

CHAPTER 1

Virtual Peer Review as “Remediation”

It has been almost two decades since Kenneth Bruffee suggested in “Collaborative Learning and the ‘Conversation of Mankind’” that peer review resembled the kinds of conversation that academics most value: social interaction between colleagues about scholarship (639). Bruffee described peer review as an activity in which “students learn to describe the organizational structure of a peer’s paper, paraphrase it, and [suggest] what the author might do to improve the work” (637–38). Although peer review has long been practiced among writers (Gere), Bruffee shed new light on the activity, framing it in terms of social construction, a theoretical perspective characterized by the assertion that knowledge is created through social interaction. Specifically, Bruffee suggested that activities like peer review (and collaborative learning in general) highlighted the relationship between conversation and thought, while providing supportive environments for students to practice academic discourse. Indeed, Bruffee suggested that because peer review and collaborative activities resembled academic discourse, instructors had a responsibility to model this discourse for students. But the peer review that Bruffee described—peer review that scholars have documented and writing teachers have regularly practiced—tends to highlight social interaction in terms of oral communication; the role of writing in peer review is actually downplayed in this scholarship. For example, as several scholars have documented, peer review in classrooms typically occurs in the form of the face-to-face, in-class workshops between student pairs or student groups (Spear, *Sharing Writing*; Hawkins; DiPardo and Freedman; Gere), or more informally as sit-down discussions with other writers (Gere; Spigelman).

In this book, I suggest that a new form of peer review has emerged that is unaccounted for in peer review scholarship: a *virtual* kind of peer review. By “virtual” I do not mean “less than real” or “simulated,” for this would suggest that virtual peer review is not a concrete activity. Rather, I refer to “virtual” in the computer sense; that is, activities that are facilitated by means of a computer. This new form of peer review is one that, unlike the peer review that Bruffee and others described, occurs without a single face-to-face discussion, because it is conducted in writing through computer technology. Specifically, through Internet technology writers can exchange documents through e-mail and attachments; they can communicate with one another about their work;

and they can edit or comment on writing using word-processing programs. This series of activities forms what I call “virtual peer review,” or the use of computer technology to critique and to comment on another person’s writing.

This new kind of peer review raises an important question for writing studies: to what extent does peer review change when it is entirely conducted through computer technology? The question is similar to one that Jay Bolter and Richard Grusin raise in terms of “remediation.” Defining remediation as a “repurposing” of media, these authors argue that media shift and borrow from one another. They suggest that remediation is bound in a “double logic”: it multiplies media while simultaneously seeking ways to erase it (5). To illustrate remediation, Bolter and Grusin use the examples of paintings being transformed to digital images, webcams imitating live presence, and the World Wide Web borrowing from print, yet transforming it. Bolter and Grusin suggest that remediation can happen in various degrees. For example, remediation can highlight older media in newer media; “refashion” older media entirely while still making the presence of older media apparent; emphasize stark differences between older and newer media; and absorb older media entirely, erasing their characteristics (47). They explain that a “repurposing as remediation is both what is ‘unique to digital worlds’ and what denies the possibility of that uniqueness” (50). Although Bolter and Grusin do not specifically address remediation in terms of face-to-face and electronic communication, I apply the concept in that way to examine the degree to which electronic communication “borrows” from face-to-face communication.

I am particularly interested in remediation as it applies to virtual peer review. Is virtual peer review a remediation of face-to-face peer review? Does virtual peer review borrow from face-to-face peer review, or is it its own distinct activity? The position I take is that while virtual peer review shares theoretical roots in peer review, virtual peer review has important, even fundamental, differences from peer review in practice. I therefore argue virtual peer review is a remediation of face-to-face peer review in the sense that it emphasizes stark differences rather than similarities. When conducted through computer technology, peer review emphasizes written communication over oral communication and shapes response in ways that reflect differences of time, space, and interaction in Internet environments. Thus, I suggest that peer response is shaped differently when conducted using computer technology. The consequence of this remediation, I argue, is that peer review has implications for writing studies beyond social theories of language that Bruffee and others have described. In addition to supporting social theories, virtual peer review also reinforces technological literacy in writing studies. I argue that we must investigate these differences more fully, especially as we integrate computer technology more frequently into our writing practices and classrooms.

However, I do not suggest that as a remediation virtual peer review erases or replaces peer review that is practiced in face-to-face environments. Rather, I suggest that the integration of computer technology into the activity *extends* our understanding of peer review as well as its pedagogical implications.

Throughout this book, I suggest that this remediation of peer review is not intuitive—that is, transferring peer review to virtual environments is not seamless. Difficulties in assimilating virtual peer review may arise in part because existing models of peer review highlight oral dialogue strategies and do not take into account the prominence of written communication in virtual peer review. For example, volumes of research have modeled face-to-face forms of peer review for applications such as peer conferences, collaboration, one-to-one tutoring, and teacher-student conferences (Harris, *Teaching One-to-One*; Reigstad and McAndrew; Flower et al.; Burnett, “Interactions”; Wallace; Spear, *Peer Response*; B. L. Clark; Gere and Stevens; Hawkins). No such guidance exists for virtual forms of peer review. As I suggest in chapter 4, moving peer review to virtual environments presents many challenges that require specific guidance regarding how to productively use computer technologies for peer review. We cannot expect that this activity is intuitive for writers. Therefore, in the spirit of Bruffee’s call to model peer review for students, I argue we should consider modeling uses of *virtual* peer review.

This chapter begins, then, my exploration of virtual peer review. In the following sections I define what I am calling “virtual peer review;” provide background about the activity; and place it in the context of writing studies.

What is Virtual Peer Review?

Defining virtual peer review is difficult without first establishing what we mean by “peer review.” Although I argue that virtual peer review differs fundamentally in practice from peer review, it is rooted in the same basic purpose as peer review: to respond to one another’s writing. It is important to establish this basis for virtual peer review.

Defining “peer review” requires that we distinguish it from other group related activities, for peer review is frequently lumped together with a variety of activities to illustrate the broader appeal of collaborative learning. Anne DiPardo and Sarah Warshauer Freedman distinguish peer review by separating it from other collaborative activities, which they document in four categories: “responding to writing, thinking collaboratively, writing collaboratively, and editing student writing” (120). In considering peer review—also commonly referred to as peer response—they suggest that “responding to writing” is the most adequate category for the activity. In *Writing Groups*,

Anne Ruggles Gere also acknowledges the many ways peer review can be characterized, and she reaches a similar definition of peer review as “writers responding to one another’s work”:

Writing groups, the partner method, helping circles, collaborative writing, response groups, team writing, writing laboratories, teacherless writing classes, group inquiry technique, the round table, class criticism, editing sessions, writing teams, workshops, peer tutoring, the socialized method, mutual improvement sessions, intensive peer review—the phenomenon has nearly as many names as people who employ it. The name, of course, matters less than what it described, which is writers responding to one another’s work. (1)

Bruffee further specifies this definition, though he too acknowledges several possible names for the activity such as “peer criticism” or “peer evaluation” (637). He uses these terms interchangeably to describe an activity in which “students learn to describe the organizational structure of a peer’s paper, paraphrase it, and comment both on what seems well done and what the author might do to improve the work” (637–38).

As these scholars suggest, peer review can be defined as *responding to one another’s writing for the purpose of improving writing*. Gere points out that peer review has a long history, dating back to the early eighteenth century, in which writing groups were associated with literary societies of colleges and universities (10); peer review has subsequently been discussed in several contexts (Spear, *Sharing Writing*; Spear, *Peer Response*; B. L. Clark; Olson; Katz; Burnett, “Interactions”; Forman; Myers; Gross).

In contrast, virtual peer review has a very short history, and is only addressed sporadically in literature. Indeed, one of the frustrations in studying virtual peer review is that no concrete definition of the activity exists; as far as I can tell, even my use of the term “virtual peer review” is new. Certainly, several scholars have addressed *components* of virtual peer review, such as the influence of word-processing programs on revision (Bridwell; Wresch; Hawisher, “Effects”; Crafton) and the use of networked computers in the classroom (Cooper and Selfe; Hartman et al.; Bowen; Barker and Kemp). What is lacking in this literature is how these various aspects of computer technology can be pulled together to meet the specific purpose of peer review. In other words, few studies isolate the activity in order to extend our understandings and applications of *peer review* to include computer technology. Consequently, peer review scholarship must be revisited in order to accommodate virtual forms of peer review.

I define virtual peer review as *the activity of using computer technology to exchange and respond to one another’s writing for the purpose of improving writing*. From this definition, one can see that virtual peer review shares the

same basic task as peer review: responding to one another’s writing. However, it differs in that computer technology must be used to interact with peer reviewers. Virtual peer review thus employs computer technology in three ways: (1) to write documents; (2) to exchange written documents electronically, using Internet attachments, networked computers, and word-processing; and (3) to converse with reviewers about those documents, through electronic comments produced either synchronously (real-time) or asynchronously (delayed time). This definition suggests that in virtual peer review, participants receive documents in virtual space, they read documents in virtual space, and they respond in virtual space. No aspect of this activity is conducted face-to-face. Virtual peer review thus shares the same task as peer review, although it is practiced differently using computer technology.

How Might We Be Familiar with Virtual Peer Review?

Given the background I have just provided, perhaps we can identify uses of virtual peer review in our own writing practices. I know this has certainly been true in my experience, particularly in publishing, but also for any document I might write. For example, I have come to rely on Internet technology to submit articles, chapter drafts, and presentation proposals, and I also use word-processing and e-mail in my own informal review processes when I send documents to willing readers, whether across the country or down the hall, to respond to my work. I rely on e-mail to receive comments from reviewers, and I frequently correspond with reviewers, editors, and presses via e-mail about ways to further revise manuscripts. For me professionally, the activity of peer review quite often is conducted entirely online. Thus, I have come to rely on computer technologies first to write, then to exchange my writing, and finally to correspond with peers. In addition, this practice is one that, when I think about it, I repeat for most writing projects.

In fact, chances are that most of us have experienced some kind of virtual peer review before—perhaps in the form of an asynchronous e-mail exchange addressing an author’s writing, or perhaps in the form of the synchronous chat in which participants discuss ways to strengthen one’s writing. Consider the following examples (all of which are *real*):

- A student group is writing a test plan for a usability project that is due in their technical communication class. But they have a crucial question about the test plan that they need to discuss directly with the client of the usability project. Because time is short, they will be unable to meet with their client in person. Using Web-based tools that have been provided for them,

they decide to set up a synchronous chat with their client to discuss the test plan. They prepare for the chat by sending an e-mail to the client with their test plan attached.

- An online tutor receives an e-mail from a student desperately seeking help with a writing assignment. The assignment is due in a day, but the student will not be able to stop by the writing center for an appointment. The tutor suggests that they meet in the chat room of their online writing center at 7 p.m. that night. The two meet online to discuss problems the student is having with his paper.
- A marketer's job involves editing client publications on a daily basis. Specifically, he must generate text for items such as brochures and booklets, and he must also receive feedback on that text from several people. To manage this process, he writes documents using word processing, e-mails these documents to readers, and then asks readers to make comments using the "track changes" feature found within many word-processing programs. This feature allows him to see not only the changes his clients want, but it also assigns a color to each reader so that he can see who made what changes.
- A manager wants to update his resumé for an upcoming job interview. He knows a friend in another city would be willing to provide feedback, but he has very little time to make changes. He sends his resumé via e-mail as a word document attachment to his friend. In the text of his e-mail message, he writes: "Do you see any errors in my resume? Could you please send feedback by tomorrow at 8 a.m.?" He attaches his resumé, which is a word document, to the e-mail message and waits for a response.
- A freelance writer is submitting a story to a newsletter, but before she sends it she decides to ask her daughter, a professional writer, for feedback. She pastes the entire story into the text of an e-mail message, and asks her daughter for feedback on specific passages. Her daughter receives the e-mail and hits "reply." In the text of the message, she inserts line spaces and types her comments in ALL CAPS to distinguish her comments from her mother's original text. She then sends her comments back to her mother via e-mail.

These examples demonstrate that virtual peer review has begun to appear in classrooms, online writing centers, workplaces, and even daily lives. The fact of the matter is that virtual peer review is already here. Several other writing practices may already include virtual peer review; it is just that we have not *recognized* it in any consistent or formal way.

Instead, various terms such as "online editing" and "electronic collaboration" may have been used to describe virtual peer review in settings such as academic publishing, journalism, marketing, and technical communica-

tion. For example, in “Online Editing, Mark-up Models, and the Workplace Lives of Editors and Writers,” David Farkas and Steven Poltrock cite advantages of “online editing” such as speed of editing process, efficient archiving, and integration in overall technology systems (160–61). They describe approaches to marking text online such as “the comment model” and the “edit trace model,” which are intertextual comments that are inserted electronically. These authors note that online editing is sure to become more common, but that we must closely investigate technologies to find the best fit with editing practices (174).

In another account, online editing is discussed as a way to enforce peer reviews for submissions to an academic journal. In “Professional Counseling Journals: Implementing Online Editing and Peer Review,” authors from an editorial board of the journal *Counselor Education and Supervision* describe a trial period established to test online review of journal submissions. They describe steps of this trial such as (1) the process of making submissions accessible in an online form; (2) making online review worksheets accessible to reviewers; (3) suggesting comment techniques; and (4) creating a Web-facilitated interface to direct the return of reviewers’ comments. They cite a number of advantages of online peer review, such as a significant reduction of mailing costs, reduction of overall publication time period (from about two years to eight months), and reduction of copy costs (3). They describe the following process for conducting peer review online:

Reviewers will also have the option of writing comments directly on the manuscript that they have opened in their word processors. Reviewers will be asked to write all comments with their word processors in a bold, upper-case font, inserted into the proper place in the file. The manuscript can then be returned to the Editor as an e-mail attachment in rich text format, or by fax. (“Professional Counseling Journals” 5)

Virtual peer review has also appeared in terms of electronic collaboration. For example, in workplace settings, Internets and Intranets have the power to connect employees, and they can easily facilitate the exchange of documents. When group members provide online comments directed at revision and editing, they are conducting virtual peer review within their groups. Yet as Janis Forman suggests, these collaborative practices introduce a number of complexities, such as different levels of technological familiarity among group members, identification and resolution of conflict online, and management of interaction dynamics in online environments (140; see also Burnett and Clark).

Although several scholars have articulated connections between collaboration and computer technology, virtual peer review itself is seldom highlighted in scholarship about electronic collaboration. Instead, as collections

such as *Electronic Collaborators* (Bonk and King) and *Collaborative Virtual Environments* (Churchill et al.) demonstrate, scholars are interested in describing the *range* of collaborative technologies that can be employed by groups and the various impacts such technologies may have on group work. Thus, careful distinctions must be made between collaborative writing and virtual peer review. Recall that DiPardo and Freedman outlined differences between peer review and other collaborative activities; the same care must be taken when examining virtual peer review. Collaborative writing involves *coauthorship*, and technologies can facilitate the generation of text from multiple authors quite well. However, virtual peer review is not the same as coauthorship. Rather, feedback and interaction from peers in virtual peer review is directed toward the purpose of providing responses and suggestions to an author, not for contributing text that will be assimilated into an author's draft. Thus, it could be said that electronic collaborative writing includes virtual peer review, but not that virtual peer review always includes collaborative writing. Virtual peer review can be placed in the context of electronic collaboration only when given this careful distinction. Because this distinction is so important to virtual peer review, I revisit it in more detail in chapter 4.

One other place we may have encountered virtual peer review is online writing centers (also known as "Online Writing Labs" or OWLs), which are academic tutoring services designed to support student writers. In the past decade, several writing center scholars have explored ways that technology might be applied in tutorials, although most online writing centers exist in conjunction with a face-to-face writing center. Sources such as *Wiring the Writing Center* (Hobsen) and *Taking Flight with OWLs* (Inman and Sewell) describe innovations such as asynchronous tutoring sessions in which tutors interact with students through e-mail (Mabrito, "E-mail"; Castner; Monroe; Coogan, "Email"; Rickly). For example, Rebecca Rickly describes in detail how tutors can comment on student writing online in e-mail chats by distinguishing online peer reviewer comments through different symbols, fonts, colors, or styles on screen (Hobsen, *Wiring the Writing Center*). In addition, in "The Look and Feel of the OWL Conference," Barbara Monroe describes how tutors can comment on student writing by using a three-part structure in e-mail messages: front notes, intertextual notes, and endnotes. She suggests that through this structure, tutors can attempt to simulate interaction with students that typically occurs in face-to-face tutoring sessions. Asynchronous tutoring can be taken even further, such as in centers that exist completely online rather than as a supplement to face-to-face writing centers. Such is the case with the Online Writing Center (OWC), which I have both studied and administered at the University of Minnesota (<http://www.umn.edu>). Because this center exists only online, it defies the traditional notion of a writing center. For example, the OWC doesn't have a front desk for administrative staff,

it doesn't have a physical library of sources (its sources are online), and it doesn't have rows of tutoring carrels. The OWC also doesn't have, as Muriel Harris has described, coffeepots or candy dishes to welcome tutees (“Using Computers” 7). In short, the Online Writing Center looks nothing like a traditional writing center, because its service and interaction with students exist in a virtual space. Instead, tutoring occurs asynchronously through a Web-based interface in which tutors can upload student's papers and comment using the structure Monroe described. (See figure 1.)

Virtual peer review is also reflected in accounts of synchronous tutoring in writing centers, in which tutors and students meet in chat rooms to “discuss” the students' writing. Eric Crump describes such a session as it

Attach File: **Browse...**

Word processor: **Word for Windows (*.doc)** ▾

Computer: PC Mac Unix

Date you would like your feedback returned: **04-Apr-02** ▾

(Please allow for a 72 hour turn around)

Type of document: **Choose one**

Trouble Areas:
Click here for an explanation of the trouble areas
[Select up to 3 categories by using Ctrl + select(PC) or Command + select(Mac)]

Content/Ideas
Audience
Purpose
Development
Organization
Expression

Figure 1. Submitting Writing for Tutorial Review through the Online Writing Center

occurs in a MUD (Multiuser Dimension). He argues that synchronous technologies like MUDs are advantageous for writing centers because they encourage students to practice written communication even as they interact with the tutor online (178). In addition, synchronous tutoring has the advantage of what he calls an “oralish’ nature” (178); that is, synchronous tutoring—though written—is closer to face-to-face dialogue than asynchronous tutoring through e-mail.

As these account demonstrate, the activity of virtual peer review has begun to permeate several writing practices. However, while scholars have discussed what appears to be virtual peer review, they have done so in numerous contexts, using a variety of terms to describe the activity. A primary purpose of this book is to begin talking about virtual peer review by placing it in the context of peer review scholarship, which is based mostly on the field of writing studies—a field that emphasizes theory and pedagogy of writing. There are important reasons why I believe this context is appropriate for investigating virtual peer review. First, peer review literature up to this point does not often emphasize writing or computer technology in the activity of peer review; thus, an important gap in literature exists. Second, because virtual peer review is beginning to occur more frequently, we must begin learning more about this activity so that we can better model it for students or anyone else interested in learning about the activity. Third, extending our understanding of peer review to virtual environments may particularly benefit writing studies because of recent interest in computer-based writing instruction—a growing field in writing studies. In the next section I place virtual peer review more firmly in the context of peer review and writing studies.

What Do We Know about Virtual Peer Review in Writing Studies?

Surprisingly, virtual peer review has appeared only haphazardly in writing studies and has not been discussed in any substantial way. For example, some scholars have alluded to virtual peer review by suggesting it is the same activity as face-to-face peer review, except that it is conducted outside of class (Palmquist et al. 147–48; Palmquist and Zimmerman 39; LeBlanc 34; Berge and Collins 4; Ewald 130). Most of these accounts merely emphasize the convenience of virtual peer review and do not go into any detail about how to conduct the activity; the assumption underlying these accounts is that peer review does not change when introduced to virtual environments.

Brief descriptions of virtual peer review have also appeared in writing textbooks that emphasize the computer. For example, in *Writing with the Macintosh: Using Microsoft Word*, Ann Hill Duin and Kathleen S. Gorak describe

how to use the computer to assess one’s own writing. They provide a checklist and suggest opening two Word files on a computer—one with a formal text and one with a checklist—and using the checklist while scrolling through the paper (196). They suggest that this activity can serve to solicit peer feedback through e-mail (200). Similarly, in *Writing with a Computer*, Mike Palmquist and Donald Zimmerman suggest “reviewing and revising documents written by others” (39). They strongly recommend developing some kind of strategy for making comments online, which includes: “read first—correct later . . . highlight key passages and use the gist and predict strategies . . . create a document summary to identify key points . . . role play the audience” (40–41).

Indeed, the subfield of computer pedagogy within composition is where virtual peer review is most likely to surface, if it surfaces at all. However, the few accounts of virtual peer review that exist in this literature tend to be buried in larger discussions in support of using computers to teach writing (seldom is the term “peer review” used to describe the activity); thus, they are quite inaccessible. For example, Carol Klimick Cyganowski advocates the use of a computer lab environment for student groups. Although peer review is not the focus of her argument (rather she is arguing that computer labs are compatible with collaborative approaches), she asserts that “peer suggestions” (70) can be recorded using word-processing software. She remarks,

The computer keyboard and disk storage seem to me a far more natural means of capturing peer collaboration and connecting to the writing process—a way for students to record their interactions, as well as a way to make those interactions and record an integral part of their inventing, drafting, and revising process. In the computer classroom, students’ talking about writing and group writing becomes linked to keyboarding—trying peer suggestions and responding to alternatives immediately, using word-processing functions to invent, rearrange, and reinvent without disturbing the original text file. Students see interacting at and with the keyboard as more a privilege than a burden. (71)

In a discussion about the value of computers for interactive discussion in the classroom, Kathleen Skubikowski and John Elder also mention virtual peer review, but use the word “corresponding” to describe it (92). “After the students wrote for five days, they deposited their week’s entries from disks onto the Appleshare network. Then each student would call up the week’s writing of two assigned classmates, read it through, and respond to it both with interlinear comments and by writing a letter at the end of the file” (92). Thomas Barker and Fred Kemp describe virtual peer review but do so in the context of what they call “network theory.” They suggest that networked computers benefit student writers: “Networked instructional systems generate many times more student-to-student transactions than traditional instruction, even when

such traditional instruction is augmented by peer critiquing and group work” (17). To illustrate network theory, they describe how “peer critiquing” may occur in networked computer labs:

If an essay is to be read and critiqued, then electronic mail is the means by which the critiques are transmitted and responded to. The way this usually works in practice is that a student enters the mail program and asks to see a particular document stored in the document database. This document appears in the upper half of the computer screen and can be scrolled up and down, beginning to end. The student then asks to send a mail message to the author of the document. An editing box, or scratch pad, appears in the lower half of the screen. The student reads the document in the upper half of the screen while entering comments in the bottom half. When she has finished commenting, she sends the bottom half off to the network as a mail message. When the writer of the formal text enters the mail program, he sees that he has mail, calls up the message, and if he wishes, responds to the message using the same split-screen technique that was used to critique his essay. (19)

Such contextualized accounts of virtual peer review appear sporadically. These accounts illustrate that virtual peer review has been both discussed and practiced in computer lab instructional environments; as such, they mark the beginning of scholarly discussion about virtual peer review in writing studies. However, beyond these brief mentions, virtual peer review has not been highlighted in any substantial way in this scholarship, nor has it been addressed using any consistent vocabulary. More explicit connections to peer review theory and practice are clearly necessary to further explore the ramifications of virtual peer review.

There are a handful of studies that do explicitly address virtual forms of peer review in comparison to face-to-face forms of peer review. In “Electronic Mail as a Vehicle for Peer Response,” Mark Mabrito compared peer review responses between a face-to-face peer review group and an electronic peer review group. He analyzed the discussions of students in both groups; that is, he examined transcripts of spoken discourse from face-to-face groups and e-mail transcripts from electronic groups. He also analyzed differences in terms of “high apprehensive” and “low apprehensive” writers. Through his analysis, he found that “high apprehensive” writers participated more frequently in electronic peer review groups and offered more directive comments than they did in face-to-face groups. He also found that these students incorporated more e-mail peer review comments in their final revisions than they did in other kinds of peer review comments.

Similarly, in “Characteristics of Interactive Oral and Computer-mediated Peer Group Talk and Its Influence on Revision,” Beth Hewett compared virtual peer review to face-to-face peer review (both synchronous and asyn-

chronous). Hewett explored how peer talk functions in oral and computer-mediated peer review; she endorses the view that peer review is best when it involves a high degree of interaction. The results of her study show that students maintained interaction in virtual peer review but that “The talk itself had different qualities when students used different media, suggesting that the medium shapes the talk.” She explains:

With oral talk, gestures and body language supply cues that signal the particular receiver of the exchange, while they keep the talk open to the group as a whole. Including the entire group as interlocutors in the talk encourages interaction, which may lead to more intertextual idea exchanges. However, such intertextual sharing is complicated by CMC’s [Computer-Mediated Communication’s] hybrid nature. Lacking face-to-face cues, students must address their comments directly to particular peers, thus providing the appropriate context for reading them. Direct address to an individual, despite the fact that comments are posted to a common discussion list, lends the posted comments a mixed character as both public to the group and private to the individual. (282)

Like Mabrito, Hewett found that students were more likely to integrate peer comments into their final revisions; however, she attributes it to the fact that comments written in computer-mediated environments are interpreted by students as direct suggestions rather than idea sharing, an activity that is more likely to occur in face-to-face peer review.

More studies like these that explicitly address virtual forms of peer review are needed as we continue to integrate this activity into our writing classrooms, for they are beginning to show that there are differences between virtual peer review and face-to-face peer review. Overall, these studies have only begun to scratch the surface of understanding virtual forms of peer review; we have much more to learn about how different technologies may shape the activity, how writers can prepare for the activity, and whether or not virtual peer review significantly shapes the quality of response peers may offer each other.

In this book, I push this discussion further. I am particularly interested in the tension inherent in the issue of remediation. On the one hand, there is a desire to ground virtual peer review in the tradition of peer review as we know it and have practiced it (which is to say, within orality); yet, there is the reality that, as Hewett discovered, “the medium is the message” and that computer-mediated communication shapes peer review differently. In this book I seek to more fully describe virtual peer review by examining its roots in peer review but identifying its unique characteristics and uses. By working through these tensions, I seek to further explore the comparison of virtual and face-to-face peer review and discuss the implications of virtual peer review for writing studies.

Some may wonder if such an investigation is worth the effort; after all, if virtual peer review is different from peer review, what do we gain? By investigating this activity more closely, I argue that we gain a more concrete understanding of how to *take control of computer technology* in our writing activities, especially in terms of revising our writing. For example, we stand to gain a clearer understanding of the capabilities and limitations of synchronous and asynchronous tools for virtual peer review; rather than expecting these tools to simply imitate face-to-face discussion, we can better understand how to better use these tools for our benefit. In addition, investigating virtual peer review may provide important insights about computer-based writing instruction. That is, just as peer review has become a staple activity in writing classrooms as a way to reinforce process approaches, virtual peer review has the potential to become a staple activity in computer-based classrooms as a way to integrate computers into writing instruction.

Yet we know very little about how this “remediation” might take place. In the remainder of this chapter, I begin situating virtual peer review more fully in writing studies—particularly within computer pedagogy. Doing so requires an explanation of central issues in computer-based writing instruction, as well as an explanation of how virtual peer review relates to these issues. In the following sections I suggest that virtual peer review can be situated in computer pedagogy in the following ways: (1) virtual peer review actualizes the guideline that *pedagogy must drive technology*; (2) virtual peer review offers a lens through which to examine attitudes about face-to-face and virtual instruction; and (3) virtual peer review exemplifies issues related to technology uses and choices. All are issues that are present in writing studies today.

Virtual Peer Review Actualizes the Guideline *Pedagogy Must Drive Technology*

One way virtual peer review relates to writing instruction—computer-based instruction in particular—is that it thoroughly responds to the guideline that *pedagogy must drive technology*. Because this guideline has become a mantra of sorts, further explanation is required to demonstrate the importance it plays in computer-based writing instruction.

The guideline *pedagogy must drive technology* can be traced back to Cynthia Selfe’s 1989 book *Creating a Computer-Supported Writing Facility: A Blueprint for Action*, which provides excellent introductory guidance for teaching with computers (Kemp 268). The first two suggestions that Selfe offers in this book are the following:

SUGGESTION #1: Plan computer supported writing labs/classrooms so that they are tailored to writers, writing teachers, and writing programs, not computers.

SUGGESTION #2: Ground daily lab or classroom operations and instruction in the best of current writing theory, research, and pedagogy. (Selfe, *Creating* xx–xxi)

While these suggestions may seem rather obvious, Selfe explains their necessity: “In the rush to buy new equipment, to purchase new software, to establish a modicum of computer literacy among faculty members, we have not often had time as professionals to take care in the planning of computer use and computer facilities to support English composition programs” (22).

The idea bears repeating, for it is exactly right: it is easy to get caught up in technology, even to the point that we forget our immediate pedagogical goals. In a study about technology, distance, and collaboration, Linda Myers-Breslin reports that we *still* too often fail to put pedagogy first, concluding that “the initial challenge for teachers is to form a clear pedagogy and to focus pedagogical efforts” (167). Myers-Breslin suggests that technological bells and whistles continue to be a temptation, and that “far too often the technology drives our pedagogy. We must stop this trend. Our pedagogy must drive our technology. Only then can technology be used in productive (instead of merely intriguing) ways” (167). Thus, the idea that pedagogy must drive technology is not only common sense but is a necessary reminder for teachers (Harrington, Rickly, and Day 5; Kemp 269; Hawisher, “Blinding Insights” 54; Galin and Latchaw 45).

However, there is both wisdom and danger in the guideline that *pedagogy must drive technology*. The wisdom, of course, is that uses of technology will not be meaningful if we fail to consider the larger pedagogical goals we would like to accomplish. However, the guideline does not suggest any core of objectives that computers and writing should address. Therefore, the danger is that the guideline may give license to practically any kind of assignment, exercise, or course design. And it does. Composition scholars have reported an array of assignments and activities that can be employed in the name of *pedagogy must drive technology*, such as freewriting, brainstorming, conducting research on the Internet, keeping e-journals, publishing on the Web, and corresponding with pen pals. Scholars have also introduced programs to facilitate writing instruction such as Daedalus, CommonSpace, Groupware, ConnectWeb, writer’s workbench, UNITE, ELIZA, MOOs and MUDs, e-mail, and more. Such variety demonstrates thoughtful and creative approaches to teaching writing with computers. Yet, as Susanmarie Harrington, Rebecca Rickly, and Michael Day point out in *The Online Writing Classroom*, sometimes the sheer number

of options for teaching writing with computers is overwhelming, leaving instructors wondering how to begin the transition to teaching with computers (3). Further, from these diverse examples, it is difficult to discern any kind of coherent approach to teaching writing with computers. As J. Rocky Colativo notes: “The most damning wrong turn of writing instructions foray into the computer age is the shocking absence of any sustained body of scholarship geared toward discussing the practical side of teaching with technology” (154–55). Similarly, Fred Kemp notes the absence of a central rationale when he states, “I have never seen a computer facility based on a previously shared understanding of what instructional goals it was to serve” (270). Even Gail E. Hawisher, Paul LeBlanc, Charles Moran, and Cynthia L. Selfe admit to the lack of consensus regarding computer pedagogy, noting also that composition and rhetoric has seldom reached consensus on any pedagogical approach (49; see also Harrington, Rickly, and Day 3).

Recognizing the ways diversity has been valued in computer pedagogy, I do not presume that integrating virtual peer review will replace all other computer activities or that it will solve the issue of consensus. However, virtual peer review can be situated well within computer pedagogy, for its pedagogical assumptions are rooted in the well-established activity of peer review, and thus it exemplifies, from the start, the guideline that *pedagogy must drive technology*. For example, the basic activity of peer review is one we associate first with writing pedagogy. As I mentioned, peer review has a long history in composition; furthermore, it supports important pedagogical assumptions such as (1) writing as a process; (2) writing as a social act; and (3) student-centered approaches. Virtual peer review—conducted through computer technology—supports these assumptions as well. Let me briefly explain this common basis of virtual peer review with peer review. My purpose in doing so is to suggest that virtual peer review fully actualizes the guideline that *pedagogy must drive technology*.

A first assumption important to both virtual peer review and peer review is that writing is a process. This assumption suggests that there are recurring steps, phases, or stages in the writing act (Flower and Hayes, “Identifying”; Flower and Hayes, “Cognitive Process”; North; D. Russell, “Activity”; Kent). The distinguishing characteristic of process is the depiction of writing as an *activity* instead of a product—a characterization of writing that has inspired some to argue that process resembles a “paradigm shift” in composition from product-based to process-based explanations of writing (Hairston; Young). For example, in “Paradigms and Problems,” Richard Young explains that the current-traditional paradigm emphasizes writing as the written product—the academic paper—whereas the process paradigm emphasizes activities leading up to the written product. As Stephen North puts it, the process paradigm encourages instructors to think about improving writers as opposed

to improving papers (438). Although process can be traced back to the early 1970s (particularly through the work of Janet Emig), process came into full strength in the 1980s and has remained dominant (Halasek 3). Consequently, process has had enormous impact on the ways writing has been taught. Instructors who espouse process pedagogy frequently require students to revise their papers; some instructors even adopt approaches such as portfolio grading in which students have the opportunity to make unlimited revisions to their work.

Because of its inherent connections to process, peer review has become a common and staple activity in writing classrooms. For instance, when we consider that the purpose of peer review is to help fellow writers improve writing, naturally the exercise of peer review implies that a writer will revise his or her work, integrating comments and suggestions from the reviewer. However, virtual peer review highlights the role of computer technology in the writing process more than traditional peer review does. To illustrate, note the references to invention, drafting, and revision that Carol Klimick Cyganowski makes as she describes virtual peer review: “The computer keyboard and disk storage seem to me a far more natural means of capturing peer collaboration and connecting to the *writing process*—a way for students to record their interactions, as well as a way to make those interactions and record an integral part of their *inventing, drafting, and revising process*” (71, italics mine).

A second assumption important to both peer review and virtual peer review is the assumption that writing is a social act. This assumption derives from the belief that knowledge is created through our social interactions with others (most scholars refer to this as social constructionism). What is meant by this belief is that knowledge results from language and not the other way around. Bruffee explains this perspective by suggesting that language and thought are inextricably connected: “[T]he view that conversation and thought are causally related assumes not that thought is an essential attribute of the human mind but that it is instead an artifact created by social interaction” (“Collaboration” 640). Bruffee has perhaps championed this perspective most strongly as it relates to peer review and other collaborative activities; specifically, he suggests that teachers should find every opportunity to have students converse with one another about their writing while participating in peer review, small group workshops, or peer tutoring. Such activities, he argues, “[provide] a social context in which students can experience and practice the kinds of conversation valued by college teachers” (642).

Several scholars have further explored the connection of peer review with social theories of language, especially those forwarded by Vygotsky and Bakhtin (DiPardo and Freedman; Gere; Bruffee, “Conversation”; Spigelman). In her account of peer review, Gere endorses theories of language that acknowledge social contexts—what she calls “social genesis for language” (81),

and she specifically advocates Vygotskian theories of language, which explain language development as a dialectic between individuals and social contexts. Gere suggests that social theories of language development are extremely compatible with writing groups and activities like peer review (83). Candace Spigelman also suggests the compatibility of social theories of language with peer review when she asserts that “socially constructed knowledge is both the basis and goal of writing group theory” (19). Citing Bakhtin, Spigelman explains that utterances in writing groups invite continued response, reflection, and further dialogue (18).

Although Bruffee, Gere, and others have made the connection between social interaction and peer review, this connection has largely been illustrated in terms of face-to-face peer review—specifically through terms such as “talking” and “conversing.” However, when applied to virtual peer review, different words are used to describe social interaction—terms such as “correspondence,” “conferencing,” and “networking” (Skubikowski and Elder 92; Barker and Kemp 17).

Because of the lack of research on virtual peer review, and the inconsistency of vocabulary used to describe the activity, explicit connections between virtual peer review and social theories of language are rare.¹ Many more scholars have articulated the connection between social theories of language and a range of computer-based activities such as conferencing and online discussion. For instance, Galin and Latchaw assert in the introduction to *The Dialogic Classroom* that “the computers and writing community generally privileges social construction of knowledge and, by extension, collaborative models of learning” (18). Skubikowski and Elder similarly suggest that using computers in writing classrooms helps students develop writing communities and a sense of audience, and that these advantages of computer environments “are fundamentally compatible with the social-constructionist [rhetoric]” (104). In addition, M. Diane Langston and Trent Batson suggest that ENFI, or electronic networks for interaction, are social rather than individual (151) (see also Flores; Barker and Kemp; Handa; Galin and Latchaw, “Voices”; Palloff and Pratt). As this scholarship suggests, the connection between computer technology and social theories of language can be easily made.

Finally, both virtual peer review and peer review affirm the pedagogical assumption of student-centered learning. The idea of student-centered learning suggests that students become active rather than passive learners. As David Johnson, Roger Johnson, and Karl Smith put it, this type of learning presents a new paradigm for teaching, one in which “students actively construct their own knowledge” (9). In reference to peer review, Karen Spear remarks: “Working collaboratively, students must define problems for themselves and critically explore solutions; in doing so they practice crucial skills in listening, talking, and reading; in generating ideas, generalizing, abstracting,

debating; and above all in assessing their own performance” (*Sharing Writing* 6). Consequently, this approach changes the role of the instructor from an authority figure to a facilitator (5). Pedagogical approaches like writing workshops, long advocated by Peter Elbow and Donald Murray, illustrate this change in teaching (Elbow 76–77; Murray 103). Adopting such approaches, Rebecca Laney describes how teachers must “let go” of impulses to direct peer review workshops rather than let students conduct their own workshops (151). Kristi Kraemer describes the importance of this shift: “I began to switch my efforts from fixing my students’ writing to fixing my own teaching. My first task was that of convincing my students that they could work independently to produce clear, coherent text, and that it would be worth their while to do so” (138).

Virtual peer review likewise supports student-centered approaches in the classroom because, like traditional peer review, workshops can be facilitated by students via computer technology and seldom involve teacher intervention. Skubikowski and Elder explain: “We found our own roles as teachers change, first to that of the coach and then to an even more democratized role as we became aware that our voices on the network were not readily distinguishable from the voices of student correspondents” (103). Indeed, student-centered approaches are associated not only with virtual peer review, but with computer pedagogy in general. Many enthusiasts of computer pedagogy suggest that integrating computers into the classroom means that the teacher’s role of authority figure shifts to coach or guide (see also Langston and Batson 144; Cyganowski 70; Handa 170; Palloff and Pratt 20).

As this brief review demonstrates, virtual peer review supports the same pedagogical assumptions as peer review and has a firm grounding in writing studies. It is easy to see, then, how virtual peer review may exemplify the guideline that *pedagogy must drive technology*. Because virtual peer review has a solid base in writing pedagogy, the activity of virtual peer review begins with pedagogical goals already in mind—how to help students revise; how to incorporate a sense of audience and social interaction; how to help students become actively engaged in writing. Because virtual peer review has a solid pedagogical foundation in writing studies, it has potential to become a useful instructional activity in computer-based writing classrooms.

In addition, I suggest that virtual peer review responds well to the guideline *pedagogy must drive technology* because it can be integrated consistently into a writing course. That is, virtual peer review can be employed for more than one assignment or even *every* assignment in a course. Such regularity would provide some sense of coherence in the way computers are integrated into writing classes. In *Transitions*, Mike Palmquist, Kate Kiefer, James Hartvigsen, and Barbara Goodlew advocate a similar approach with regard to consistency. They report that through using the “DAILYs” assignment, students can freewrite in

response to a prompt at the beginning of each class; then they share this writing with other students in the class. Such regularity gives students a sense of accomplishment; while they may be unfamiliar with certain writing technologies at the beginning of a semester, by the end of the course they may be comfortable using, at the very least, word processing. Instead of integrating wildly different assignments that use different computer programs, consistent freewriting or virtual peer review could provide a sense of coherence.

Virtual Peer Review Provides a Lens to Examine Attitudes about Computer-Based Instruction

A second way virtual peer review relates to writing studies is that it illustrates the complex range of attitudes that exists among teachers who are hesitant to integrate computers into their classroom. In a sense, virtual peer review can be a “lens” for further examining both resistance to and support of computer pedagogy.

As many scholars have noted, teaching with computers presents several challenges. Brad Mehlenbacher notes that obstacles exist in almost every direction for instructors wishing to integrate computers into their classrooms: “When we choose to bring technology into the classroom, we run numerous risks and invite several potential problems. We draw on real-world problem sets that may or may not make much sense to our colleagues. We deviate from hand-held one-to-the-many assignments and we complicate the simple elegance of face-to-face exchanges over deadlines, worries, frustrations, and so on” (233–34). Ultimately, Mehlenbacher suggests that we embrace these challenges and “give our students learning environments that are energized, playful, and unpredictable—the stuff of learning” (234). However, not all instructors are as ambitious or hopeful. As Fred Kemp suggests, computer pedagogy faces a strange obstacle that he describes as “the Resistance” (capital *R*), which is comprised of faculty members who refuse to integrate computer technology into their teaching (268). Kemp explains that this rejection of computer pedagogy could stem from any number of factors, such as lack of experience with computers or frustrations about administrative mandates to use technology (270). But mostly, teaching with computers requires a significant change in teaching approaches, and many teachers are simply unwilling to make this change, especially those who have managed for years without computers in the classroom.

Recently, more scholars have argued that the time may have come to view computer pedagogy as a *responsibility* rather than a choice. For example, in *Literacy and Technology in the Twenty-First Century*, Cynthia Selfe asserts that “Literacy alone is no longer our business. Literacy and technology are. Or