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Writing Instruction

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Your Desktop or Mine: Extending the Reach of Writing Instruction

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Abstract: Student-teacher conferencing is an integral component of university-level writing instruction and a crucial element in the development of a student writer. The individualized conferencing session not only supplements traditional classroom activities but is the principal mode of mentoring and learning once a class has ended. While the in-person format is the most familiar practice for the writing conference, options for effective remote conferencing between a student and a writing instructor have not been explored. In this paper, we describe how desktop sharing provides a flexible medium for remote, collaborative text editing, and how it preserves the most important characteristics of an in-person conference. Computer Science PhD students who used desktop sharing with their writing instructor over a period of two years found remote editing useful and convenient as long as voice communication was intelligible and stable. We discuss the differences between remote and face-to-face conferencing, and highlight the instructor's challenges when using a remote editing approach for the mentoring of student writers, especially if student and instructor have no previous shared editing experiences.

Keywords: Technologies for Learning, Writing, Graduate Studies, Curricular Initiative, Distance Learning

Introduction

WRITING INSTRUCTION AT the university level generally includes a combination of traditional class meetings coupled with individual conference sessions. These two settings -- the classroom and the individual conference -- are important and complementary contexts that together help students learn to produce well-argued texts. In the class setting, the group focuses on the principles of academic writing and participates in the analysis and editing of student papers. In the individual conference meeting, the dynamic shifts to a dialogue between a single student and the instructor who scrutinize the content and rhetorical organization of the student's text and address idiosyncratic elements of the student's writing such as style, tone, and sentence level language patterns [1, 2]. Conferencing plays a critical role in a student's writing development, as it is through this focused interaction that a student writer's organizational logic, language usage, and even thinking style evolve and mature.

Many computer science educators who recognize the importance of excellent writing skills have incorporated a writing component into their courses at both the undergraduate [3, 4, 5, 6] and graduate levels [2, 7, 8, 9]. Within the distance learning community, research-

ers have described the use of technology for collaborative writing, with mention of tools such as email, chatting, shared sites, individual word processors, and web conferencing for joint writing projects (10, 11, 12, 13, 14). And while Frees and Kessler [15] introduce a desktop sharing component into an introductory computer science programming course, and computer programmers regularly work remotely using such tools as Squad [16], we have not been able to find any reference to the specific use of desktop sharing for the teaching of academic writing and the ongoing development in student writers of redrafting and editing strategies.

In our academic writing courses for graduate students in computer science, we conference with students regularly throughout the duration of the courses, focusing on their writing-in-progress and guiding them through an intensive learning process with an individualized focus on rhetorical principles, rigor, and clarity of expression. On-going conferencing after the courses have ended would make it possible for students to continue to refine their writing and flesh out projects that are part of their graduate coursework and professional commitments. But although students continue to request individual meetings, face-to-face conferencing in our situation is not possible, as the writing instructor is no longer on-site when the session comes to an end. In fact, most graduate programs in the sciences are not able to support a full-time, on-site writing instructor.

To make it possible for students and writing instructor to continue their conferencing work when a face-to-face connection is not feasible, especially after instruction has ended and even as an alternative to conferences conducted during the regular class term, it is of value to identify a mechanism that enables collaborative editing through remote means. In addition to extending the mentoring/learning of writing, such a solution would also be advantageous for student-advisor editing sessions when in-person connections are not possible.

A satisfactory approach for remote editing -- the context where the student and instructor are editing a text together but are not working face-to-face -- must support the unique interactive nature of the teaching and learning of writing. In particular, the approach must successfully preserve in the *remote* setting the two most important characteristics of *face-to-face* writing collaboration. First, the remote approach must support real-time, interactive dialogue, and second, the remote approach must make it possible for collaborators to jointly manage the written text under review.

Desktop sharing, by satisfying these conditions, is a logistically straightforward way for students and instructor to connect for one-on-one collaborative editing, and in our view works as well as in-person editing. Every detail of a written text can be discussed by the student and instructor as they view the document and supporting visuals on their own remotely located computer screens. The shared view of a writer's desktop makes it possible for the collaborators to look at a text in any format required by the writer for a specific project, and any application on the desktop, including video clips, PowerPoint visuals, and specific relevant web sites, becomes a potential reference and source for the development of the text under review.

In the next section we describe how we use desktop sharing to extend the reach of writing instruction for graduate student writers at the University of California, Santa Barbara (UCSB), and Columbia University in New York.

Remote Editing

Description

The twelve students in our study are advanced PhD students in computer science. Ten of the students had completed the academic writing class with the instructor, including the required individual conferencing sessions. The UCSB course is a 10-week quarter-long course; the Columbia course is a 5-week intensive class. Two of the twelve students were referred by their faculty advisors and had neither met the instructor nor attended any advanced writing course prior to the editing sessions. It was important to work with students who had no prior association with the instructor so that we could observe whether the remote context would be helpful when undertaken between collaborators who were strangers to each other. Some of the students in our sample are native speakers of English and some are nonnative speakers. All are advanced writers with papers published in refereed journals and professional publications.

The writing instructor in the study is an applied linguist with extensive background in the teaching of writing to undergraduate as well as graduate students, both native and nonnative speakers of English. The instructor developed and teaches academic writing courses to graduate students in computer science at UCSB and Columbia University, and is not available for in-person conferencing with students at one university while instruction is taking place at the other location. Our investigation with desktop sharing grew out of these scheduling and geographic limitations.

Each editing session lasted an hour or longer, depending on the goals of the individual student; many of the students participated in more than one session. Texts discussed and edited during the sessions included portions of research papers, a book chapter, conference papers, sections of a dissertation, and a request for travel funds. Within these genres, we focused on a variety of sub-sections, including introductions, conclusions, descriptions of methodology, data commentaries, and abstracts. We used the same approach and type of analysis during the remote sessions that we practice in face-to-face conferences conducted during the writing courses. Specifically, the instructor-student pair analyzed the organization and balance of the content, the development of the story, and the clarity, tone, logic, level of detail, flow, word choice, and readability of the writing. The remote editing sessions were not proof-reading exercises nor watered-down versions of face-to-face meetings.

We used a desktop sharing tool [17] for our remote sessions instead of an online option that combines audio and text editing because desktop sharing makes it possible to incorporate into the discussion, in real time, any program on either participant's desktop without having to leave the desktop application. We are thus able to switch among applications that are important resources in research and academic writing, such as Word, PowerPoint, Adobe PDF reader, and web browsers, so that editing work addresses not only text but also figures and other visuals that are fundamental components of the writing process. The instructor used a Macintosh and the students used both Macs and PCs. The pair connected using the voice functionality built into the application as well as individual cell phones when needed.

Setting up a Remote Editing Session

After the instructor and student agree on a meeting day and time, the instructor initiates an email containing the meeting’s assigned web link and general session information. A few minutes are needed at the beginning of a scheduled session to adjust the audio and review the features of the sharing procedure, specifically how to exchange desktop views and share the mouse. Once the student’s desktop and text are visible, additional formatting adjustments can be made, such as increasing the font size for easy viewing or adding line numbers to the text. Modifications are made so that both people are able to manipulate the mouse and highlight the portions of the text being discussed. In some cases, other adjustments may be necessary throughout the sessions, as when the audio is not clear or when a connection between the pair is lost and the meeting has to be re-started.

Once preliminary details are set up and the editing session is underway, the instructor and student are able to work collaboratively and intensively on the student’s text. In all sessions, desktop control is handed off to the student so that the document on the student’s desktop can be shared with the instructor. Just as with face-to-face conferencing, it is always the student author who works directly within the text during the collaboration and who decides which changes to accept or reject. The track changes tool was used with Word documents so that changes made during the editing process could be easily followed (See Figure 1). The line numbering feature was also used to make it easier to specify the location of a word or phrase within the larger text (Figure 2).

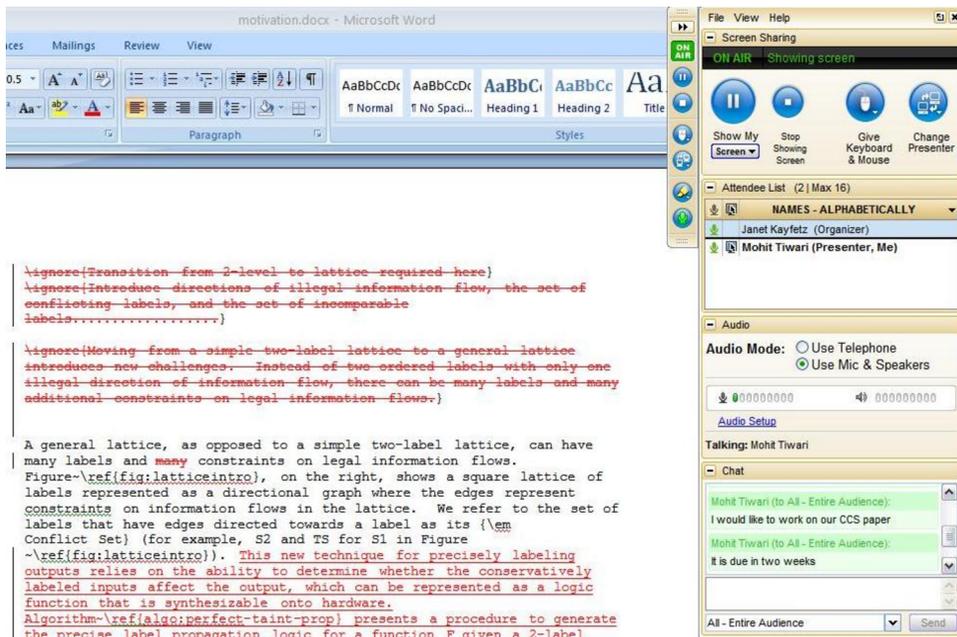


Figure 1: This Figure Shows the Remote Collaboration Interface of an Edited Document when the track Changes Tool was used During a Remote Editing Session

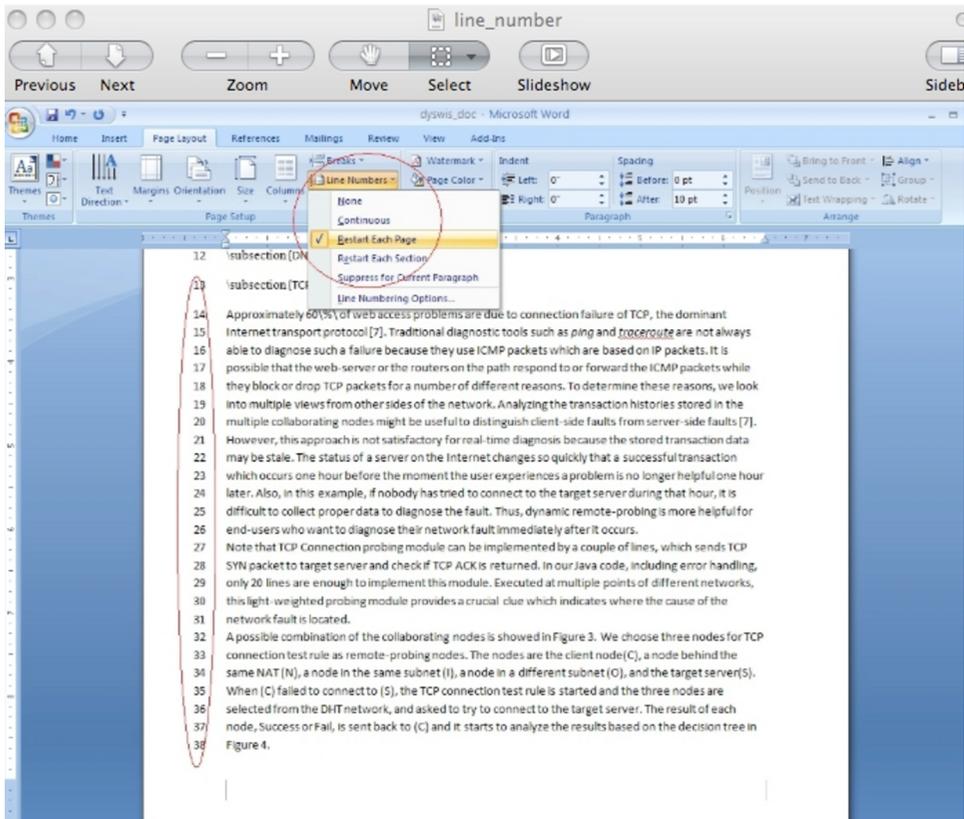


Figure 2: Line Numbering can be used for Ease of Reference During a Remote Editing Session

Discussion

The Instructor's Perspective

The students who had completed a writing course with the instructor prior to the remote editing sessions had a shared context for a remote dialogue about their writing, as they had already spent many hours with the instructor analyzing their texts in class as well as during individual conferences. These prior learning experiences, along with knowledge of their own writing patterns, made it possible for them to engage in the remote sessions prepared with explicit questions about the story, the transitions, the logic, and the language of the text being reviewed. Additionally, familiarity with the instructor meant that very little time was needed to work out the details of the collaborative process. Time during these sessions was devoted exclusively to discussion of the specific rhetorical and language issues of the text under review, and verbal interaction and in-depth drafting and re-working flowed smoothly, whether the student was a native speaker or nonnative speaker of English. In fact, the only

interfering features of the remote sessions with the experienced writers were technical issues, especially the clarity of the audio and the use of the mouse for highlighting and editing.

The remote editing rhythm is initially quite different when working with a student who has not completed a writing class. One important difference when working with a new student is the time that must be allotted at the beginning of the first session for general introductions and the exchange of background information: Where in the graduate school process is the student? What is the major field of study? What is the student's research focus? What specific writing issues does the student want to address? In addition to time given to general introductory material, time must also be spent discussing what can and cannot be accomplished in an individual editing meeting, whether in person or remote, so that the student is able to select the section of the text that most requires attention and that can be discussed thoroughly within the time allotted for a remote session. Finally, when working with a new student, time is also spent discussing some of the basics of academic writing (how to narrow the problem space; the importance of audience; how to calibrate strength of claim regarding data; how to achieve rigor, precision, and readability) in order to create a working foundation for the editing process.

The teaching component of the interaction with a new student takes time, so that the portion of the hour given to editing the text is somewhat reduced. Predictably, for the first session, much less solid editing is accomplished when compared to the first session with a student who has completed a writing course, a detail that must be kept in mind when scheduling sessions with new students. Follow-up sessions between the instructor and the two new students moved along more fluidly as familiarity and comfort among the collaborators developed over time. The defining factors in the ease of remote desktop sharing sessions with both new and experienced students were prior shared editing experience and students' understanding of their own writing, not whether or not the primary language of the student was English.

A remote editing session is not identical to a face-to-face meeting, no matter the degree of familiarity between the student and instructor. Some of the unique characteristics of desktop sharing technology affect the tempo and flow of the interaction, making it choppiest than in-person collaboration. In the next section we identify the important modes of communication used in intensive face-to-face editing, and describe the degree to which these interactive patterns are supported by remote desktop sharing.

Modes of Communication used in Collaborative Writing

Scanning: Scanning through a document both individually and collaboratively is a central activity during the process of learning and rethinking the context for a piece of writing. Both collaborators must be able to flip back and forth through the pages of the document to understand how the chosen text segment fits into the flow and to understand the logical interdependencies of the different sections of the larger text. In person, scanning happens as the student and instructor either share a common paper document or use their own copies, and both parties can flip forward and backward through the paper easily. In addition, during an in-person session, it is easy for one person to see where the other is looking and to find the proper page. With desktop sharing, while both parties can see the same page, only one person has "control" of the document at any given time. This restriction slows down the interaction to a degree, especially for the person who does not control the desktop. The "passive" parti-

participant is able to read only the portion of the text presented on the screen and does not have the freedom to glance back to a previous page or forward to another spot to point out details of flow and logic. This limitation can be mitigated to some extent by leaving the student in control and providing the instructor access to an offline copy of the paper. This offline copy could be either a physical paper copy or a file on the instructor's desktop which is not shared through the desktop application.

Pointing: Like scanning, pointing is a relatively simple act that becomes more complicated during remote sessions. During in-person communication, pointing at specific segments of text is used by both the instructor and student while considering the rearrangement of sentences, the restructuring of arguments, the placement of logical transitions, the discussion of word choice, and so on. The challenge during remote editing is that the pointing is usually controlled by one person at any one time, and changes in control must be explicit. One way this problem can be mitigated is through the addition of line numbers in the text which allows for the use of verbal cues rather than visual cues. While this remedy is still somewhat slower than pointing with a finger and does not allow pointing cues to be specific within a single line of text, we found this approach to be acceptable.

Discussing: Discussing a text during desktop sharing is more difficult than face-to-face, as the visual cues present in face-to-face interaction that help the conversation advance -- like gestures and facial expressions -- are absent when working remotely. In addition, having to wait patiently during a remote session while the other person speaks instead of being able to overlap or interrupt comfortably as one would in person also affect the flow of the discussion. These issues seem to be somewhat mitigated by the use of a land-line phone during the editing session rather than the less reliable teleconferencing software.

Viewing of external sources: In addition to reviewing written text, it is important to be able to view other types of files that are part of the document, such as Excel files, PDFs, and so on. Desktop sharing supports this mode of communication by allowing access to any application on the participants' desktops. In fact, working online with a desktop sharing application makes this process easier than when working in person with a hard copy. Other online editors that require participants to work solely within a single framework do not support access to outside applications.

Editing: The actual movement of elements within the text, the typing of new text, and the deletion of unwanted text during remote editing is always done by the student, just as with in-person conferencing. This aspect of the collaboration process remains the same whether the editing session is face-to-face or remote.

The Students' Perspectives

An important measure of the desktop sharing approach to the editing of papers is the point of view of the students who worked with the technique. We asked the participating students to give us their feedback so that we could evaluate the benefit of remote editing as we consider whether we might formally incorporate it into our writing courses. (Unedited student comments can be found in the *Appendix*.) The feedback from our cohort of students was positive. Students were astute in their recognition of the subtle differences between face-to-face meetings and remote meetings, citing such details as how the absence of facial expressions and gestures altered the remote interaction as well as the importance of having had an established writing relationship with the instructor so that the editing process was familiar territory.

In general, whether a student has the chance to work with the instructor face-to-face or whether the work is done remotely, students are grateful and gracious about receiving individualized feedback on their writing projects. Even given the remote context and the requirements of dealing with the desktop sharing tool, the audio, the lack of face-to-face cues, the need to wait patiently while the other person speaks instead of being able to overlap or interrupt comfortably as one would in person, and all of the other elements that make remote editing different, slower, and less natural feeling, the benefits of having received personal and focused feedback on a challenging text were more meaningful for students than the process's drawbacks. One student captured the core principle of any type of collaborative editing, whether face-to-face or remote: "Perhaps, the most satisfying experience was to see, in real-time, how the newly edited text was a significant improvement over the old text. This not only improved the quality of the paper but helped me quickly identify new ways of presenting the material."

Concluding Observations

Desktop sharing for collaborative writing and editing has improved over the years [18], and while further research into collaborative application frameworks continues [19, 20], we expect the modes of communication outlined above to remain central. If there were one adjustment to the application that would make the desktop sharing process more efficient and fluid it would be the availability of two independent cursors -- one for each participant. If each participant were able to point, highlight, and change text without interfering with the other's actions, then the actual physical aspects of editing would be enhanced, and two simultaneous creative processes would be supported by the software. Furthermore, the knowledge that each participant is free to work on the text without being constrained by the application would enhance the spirit and tone of the collaboration, a benefit not readily measurable but nonetheless vital to successful joint editing.

It might be logical to ask whether video would make the remote editing experience easier and more productive. While video would add a dimension that might make the editing process feel more satisfactory for some students, others might prefer the comfort level afforded by not having to actually "see" the instructor. The evaluation of remote editing using desktop sharing with video would be an interesting process to study down the line.

Our reason for exploring the use of desktop sharing was to see whether a remote approach to intensive editing of written texts would be a satisfactory way for graduate students to continue to develop their writing outside the framework of a traditional on-site writing course. We found that when students have been introduced to the basics of academic writing and editing and when they have a solid understanding of their individual composing and language issues, this goal is clearly attainable through remote editing. In fact, even factoring in differences in formal writing background, degree of familiarity with the instructor, and technical issues having to do with the desktop sharing application, the technique of working remotely on texts can be a productive way for students, instructors, and co-writers to extend the analytical editing and learning processes beyond the boundaries of the more familiar face-to-face context.

Appendix of Student Comments

- “I worked with [the instructor] on a paper where we got together once I had a fairly decent draft. Our main emphasis was in making the story flow better, choosing appropriate words to make the writing really precise, and getting the register right. I found GoToMeeting very smooth when both of us were editing the document together, and after a three-hour session, my paper was in considerably better shape than when we began. I think this experience would carry over easily to situations when I want to work on an early version of a paper or a talk with [the instructor]. In fact, I am looking forward to it! We had talked about how we could do a quick reconnaissance round early in the week, and then get together for an intense session once we had the low-hanging fruit out of the way.”
- “I think that the two most useful aspects of editing papers using a desktop sharing model are real-time editing and the ability to have a voice conversation about the text under consideration. In the conventional reviewing method, the student’s advisor marks a hard copy of the paper and the student then incorporates the advisor’s comments and submits a new version for review. While I think that real-time editing may not be a complete substitute for such markup chiefly due to the time constraints of using this method, using real-time editing allowed the writing instructor to review problem areas in my paper and suggest clarifications or alternate text. Perhaps, the most satisfying experience was to see, in real-time, how the newly edited text was a significant improvement over the old text. This not only improved the quality of the paper but helped me quickly identify new ways of presenting the material. I think that this method is especially useful for writing introductions and conclusions of a paper.”
- “I think that the concept of desktop sharing used in GoToMeeting was extremely helpful in creating a shared visual medium to enable effective communication. The back and forth communication that you would have in face-to-face encounters was appropriately simulated. The only visual that is lacking is the gestures and expressions of the person you are communicating with. I think that how effective the desktop sharing communication mode would be depends on how clearly the other person can express these facial and hand mannerisms with their voice. The process of becoming familiar with someone’s gestures (in class) could be similar to the process of becoming familiar with the mannerisms in someone’s voice (in GoToMeeting). I think visuals and mannerisms are helpful in getting a message across. GoToMeeting can have both, with the mannerisms being attached to the sense of sound. Just like you can have a good face-to-face teacher, you can also have a good remote teacher.

Whether this can be a helpful addition to a writing course, it might be the case if you want to familiarize students with such a tool for situations where a face-to-face encounter is difficult. Seeing how remote conference calls are prevalent nowadays, I think it would be useful to use in class. The session I had was really great. It was just like a face-to-face meeting. But, then again, I am familiar with the way [the instructor] teaches.”

- “Our remote editing sessions using the desktop sharing were as good as face-to-face. Without voice communication, it would be awful. But with voice communication, the sessions were done in a time efficient manner.”

- “The remote revising worked very well and it was really useful for me. Here is some feedback: 1) The application quality was very good. I felt like you were talking right beside me. But sometimes I could hear my own voice. It was a little bit annoying. It seems that this is a technical problem which we cannot handle, though. 2) When you talked about some sentences, I sometimes couldn’t follow where we were. This is because we only communicated with voice and couldn’t physically point out the sentences using our fingers. Although I could find the sentences in a very short time, to avoid the confusing moment, I suggest using “line numbers”. MS Word has the feature. So, when a student is confused, we can say “the sentence in line number 25” or “I mean the word at the beginning of line number 31.”
- “*Pros*: 1. Clear communication - did not experience any voice-breaks; 2. Could neatly compare the after-change and original versions of the paper; 3. One to one communication - therefore highly productive. *Cons*: 1. Minor set-up problems like microphone; 2. Requires windows operating system (Many of us use linux); 3. Only one person can edit at a time - but I can’t think of anything that can do away with this problem.”
- “I am a non-native speaker of English, pursuing my graduate studies in Computer Science. I took an academic writing class offered by [the instructor]. Thereafter, I stayed in touch with [the instructor] and sought her input on several publications through in-person meetings and also remotely using GoToMeeting. While the face-to-face meetings were definitely more interactive, I found the remote desktop sharing application to be extremely helpful as I got closer to the deadline as time was at a premium. I would definitely recommend the remote desktop sharing meetings, after having taken [the instructor’s] class once, due to the rapport we had already established. The remote meeting helped me greatly in refining my text which ultimately contributed to the acceptance of the paper.”

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