

The supervisory review (i.e., hierarchical review) was not informal, as was the peer review of the staff members, but instead "often obligatory…and quite rigorous. Document cycling provided supervisors a…means of carrying out their job responsibilities of adapting the work of subordinates to an environment of needs…created by the ITD and broader Exxon management" (285). I am not proposing that the technical editor have this much authoritative control, but that the technical editor facilitate a similar, yet more formal, process to what the staff members did for each other.

ITD managers, the highest level of managers, spent only about five percent of their time writing and editing their own documents, but about three-quarters of their time editing and reviewing other documents. "Unlike supervisors, however, managers did not engage in the cycling process of close editing. Rather, managers reviewed finished internal documents mainly to gather information and to monitor progress toward large objectives set by top management" (285). At ITD, "the writing and editing cycle appeared to play a key role in making the individual's work advance the organization's objectives" (293).

The authors found that a document commonly passed back and forth between a staff member and supervisor—the process they called document cycling. Yet at ITD the process was unspecified, and many employees there were unaware they routinely engaged in the process. However, once the authors described it to them, they agreed that it happened. The staff member would write a document, submit it to the supervisor, who would recommend revisions, very few of which were stylistic or grammatical changes—they were more substantive. The document was then returned to the author, who made the revisions and resubmitted to the supervisor. This cycle was typically repeated about three times. However, many employees noted that increasing the number of cycles also increased staff tensions (294). These disadvantages of hierarchical editing are found in peer review processes as well. A more effective peer review process begun earlier, one that clearly defines the document's goals early and that establishes group cohesion among team members, might limit the number of cycles and thus ease staff tensions. The peer review process should invite earlier involvement (i.e., substantive conflict ultimately reaching deferred consensus) from the supervisor and other team members, resulting in better planning early in the project.

Supervisors liked the process of document cycling. They felt it gave them some control over the documents: "Cycling was a collaborative, if sometimes stormy, process of managing work" (294). However, staff members were less clear about the purpose of document cycling. An interesting finding—those staff members who did not interact with supervisors in the planning stage of the writing process typically had more trouble at the

editorial stage. Current research corroborates this, emphasizing the importance of open, oral communication during the early phases of a collaboratively written project:

> Several of the junior staff members thought cycling painful, immensely time-consuming, and mystifying. Yet most agreed that, *carried out conscientiously*, cycling encouraged early planning and gave the writer a feeling that his or her work was on target. Solid, constructive comments on a draft were regarded as being extremely helpful. A sense of supervisory support and understanding seemed to be the one factor mentioned most by these junior people as an aid to their writing (294-5).

I received similar comments in my survey regarding the peer review process. Students and employees fear it, but they recognize the value. The key words above are "carried out conscientiously." I believe we can use the technical editor to provide that conscientiousness management in the peer review process. The technical editor, always focused on the ultimate purpose of the materials, can convene the team early, establish clear guidelines, develop a common schema, create mutual respect among team members, and help resolve conflicts that arise.

Paradis and Dobrin also found that the document cycling process often caused employee conflicts between the supervisor (when acting as editor) and the staff (the writers). Below are some common supervisor/editor comments.

- I have to fix a lot of bad prose.
- He throws rough drafts at me.
- It takes three or four recycles.

- He doesn’t spend any time writing.
- It takes forever to edit this stuff.
- He’s reluctant to write up results.
- This needs to advance company objectives.
- This better be good, because my boss is looking at it.
- I don’t know how good this needs to be (301).

Below are some common staff/writer comments.

- He tries to put it in his style.
- He won’t tell me what he wants.
- I don’t understand his criticisms.
- I spend too much time writing.
- It sits on his desk forever.
- I can’t get to writing, because he’s always giving me something else to do.
- I want to show what I’ve been doing.
- I don’t know who/what this is for.
- I don’t know how good this needs to be.

Many of the comments from both parties result from poor communication. In fact, the authors note that the most common source of conflict was “the failure of supervisor and staff to discuss matters of organization, purpose, and audience before the document was written” (300). In many ways, this relationship between the supervisors and the writers is like the one between the SMEs and the technical communicators (editors and writers) at many organizations today, including mine. The conflicts/differences in

opinion/understanding of objectives sound very similar. In the ITD, “differences of view based on managerial priorities and experience were often interpreted by writers as mere editorial whims. Managers sometimes assumed the writer’s task was simple and straightforward, when, in fact…it was unfocused and difficult” (300). Collaborative writing always brings up these possible conflicts. A better managed peer review process should alleviate some of these conflicts, by introducing these differences and clarifying the objectives much earlier in the document process. It will be the role of the technical editor to manage and negotiate the conflicts to help produce better documents/materials. Chapter 5 elaborates on the value of the technical communicator and supports the notion that the technical editor is qualified for such a leadership position.

The authors concluded that one way ITD could improve its writing was to improve its editorial cycle. They recommended that supervisors and managers:

1) make presubmission conferences on the scope and coverage of a document standard practice
2) establish and adhere to carefully considered editorial priorities in their criticism, possibly with the aid of a communications manual, and
3) plan and participate in a course for supervisors and managers on in-house editing (304).

One of the areas they note for future research is “editing as managing”: In addition to the checking and repairing of documents, editing has “important organizational functions. During editing, documents and—by proxy—project results are fitted to the organization’s needs.” The authors call for a “better understanding of how this process actually takes

place. What options for managing labor does the writing and editing cycle open up for managers and supervisors? What are the best practices for cycling documents?" (306). While these questions primarily refer to hierarchical editing, my study of the peer review process has addressed some of these questions as well. A peer review process with the technical editor as facilitator should improve the "document cycling" process by communicating document objectives early in the document design phase.

Key to the role of technical editor in the corporation are the editor's collaboration skills: "People who enjoy editing collaborate well with people and respect the contributions of people in different jobs. They set high standards for themselves, but when there isn't time to be perfect at everything, they set priorities and remain flexible" (Rude 17). This also holds true for the technical editor as the facilitator who sets priorities for other reviewers on the team. The technical editor must be a master negotiator and a diplomat. Therefore, I am not suggesting to place a novice editor in the position of facilitator of the peer review process—the right person is quite skilled, technically knowledgeable, and a teacher at heart (able to instruct)—someone who can empathize, negotiate, resolve conflict, compromise, and persuade with tact.

The Editor/SME Relationship and the Role of the Technical Editor in the Peer Review Process

In my experience, the editor-writer relationship is at its best if the writer is confident in the editor's ability. To achieve this, the editor must 1) be a good editor and 2) show confidence in his/her own ability. In my first year at Hill Associates, I had a confrontation with a notoriously difficult MTS. When he discovered I had reorganized a

page of a document he had written, he was upset, and he forcefully told me not to change something he had written. I remained calm, stood my ground, and explained why I made the change. He then calmed down, set his ego aside, read my changes and reflected upon them, and ultimately agreed with me. From that point on, he never questioned me again. Today, he trusts my work immensely, and we collaborate almost daily. I took away from that conflict a valuable lesson. A writer's writing is very personal. I as editor must tread carefully when I make changes, and make sure they're important, purposeful changes. If they are, and I am confident that they will make the document more useable, then I will be able to explain their worth to the writers. In turn, the writers/MTSs will have more confidence in me. In order for the editor to facilitate the peer review process, the editor must establish good relationships with the writers, using some of the strategies discussed in chapter 3 (e.g., maintain open communication by frequent face-to-face contact or working spaces located close to one another).

The last decade has seen increased scholarship on the technical communicator/SME relationship. Lee and Mehlenbacher's "Technical Writer/Subject-Matter Expert Interaction: The Writer's Perspective, the Organizational Challenge" explores the writer/SME relationship, which has many similarities to that of the editor/SME. The authors posted an Internet survey on the TECHWR-L listserv for professional technical writers and also sent it to four high-tech companies in Research Triangle Park, North Carolina. Of 4000+ possible respondents, they received 31 responses. The response set is small, but it allowed the authors to draw some conclusions worth noting.

For writers, two recommendations appeared consistently in the interview data: Be professional and be prepared. Being professional included being responsible, delivering on time, learning as much as one can about the organization and the area of the SME's expertise, and interacting diplomatically. Being prepared included coming to an interview with a well-thought out set of questions (avoiding questions that put the SME on the defensive), actively listening, and using different tactics with different personalities. Writers believed these attributes improved the relationships between writers and SMEs. These tactics could also contribute to a good editor/SME relationship. When I have a follow-up meeting to discuss my edits of an author's text, I organize my comments well and plan my questions. I do as much as possible to use their valuable time effectively, which in itself conveys respect.

For SMEs, the survey data emphasizes but one recommendation: "Learn the importance of good documentation" (549). The authors point out that SMEs may not see the value because their focus is on the product in terms of its function, whereas the technical communicator's focus is on the product in terms of how the customer will use it. Ultimately though, SMEs and writers must focus on the end goal—to help users *use* the product. Making the technical editor the facilitator of the peer review process would help in this regard—the technical editor would define "good documentation" for the SMEs early in the project. As a result, SMEs would be writing and then reviewing with these guidelines in mind.

The authors make an interesting point: we would expect two groups with the same goal to work well together. However there is often tension between SMEs and technical

communicators. Lee and Mehlenbacher suggest that one possible reason is that "organizations and management structures are rewarding the value of their work in significantly different ways" (550). The article suggests that management must promote and support collaborative work to help minimize the tension; it calls for "research that focuses on how organizational cultures establish, facilitate, and support interactions between SMEs and technical communicators" (551). I address this topic in chapter 3. On the other hand, all workers must accept that conflict will happen, all across the corporation. Regarding such conflict, Spilka (1995) recommends that:

> technical writers support managers who accept conflict as a potential part of any divisional interaction, who are…proactive rather than reactive decision makers, who insist that their division is well-represented, visible, and productive. This organizational orientation should ensure that inter-divisional collaborations and partnerships are supported and rewarded (in Spilka 445-446).

Mackiewicz and Riley explore the technical editor/SME relationship in "The Technical Editor as Diplomat: Linguistic Strategies for Balancing Clarity and Politeness" (2003). The technical editor must consider their suggestions when creating a successful peer review process. The authors offer practical suggestions for the inexperienced editor or the editor who is not as intuitive about interpersonal relationships, using a field in linguistics called pragmatics. They define pragmatics as "the branch of linguistics concerned with how language use and interpretation are affected by specific contexts." Context includes variables such as the identity of the speaker and listener (e.g., their

relative social status) and the speaker's intent in producing a particular utterance (e.g., whether the speaker is trying to inform or persuade) (84). Since pragmatics emphasizes speaker-listener interaction, the authors believe knowledge of the field can help editors communicate more effectively with authors.

The authors discuss how editors routinely commit "face-threatening acts" in their interactions with writers, recalling Goffman's notion of face, or self-image (1967, 1974). To maintain good relationships with writers, editors must use politeness (i.e., indirectness) when delivering advice to writers. The authors go on to discuss the many levels of directness and indirectness an editor can use, even possible combinations. Much will depend on the rapport between the editor and the writer. The authors do not recommend using the most direct form of an utterance, though, called the bald-on-record strategy (e.g., "Include a table in this section."). Such directness can impose upon the writer's control of the text or be interpreted as an "ostentatious display of the editor's greater power or expertise in the relationship" (86-87). However, some cultures do not perceive such utterances as threatening, but rapport-building (e.g., Japanese and Korean cultures). Additionally, nonnative speakers have more trouble comprehending passive sentences, because their native languages place animate nouns in the subject position. Thus, when working with nonnative speakers, editors should carefully use more directness.

The authors clearly summarize their recommendations for balancing clarity and politeness in a table at the end of the article. The strategy the authors most highly recommend editors use when communicating obligation (i.e., they want the writer to

change something) is opinion (92). The strategy they least recommend is hinting, because hints can be too indirect/unclear and/or be interpreted as criticisms. I have used many of these tactics, subconsciously and consciously, and they definitely improve my interactions with writers.

Joseph Jeyaraj offers suggestions for SMEs *and* technical communicators (writers and editors) in "Liminality and Othering: The Issue of Rhetorical Authority in Technical Discourse." He suggests that "SMEs, instead of marginalizing writers, view them as liminal subjects (able to understand and write about different disciplines) knowledgeable in different disciplinary rhetoric." Then writers, "through liminal practice, may be able to use their knowledge of audience and rhetoric to improve the quality of documentation" (9) and to convince SMEs to form new perceptions of them, to resist marginalizing them (35). The writer most known for theorizing liminality is Turner in his 1974 work *Dramas, Fields, and Metaphors*.

Jeyaraj acknowledges that technical communicators are often perceived unfairly by SMEs, and that there is a power struggle between the two groups. He argues that writers/editors should be perceived as coproducers of meaning. The author also points out that the modernist era is characterized by "systematic management and very strict structure" in corporations. So, if SMEs take excessive authority in technical writing situations, "we need to understand they may do so by disciplinary expectations to be responsible for the product's success" (12). Jeyaraj's experience as a technical editor, however, supports the notion that SMEs can be democratic, and my experience is the

same. I have been questioned, but ultimately, my writing skills are respected and I often feel empowered as the expert.

One comment struck me as particularly relevant to my study. Jeyaraj posits that "people in liminal positions have more opportunities to form practices that transgress…discursive patterns…Liminal subjects such as technical writers can form new horizons" (16). SMEs will likely think of the technical editor as having a liminal position, so perhaps the editor has a slight advantage in convincing them of the merit of a better peer review process, with the technical editor as the facilitator.

Carolyn Rude believes the frequent topic of the conflict between the editor and SME is somewhat surprising and could be avoided with effective editing. However, she also acknowledges than anytime people collaborate, conflict will arise unless "they place the demands of the task above their personal whims and their egos" (341). Rude says that "effective editing requires the editor to win the trust and cooperation of the writer" (341).

Typically, writers/subject matter experts (SME) have no special training in language or document design; editors provide this expertise. Rude says that relationships between editors and writers fail for three reasons: "poor editing, poor management, and oversized egos" (342). Poor management includes poor communication or unnecessary delays in the project. In addition, writers' egos only allow them to view every editorial comment as criticism, and editors' egos make them view the writer as inferior, which encourages defensiveness in the writer. Rude includes statements from writers about what they like and dislike about editors, as collected by Ernest Mazzatenta, former president of the Society for Technical Communication (STC) (Rude 342-343).

What Writers Like Most about Editors

- Restructures the report so that the train of thought is smooth and logical.
- Points out ideas and explanations in the report that are not clear to the reader and then rewrites them.
- Catches misspelled words.
- Generally improves readability.
- Usually returns the paper within five working days.
- Approaches the writer considerately concerning any changes.
- Edits fairly promptly. Does it without malice.
- Shows patience.

What Writers Dislike Most about Editors

- Asks the writer to rewrite a section without giving any indication of what's wrong with it or any direction to take.
- Makes changes only to incorporate the editor's style of writing.
- Is somewhat conservative in that the editor suggests qualifiers and disclaimers to analyses that, in the writer's professional judgment, are excessive.
- Uses words that are not acceptable to the writer or others and won't change them.
- Replaces words with synonyms.
- Requires too many iterations.
- Makes comments that are inconsistent with the department head's comments.

A peer review process with technical editor as facilitator must consider these statements and include questions/steps to result in the positive statements above, and avoid the

negative statements. And, if the SMEs are to value the technical editor as facilitator of the process—and value the process itself—the technical editor must carefully consider these comments in his/her interactions with SMEs.

If the technical editor has created a successful collaborative community among all team members (including the editor), such issues should arise rarely, or not at all. If the peer review process is well-designed, many of the dislikes will likely be avoided because the document will be better organized and better written well before the edit phase. Additionally, if the editor is involved earlier in the project and as the facilitator of the peer review process, the editor will be more informed about the document's overall goals/corporate objectives. As a result, the comments of the editor and the department head/other leaders should be more consistent.

Still, there are many ways to build a good relationship between editor and writer. The first step is effective editing—to "approach editing as collaboration with the writer to make the document work for readers. If [editors] focus on readers rather than errors, writers will appreciate [editors] rescuing them from writing clumsy, incoherent, or inaccurate documents" (Rude 343). Editors must also preserve the intended meaning of the author: "An effective editor knows the subject matter well enough to avoid introducing errors and knows the resources to check when content questions arise" (343-44). Rude also recommends the editor take action to manage the project efficiently: 1) Participate early, 2) Clarify the [editor's] expectations, 3) Work with the writer throughout development, 4) Don't surprise, and 5) Be prompt.

A good working relationship also requires frequent contact, as many researchers have suggested: face-to-face meetings or contact by phone, letter, or email. Planning and review conferences should be used to discuss the development and production of a document. These meetings progress better if the editor is well-organized, tactful, friendly, and uses a tone that invites cooperation: “An organized [planning or review] conference should increase the writer’s confidence in the editor as manager” and “end with understanding and clarification of goals, tasks, responsibilities, and schedule” (Rude 348). She recommends using these conferences to discuss project goals, tasks, responsibilities, and schedule, and warns against using the review conference for instruction: this can distract from the main conference purpose and from the focus on the document at hand. Instruction also demotes the writer to the role of student rather than colleague or collaborator. Holding the conference in neutral territory, somewhere other than the editor’s or writer’s office, is also key.

The editor-writer review conference can be a sensitive meeting; I certainly see the redness in the SME’s faces when I walk into the room with their edited documents in hand. They feel as if they’re back in school, receiving a grade. I try to open the conference in a friendly tone, assuring them the meeting will not be painful, and initially focus on the positive. In the review conference, Rude recommends that an editor’s goals are “to verify that the editing is correct and consistent with the overall document goals and, working with the writer, to establish the next steps in project development” (348). If the writer asks for instruction, set up another meeting to provide it. When I provide instruction, I have found it useful to identify the top five issues I would like to discuss

with the writer. There is no need to discuss every editorial remark with him/her, which can be extremely intimidating to the writer. The editor cannot expect to "teach" all the writer's mistakes away with one conference. I choose discussion points wisely and stop if I sense frustration.

The editor/writer relationship also depends on effective communication—verbal and nonverbal. "The words you choose, your nonverbal expressions, and the way you listen all reflect how a writer receives your messages" (Rude 349). During editor-writer conferences, Rude recommends that an editor communicate with active listening and positive language. Active listening means "drawing out the writer and working to understand his or her point of view" (Rude 349). One way to do this is to repeat or paraphrase something a writer says (e.g., "So you are saying that…"). If the editor misinterprets the writer, the writer can correct him/her. Active listening encourages cooperation, an open dialogue between speaker and listener, exactly the type of communication an editor needs to help the writer craft the most effective, useable document possible.

Rude also recommends positive language: "Writers will respond to goal-oriented language more positively than criticism" (350). Instead of telling the writer a paragraph is poorly organized, an editor could say, "I created a bullet list so that each task would be emphasized for the readers." According to Rude, when editors use goal-oriented language, they show that their editing is "purposeful rather than arbitrary" (350). Rude also suggests using "I" statements when an editor seems critical, but "you" statements

when an editor is praising (e.g., “I do not understand how this example explains the point you are trying to make” and “You explained this point clearly.”)

Finally, Rude suggests that conflict between the writer and editor can be avoided if the “focus is kept on the document, the task, and the reader rather than the personalities of the writer or editor. If editor and writer collaborate, they create more effective documents than either could alone” (354). It is this point editors must communicate to the writers with whom they work. A document is much better when worked on collaboratively. This is the reason that a more effective peer review process will result in an even better product.

Today, technical communicators often must collaborate with remote employees, which can compound the conflict between editors and writers, and make communication more difficult. My organization employs eleven MTSs (SMEs), five of whom are remote. Maintaining a good relationship with them has its own challenges: rare face-to-face communication, ineffective email exchanges and phone conversations, and their feelings of isolation, to name a few. Larbi and Springfield explore the subject in “Being a Writer on Remote Project Teams.” They claim that a successful remote worker has the attributes below. In my case, however, the technical editor is the individual who must exhibit these traits, when managing remote workers during the project and peer review process:

- Perceives expectations quickly
- Focuses on shared goals and not on personalities
- Plays on the team uncompromisingly
- Shares team leadership roles

- Resolves problems directly
- Assumes autonomy
- Plans in detail
- Stays flexible
- Facilitates communication
- Disciplines team on deadlines and deliverables
- Injects some humor (Larbi and Springfield 102)

Larbi and Springfield ask: “How can a remote writer prevent physical distance from becoming a detriment to a project and instead use this distance to the project’s advantage?” (103). The article proposes four steps that lead to successful results:

- Learning special behaviors
- Using media appropriately (e.g., email and videoconferencing)
- Following a best practice (e.g., a “community of practice”)
- Being prepared

The article discusses the responsibilities of remote writers at a successful U.S. software company. They manage the documentation, write and edit, maintain quality standards, and establish and maintain processes. These writers fulfill a similar role to that I am suggesting for the technical editor in the peer review process. The suggestions in the article that work for the writers could work for the technical editor, especially one who works with remote writers. The authors note that “an efficient remotely distributed team requires a high level of energy sustained over a fairly short period of time to be able to function” (104).

The writer/editor as leader of the project must establish milestones (assignments for the team members) and ground rules. While lack of face-to-face contact can lead to a sense of isolation and paranoia, the article's authors worked on a team that never met face-to-face because of conflicting schedules, and the project was still a success. Why? At the beginning of the project, the majority of the team was able to meet face-to-face and establish ground rules of behavior. Finally, to manage a team remotely, the writer/editor needs soft skills that promote appropriate behaviors. (Many of the respondents from my questionnaire agree.) These abilities are acquired through experience and discipline.

- Listening actively: Ensure that the team addresses all issues
- Facilitate communication: Keep communication on track.
- Plan the details: Ensure that milestones are met. Use version control and work within a master document.
- Share team leadership: Clearly define team roles and share team facilitation tasks.
- Overlook personality conflicts: Just as Rude emphasizes, focus on the team goals, not on personality conflicts.
- Focus on results: Focus on the deliverables, not on how the team is organized, whether they ever see each other, or how the team interacts.
- Manage yourself: Meet your own deadlines.
- Stay flexible: The writer/editor as manager must be prepared to switch focus, and understand that other team members may need time to adjust (107-108).

A virtual or remote office is becoming the norm for many companies, which can cause writers to feel isolated. The authors suggest that a "best practice" is to create a "community of practice" for writers:

> Communities of practice are entities held together by a common purpose and a need to share knowledge. They can span different physical and electronic space combinations. They contribute to keeping and sharing knowledge within a company (107).

The authors posit that "the thread for a community of practice can be a process or a coherent methodology—a series of rules and standards followed by all project consultants" (Larbi and Springfield 107). They cite a company that created clearly outlined methodologies for all its writers. The communities of practice inform remote team members of company standards, milestones, and overall expectations. The authors state that such communities of practice can become powerful voices in the company and impact the rest of the company by providing a positive example of teamwork. I hope my chapter on forming a community within the organization will help other technical editors form such "communities of practice" for peer review in their organizations.

Michael Alley in *The Craft of Editing* makes several recommendations for a better relationship between subject matter expert (SME) and technical editor.

- The editor and author should agree on the constraints of the document early in the process via an email or memo—a written document that serves as a sort of contract.

- The editor should recognize his/her own idiosyncrasies and convey and justify them to the author early in the project (e.g., if the editor does not like a certain word, tell the author up front).
- Editors are responsible for keeping the writing on schedule. Editors should know their authors' strengths and weaknesses and ask for portions of the document early if they anticipate needing a lot of time.
- Provide spoken and written feedback. Spoken feedback can ease an author's defensiveness to the written feedback. An oral conversation can allow the editor to discover the author's intentions and then offer changes to carry out the intentions. When providing spoken feedback, an editor should always begin with the positive.

Concerning the relationship between technical editors and writers, Judith Tarutz cites lessons she had to unlearn as a technical editor, some of which are cited below. The lesson is cited first, with the reasoning for unlearning it immediately following.

- Never admit you made a mistake: Writers respect editors more if they admit to mistakes.
- Review every comment and change with writers: This is too overwhelming and intimidating for writers. I have learned to highlight only a few, important mistakes that I believe the writer can avoid the next time. After all, it is the editor's job to catch the little mistakes. Tarutz suggests being self-explanatory in the comments on the manuscript and giving the writer some private time to digest the comments,

much as teachers give students, before scheduling a conference. This way, authors can work through their negative reactions first, before showing them to the editor.

- Be serious. Never joke on a manuscript: Once a working relationship with a writer is established, joking between the editor and writer can strengthen and humanize a relationship.
- Don't befriend writers. Maintain a professional distance: It is much easier to work out conflicts with people you know and trust.
- Negotiate changes: Tarutz suggests that editors and writers should assess their issues for debate "by [the issues'] impact on the customer (readability, usability), not by their impact on the egos involved" (52). And, editors will need to concede to some of the author's points.
- Writers and editors are natural adversaries: While tension is inevitable, the relationship does not have to be adversarial. Ultimately the writer and editor's goals are the same—to produce the highest quality documentation.
- Be a generalist: Actually, writers will respect editors more if they attempt to learn at least an overview of the subject matter.
- Use red ink to intimidate writers: I have learned that this is a very bad idea, harkening back to my days as a teacher. Writers are much less defensive and open to comments written in another color.

Tarutz emphasizes that it is important for editors to show writers that they are on the same team. The editor should openly support the writer in some of his/her company causes; show the writer he/she is a resource, not a barrier; keep communications open;

and be careful to add value to writer's books, not steps to the process (55). She also makes recommendations for dealing sensitively with writers: editors should prepare the writer for a lot of changes, if that is their editing style. Give constructive criticism, offer solutions, explain what works, not just what is wrong, and be reasonable, tactful, and flexible. Additionally, focus primarily on general kinds of errors and suggest ways to prevent them. I found two of Tarutz's ideas for "what writers should know" especially interesting, and crucial to the editor/writer relationship—two concepts that would lead writers to trust the technical editor in the leadership role of the facilitator of the peer review process.

- Writers should not take editors' comments personally. Editors do not edit writers; they edit manuscripts.
- Editors can be the writers' strongest allies (Tarutz 54-61).

As facilitator of the peer review process, the technical editor would need to keep the focus on the manuscript, not on the comments, or the personalities involved. Additionally, if writers trust the editors as their allies, they will view the editors' leadership of the peer review process—and the process itself—favorably, and as contributing to the most effective document possible. Such trust will be established early, when the editor creates the sense of community using the strategies outlined in chapter 3.

Conclusion

Earlier chapters have illustrated the problems that can arise during collaborative writing processes in the workplace. Chapter 3 addressed the issue of building a

community among the peer review team, and this chapter addresses the issue that peer review processes often lack an appointed manager. I have argued that the technical editor should fill this role. Since part of being a good technical editor involves good management skills, it makes sense for the editor to facilitate and manage the peer review process. Since a good editor must practice good communication through active listening, positive language, and confidence, he/she already must possess the skills necessary to lead a process that involves negotiation among many different writers, and therefore personalities. If an editor has established him/herself as a good editor, the writers will already have confidence in the editor and trust him/her as a good manager and a good editor who only makes necessary, purposeful edits. Writers will trust that the editor will not allow the reviewers to change the meaning of their work, just contribute thoughtful, purposeful commentary on the work.

Technical editors are also suited to lead the peer review process because of their educational background. While educators often argue about the validity of a humanistic versus a skills-based program, many technical and professional curricula still include both. Therefore students are exposed to theoretical courses in rhetorical analysis and team building as well as courses in specific software programs or Web design. My research suggests that curricula need to continue to include both. Such programs prepare students for the broader work contexts in which they will participate in the workplace. Students with a background in rhetorical analysis are specifically suited to address issues of audience and usability, and therefore they are suited to lead the peer review process, a process that focuses on how clients will use the corporate materials. I explore these issues

further in the next chapter, which discusses the pedagogical implications of my study. My peer review suggestions are predicated on the fact that technical communicators are valued in the workplace, enough so that they can assume leadership positions there. I believe this process begins in the university; technical and professional curricula faculty should prepare their students to demonstrate this value once they enter the workplace. This is the focus of my final chapter.

Chapter 5: Pedagogical Implications

Abstract: This chapter discusses the pedagogical implications of my study. Much is noted in the technical and professional communication scholarship about the gap between theory and practice (university and the workplace). In fact, much has been written about the theory behind collaborative writing. We know the theory; why aren't we better at the practice? My study has examined the theory and the practice, and here I hope to offer suggestions for helping technical communication students make that leap from student to employee who must participate in collaborative writing on a regular basis. What do we need to do differently in the classroom to better prepare technical communications students for collaborative writing activities in the workplace such as peer review? My suggestions are predicated on the fact that technical communicators are highly valued in the workplace, enough so that they can assume leadership positions there. What must teachers do to help technical communicators demonstrate their value once they are in the workplace? What must technical communicators do on their own to continually demonstrate their value after they are in the workplace?

Bridging the Gap

Writing collaboratively in academia is quite different from writing collaboratively in the workplace. To better prepare technical and professional communication (TPC) students for the workplace, teachers must work hard to close this gap. My study has addressed peer review specifically, and suggestions for improving this process in the workplace. What I have discovered is that we need to teach students how to create a

sense of community among team members and how to take the leadership position in the peer review process. In “Collaborative Peer Evaluation,” Gueldenzoph and May note that collaboration is a required skill for most business jobs today, and they argue that academia must prepare students for such collaboration. They too focus on peer review, and suggest these practices for the most successful classroom peer evaluation experience: 1) Build a foundation in the classroom that supports collaborative evaluation, 2) Create effective evaluation tools by articulating specific criteria and ensuring honest student participation, 3) Facilitate formative feedback during the collaborative project, 4) Facilitate summative feedback at the end of the project, and 5) Assess the overall collaborative evaluation process (9). In the workplace, the technical editor as leader of the process in the workplace will be responsible for building the foundation mentioned above, for facilitating the process, and for ensuring team members respect each other in order to provide considerate and effective feedback.

Mark Mabrito (1999) also notes that professional writing pedagogy often does not prepare students for writing in the workplace. Specific to collaborative writing, students need to know that collaboration in the workplace is not often as structured an activity as it is in the classroom. Writers in the workplace must be able to “adapt to a broad spectrum of collaborative writing experiences” (103). Professional writers might get oral and written feedback about their writing, and collaboration might extend over a long period of time—months, even years. I have found this to be true as well, which is why I recommend a designated facilitator of the process in chapter 4. Additionally, Mabrito notes that collaboration typically does not involve formal group work, as in the

classroom. Plus, those higher up in the organization will have more input in a group project, because of their position. To prepare students for such practices, Mabrito suggests professional writing instructors design collaborative projects that "invite students to participate in different roles in the collaborative process" (103). My research indicates that technical and professional communication (TPC) professors need to improve students' soft skills so that they are prepared to work with others regularly, once they enter the workplace. Collaborative writing activities that require students to participate as leader *and* team member/reviewer are one possibility.

The research of Norman and Frederick (2000) speaks to some of Mabrito's suggestions. They conducted a three-year experiment in integrating technical editing students into a multidisciplinary engineering design project. They found that the Integrated Product Team (IPT) approach—bringing together engineering students from different disciplines and editors to write mock proposals and compete for a contract—was too demanding on both the engineers and the editors, when it was part of a regular course with textbook assignments and tests. They thought the idea would work better as a separate class, perhaps as an internship or independent study for advanced undergraduates or graduate students. I briefly discuss internships and academic/workplace partnerships later in this chapter.

For successful teams to develop, the authors found that the editors need training in facilitating group work; teachers must set up positive interdependence between editors and the IPTs (e.g., through group grades); teachers must provide several opportunities for good relationships to develop between the editors and the engineers; and instructors must

teach group processing and interpersonal skills. I have argued that in the workplace, the technical editors' responsibilities are similar to the teachers' responsibilities listed above. The editor is responsible for creating positive interdependence among peer reviewers, the editor must provide opportunities for open communication and for good relationships to form, and the editor must promote and manage the collaborative environment, one of trust and mutual respect. Chapter 3 discusses these issues in detail.

However, in order for my suggestions to work, for the technical editor to facilitate such a crucial and complex process, organizations must first value the technical editor. My next section examines what teachers must do in the classroom to help TPC students demonstrate their value once they enter the workplace. Then, I discuss what technical communicators can do themselves to demonstrate their value.

The Value of the Professional Communicator

The Educators' Influence on Value in the TPC Curriculum

Several scholars discuss the value that technical communicators bring to the workplace. Chapter 4 of my study indirectly argues for the value of the technical editor as I argue for the editor as the facilitator of the peer review process. One of the first scholars to argue for the value of the technical communicator is Carolyn Miller. Her seminal article "A Humanistic Rationale for Technical Writing" (1979) argues that technical writing has humanistic value. Technical and professional communication scholars still discuss this point, as will be discussed later in this chapter. Miller's article claims that technical writing has been too long relegated to a skills course, one based on positivist assumptions, in which language becomes "utilitarian" and rhetoric "irrelevant." Such

assumptions “destroy [technical writing’s] aspirations toward disciplinary respectability” (Miller in Dubinsky 18). She identifies four features of technical writing pedagogy that have resulted from the influence of positivism: unsystematic definitions of technical writing (What subjects are technical?), emphasis on style and organization at the expense of invention, insistence on certain characteristics of tone (impersonal, objective, writing in the third person), and analysis of audience in terms of “level” (Current methods of audience analysis are “not flexible enough to permit analysis of the relationship between the writer and the reader.”) (18).

Miller argues that it’s time (in 1979) for a new view of technical writing, one that parallels what is happening in rhetoric and philosophy: “the new epistemology holds that whatever we know of reality is created by individual action and by communal assent…Facts do not exist independently, waiting to be found and collected and systematized; facts are human constructions which presuppose theories” (Miller in Dubinsky 20). Ultimately, “scientific verification requires the persuasion of an audience that what has been ‘observed’ is replicable and relevant” (21). Science is a “rhetorical endeavor” (21).

Miller believes we can improve the teaching and study of technical writing “by trading our covert acceptance of positivism for an overt consensualist perspective” (21). That is, teach with the belief that science is not absolute, but that it invites argument. Such a belief engages the audience in the writing, instead of forcing them to submit to the writing. Under such a “communalist” perspective, the teaching of technical or scientific writing becomes more than the inculcation of a set of skills; it becomes a kind of

enculturation" (22). She says that "we can teach technical writing as an understanding of how to belong to a community. To write, to engage in any communication, is to participate in a community. To write well is to understand the conditions of one's own participation—the concepts, values, traditions, and style which permit identification with that community" (22). A stronger peer review process more effectively focuses on the writing's impact on the audience, forcing authors and reviewers to consider how the audience will interact/interpret the material. In addition, my research showed that the interactions among review team members must be paid attention to and managed in order for the process to succeed. Interview respondents touted the concepts of respect for other team members and the importance of open communication. Overall, for the peer review process to function effectively, individuals had to think of themselves as a community, and had to consider how their actions and words affected the other individuals.

Miller also argues that our teaching of writing should not only include mechanical rules and skills but also an "understanding of why and how to adjust or violate the rules, of the social implications of the roles a writer casts for himself or herself and for the reader, and of the ethical repercussions of one's words" (22). Such approaches lead to discussions about "understanding, rather than only about skills," and therefore provide a basis for considering technical writing as humanistic. Such a view will place more value on the role of the technical writer in the workplace.

Miller's article sparked a discussion that continues today—whether technical communication should include humanistic pedagogy or primarily skills-based pedagogy. My study argues for a humanistic component, in that educators need to prepare students

to take a leadership position in the organization, and be able to promote respect among individuals, negotiate conflict, and foster the idea that what team members do affect the entire organization. These are broad social concerns that a skills-based curriculum will not address.

Ten years later, in 1989, Miller wrote another pivotal article that also asserts the value of technical communication: "What's Practical about Technical Writing?" She says that technical writing has long been associated with the "low" sense of practical (from Richard Bernstein's discussion of "high" and "low" senses of practical). According to Bernstein, the low sense refers to "some mundane and bread-and-butter activity or character. The practical man is one who is not concerned with theory" (in Miller in Dubinsky 155). Technical writing, "the rhetoric of 'the world of work,' of commerce and production, is associated with what were low forms of practice from the beginning" (155). However, Miller argues that technical writing should be associated with the "high" sense of the word, which "derives from the Aristotelian concept of praxis and underlies modern philosophical pragmatism, and concerns human conduct in those activities that maintain the life of the community" (Miller in Dubinsky 155).

Building on such a view of "practical," Miller asserts that "understanding practical rhetoric as a matter of conduct rather than of production, as a matter of arguing in a prudent way toward the good of the community rather than of constructing texts, should provide new pedagogical perspectives for teachers of technical communication" (162). We should not "simply design our courses and curricula to replicate existing [nonacademic] practices, taking them for granted and seeking to make them more

efficient on their own terms, making our students 'more valuable to industry'; we ought instead to question those practices and encourage our students to do so too" (163). Ultimately, such an approach extends the focus of technical communication programs "beyond the utilitarian to the good of the larger community within which both the academy and the institutions where our students may find employment" (Miller in Dubinsky 154).

Several researchers believe that educators must better understand the nonacademic practices—the profession of technical writing—in order to better prepare students for on-the-job writing (Paul Anderson, Elizabeth Tebeaux, and Stephen Doheny-Farina). However, Miller warns technical writing educators about basing their pedagogy solely on practice; academics also need to analyze the practice to see if it's working and if not, figure out what would make it work. For example, Odell says,

> We must be careful not to confuse *what is* with *what ought to be*…We have scarcely begun to understand how organizational context relates to writing, and we have almost no information about which aspects of that relationship are helpful to writers and which are harmful (qtd. in Miller in Dubinsky 157).

Studies such as mine document what actually goes on in the workplace and offers suggestions for technical communication pedagogy. I wanted to study why the peer review process at my organization does not work and try to figure out how to improve it. My study looks at "what ought to be."

More recently, Johnson-Eilola argues for the value of the technical communicator in "Relocating the Value of Work: Technical Communication in a Post-Industrial Age" (1996). To convince the organization of this, technical communicators need to redefine their role in the organization—as communicators of information, which is increasingly becoming a more valuable product than technology. Ultimately, he also offers suggestions for pedagogy that will help technical communicators redefine their role.

Johnson-Eilola says that technical communicators need to shed their "support orientation of the industrial age" and define their work in "post-industrial ways." He would like to see technical communicators become symbolic-analytic workers (based on the definition from then U.S. Secretary of Labor Robert B. Reich), who rely on "skills in abstraction, experimentation, collaboration, and system thinking to work with information across a variety of disciplines and markets" (in Dubinsky 580). Johnson-Eilola believes that the skills of such workers are the same as those possessed by technical communicators.

Johnson-Eilola complains that technical communication pedagogy that "focuses primarily on teaching skills places technical communication in a relatively powerless position: faculty become technical trainers rather than educators" (575). Several scholars have discussed this problem and offered suggestions for addressing it (Doheny-Farina; Conklin; Horton; Selber; Southard and Reaves), but Johnson-Eilola believes they have not gone far enough. He argues for taking a "broader view, and talking about what technical communication should be" (575). He explains that currently, the organization and technical communicators themselves, do not place enough value on the work that

technical communicators do, a situation that disempowers technical communicators and users. When technical manuals only address the functional issues of how to operate software, and not the broader issues of writing processes and design guidelines, for example, the user is limited in the types of work he/she can do.

Robert Reich defines three types of service work: routine production, in-person service, and symbolic-analytic work. Routine production workers are valued for their "ability to follow rules, remain loyal to a company, and work accurately and quickly" (581). In-person service workers also often complete routine tasks and are closely supervised, but the primary difference is that in-person service workers deal with people directly. Technical communicators often perform both of these types of work.

In contrast, symbolic-analytic workers, "possess the abilities to identify, rearrange, circulate, abstract, and broker information. Their principal work materials are information and symbols, their principal products are reports, plans and proposals" (582). Johnson-Eilola believes that technical communicators frequently perform this type of work. They can "manipulate, abstract, revise, and rearrange information," and they regularly "take pre-existing knowledge about technology and explain it to others" (582). According to Johnson-Eilola, "In an industrial economy, such a job description prioritizes the technology. But post-industrial work inverts the relationship between technical product and knowledge product" (583). Technology becomes subordinate to communication.

He believes collaboration is one area of education symbolic-analysts can use to reinvent technical communication education. In his opinion, "technical communicators

need to illustrate both to themselves and to the rest of the world that technology is easy to come by, but understanding and strategic use are both rare and valuable" (584). Several scholars have investigated this area, many of which are discussed earlier (Paradis, Dobrin, and Miller; Burnett; Thralls and Blyler; Doheny-Farina). Johnson-Eilola argues that

> by attempting to both learn from and change existing collaborative practices, we position ourselves and our students as socially responsible experts—in other words, we help students learn to be both effective participants and responsible community members. Such skills are valuable in the classroom and workplace (586).

Johnson-Eilola calls for more research and teaching "into issues of power in group dynamics. Technical communicators are frequently in positions of low power in workplace teams" (586-87). With better understandings of these situations, students can "learn to negotiate these difficult situations and develop tactics for avoiding the nearly automatic subordination of communication to technological values" (586-7). My study builds on this notion. In response to the data I received from my questionnaire, I investigate the group dynamics of peer review and discuss how to form a community in chapter 3. Chapter 4 argues that the technical editor is qualified to negotiate these dynamics and facilitate the peer review process. My study helps "rearticulate technical communication as symbolic-analytic work," work that puts the emphasis on communication and emphasizes the broader, social issues of technical communication.

In the introduction to *Power and Legitimacy in Technical Communication*, Gerald Savage refers to the debate over a humanistic or skills-based TPC curricula when he notes that many people in the field believe that technical communicators "will not be able to achieve professional autonomy unless certification is required" (2). In this same collection of essays, Teresa Kynell-Hunt says that technical communicators in the last ten years "have engaged in an ongoing discussion of whether or not the discipline is predicated on…an academic or professional undertaking" (Kynell-Hunt and Savage 53). She asks, "How do we, the teachers and scholars in technical communication, perceive those ties and how, in turn, have we sought to create disciplinary status and legitimacy…both within our community and in the minds of those who function outside our community?" She argues that teachers and scholars can learn a good deal from engineering educators, who, at the turn of the century, fought to "diminish the perception of engineering as an ultimately utilitarian and therefore nonacademic discipline" (53).

While technical communication textbooks remain firmly tied to the needs of the industry, there has been greater emphasis on theoretical and rhetorical issues in the past 15 years (54). Ultimately, Kynell-Hunt argues that TPC students will achieve status and power from the social change they bring to both the academy and industry, particularly as they continue to find success in both venues" (61). She suggests that technical communicators become "proactive rather than reactive to the specific needs of industry" (63). In an increasingly global economy, "consensus and collaboration…will be even more important as technical writers in industry bring to bear the vital social factors inherent in what they do" (65). By teaching such concepts in the technical

communication curriculum, “we follow in the tradition of engineering, a discipline with inevitable ties to industry, but also a discipline inherently social and culturally viable” (65). I am suggesting that the technical editor assume a powerful role in the organization, one that will heavily influence the social aspects of the organization—the communication and working relationships of individuals within the organization. When the editor creates a sense of community among team members in the organization, creating more respect and trust among the members, sometimes this becomes a model for the larger organization, as mentioned in my discussions of the “ethic of collaboration” and the “ethic of care” in chapter 3. Such ethics in the organization often lead to more productive, happier employees, in general. This is quite a responsibility and powerful position for the technical editor.

To help TPC students demonstrate their value, educators must stress the importance of the decisions technical communicators will make in the workplace. Ornatowski argues that technical communicators are in the position to make important decisions. In “Educating Technical Communicators to Make Better Decisions,” Ornatowski says that “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” (in Dubinsky 595). Many researchers have noted that technical communicators do much more than write; they are frequently involved in decision making, workplace politics, project management, and collaborative writing (Bosley, 1992; Green and Nolan, 1984). My study proves this as well; my study also argues for the technical editor in a leadership position, which will include much

decision making, throughout the entire peer review process. Ornatowski posits that it is "the capacity of technical communicators to make these sorts of decisions that constitutes the specificity of their professionalism" (596). Ornatowski assigns the types of decisions technical communicators make into three categories:

Decisions related to technology

Technologies are "shaped through the process of technology development, which begins with front-end marketing and continues through product design and manufacturing to installation, training, and after-sale service" (596). While many might argue that technical communicators do not make any decisions in this process, he argues that they "should know what they do and the meaning of what they do (i.e., the implications of what they do)" (596).

Decisions related to culture

Sociologists of technology have demonstrated that technologies shape society; for example, consider how the telephone and light bulb have influenced society (597). Technical communicators often write about such technologies; thus the communicator has become "an important voice in determining how the issues involving technology, as well as particular technologies, are framed and approached" (597).

Decisions related to public policy

Ornatowski reminds us that technology is not just individual pieces of equipment, but pieces of a larger system (e.g., the light bulb is part of a larger system of power generators and transmission) (598). When writing about such a system, "technical communicators transcend mere transmission of information…[their] communication of

technical information helps to harmonize the various factors that make up the system into a working whole" (598). During this process, 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" (598).

Technical communicators must be aware of their power and its implications, and educators are responsible for conveying this message to students. Therefore, while typical discussions of technical communication education involve figuring out the skills and tasks that technical communicators must be able to perform, discussions must also include the *meaning* of what technical communicators do. Educators will have to consider the scope, effects, and implications of decisions that technical communicators are called on to make. Such a curriculum does not mean taking more courses; it is just one that "deals with the full dimensions of what technical communicators do and the implications of what they do. It is… a curriculum that helps technical communicators make better decisions" (600).

A curriculum that would prepare technical communicators to lead the peer review process must prepare them to make better decisions and to think critically. It must emphasize the technical editor's impact to the organization. The curriculum should not merely focus on the technical skills required (e.g., software skills), but also on broader, softer skills that would help the technical communicator add value to the organization. Organizations must be convinced of the value of the technical communicator to put him/her in the position of managing the peer review process.

Stephen Bernhardt echoes the argument that technical communicators add value to the organization in that they can be agents of change in society and in the organization. In "Teaching for Change, Vision, and Responsibility," he says that "technical communication, broadly construed, has much to offer a society in change" (in Dubinsky 605). Because the field "welcomes technological change and works to understand it, the field can help students become comfortable in an information age and help them develop those literacies that are valued in work settings" (605). In other words, technical communication graduates are extremely adaptable, which adds to their value. In addition, "the rhetoric of technical communication encourages individuals to consider those imperatives for acting in the common good entailed in the pursuit of individual or corporate goals" (605). If technical communicators help develop the soft skills of team members and create a sense of community among team members, the respect and collaborative work ethic will influence the overall organization.

How Technical Communicators Can Demonstrate Value in the Workplace

Once in the workplace, the technical communicator must continually demonstrate his/her own value. Recent studies have clearly illustrated their value. In "Adding Value as a Professional Technical Communicator," Janice Redish asserts that technical communicators can add value by focusing on return on investment (ROI). She argues that pre-market costs of most computer software and hardware are much less than the post-market costs: she cites a study by Pressman (1992), which estimated that 70 percent of software lifecycle costs occur in the maintenance phase (Redish 505). Therefore verifying

the accuracy of documentation "during the design and development phase is much less expensive than dealing with the cost of learning about it later" (505).

Redish also cites a study that shows communicators' value as writers. Reva Daniel (1995) discusses the outcome when a technical communication consultant worked with Veterans Benefits Counselors to revise some confusing letters to veterans. Daniel found that counselors who handle inquiries answered about 1128 calls in a year for one old letter that went out to about 750 veterans. For the new letter that went out to about 710 veterans, counselors answered only about 192 calls in a year (in Redish 506).

Redish notes that technical communicators also add value in roles besides that of writer. She cites a study by Denise D. Pieratti (1995) that explored the interaction between technical communicators and developers in three different projects in one company: "The project that was most successful involved continuous, positive interactions between technical communicators and developers" (506). One developer claimed that "he was sure that he had to write less original code, had to rework less code, and constructed better code because users' tasks were clarified up front through his collaboration with the technical communicators" (506). While Pieratti could not prove that the developer was correct in this case, she suggests that on a new project, technical communicators could keep track of the following measures:

- Amount of rework needed on a project in which technical communicators were involved from the beginning compared with one in which they were not
- Amount of time to fix code based on problem statements from technical communicators compared with problems described by others

Redish's article is useful in that it offers many strategies for technical communicators to show how they add value, such as using outcome measures (e.g., fewer support calls); using ratings of customer satisfaction; using projections (estimates) of value added (e.g., by compiling historical data and estimating savings through usability tests); and finding out clients' perceptions of the value of technical communicators' work (507).

Ultimately, TPC educators must be aware of such studies and discuss them in their classrooms. In order for companies to make the technical editor the facilitator of the peer review process, companies must first be convinced of the value of the technical editor (and the qualifications they bring to the position). Technical communications educators need to incorporate a pedagogy that will help technical communicators demonstrate their value (and better prepare them for the broad range of tasks, including leadership tasks), such as critical thinking and decision making, as well as team building and collaboration skills. Then, once on the job, technical communicators will need to continually assert their value in tangible ways.

Trends in Undergraduate Technical and Professional Communication Curricula

I have examined what the technical communication pedagogy should emphasize to help TPC students demonstrate their value once they enter the workplace and how technical communicators can continually demonstrate their value in the workplace. In order for the technical editor to take a leadership position, this value must be clear. Now I turn to the current trends/topics in undergraduate curriculum to see if programs are

adequately preparing students for collaborative writing, specifically peer review, in the workplace.

In their 2005 study of existing scientific and technical communication curricula, Harner and Rich found that program developers often differ in what they believe should be included in the curricula. Many believe that offering specialized programs in science and technology will limit technical communicators' options, while others believe too much focus on humanistic concerns will not adequately prepare TPC students for the workplace. Listed below are some of the consequences of a specialized curriculum (i.e., skills-based), most of them negative, according to Carolyn Rude:

- An identity for technical communication that is easy to market but that constrains diversity
- An identity that always makes the field an adjunct to another, valuable as it enhances the dominant field but with relatively little inherent value
- Prosperity, at least for the foreseeable future, measured as academic and nonacademic jobs and the respect that follows
- An increasing gap between the interests of those faculty who do not specialize in technology and the curricular needs of the programs
- Influence on graduate programs by defining inquiries that seem significant to the field
- Risk of trivializing the curriculum to focus on production technologies and on (mere) documentation of products and concepts that others have developed (Harner and Rich 211)

Stephen Bernhardt and Pet Praetorius express their concerns over specialized programs, agreeing that technical communication courses ultimately should emphasize writing. Bernhardt believes that technical communication graduates should possess the following core skills:

- They know how to size up a rhetorical situation, apprise the benefits and costs to the individuals involved, determine a prudent course of action, and act with conscience.
- They are good (if not great) writers and editors.
- They have developed the ability to research what they need to know—to find the good stuff, to throw out the bad, to recognize good research, to think through the theory, and to arrive at well-considered positions to support actions.
- They are resourceful and critical users of technology, since communication and work lives in general have become so closely tied to information technologies (Harner and Rich 212).

I would add to this list significant experience in collaborative writing, experience in the kind of group writing and group processes they will be involved in the organization. The authors of the article surveyed the schools offering BA and BS degrees in technical communication, and a specific course in this area is not listed in the required list of courses, or in the electives. Collaborative writing and peer review might be part of another course, such as Project Management or Technical Communication, but it is not its own course.

However, in 2004, Southern Polytechnic State University unveiled two new programs: a BA in International Technical Communication (BAITC) and a BS in Technical and Professional Communication (BSTPC). A required course for both degrees is Small Group Communication—a step in the right direction for preparing students for collaborative writing and peer review on the job. Cedarville University requires students to take The Technical Communicator in a Corporate Culture, which is likely very helpful in closing the gap from the student as individual to the employee as collaborator. Cedarville also requires its technical communicators to take an internship between the junior and senior year, a good step toward preparing graduates for the workplace.

Ultimately the authors found little continuity among graduate programs in technical communication. Some graduates may receive a lot of instruction in literature, while others may receive more instruction in technology. Employers cannot assume certain skills were acquired when interviewing technical communicator candidates.

Another article that examines current technical communication curricula, "TPC Program Snapshots" (2005), discusses the concern mentioned before: programs in technical communication are at risk for becoming skill-building programs, if they do not include courses in the humanities. As the world and workplace become increasingly technological, how do program directors maintain quality and reputation for the technical communication curricula? The authors wanted to find out in their survey of current technical communication curricula:

- What sorts of literacy and technological expertise TPC programs find most appropriate in undergraduate curricula for today's developing professionals
- What courses form the core of undergraduate TPC programs
- What changes undergraduate TPC programs are anticipating in response to new workplace demands
- What procedures TPC programs are using to address the challenge of balancing technological skills with literacy and humanistic issues (Allen and Benninghoff)

The authors sent a survey to faculty members at 73 schools. They asked about topics, skills, tools, and core concepts that were currently part of their undergraduate programs and changes they were developing for the next five years. They also asked about the "level of engagement" (e.g., high, focus of a project, low) for the topics, skills, tools, and core concepts. Faculty members from 42 schools (58 percent) responded—schools which offer BA, MA, and PhD degrees.

The data Allen and Benninghoff received about peer review is encouraging. Out of faculty members from 42 schools that responded, 30 programs cited that peer review was covered in all or most courses, seven responded that it was a featured topic in one or two courses, and two responded that it was the focus of a project. Only three said it was covered incidentally. Regarding the topic of collaboration, 30 programs cited it as covered in most courses, six cited it as a featured topic in one or two courses, and five programs cited it as the focus of a project. Only one program cited the topic as covered only incidentally. Regarding the topic of teamwork, 29 programs cited that it is covered in most courses (in fact, the authors found that working with a team is one of the top five

core topics covered in the programs), four said it was a featured topic, and three said it was the focus of a project. Only two respondents said it was covered only incidentally.

Again, the data is promising—collaboration, peer review, and teamwork are reported as included in most programs. Many technical communication textbooks typically include sections on collaboration in the workplace and deem the topic important. However, if the topics are covered, why is it often difficult to achieve successful peer review processes in the workplace, as evidenced by my study? What are we not teaching in the universities and colleges to better prepare students for the collaboration expected of them on the job?

Perhaps the numbers above, although encouraging, are not high enough. Perhaps teaching technical communication students *how* to implement and facilitate effective collaboration in the workplace (the practice) is not addressed enough, especially the subject of peer review. I would like to see more programs cover peer review as a featured topic and/or as the focus of a project, not a topic that is simply "covered." Respondents in my survey all emphasize the value of peer review, but many noted the flaws of the process at their current or past organizations. Ultimately, people need instruction and guidance as to how to make the process effective. Such a process is crucial to many organizations' core business, especially if their product is documentation or course materials. And these are the types of organizations for which many technical communicators will work. This instruction needs to begin in the university.

Topics treated as featured topics in most programs are visual rhetoric/visual meaning, project management, globalization, online documentation, and interface design.

Skills and procedures treated as featured topics include editing, document testing, usability testing, website development, critical analysis of technology, and graphics development. The authors found that working with a team and peer review receives serious attention in many programs, but not necessarily as a featured topic. However, peer review is a crucial topic, which affects other topics such as audience analysis and usability; therefore it should receive even more serious attention.

Fortunately, new courses being developed indicate an attention to both technology and humanistic values. Specific technological courses are being developed to help the technical communicator keep up with the increasingly technological world we live in. Some of the specific courses being added include advanced content development/writing for the World Wide Web, database programming, digital literacy, fundamentals of Web design, and electronic documentation editing and production. The authors are also encouraged that TPC programs are not neglecting the humanistic values; courses with topics such as communities of practice, gender and diversity, and shaping professional identities, networks, and directions are being developed. TPC programs across the country are coming up with innovative ways to teach technical communication. For example, Michigan Tech's Scientific and Technical Communication program is developing an "in-house, document-production studio in which students will work in teams with clients on campus and in the local nonprofit community" (174). Students at Virginia Tech participate in "service-learning projects or client-based projects, in which students work with local non-profit organizations to put the skills taught in class into

practice to serve their communities”
(http://wiz.cath.vt.edu/tw/PWSite/studentprojects.htm).

Such courses will certainly emphasize collaboration and teamwork and better prepare students for on-the-job collaboration. However, what about an entire course centered on collaborative writing processes, and specifically the peer review process? This course would focus on team building skills, effective decision making, negotiating conflict and building communities, and leadership skills. This type of course is crucial for the technical editor who will act as project manager for many different writing projects in the workplace. It is also crucial for technical communicators who will act as writers and/or reviewers on part of a team. This could be the featured topic of the course, in which students work in teams for the entire semester on assigned projects that cover other important topics such as document design, visual rhetoric, usability testing, and audience analysis. But they learn about these topics by working collaboratively, by writing a document beginning to end together, by engaging in peer review, and by negotiating conflict throughout the process. Part of the final project could include a description of the humanistic concerns encountered and how the team members navigated through each one. Or, teachers could require a few short projects so that all team members get a chance to act as manager, writer, and peer reviewer; such an approach teaches students how to assume all roles on the writing team. A quick survey of the undergraduate professional writing programs at MSU and Virginia Tech shows no such course organized in this fashion.

The authors began their research to learn what TPC programs look like today, and whether they are "meeting the challenges of maintaining a humanities perspective while also changing to meet new demands from science and technology" (Allen and Benninghoff 179). Survey results indicate that they are. Programs continue to include "basic rhetorical principles, with concern for audiences…and integrating active involvement with social interactions through working with teams and clients along with practicing basic writing skills and working with new technologies" (179). Many programs are offering innovative, broad-reaching, challenging courses, but I believe more focus on collaborative, peer review strategies is necessary. This article indicates that the topics of collaboration and peer review are "featured topics" in *few* courses. My study shows that such topics as "featured" could be quite useful. The topics learned within are broad reaching, and definitely applicable to many of the skills/abilities required by technical communicators in the workplace. A technical communicator who is adept in theory of technical communication will be a better coworker if he/she also knows how to negotiate the politics of collaborating in the workplace.

The authors present an additional challenge to educators: "to help students develop a professional identity and recognize the theoretical expertise they bring to the workplace" (180). In other words, we need to develop confidence in students so that they can clearly demonstrate the value they bring to the workplace (explored earlier). They paraphrase Hart-Davidson ("On Writing"): "While technical communicators often already possess the core competencies needed in many workplace situations for developing information technology, recognition of these core competencies in the field of

technical communication is sadly lacking" (182). In academia, "humanities faculty members often see the implication of TPC programs and degrees with 'application' as limiting, as though TPC were a training program without valuable theoretical underpinnings" (182). This misunderstanding does not allow the field to grow/mature and receive the recognition it deserves. Ultimately, "TPC faculty need to bring the theory and expertise the TPC profession offers to the foreground in our courses to help students build an understanding of themselves as professionals and know what they can offer to an employer beyond skill use" (183). I have argued that TPC programs must help students understand and demonstrate their value so that they can assume leadership positions in the workplace. A curriculum that incorporates practice of the collaborative writing theory will do this.

Pedagogical Approaches: Academic/Workplace Partnerships

One way scholars propose to bridge the gap between academic and workplace writing is through academic/workplace partnerships. Such partnerships provide TPC students opportunities to experience real-world collaborative writing projects. Ann M. Blakeslee explores these partnerships in "Researching a Common Ground: Exploring the Space Where Academic and Workplace Cultures Meet." Blakeslee has incorporated such collaborations in her pedagogy, and her research has revealed differences and similarities between academic and workplace cultures. She describes some of her specific findings during two teacher research cases. One student found one of the projects very helpful in preparing her for the workplace: "I think the transition from the cocoon of college to the real-life world would be much harder without these experiences" (Blakeslee in Mirel and

Spilka 46). Other students interviewed felt that these collaborative activities were "transitions" or "stepping stones" to the types of writing expected of them on the job.

Specifically, one project involved students researching and recommending icons for the hard-copy and online documentation of a large engineering and technology company. While the students were given a tour of the company and exposed to more "surface features" of the company (e.g., job roles, workflow processes, and communication channels), they were not exposed to "features more embedded in the organizational context, such as status and authority, criteria and priorities for decision making, the flow and direction of communication, and standards for work processes and workflows" (48). This gap became evident when staff members from another office of the company beat the students to the punch in creating an icon library. The students were extremely discouraged and began to view the project as another one simply to fulfill grade requirements in the classroom, not one to complete as a task for the workplace, a task that must meet organizational requirements. Blakeslee argues that "the situation reveals how the politics of the organization built subtexts into the tasks the students were to complete and the requests made of them" (49). While the client was very thorough and clear in its requirements to the students, the client sought a product that met organizational requirements, and the students were completing a task to earn praise from the client and the teacher.

Ultimately, Blakeslee found that students were much more focused on product. Students are accustomed to preparing a project or paper for their teachers to read, but in the workplace, the process is often just as important. Unfortunately, students get very

little exposure to / practice with process in the classroom. Blakeslee observes that "competition, social and political dynamics play out and affect the product," which are "not always explored and acknowledged, especially in classrooms, but clearly have an impact on communications. Communications rest on relationships of cooperation, competition, power, and other factors not often discussed by students" (Blakeslee in Mirel and Spilka 51). She believes her research shows that

> we need to better understand the beneath-the-surface kinds of issues—status and authority, (the technical writers the students were creating the icon library for were essentially competitors of the staff members that created the icon library first), criteria and priorities for decision making, standards of work processes, and work flows (51).

She believes that classroom-workplace projects can provide such understanding. They help educators better prepare their students for the workplace. While I am not arguing for academic/workplace partnerships per se, the results of my study do indicate that these "beneath-the-surface issues" are important to discuss and build assignments around in the classroom, whether it is in the form of role-plays, academic-workplace collaborations, or another method. We must figure out a way to get students to stop focusing so much on product and focus more on process and on the social aspects of the workplace; this approach would much better prepare them for the peer review and collaborative writing there, and to facilitate difficult, complex processes such as peer review.

In *Innovative Approaches to Teaching Technical Communication*, Christine Abbot describes how the technical communication program at Northern Illinois

University partners with the Chicago Chapter STC Institute for Professional Development to offer courses in which undergraduates and graduates collaborate with workplace professionals and receive academic credit. The author acknowledges the challenges that technical communication programs face and will continue to face for many years to come: “downsizing of faculty, increased competition for student market share, growing territoriality among departments, and rapidly obsolescent hardware and software” (Abbott in Bridgeford et al., 254). Yet, the field of technical communication continues to grow. So, in the face of the these challenges, Abbott asks, “How do we improve the quality of our programs and give students meaningful educational experiences, without substantial additional resources and without putting further pressure on ourselves?” (255). She believes “the opportunities for collaboration have never been greater nor more important to the future of our profession for both practical and theoretic reasons” (255).

Abbott ultimately hopes to integrate theory and practice through academic/workplace collaboration. She notes that there is much dissension about how to meld theory and practice of technical communication, or even if it should be melded. She cites Elizabeth Tebeaux’s (1980) and Elizabeth Harris’s (1980) exchanges in *College English*, and notes that the debates still exist today (in Miller, 1996 and Moore 1996, debate about whether technical writing is rhetorical or instrumental discourse). She also reiterates the gap between those who teach in academe and those in the workplace (George Hayhoe, Barbara Mirel and Rachel Spilka). Abbott argues that if we are going to help bridge the gap between the academy and the workplace, “we are going to have to

learn—not just study, write, and talk about—collaboration and to do it well ourselves" (257). She says this learning involves more than "simply inviting guest speakers from the 'real world' to address our classes, incorporating client projects into our assignments, or internships" (257). While these approaches are important, something more is needed. She describes this something more in her article.

The goal of the Institute is to provide a unique educational program for both entry- and experienced-level professionals by offering courses in technical communication that integrate academic theory and practical application (258). Two courses are offered, Fundamentals of Technical Communication and Topics in Technical Communication. (The second course is designed for those students with some experience in the field or prior coursework.) As Abbott describes the institute and its affiliations, what jumps out is the overall atmosphere of collaboration. It was originally designed as a collaborative effort among teachers, researchers, and practicing technical communication professionals. Eight years later, it still follows the collaborative model, "whether in the makeup of the Board that governs the Institute, the instructors who design, plan, and team-teach the courses; or the course participants themselves, as they develop teamwork skills by working jointly on course projects and in-class application exercises" (259). The Institute recognizes that the "private sector's matrix model of project management and cross-functional teams—of sharing resources, talent, and expertise—is already influencing education, and we have much to learn from it." She believes the partnership offers the theory *and* practice that students of technical communication need in order to be successful in the workplace.

Don Samson's experience as a technical communicator in high-tech firms has led him to believe that professional communication programs need to focus less on academic settings and more on the high-tech workplace. Samson believes teachers of writing too often focus on rhetorical modes and traditional assignments, not on correctness. Samson found in his work in aerospace, managers most strongly objected to spelling errors, not errors in content, structure, or organization. Managers argued that "spelling errors indicate that the document was not prepared carefully and that readers who found spelling errors would assume the document contained other errors as well, even of content (126). While many scholars might argue such an approach is too simplistic, detracting from the humanistic value of technical communication education (and I would agree), Samson makes some points worth noting. We can and should strike a balance between a humanistic pedagogy and a skills-based pedagogy. My study illustrates that a thorough understanding of the theory behind peer review is not enough.

Samson believes that the best way to prepare students for professional writing in high-tech firms is to arrange internships in nonacademic settings, in which students write sections of documents produced collaboratively. This can be expensive, as high-tech firms must devote resources to supervising these interns. Ultimately, technical communication faculty need continuing exposure to writing in nonacademic settings to help them prepare students for workplace writing. They must also take time to read scientific and technical journals as well, to learn more about communication outside of academe. Since I have the perspective of writing in the workplace, my study is one that

could help educators better understand workplace writing, to help them bridge the gap between academia and the workplace.

Another option is to provide technical communication students "experience collaborating with students majoring in technology and business" (118). Again, Samson suggests more collaboration among technical communications students and those majoring in business or other technical fields. Increasingly, employers at technical firms are looking for technical communicators who majored in English or communication, but also took 20-30 hours of technical coursework. He notes that "peer review and small group work are the most common pedagogical techniques to teach collaborative writing, and they work well for many instructors, but their apparent simplicity is deceptive" (125). I agree; current pedagogical practices to teach peer review are deceptive. Textbooks often provide sample peer review questions for students to ask, but they do not elaborate on all the social factors all the team members might encounter. This is where my study comes in, examining these social factors, and emphasizing to educators that they must be discussed and taught in TPC programs to help students engage in effective peer review processes in the workplace.

My Approach

According to Thralls and Blyer in "The Social Perspective and Pedagogy in Technical Communication," the approach I am suggesting is a social constructionist pedagogy. This pedagogy stresses the role that communities play in both writing and writing pedagogy…Social constructionists assert that communities shape and even determine the discourse of their members through communal norms" (Thralls and Blyler

in Dubinsky 111). In addition, “constructionist pedagogy focuses on acculturating students to the communities they wish to enter” (111). Bruffee describes this process of acculturation or socialization as learning to produce normal discourse and to participate in the conversations of communities: learning to think in the ways community members think and write about topics that matter within those communities” (112). Social constructionists use collaborative learning and writing in the classroom: collaborative learning is based on “the rationale that the task of learning to think and write as a knowledgeable peer is not solely an individual and mental endeavor but instead occurs through interaction” (Bruffee in Thralls and Blyler 112). Bruffee says that “interaction among students ‘provides the kind of social context…in which students can practice and master the normal discourse exercised in established knowledge communities in the academic world and in business, government, and the professions” (in Thralls 112).

Constructionists believe that teachers can “facilitate students’ acculturation if the classroom mirrors the professional communities students will enter. Constructionists also believe that including collaboration in technical communication classes will enable collaborative learning to take place” (Thralls and Blyler 112). To foster such collaborative learning, constructionists suggest classroom activities such as peer review, co-authoring, and team writing. I, too, believe we can use more informal peer review assignments to better prepare students for the workplace.

The editors of *Innovative Approaches to Teaching Technical Communication* believe their collection of essays is timely because technical communication faculty need to rethink how they prepare their students for work in the twenty-first century. They

believe that now, more than ever, "students' success depends on a commitment not only to classroom learning but also to lifelong learning…students need to develop learning strategies they can draw on throughout their careers, especially if they work in intensive, high-technology fields" (6). According to other scholars (Wenger, Garay, and Bernhardt, Gee, Hull, and Lankshear), students need also to be able to "respond quickly and effectively to continually changing local and global conditions and to rapid and unpredictable technological advancements"; they need to be able to "reflect critically upon their choices and actions" (6).

One of the essays in this book is interestingly relevant to my study, in that it describes a collaboration of faculty members to revise the reading list for the MA in Professional Communication (MAPC) at Clemson University. They knew that faculty working together as a whole would "take more time, would be more cumbersome, would require considerable negotiating skills." They knew that they "were taking a risk, that negotiations could break down, even fail." Still, they were willing to take the risk (Yancey, et al., 95). They spent the entire academic year working on the project, meeting weekly, some routinely, others as their schedules allowed. Naturally, many and various opinions surfaced, and when conflict arose, the faculty members used their selected communication symbol—a "Fight Club" button, a promotional pin from the popular movie at the time—to signal "that an individual had become overly invested in their personal preferences." The authors say that the button, "which even now is seen by some as a sign of negotiation, by others as sign of friction—became a part of the process, a material token of the work to which we are all committed" (97). This is not a bad idea for

workplace collaborators to adopt, some sort of tangible token that signals a hiccup or obstacle in the process.

The authors of the article include narrative from meeting notes, which shows just how influential and informative such a collaborative approach to the project was. One of the faculty members found the conversations very helpful in helping him understand how others view what the program does: "Now that I have a little more context on 'what it is that we do' I can make more informed choices about what to include/exclude from the reading list" (99). Ultimately, they devised a new list; while not perfect, faculty members felt it better reflected students' concerns (practical issues of the field) and faculty concerns (theoretical issues of the field).

The collaborative process they engaged in is what I find most interesting. It has implications for the classroom and for peer review in the workplace. The end product was better (an informed compromise between faculty and student ideas), and relationships/communication among the faculty members were strengthened in the process. The editors claim,

> In the process of (1) renegotiating our reading list and (2) negotiating the way we have chosen to represent it here, we discovered that we can practice what we preach to students: that successful communication, even involving the creating of reading lists, requires recognition and negotiation among many competing voices (104).

The result was a "coherent curricular whole." When the editors reflected on why such a process might benefit other faculty members about to embark on curricular design, they

came up with several reasons. I will note the ones most applicable to classroom and workplace situations:

- That participating in such a curricular revision can be a significant socializing activity, certainly for new faculty members, but also for more senior faculty as they interact with their new colleagues and with the possibilities for curricular revision;
- That it provides all faculty with a chance to examine how the field—and even the definition of the field—has changed since the last list was constructed;
- That engaging all program faculty in developing and maintaining a graduate program seems to require the kind of commitment realized in curricular negotiations and that these negotiations may entail friction and require delicacy and humor; and
- That what we have outlined here…is a process, one more difficult and less efficient than if we had tasked it to a smaller group, but one more rhetorically productive. We created an opportunity to bring people together to communicate about things that matter: to write the program representing us and constructing students (Yancey et al. in Bridgeford et al. 104-105).

Ultimately, the editors felt that the end result was better because of the collaboration. How do the above items relate to collaboration among students? Among employees? For both, collaboration serves as a socializing activity. Students need such activities to prepare them for the workplace, and employees need such activities to improve working relationships. Newer employees especially need these activities to help them feel like

they belong at their workplaces, and are contributing members to thoughts, activities, and processes there. One of the interview respondents commented on this advantage in the peer review process—that he had seen the success when neophytes were paired with seasoned colleagues. The sharing of knowledge and initiation to workplace processes were beneficial to new employees and to group members, as they experienced stronger relationships with each other.

Yancey et al. found that the process promoted a thorough examination of the subject at hand by all those involved. They felt that multiple perspectives contributed to a more thorough analysis, an idea that resonated throughout many of my questionnaires. Such a collaborative process forces all individuals to become more informed about the project at hand, contributing to their expertise in their field, and allowing them to make better decisions concerning matters in their field. Yancey et al. also found that the process brought up conflict, which promotes negotiation (or deferred consensus, according to Burnett, 1993). TPC students will need to practice such negotiation to prepare them for the workplace. As one of my respondents said, “Healthy debate can result in better (more informed) material.” Such negotiation can definitely strengthen working relationships as well, if handled appropriately and delicately.

Finally, the editors recognize that the collaborative approach took more time and was more difficult than if a smaller group had tackled the revision. These are recognized issues of peer review in the classroom and in the workplace. Sometimes these issues cannot be resolved, but the editors said that they believe the process was ultimately more rhetorically productive. Students must engage in such projects to show them that even

with the time constraints, the process is more effective at achieving a better document, one more appropriate for the audience (in this case the students and the faculty members). In the workplace, such a process means a more thorough analysis of materials up front, so that the client will ultimately be happier with the product. The process also brings students and employees together, giving more opportunities for open communication about the material, "about things that matter." This is the way material is improved, and the way working relationships are improved.

Conclusion

My study has examined peer review in the workplace today, and how to improve its practice. We know the theory behind it, we know that it should work, but so often it is not successful. First, I distributed a questionnaire to subject matter experts at my organization and other local technical writers, asking their feelings about peer review, what has made it successful or unsuccessful in their workplaces, and what they might suggest to improve it. I discovered that two important steps to its success were building a community in the organization and designating a qualified leader for the process. In this chapter, I have discussed the pedagogical implications of my study—what educators must do to help TPC students prepare to lead the peer review process and build the community in the organization. This discussion began with ways that educators can help TPC students demonstrate their value once they enter the workplace. I also discussed the current trends in TPC curricula and the implications of my study for future directions for TPC curricula.

Barbara Mirel and Rachel Spilka, the authors of *Reshaping Technical Communication: New Directions and Challenges for the 21st Century*, claim that "technical communication is experiencing an identity crisis. The unique strength that technical communication specialists bring to their projects is that they put a rhetorical stamp on the dramatically changing technology of workplace communication" (4). Mirel and Spilka also note that technical communicators often have insufficient influence within the organization. To change their status significantly, technical communicators will need to "modify ways in which we situate ourselves as influential agents both within our respective institutions and within and across our cross-disciplinary communities" (3). They argue that "the challenge for the coming decades is to show our workmates the unique knowledge and skills that we as technical communicators bring to these areas and to assume roles of leadership" (4).

My study seeks to help meet this challenge. I have argued that technical editors are exceptionally qualified to take on the leadership role of the peer review process manager and facilitator. My study showed that one is certainly needed, one that can build the soft skills a teams needs, and one that build a sense of community among those participating in peer review. Mirel and Spilka believe the field of technical communication "must become associated with strategic planning and decision making that reaches beyond publication departments into product management, product design and development, and cross-disciplinary research projects" (4). A technical communication pedagogy that considers the strategies I have suggested will move the field of technical communication in this direction.

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