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User protocols: one method of synthesizing addressed and invoked audiences

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User protocols: One method of synthesizing addressed and invoked audiences

by

Laura Lee Walech-Roth

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
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INTRODUCTION

Background

From January 1987 to August 1987, I co-oped as an Editor in Information Development at IBM Rochester. While I was at IBM, I participated in a usability test. IBM conducts usability tests on their products to identify possible problems with the documentation or product that could affect sales, or even lead to lawsuits. Consequently, the more marketable a product is, the more likely it will be put to the "usability test."

I was a test subject for a setup manual. I was taken to a room with two-way glass where I was videotaped assembling a mid-sized unit using the manual. The setup took an hour and a half. I was instructed to say my thoughts aloud as I used the manual to assemble the unit.

After the test, I met with the "watchers"—the writer and editor of the manual, the engineer of the unit, and a clinical psychologist. Before we watched the video, I recorded written responses to some pointed questions on the manual. Then we watched the videotape of me assembling the unit. At times a watcher would freeze the video and ask me questions, such as "Why are you frowning there?" or "Why the grunt?"

Initially, I was a little embarrassed by all the attention I was receiving, but when I saw the writer and
engineer taking notes as if I were a lecturer in a Chemistry 110 lab and they were the freshmen, I realized the importance of my role.

I was a test subject, a user. And my feedback was changing the face of the product and its document. It was then that I realized the implications of usability tests on teaching technical writing in the classroom.

As a teacher, I have long been aware of the problems involved in teaching audience awareness to students. In the technical writing classroom, where it's more than important that students get a sense of audience, students continue to write for an audience of one--the teacher. Students write to an expert/teacher. According to Linda Flower, however, this is seldom the case for professional writers. Flower claims that "not only do students fail to acquire strategies for dealing with an audience, but many of the paper-writing tactics they do learn become downright liabilities when they go to work" (118).

Statement of Purpose

In this thesis, I examine the academic counterpart of the business-oriented usability test. I examine user protocols.

Much literature has been written on protocols as a tool for understanding what goes on in the mind of the writer. For my thesis, however, I am not concerned with protocols in
this traditional sense. I am interested in using protocols, more specifically "user" protocols, for getting at what goes on in the minds of users when they use documents to complete tasks. I am concerned with user protocols as a tool for teaching students audience awareness, and for bridging the gap between audiences that are addressed and audiences that are invoked.

Overview

In Section II: TEACHER AS ADDRESSED AUDIENCE, I define the two types of audience-addressed and invoked. Then I give examples of both addressed and invoked audiences. The final part of Section II discusses the need for balance between the two audiences.

Section III: WRITING AS SOCIAL INTERACTION discusses the need for students to have writing assignments that will allow them to experience the social implications of their writing. Before students can learn to write for an audience other than the teacher, they must realize that their writing has an impact on their audience.

In Section IV: USER PROTOCOLS, I define user protocols in the classroom. I also give some classroom applications of user protocols, suggest a few sample assignments, and describe the general procedure for implementing user protocols in the technical writing classroom. In addition, I discuss the advantages and disadvantages of user
protocols. Section IV concludes with a look at user protocols in business (called usability tests), a definition and application.

Section V: CONCLUSIONS gives a summary of the key points, and lists the benefits user protocols afford students.
THE TEACHER AS ADDRESSED AUDIENCE

All I had to do was figure out what the teacher wanted and I got an "A."

As English teachers, we hear this comment all too often. As teachers of technical writing, we may find such a remark disquieting. After all, one of our goals is to help our students develop as professionals by giving them assignments that simulate "real world" situations. We would like our students to believe that we are evaluating their writing not as teachers in an academic setting, but as managers in a simulated real-world setting. Yet the very nature of the student's comment suggests that we continue to fail.

An Addressed Audience

Why, with all our efforts, do students continue to write for one audience--the teacher? What is it about the rhetorical situation in the classroom that prevents students from recognizing any other audience? Lisa Ede and Andrea Lunsford suggest the answer in their article on addressed and invoked audiences. According to Ede and Lunsford, an "'addressed' audience refers to those actual and real-life people who will read a discourse" (156). They claim that students in technical writing courses continue to write for an audience of one because "writers who wish to be read must often adapt their discourse to meet the needs and expectations of an addressed audience" (166).
So the students address the teacher. They learn to "expand this paragraph," "combine these sentences," and "clarify this point." In short, they become passive receptacles, no longer relying on their own experiences, rearranging sentences and developing the style that the teacher dictates. The students learn to jump through the hoops, arranging information on the page, not the way they want to, but the way the teacher wants them to. The students learn to address the teacher, and pleasing her becomes synonymous with doing well. But any real learning of rhetorical strategies, or creativity, for that matter, is virtually nonexistent.

According to Elizabeth Tebeaux, students are so "entrenched" in writing only to the teacher that they can't conceptualize any other audience.

As a result of this simple but entrenched student-teacher communication model, the student enters the course with the following assumptions:

1. the reader (teacher) always knows what he (the writer) knows or more than he knows;

2. the reader will respond to anything written in any form that he submits;

3. "the facts" are all that is important in communication;

4. facts can be expressed in only one form (16). Consequently, students write for an audience that is largely addressed, incorporating little, if any, of their own life experiences. Writing becomes a meaningless exercise.
Russell Rutter agrees with Tebeaux that writing for a professor is entirely different from writing in the real world. He states that "technical students, asked to focus mainly on information and procedures, often develop the habit of writing 'defensively,' writing mainly to prove to expert professors that they have mastered assigned materials" (121). Rutter quotes W. E. Britton, who says that "in all too many instances, at least in college, the student writes the wrong thing, for the wrong reason, to the wrong person, who evaluates it on the wrong basis" (121).

What is the teacher's role in all this? How does she respond to the students? Unlike the student whose role is to communicate in writing with the teacher, the teacher relies primarily on oral communication with the student.

Figure 1 represents visually the role of the teacher and the students in the average classroom. As the model indicates, the teacher's role is largely to address and invoke the students. The teacher "addresses" the students insofar as they are students in her classroom. She "invokes" the students by her choice of assignments and the constraints that she makes.

In oral communication, a speaker gets immediate feedback from the audience, allowing the speaker to modify her message as it is being given. However, in written communication, the writer works more or less in a vacuum,
Figure 1. The teacher as an addressed audience
receiving zero feedback from the audience. Thus, if a speaker initially fails to target her audience, she has a chance to adjust her discourse to reach them. But the way in which most texts and teachers present technical writing, students are afforded little opportunity to really "know" their audience, or to adapt the written discourse to the audience's needs as they emerge. The rhetorical situations we create are too artificial, and our students are too inexperienced to abandon their egocentricity.

An Invoked Audience

According to Ede and Lunsford, an "'invoked' audience refers to the audience called up or imagined by the writer" (156). People "who envision audience as invoked . . . do not, of course, deny the physical reality of readers, but they argue that writers simply cannot know this reality in the way that speakers can" (Ede and Lunsford 160). Consequently, writers (in this case, student writers) are at a distinct disadvantage.

Why is there a need to invoke audiences?

According to Mary B. Coney, during the classical period, rhetoricians could address their audiences and be heard because of their "established community of belief" (319). But modern society is too diverse in its beliefs:

When we speak of audience today, we are no longer just thinking of a group of visible, knowable listeners who are to be persuaded by proofs
developed by the rhetor; we are also thinking of a
diverse, often unknown collection of readers whom
we hope to influence through a form of shared
discourse. One reason for this expanded definition
of audience is the difference between modern
society with its diversity of beliefs and the
classical world with its established community of
belief (Contemporary Views 134).

To deal with this diversity, writers invoke or
"fictionalize" (as Walter Ong calls it) their audience.

According to Walter Ong, two steps come into play when
writers fictionalize their audiences:

First, that the writer must construct in his
imagination, clearly or vaguely, an audience cast
in some sort of role . . . [like a novice computer
user, for example]. Second, we mean that the
audience must correspondingly fictionalize itself.
A reader has to play the role in which the author
has cast him . . . (12).

Thus the writer must invoke an audience, and in the process,
the reader (or in this case the user) must step into the
role the writer has created for him. To create this role,
the writer relies on several stylistic devices. For
example, in the case of Apple Computer manuals, writers use
analogy, humor, and personification to invoke/create/
fictionalize (they're all one and the same) an audience.
The writer is successful when the audience agrees to assume
the role the writer has created for them. Chaim Perelman
calls this audience the universal audience, and to create
this audience, the above stylistic devices must be employed.

To better understand how these stylistic devices are
employed by writers who invoke an audience, let's look at an
example of an invoked audience and an example of an
addressed audience from two different Apple Computer
manuals. Both examples are explaining "deferred execution."

Example one

Example one is from the Apple II: BASIC Programming
Reference Manual for beginning programmers. Here the writer
is invoking the audience:

Commands such as the PRINT statements you have just
typed are called "immediate-execution" commands.
There is another type of command called a
"deferred-execution" command. Every deferred-
execution command begins with a "line number". A
line number is an integer from 0 to 63999 (2).

Note the use of the personal pronoun "you." In addition,
the writer relies heavily on given/new contract, beginning
each new sentence with the given information in the previous
sentence. Likewise, each term is defined or an example is
given.

Example two

Example two is from the Apple II: A Touch of Applesoft
BASIC manual for advanced programmers. Here the writer is
addressing the audience:

Knowing the difference between immediate and
defered execution is helpful in debugging
programs. When you type RUN or NEW or LIST without
a line number, the computer does what you want as
soon as you press Return. This is known as
immediate execution. When you write a program with
line numbers, the computer defers execution until
you run it. This is called deferred execution.
Immediate execution is extremely useful in debugging programs (24).

While the writer once again uses the personal pronoun "you," note the difference in terminology. The writer uses much more technical terms, such as "debugging," and the term "line number" is not defined.

Let's look at two more examples of invoking and addressing audiences from the same two Apple manuals. Let's examine how the first chapter of each manual begins.

**Example three**

Example three is from the first chapter of the *Applesoft II: BASIC Programming Reference Manual*:

The best way to find out if you like programming is to do some. To keep things simple, do everything exactly as it's presented in this tutorial. Of course if you get bored, strike out on your own! You won't break the computer by typing something wrong, and the important thing is to experiment, learn, and have fun.

In this first session, you'll learn the rudiments. You'll read about program lines and line numbers, and how to type in programs. You'll see how to put messages on the screen with the PRINT instruction, and you'll learn some things about programming mistakes and how to fix them (2).

As I stated earlier, the writer of this manual invokes an audience of beginning programmers. The writer creates an audience whom she believes to need encouragement and reassurance. The writer envisions that the new users will want a preview of the session, along with encouragement to "strike out on your [their] own!" (Note the exclamation
mark!) The writer creates an image of a new user who needs reassurance that she can't break the computer, and assurance that programming can be "fun." In other words, the writer's vision of a new user is someone who is intimidated by computers.

Example four

Example four is from the first chapter of the Apple II: A Touch of Applesoft BASIC manual:

IMMEDIATE-EXECUTION COMMANDS

Try typing the following:

PRINT 10-4
and then press the key marked RETURN.

APPLESOFT II will immediately print 6.

The PRINT statement you typed was executed as soon as you pressed the RETURN key. APPLESOF T evaluated the formula after the PRINT and then typed out its value, in this case 6 (2).

As I stated earlier, the writer of this manual addresses an audience of advanced programmers. The language isn't very "user-friendly." The writer doesn't try to allay any fears that the user may have. The writer just gives the facts because that's what an addressed audience of advanced programmers wants. They are not intimidated by computers or programming. Nonetheless, the writer still somewhat invokes her audience through the use of personal pronouns and personification of the program. The writer even uses the
word "Try" instead of just commanding the user to "Type the following." It seems that the writer imagines that an advanced user would not like to be commanded to do anything.

Thus writers of Apple manuals invoke an audience of beginning programmers, and somewhat synthesize addressing and invoking when writing for an audience of advanced programmers.

But how do we get students to address and invoke, to write for an audience other than the teacher? And just as importantly, how do we get the teacher to judge the student's writing, not as a member of academe, but as someone who intends to use the document, or to take action based on the findings in the document?

Before we can address these questions, we need to look at a more inherent problem. We need to look at the problems writers face when they largely invoke or address an audience to the mutual exclusion of the other.

The Need for Balance

In conveying technical information, the writer must walk a fine line between addressing her audience and invoking it. Although addressing the audience works well for technical information, if a writer relies too heavily on addressing, she runs the risk of losing her ability to direct, to lead the reader to conclusions that are relevant to the writer's purpose. Writers who rely too much on addressing their
audience disqualify themselves as "'readers' of their own writing," and lessen their credibility as a source of information because they fail to bring to their writing their own experiences, personal conclusions, and frame of reference (Ede and Lunsford 158). Thus technical information written for an audience that is largely addressed is often devoid of personality, style, and humor.

For example, at IBM, writers often receive so much pressure from, say, engineers or programmers assigned to their projects that writers fail to address their "targeted" audience—the new user. To get their publications past the engineer and programmer, writers will often choose to include information in their documents that is suitable for the technical background of the engineer and programmer, thus ignoring the technical "inexperience" of their real audience.

A case in point is an IBM CMS Primer. In the Primer, there is no index entry on combining files, nor is there an entry under adding files. Consequently, if the user wants to combine files, she must have prescience, for she will only learn to combine files by looking under the index entry "GET command." While the GET command may make sense to the programmer who understands about the internals of the computer, to the new user, "GET" has no connection with adding or combining files.
The classroom presents a similar situation. In spite of the teacher's urging for students to direct their writing to a certain audience, in the end, the student tailors her writing to the likes and preferences of the teacher, for the teacher's comments suggest that she is indeed the audience.

Furthermore, Ede and Lunsford claim that in an addressed audience, what is missing is

an adequate awareness that, no matter how much feedback writers may receive after they have written something (or in breaks while they write), as they compose writers must rely in large part upon their own vision of the reader, which they create, as readers do their vision of writers, according to their own experiences and expectations (158).

Thus an addressed model of audience ignores the fact that readers actively work to create meaning with the writer and the text. Readers are often willing to assume certain roles for the sake of the text much like readers of the science fiction novel Dune are willing to accept that giant sandworms live on a desert planet. Ede and Lunsford go on to quote Anthony Petrosky who claims that

reading, responding, and composing are aspects of understanding, and theories that attempt to account for them outside of their interaction with each other run the serious risk of building reductive models of human understanding (160).

When a writer only addresses an audience, she's oversimplifying the communication process. For a more holistic approach to audience, writers must both address and invoke an audience. Thus writers relying solely on
demographics to define the audience they address restrict their thoughts and creativity. Douglas B. Park states that there is little point in trying to actually describe "the" audience as an entity. Powerful as the idea of audience is, it may block thought to the extent that it presents as unified, single, locatable, something that, in fact involves many different contexts dispersed through a text (252).

In other words, sometimes you can't see the forest for the trees. Demographics that give a concrete picture of audience can prevent writers from exploring the abstract side of the audience that they evoke.

Ede and Lunsford agree with Park. They state that the central task of the writer, then, is not to analyze an audience and adapt discourse to meet its needs. Rather, the writer uses the semantic and syntactic resources of language to provide cues for the reader--cues which help to define the role or roles the writer wishes the reader to adopt in responding to the text (160).

So writers who rely solely on addressing their audience fail to take into account the active role the audience plays when reading a text.

However, technical information that relies too heavily on an invoked audience threatens to divorce the writer from what the audience is and the reality of the situation by drawing too much on the writer's own experience. A technical writer who adheres too strictly to invoking her audience fails to address the needs of her audience--the result is merely a reflection of the writer's egocentricity.
For example, in the computer industry, programmers frequently write over the heads of their users, not because they address the wrong audience, but because they invoke the wrong audience. Programmers tend to write for themselves, or for people who are just like them. They look at technical publications as "books" instead of "devices, engineered products with a specific function to perform in a specific setting"; they expect "the readers to work at understanding them" [the books] instead of adapting to "the fallibilities and flaws" in their readers (Weiss 264).

Thus a writer who invokes an audience runs the risk of placing too much emphasis on her ability to create an audience, while ignoring the ability of her living, breathing audience to make meaning with the writer and text. Ede and Lunsford claim that a "weakness of research based on the concept of audience as invoked is that it distorts the processes of writing and reading by overemphasizing the power of the writer and undervaluing that of the reader" (165).

According to Park, "Readers may, in other words, be the 'audience' to varying degrees, or not at all" (249). The reader makes a choice whether or not to accept the role the writer has created, but a model of audience invoked often ignores this ability of the reader. So it seems whether a writer relies solely on addressing, or solely on invoking
her audience, too much emphasis is placed on the writer, and too little is placed on the reader.

As a solution to the inadequacies of addressing and invoking audiences, Ede and Lunsford suggest a "synthesis" of the two approaches. Ede and Lunsford's model of addressed and invoked audiences agrees with Park's findings as quoted below:

However real the readers are outside the text, the writer writing must represent an audience to consciousness in some fashion; and the results of that "fiction" appear in what the text appears to assume about the knowledge and attitudes of its readers and about their relationship to the writer and the subject matter (249).

In the remainder of this paper, I wish to demonstrate that the use of user protocols is one method of facilitating such a synthesis in the technical writing classroom.
Why, with all our efforts, do students continue to write for one audience—the teacher? What is it about the rhetorical situation in the classroom that prevents students from recognizing any other audience?

Lloyd Bitzer, in his essay on "The Rhetorical Situation," says this about rhetoric:

In order to clarify rhetoric-as-essentially-related-to-situation, we should acknowledge a viewpoint that is commonplace but fundamental; a work of rhetoric is pragmatic; it comes into existence for the sake of something beyond itself; it functions ultimately to produce action or change in the world; it performs some task (Golden 17).

In other words, rhetoric is called into existence as a response to a situation. Most students, however, fail to recognize that all rhetoric is born from situation. They fail to see the purpose behind writing other than to earn a grade to pass a course. That's why assignments, such as case studies that ask students to assume elaborate roles fail. Students continue to address the teachers/experts because the audience they're supposed to invoke in the case study is, physically, too far removed.

In "Writing for Readers," Barry Kroll states that our students' inability to perceive the importance of purpose and audience is because students don't "experience writing as a form of social interaction":

...
Because the process of writing is typically a solitary enterprise, because writing tasks can often be perceived as mere exercises, and because written products are often seen only by a teacher/judge, the essentially social nature of writing may easily elude our students, some of whom appear to view writing as a mechanical task with no more social implications than completing a set of arithmetic problems (180).

As long as students continue to write in isolation, as long as they continue to believe that the only purpose for writing a document is for a teacher to "slap" a grade on it, they will never understand the rhetorical situation—their rhetorical situation—they will never become professional writers.

Kroll also quotes John Trimble who says that the "big breakthrough for the novice writer ... will occur at the moment he begins to comprehend the social implications of what he's doing" (180). Consequently, we need to employ strategies that will provide these breakthroughs; we need to employ user protocols in our technical writing classrooms.

According to Linda Flower, another problem that contributes to a student's inability to see writing as a form of social interaction is that the priorities for many school assignments are placed on correctness and acceptable form or on having good ideas, no matter how they are expressed. . . . a communication strategy is not particularly necessary. Students are writing to an expert on their subject, an expert who reads to evaluate their message, not to use it (117-118).

Consequently, it should not surprise teachers when students write to them (or address them) instead of to the audience
suggested, say, in case studies. Students realize that, ultimately, it is the teacher who will evaluate their writing. And that is why "students fail to acquire strategies for dealing with an audience" (Flower 118). Instead, students give the teacher what she wants to hear.

The danger with this kind of teaching is that students come to believe that all rhetorical situations are like this. Russell Rutter claims that "the other half of 'writing for the professor' is assuming that all readers are like professors--familiar with the subject matter and requiring reports to find out whether their students are familiar with it too" (123).

However, in real-world writing, this is simply not the case. Thus when students enter the professional world, problems arise. Flower summarizes the problem in the following passage:

In professional life, however, the priorities are quite different. Form and style matter most only when they are violated; they operate at the level of a minimum standard, as does correctness itself. They can matter, but they are normally secondary to the reader's need to use what the writer knows. In fact, even a "good idea" matters only if the writer can communicate it to someone else. Professional writers must often do more than write clear or correct prose; they must be communication strategists. Yet school gives them little chance to test and thereby develop mature strategies for communicating with other people (118).

In order to ensure our students' success in the professional world, we need to teach them to communicate in ways that are
acceptable to the world outside of the classroom. We need
to afford students the opportunity to address and invoke
audiences other than the teacher. We need to provide
students with the opportunity to test their documents on
their readers. According to Flower,

We need to devise assignments that offer realistic
communication problems for students to solve. We
need to throw students into a full-bodied version
of what Lloyd Bitzer calls the "rhetorical
situation," a situation where there is a genuine
need to write, a demanding audience, and realistic
constraints. Student writers need to meet
situations that require them to take a "rhetorical
stance" (120).

User protocols, by their very nature, "throw" students
into a rhetorical situation. They give students the chance
to test their ability to synthesize addressed and invoked
audiences. The following section not only deals with user
protocols in the classroom, and in business, but also
illustrates how user protocols create a rhetorical
situation.
USER PROTOCOLS

Much literature has been written on protocols as a tool for understanding what goes on the mind of the writer. For my thesis, however, I am not concerned with protocols in this traditional sense. I am interested in using protocols, more specifically "user" protocols, for getting at what goes on in the minds of users when they use documents to complete tasks. I am concerned with user protocols as a tool for teaching students audience awareness, and for bridging the gap between audiences that are addressed and audiences that are invoked.

A Classroom Definition

Flower and Hayes define a protocol as "a detailed record of a subject's behavior" (23). Conventionally, in education, protocols are used to "get at" what's going on in the mind of the writer, but David Roberts and Patricia Sullivan use reading protocols to discover what is going on in the mind of a reader of a text. They define "reading" protocols as follows:

Reading protocols are taped records of a person reading a text aloud and saying whatever comes to mind during the process. The objective is to record the reader's coming to an understanding of the text, or the failure to do so (144).

Thus Roberts and Sullivan use reading protocols in the classroom to teach audience awareness.
Similarly, user protocols are another tool available to teach audience awareness to students. User protocols are videotaped records of a user using a document to complete a task. The user reads through the document aloud, voicing any thoughts she has while working through the task. A document "holds up" if the user successfully completes her task in the time allotted. The writer uses this videotaped feedback to revise her document much like corporations such as IBM run usability tests to modify their products' information.

You may recall that in the previous section, WRITING AS SOCIAL INTERACTION, I made reference to Bitzer's three criteria for a rhetorical situation. User protocols meet Bitzer's three criteria, which can best be illustrated through the following example:

Let's say you have been assigned to write the hook-up instructions for a new VCR.

**Need**

You have a genuine need to write the instructions because demographics show that 60% of your audience could not hook up the VCR to their televisions without instructions.
Demanding audience

You have written your instructions; you did not include any diagrams or illustrations. Your test subjects from the user protocol have trouble connecting the VCR to a television set and report moderate dissatisfaction with the product as a result. They report to you that a picture showing how the cable hooks up to the VHF terminal would have been helpful. They also complain about the tone of the instructions. They feel the language is too technical, and that something as simple as hooking up a VCR to a television set should require "minimal words" and "maximal pictures." They also complain that the print quality is poor, making the instructions difficult to read for some test subjects.

Constraints

Finally, you know that you are limited to black print on white paper. And since the print quality is poor, you will have to make your illustrations larger than the standard 1" x 1". You are restricted to one side of an 8-1/2" x 11" page. Your revision of these instructions is due for review at 1:00 tomorrow.

This example shows how user protocols throw students into rhetorical situations that demand the students write for an audience other than the teacher. With her initiation to this new audience, the student writer is exposed to an audience that isn't necessarily addressed. The degree to
which the student synthesizes addressing and invoking the audience will be dictated by the purpose, the audience, and the situation.

A Classroom Application

While I was co-oping at IBM, I took a one week course called Writing Workshop I, part of a three-part series. The course was developed and taught by Lucia McKay and Edward L. Smith, and aimed at Information Developers (writers and editors) who have not had technical writing courses in college.

The assignment for the course required us to write Chapter Two, a how-to section for a Morse Code Whiz (MCW) program. The MCW program is a menu-driven program still in development, at least for the purposes of the class. (The program was developed by Smith specifically for this class.) We were instructed to write Chapter Two of the user's guide on "Group Code Practice." We were given notes on Morse Code, programmer notes, a diskette with the program, and the instructors as oral sources. So we had a challenge—write Chapter Two in four days. (See the Appendix for my version of Chapter Two: Group Code Practice. Since my version of Chapter Two was used as a prose model for the class, I included both a clean copy and a graded copy. Lucia McKay did the commenting on my version of Chapter Two. This corrected version may indicate to teachers some of the major
issues of concern in instructional writing. Although this thesis is directed at instruction, user protocols can be applied to memos, progress reports, etc.)

While our assignment was to write Chapter Two of the MCW manual, our course objectives were as follows:

--Use effective techniques for preparing to write.
--Select from among alternative strategies for putting your words down.
--Rewrite effectively to rethink and reshape what you have written.
--Make effective choices about content, organization, and style for different audiences.

The last objective, audience awareness, was met through a series of heuristic worksheets on the audience for the MCW manual.

On the third day of class, we exchanged rough drafts and performed "buddy reviews" on our documents. While the buddy review (or peer editing review) was helpful, a user protocol is what was really needed. In a buddy review, while a writer receives valuable feedback from the reviewer, often the reviewer does not have, or does not take the time to write down everything she is thinking. Thus valuable feedback is lost. For example, in the section "What Steps Do You Need to Know?" of my Chapter Two, I forgot to say "type morse after A>." While my reviewer initially caught
the error, she forgot to record it because she was busy writing another comment. Had the review been videotaped, I would have learned my error from the protocol, either from my reviewer directly stating so, or from observing her hesitation on the video. And that's the beauty of user protocols—they're a permanent record of what the user experiences while using a document. Thus, if a user forgets what she meant by a comment, the writer can replay the video to jog her memory. If all else fails, the writer can usually deduce what the problem is from the facial expressions or guttural musings of the user. Also, it is much more difficult to misinterpret a protocol than it is to misinterpret a comment on a page. Thus the writer has more responsibility for her work, her final product. After viewing the user protocol, if the writer does not revise her document to better meet the needs of her user, she alone fails.

Another classroom application involves my speech class in my freshman year of high school. In one particular class, we had to give a one-minute speech selling a product. Each speech was videotaped and played back to the class.

We used the videos to critique the speeches and learn from our mistakes. The teacher and class would ask each speaker questions, such as "Why did you use that gesture?" or "Did you mean to say that?" In this sense, the videos
were not protocols, but they could be adapted to be protocols. The teacher could tape the speaker and audience in such a way that the audience's reactions to the speaker would also be caught on film. Then the speaker could watch the video and study her effect on the audience. The audience, in turn, could answer any questions that the speaker might have.

I found a third application in an article by David M. Stuehler called "Using a Computer Program to Teach Instruction." Stuehler developed a menu-driven computer program (similar to the Morse Code Whiz program used at IBM) called "High Finance." He developed this program because he thought "if they [his students] were all writing instructions for the same process, they could share insights and difficulties" (Stuehler 30). Stuehler chose a computer program for his students' instructions assignment because he wanted to challenge them.

Stuehler's class was similar to the course taught by McKay and Smith at IBM. Students were each given a copy of the program on diskette and were told to play with it in an attempt to discover how it worked and any bugs it might have. The next day, Stuehler brought "twenty instruction manuals for commercial software" for his students to peruse as models, which is something my instructors should have done (31). The students looked through the manuals, and
together with Stuehler, they decided on an outline for their manuals. On the fourth day, "the focus was on how to present the instructions in the clearest possible way" (Stuehler 32). The students had to decide on which alternate paths to include in their manuals to accommodate their varied users. The fifth class was spent on editing. Stuehler concludes the article by saying that "the assignment was not an artificial exercise. Requirements that had been abstractions now seemed real" (33).

**Sample assignments**

Because user protocols are new to the classroom, designing appropriate assignments that employ the three elements of Bitzer's rhetorical situation (a genuine need to write, a demanding audience, and realistic constraints) takes a little effort.

For each assignment, the teacher needs to outline on the board Bitzer's three elements as they apply to the rhetorical situation of each assignment. The teacher should query the students on the three elements, writing their responses on the board.

The students will be the test subjects for the user protocols, so it's important that assignments involve products the students would ordinarily use, or may one day use as consumers.
Thus for watching and discussing user protocols, I suggest teachers use products from their homes or schools. The abstracts for three assignments follow:

1) Write the directions for programming this Panasonic VCR on screen. The remote can record up to eight programs within a 21-day period. Your audience will range from high schoolers to college graduates. You may want to use illustrations.

2) Write the "Corrections" section for the Brother AX-15 Electronic Typewriter Manual. You will need to explain the five types of corrections: memory correction, word out/line out correction, manual correction, insertions, and deletions. You may want to use examples in this section.

3) Using your diskette copy of Writing Assistant, write Chapter Four: Saving and Printing Text. Your instructions must accommodate both personal computers with a hard disk drive, and computers with two floppy disk drives.

Students should be allowed one class period to play with the products so they become familiar with the products' capabilities and limitations. This "day of play" will also give students the hands-on experience they need with each product in order to offer their opinions when outlining the three elements of the rhetorical situation.

Procedure

Because of time limitations, I suggest using only three or four user protocols in a semester. Ideally, the technical writing class where user protocols are employed would be small, with, say 10-15 students.
Playing with the product When dealing with computer programs, teachers should give each student a disk with a copy of the program. Arrange for students to use the computer center or other facilities. When dealing with products, such as the VCR or typewriter, students can work in pairs or threes to write the documentation (unless there are 15 VCRs or typewriters sitting around your home or school). Working together in groups to produce a document is one step closer to real-world writing, but collaborative writing is a topic for another thesis.

Becoming familiar with similar documentation Bring several copies of various manuals for the type of product you are using that day. Try to have at least one copy for each student so that everyone has a manual to look at. If this is impossible, students can view the manuals in pairs.

Have the students pass the manuals around. Then work with the students to outline the three elements of the rhetorical situation on the board.

Planning and drafting the document After students have played with the product again, have students volunteer answers to the following questions, using their notes from the previous session on the criteria for this rhetorical situation:

1) What is the purpose of this document?  
2) How will the reader benefit or change from using it?
3) Is your document designed to provide background information, reference facts, or step-by-step procedures?
4) What does your answer to the previous question mean for your choices of format, organization, and style?
5) Who will use this document?
6) What is the reading ability of the user?
7) Is this person a sophisticated learner?
8) How much does this person know about computers?
9) What are the characteristics of the physical situation in which this document will be used?
10) How will your answers to these questions influence the way you write your document (McKay 67-68)?

Students would use their answers to these questions to begin their outlines for the documents. When rough drafts are completed, move on to the next step.

Watching and discussing the videotapes Students draw lots and four students are chosen to have their documents tested. Eight students are chosen to be test subjects. Each document is tested by two students. Because the assignments for user protocols are carefully chosen, each test takes approximately 15 to 20 minutes (students are writing only small sections of manuals).

Each test is videotaped. Depending on the length of the tapes, two or three user protocols are watched and discussed in a class period. Copies of the documents being tested are given to the students so they can follow along with the test subject in the protocol.

At times the teacher may need to articulate the problem a test subject is experiencing in a protocol since some
students may lack the experience to do so. At all times, however, the teacher must guide the discussion so that students' questions and comments deal with problems of audience, and other problems pertinent to the rhetorical situation.

Revising the documents After students watch and discuss the user protocols, they are advised to revise keeping the users' reactions to the documents in mind. If time permits, students can engage in nontaped peer reviews.

Advantages

According to Russell Rutter, "students become professionals only when they realize that someone really needs the information written up, when they design reports as if the reader cared about them and based decisions on them" (126). By their very nature, user protocols provide that "someone" in the form of test subjects.

In addition to providing a "real" audience (or user) who is dependent on the documentation to make a decision or to complete a task, user protocols provide the necessary impetus for the student to "comprehend the social implications of what he's doing. Far from writing in a vacuum, he is conversing, in a very real sense, with another human being . . ." (Kroll 180). Moreover, according to Kroll, students
need to experience both the satisfaction that comes from having successfully shaped the reader's understanding and experience, and the conflict that arises when a concept which seemed clear to the writer baffles the reader, or when a phrase which held special meaning for the writer evokes no response, or when an omitted detail--clear enough in the writer's mind--causes the reader to stumble (180-181).

User protocols can provide the writer with plenty of satisfaction and frustration. Further, "when writers have listened to others responding to their writing, they begin to anticipate their readers' reactions" (Kroll 181). User protocols provide writers with that valuable reader response. They help writers think like users.

Another advantage of user protocols is that they help to bridge the gap between an addressed audience and an invoked one. Student writers find it easier to write to an addressed audience than an invoked audience because an addressed audience is real, whereas an invoked audience is artificial--manufactured by the writer. The addressed audience exists outside of the text, and will remain there, even if the writer packs it up and never writes another line again. Conversely, the invoked audience "exists in the writer's consciousness" and requires the reader to "enter and to varying degrees become the audience that is implied there" (Park 249).

User protocols bridge the gap between audiences outside the text and audiences implied in the text by increasing the
interaction between writers and users within the context of the classroom. Once a writer produces a draft of a document, a classmate tests the draft, assuming the role of the user or "willing participant" (Coney, The Use 98). Conversely, the writer assumes the role of user to test someone else's draft. Therefore, students benefit from wearing two hats—the hat of the writer and the hat of the user.

Learning does not end here, however. Once a draft is tested, the writer is allowed to revise her document, thus benefiting from the interaction of the user and the document. As a result of this immediate feedback, students are much more willing to revise, and to revise with users in mind. The writer as user is also exposed to another writer/user's document, so she can benefit from the exposure to another writer's style and approach to document design.

Perhaps a more obvious benefit is that students get an opportunity to walk a mile in the user's moccasins, to know what it feels like to be a new user of a product, to lack confidence, to be reliant on a document to see them through a new task. In a sense, the student becomes Coney's mock reader. And as Coney states,

Much of the success of the written product growing out of each situation depends not only on how accurately the writer matches his mock reader to each unique set of circumstances, but also on how rigorously he keeps the mock reader's image before him as he composes (The Use 99).
A less obvious benefit is the aura of professionalism user protocols lend to the classroom. Since our goal as technical writing teachers is to make our students professional writers, we need to welcome any method that decreases the degree of artificiality that exists in the classroom. User protocols give students the opportunity to test their writing and the writing of their peers. They enable students to see that their writing has an impact, that rhetoric is situational, that

the task of analyzing audience is a matter of identifying the nature of the contexts that are already given by some aspect of the occasion of publication and of understanding the relationship between those that are given and those that must be more explicitly defined within the discourse itself (Park 253).

Thus, user protocols enable students to see the relationship between addressing and invoking audiences.

User protocols not only allow students to assess their writing more objectively and creatively but also enable them to write for an audience other than the teacher—the user. User protocols enable student writers to make this breakthrough because writers are given immediate feedback from the user during the writing process and after it is completed. Through user protocols, students see their writing as having an impact on another "real" person.

With user protocols, students are able to believe in their audience for what is probably the first time.
Students know if they produce documentation that enables a user to complete her desired task in the time allotted for that task that they were successful in invoking and addressing the right audience. Thus user protocols allow writers to check "their own vision of the reader, which they create, . . . according to their own experiences and expectations" against the flesh-and-blood readers who take part in the protocols (Ede and Lunsford 158). User protocols bring both student and audience into direct contact.

Finally, since the outcome of a user protocol is clear—a document either works or it doesn't—teachers are able to be more "fair" in their evaluations. With user protocols, teachers are no longer put in the awkward and uncomfortable position of explaining to a student why her paper failed. The student knows firsthand why her document works or doesn't work. In a sense, the burden of the grade lies on the writer, not the teacher. It is because of this shift that the adversarial role between teacher as evaluator and student as victim is diminished.

In addition, teachers are able to shed the weary yoke of audience, and allow a student/user to pull at the harness for a change. The "pulling" benefits the student/user, too, for it is by doing that we learn the best.
Disadvantages

Because user protocols are time consuming, I don't see how a teacher could use them on more than three or four assignments a semester. They are also costly to employ since not only video equipment is required but also the products for which the students are to write documentation.

A final disadvantage is that user protocols require that teachers have a lot of energy to create the assignments, to tape the user protocols, and to direct the discussions. Since the advantages of user protocols far outweigh the disadvantages, I'm sure there will be a lot of dedicated teachers with high energy levels willing to give them a try.

Writing teachers are not alone in their concern for audience awareness. The business world has long been sensitive to the need for addressing and invoking audiences. This need has never been more apparent than in the competitive arena of computer documentation. When a manual or online information is difficult to understand, users blame the product, not the manual. And this translates into lagging computer sales. For example, Apple Computer, Incorporated really hurt IBM in the sales of their personal computers because Apple writers learned the importance of synthesizing the two approaches to audience—addressing and invoking. Apple read their audience correctly. Currently, IBM believes that "the product's persona is so crucial to
the users' willingness to use the product" that testing is done to investigate "the users' reaction to online information [and computer documentation]" (IBM 60).

A Business Definition

IBM, like many other large corporations, conducts usability tests on their consumer products to identify possible problems with the documentation or product that could affect sales, or even lead to lawsuits. Consequently, the more marketable a product is, the more likely it will be put to the "usability test."

A Business Application

IBM in Rochester, Minnesota, where I worked as an Editor in Information Development, runs tests to check the usability of online information and computer documentation. At our site, Editing works with the Writing departments to target new information for testing, with Human Factors to develop the test plan and to provide test subjects and users, and with the Writing departments to correct any usability problems.

The test laboratory consists of two adjacent rooms. In the first room, the test subject reads through the documentation and performs the designated task. This room is equipped to resemble the working conditions of the real user. A panel of two-way glass separates the two rooms. In
the second room, the writer, editor, engineer or programmer, and psychologist observe the test subject as she works through the task. There are also television screens in this room to give the viewers different angles of the testing room. When a test subject grows tired or frustrated, she can stop the test simply by stating "I want to quit." After the test is completed, the videotape is played back for the viewers and the test subject. A session of questions and answers follows.

Guidelines for selecting test subjects

As the guidelines for "Testing Online Information" specify, test subjects are selected on the basis of how closely they resemble the product users in the following areas:

- Reading grade level
- Educational level
- Motivation (amount of interest in learning)
- Job training and knowledge of the tasks to be performed
- Prior experience with computer documentation
- Training on the actual equipment
- Pertinent physical characteristics, if any (IBM 59).

Criteria for success

Once the test subjects are selected, the usability tests are run. The success of a usability test is measured by the test subject's ability to meet the following objectives with the help of the documentation or online information:
• The time (minimum, maximum, and average) that users need to:
  -- Find and set up the information required to do the task
  -- Read the information
  -- Use the information to do the task.

• The remaining time (minimum, maximum, and average) that users will need to complete the task, independent of using information.

• The maximum number of errors that users should make, and the maximum number of assists they should need when using the information (ideally, these numbers should be zero).

• The attitude that users should have toward the online and printed information after they have used it. (Usually, a minimum average of 3.5 is specified, using a scale where the high is 5.0 and the low is 1.0) (IBM 59-60).

These objectives are meant to measure the quality of printed and online information based on its ability to meet the following criteria:

• Retrievability--ability to quickly present the information that the users need

• Readability--ability to be read and understood

• Task-supportiveness--ability to help users do specific tasks

• Accuracy--completeness, clarity, and timing of presentation

• User Satisfaction--ability to positively influence the users' overall satisfaction with the product (IBM 60).

Follow-up questions

After the test is completed, test subjects are asked a series of questions similar to the following:
• Were any unfamiliar terms used?
• Was the panel sequence clear and natural?
• Did you enjoy using the online information?
• Did you ever feel lost?
• Was help information explanatory enough?
• Did you use the tutorial?
• Was the tutorial too fast or too slow (IBM 60-61)?

Because usability tests are critical in pinpointing communication problems, they are held throughout the entire development process. Information obtained through these tests is used to alter the products or to tailor the information to better suit the product or the needs of the intended user.

As I stated in the INTRODUCTION, while I was at IBM I was a test subject for a setup manual for a mid-sized computer system. The setup took an hour and a half, followed by an hour of questions and answers. I marveled as I watched the writer and the engineer change the document and product to meet my needs. Then I was struck with this thought: these same usability tests, employed by companies like IBM, can be adapted to the classroom in the form of user protocols to teach audience awareness to students. That's where the idea for this thesis began.
CONCLUSIONS

Using user protocols in the technical writing classroom is a new approach to teaching audience awareness. While it would be too time consuming and too costly to employ user protocols throughout an entire semester of a technical writing course, when used in conjunction with other methods of teaching audience awareness, user protocols can have the following benefits for students:

1. students have an opportunity to write for an audience other than the teacher;

2. students may come to understand the need for a synthesis between invoking and addressing audiences;

3. students may come to understand that writing does not occur in a vacuum; and

4. students may come to understand how users use documents to complete tasks.

Professional writers have to develop strategies for writing in a variety of rhetorical situations. Yet most of our texts and teachers provide writing assignments that allow students to write only for an audience of one—the teacher. User protocols provide students with a "real" audience other than the teacher, with a need to write, and with realistic constraints.

Because students find it easier to write for an addressed audience (the audience of living, breathing people) than an invoked audience (the audience created by the writer), they often take the easy way out and rely
solely on addressing their audience. However, by increasing interaction between writer and user within the context of the classroom, user protocols make bridging the gap between audiences outside the text and audiences implied in the text easier for students. Once students don the hats of writers and users, they understand the difference between and the need for the synthesis of the two approaches.

One reason students have difficulty in writing for an audience other than the teacher, and in learning to synthesize addressing and invoking audiences is because students fail to see the social implications of their writing. Students are used to writing privately, and are used to their papers being evaluated solely by the teacher. In the professional world, however, this is not the case. Professional writers write for people who know less about the product than they do, which is an entirely different rhetorical situation than most technical writing students are exposed to in the classroom. User protocols expose students to real-world writing and give students the "push" they need to decenter their writing.

Lastly, user protocols may hold the key for students in understanding how users use documents. The more students study how users react to their writing, the more conscious they become of the user when they compose and revise.
While much literature has been published on protocols as a tool for understanding what goes on in the mind of the writer, the focus of this paper has been on user protocols as a tool for understanding what goes on in the minds of users when they use documents to complete tasks. By bringing writers and users closer together, we help students realize that their writing has impact, that words have power.

The future for research in user protocols looks bright. Empirical research is needed to see how much more effective user protocols are than other methods of teaching audience awareness and other methods of teaching revision with the audience in mind.


APPENDIX

Chapter Two of Morse Code Whiz Program
(clean copy) 52

Chapter Two of Morse Code Whiz Program
(copy with McKay's comments) 63
CHAPTER TWO
WHAT DOES THIS CHAPTER TALK ABOUT?

This chapter is about Group Code Practice. In Group Code Practice, you listen to Morse code, and learn to change the speed between the sounds so you can hear the difference between letters clearly.

This chapter helps you to increase your speed in listening and to practice transcribing Morse code, so that someday you, too, may come to the rescue in cases of emergency when normal communication is not allowed.
WHAT STEPS DO YOU NEED TO KNOW?

The steps below tell you how to get to Option 2--Group Practice--on the Main Menu, and what to do once you get there. Follow the steps in the order in which they appear, but do not ignore your screen.

After each step, be sure to read your screen carefully. The directions for Group Practice appear on the screen, and you will work faster once you learn to follow the directions on the screen.

The following steps allow you to practice listening and receiving Morse code:

1. Look at your screen. You see the symbols below:

   A>

2. Now type the word morse exactly as it appears in Figure 1 below:

   Current date is Tue 1-01-1980
   Current time is 01:00:33.32
   Enter new date:
   Enter new time:

   The IBM Personal Computer DOS
   Version 2.10 (C) Copyright IBM Corp 1981, 1982, 1983
   A>morse

Figure 1. Starting the Morse Code Whiz Program
3. Look at your screen. What do you see? You see a screen similar to Figure 2 below:

*** MORSE CODE WHIZ ***
CODE TEACHING AND LEARNING PROGRAM
(c) COPYRIGHT 1982
SPICEWOOD SOFTWARE
a Div. of DATA-DOC, INC.
PO BOX 10025, AUSTIN, TX 78766
512-343-7667

All Rights Reserved

Updated copies of this program may be ordered by sending a check for $25 to the address above.
Unauthorized copying of this program is a VIOLATION OF FEDERAL LAW.

Figure ...

Note: You do not need to read this screen. This screen contains copyright information which may not interest you.

4. Read the last line on your screen. What are you told to do? You are told to press the ENTER key. Press ENTER if you haven’t already. Remember, the ENTER key looks like this
5. Your screen now shows the Main Menu. Your screen looks similar to Figure 3 below:

<table>
<thead>
<tr>
<th>MAIN MENU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Individual CODE PRACTICE</td>
</tr>
<tr>
<td>2. Group CODE PRACTICE</td>
</tr>
<tr>
<td>3. Volume, Voice Settings</td>
</tr>
<tr>
<td>4. PRINT OUT On/Off</td>
</tr>
<tr>
<td>5. CHANGE Speed, Duration, Freq.</td>
</tr>
<tr>
<td>6. CHANGE Color, Display Width</td>
</tr>
<tr>
<td>9. QUIT This Program</td>
</tr>
</tbody>
</table>

Figure 3. Main Menu

6. Now you are ready to practice with Morse Code Whiz. Read option 2 on your screen—Group CODE PRACTICE. Type a 2 after the words YOUR CHOICE? See Figure 4 below:

<table>
<thead>
<tr>
<th>MAIN MENU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Individual CODE PRACTICE</td>
</tr>
<tr>
<td>2. Group CODE PRACTICE</td>
</tr>
<tr>
<td>3. Volume, Voice Settings</td>
</tr>
<tr>
<td>4. PRINT OUT On/Off</td>
</tr>
<tr>
<td>5. CHANGE Speed, Duration, Freq.</td>
</tr>
<tr>
<td>6. CHANGE Color, Display Width</td>
</tr>
<tr>
<td>9. QUIT This Program</td>
</tr>
</tbody>
</table>

Figure 4. Main Menu
7. Look at your screen. Your screen should look similar to Figure 5 below:

![GROUP MANUAL CODE PRACTICE (press <f1> to change speeds, <ESC> to quit)](image)

Figure 5. Group Manual Code Practice

Now you are ready for step 8—Listening to Morse code.

8. As you read in Chapter 1, Morse code has long and short sounds called dashes and dots. The dash is sounded as dah, and the dot is sounded as dit.

A dit is represented by a . and a dah by a - (just as a dot and dash are pictured on a typewriter keyboard, or your IBM PC keyboard).

Type an a on your screen. You will hear the Morse code for the letter a.

You heard didah

A short and long sound that is pictured as -.  

Did you hear the short and long sound?
Type the letter a again.

Now did you hear didah?

Now type the letters sos.

You heard dididit dahdah dah dididit

Which looks like ... --- ...

Could you hear each letter clearly? If you can’t hear each sound clearly, press F1 as shown in Figure 6 below:

Figure 6. Listening to Morse code
9. Look at your screen. You see the CHANGE Speed, Duration, Freq. Menu similar to Figure 7 below:

MORSE CODE WHIZ

<table>
<thead>
<tr>
<th></th>
<th>CHANGE Speed, Duration, Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sending SPEED WPM= 10</td>
</tr>
<tr>
<td>2.</td>
<td>Character SPACING WPM= 10</td>
</tr>
<tr>
<td>3.</td>
<td>Dash EMPHASIS dits= 0</td>
</tr>
<tr>
<td>4.</td>
<td>Dit Tone FREQUENCY Hz= 1000</td>
</tr>
<tr>
<td>5.</td>
<td>Dash Tone FREQ. 'Delta'%= 0</td>
</tr>
<tr>
<td>6.</td>
<td>HELP (or change to presets)</td>
</tr>
<tr>
<td>7.</td>
<td>SAVE Speeds</td>
</tr>
<tr>
<td>8.</td>
<td>EXIT This Menu</td>
</tr>
</tbody>
</table>

YOUR CHOICE?

Figure 7. CHANGE Speed, Duration, Freq. Menu

10. Read option 1. You need to slow down the sending speed so you can hear the signals clearly as you type the letters. Type a 1 after YOUR CHOICE? Your screen looks similar to Figure 8 below:

MORSE CODE WHIZ

<table>
<thead>
<tr>
<th></th>
<th>CHANGE Speed, Duration, Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sending SPEED WPM= 10</td>
</tr>
<tr>
<td>2.</td>
<td>Character SPACING WPM= 10</td>
</tr>
<tr>
<td>3.</td>
<td>Dash EMPHASIS dits= 0</td>
</tr>
<tr>
<td>4.</td>
<td>Dit Tone FREQUENCY Hz= 1000</td>
</tr>
<tr>
<td>5.</td>
<td>Dash Tone FREQ. 'Delta'%= 0</td>
</tr>
<tr>
<td>6.</td>
<td>HELP (or change to presets)</td>
</tr>
<tr>
<td>7.</td>
<td>SAVE Speeds</td>
</tr>
<tr>
<td>8.</td>
<td>EXIT This Menu</td>
</tr>
</tbody>
</table>

YOUR CHOICE?

Figure 8. The Sending Speed Option

Look at the right hand corner of your screen. Look at the number of words per minute. (On your screen, words per minute appears as WPM.) You are listening to ten words a minute.
11. Now type a 3 after ENTER new Sending Speed, ? and press ENTER. This slows down the sounds you hear. The right hand corner of your screen now reads WPM= 3.

12. Look at your screen. Read option 9--EXIT This Menu.
Type a 9. This returns you to the screen you saw in step 8.

13. Now practice listening to different letters.

Type the letter a.
Now you should hear the didah clearly.

Type sos.
You heard dididit dahdahdah dididit

Now type cat.
What do you hear?
You heard dahdahdit didah dah

Now turn to page 3 in your Practice Receiving Morse Code Workbook. When you finish the first exercise, you will be told to return to page of this manual.
14. Now that you finished the first exercise in your Practice Receiving Morse Code Workbook, you are ready to quit the program or change the speeds again.

If you want to quit the program

Press Esc

You see the Main Menu. Read option 9, and type a 9 after YOUR CHOICE? to exit this menu and quit the program.

If you want to change speeds again

Press F1

(Follow the directions on your screen. If you are not sure what to do next, return to step 8.)
You practiced listening to and receiving Morse code. You discovered that Morse code is made up of short and long sounds. Short sounds are called dots (sounded dit), and long sounds are called dashes (sounded dah).

You can continue practicing listening to and receiving Morse code, or you can go on to Chapter 3. Chapter 3 tells you how to change the color and width of your display. If you do not have color on your screen, or you are not interested in changing the width of your screen, go on to Chapter 4.
CHAPTER TWO
WHAT DOES THIS CHAPTER TALK ABOUT?

This chapter is about Group Code Practice. In Group Code Practice, you listen to Morse code, and learn to change the speed between the sounds so you can hear the difference between letters clearly.

This chapter helps you to increase your speed in listening and to practice transcribing Morse code, so that someday you, too, may come to the rescue in cases of emergency when normal communication is not allowed.
WHAT STEPS DO YOU NEED TO KNOW?

The steps below tell you how to get to Option 2—Group Practice—on the Main Menu, and what to do once you get there. Follow the steps in the order in which they appear, but do not ignore your screen.

After each step, be sure to read your screen carefully. The directions for Group Practice appear on the screen, and you will work faster once you learn to follow the directions on the screen.

The following steps allow you to practice listening and receiving Morse code:

1. Look at your screen. You see the symbol below:

   A>

2. Now type the word morse exactly as it appears in Figure 1.

Figure 1. Starting the Morse Code Whiz Program
3. Look at your screen. What do you see? You see a screen similar to Figure 2 below:

*** MORSE CODE WHIZ ***
CODE TEACHING AND LEARNING PROGRAM
(c) COPYRIGHT 1985
SPICERWOOD SOFTWARE
a Div. of DATA-DOC, INC.
PO BOX 10025, AUSTIN, TX 78766
512-543-7667

All Rights Reserved
Updated copies of this program may be ordered by sending a check for $25 to the address above.
Unauthorized copying of this program is a VIOLATION OF FEDERAL LAW.

Figure: ...

Note: You do not need to read this screen. This screen contains copyright information which may not interest you.

4. Read the last line on your screen. What are you told to do? You are told to press the ENTER key. Press ENTER if you haven't already. Remember, the ENTER key looks like this:

Why does not remlin?
5. Your screen now shows the Main Menu, similar to Figure 3 below. Your screen looks like:

```
MORSE CODE WHIZ
MAIN MENU
1. Individual CODE PRACTICE
2. Group CODE PRACTICE
3. Volume, Voice Settings
4. PRINT OUT On/Off
5. CHANGE Speed, Duration, Freq.
6. CHANGE Color, Display Width
9. QUIT This Program
```

**Figure 3. Main Menu**

6. Now you are ready to practice with Morse Code Whiz. Read option 2 on your screen—Group CODE PRACTICE. Type a 2 after the words YOUR CHOICE? See Figure 4 below.

```
MORSE CODE WHIZ
MAIN MENU
1. Individual CODE PRACTICE
2. Group CODE PRACTICE
3. Volume, Voice Settings
4. PRINT OUT On/Off
5. CHANGE Speed, Duration, Freq.
6. CHANGE Color, Display Width
9. QUIT This Program
```

**Figure 4. Main Menu**
7. Look at your screen. Your screen should look similar to Figure 5 below:

![Figure 5. Group Manual Code Practice](image)

8. As you read in Chapter 1, Morse code has long and short sounds called dashes and dots. The dash is sounded as dah, and the dot is sounded as dit.

A dit is represented by a . and a dah by a (-) (just as a dot and dash are pictured on a typewriter keyboard, or your IBM PC keyboard).

Type an a on your screen. You will hear the Morse code for the letter a.

You heard didah

A short and long sound that is pictured as (- . )

Did you hear the short and long sound?
Type the letter a again.
Now did you hear didah?

Now type the letters sos.
You heard dididit dahdahdah dididit
Which looks like ... ---- ...
See my earlier comment.

Could you hear each letter clearly? If you can't hear each sound clearly, press F1 as shown in Figure 6 below:

GROUP MANUAL CODE PRACTICE (press <F1> to change speeds, <ESC> to quit)

Figure 6. Listening to Morse code
9. Look at your screen. You see the CHANGE Speed, Duration, Freq. Menu similar to Figure 7 below:

MORSE CODE WHIZ

<table>
<thead>
<tr>
<th>&lt;5&gt; CHANGE Speed, Duration, Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sending SPEED WPM = 10</td>
</tr>
<tr>
<td>2. Character SPACING WPM = 10</td>
</tr>
<tr>
<td>3. Dash EMPHASIS dits = 0</td>
</tr>
<tr>
<td>4. Dit Tone FREQUENCY Hz = 1000</td>
</tr>
<tr>
<td>5. Dash Tone FREQ. 'Delta'%= 0</td>
</tr>
<tr>
<td>6. HELP (or change to presets)</td>
</tr>
<tr>
<td>8. SAVE Speeds</td>
</tr>
<tr>
<td>9. EXIT This Menu</td>
</tr>
</tbody>
</table>

Figure 7. CHANGE Speed, Duration, Freq. Menu

10. Read option 1. You need to slow down the sending speed so you can hear the signals clearly as you type the letters. Type a 1 after YOUR CHOICE? Your screen looks similar to Figure 8 below:

MORSE CODE WHIZ

<table>
<thead>
<tr>
<th>&lt;5&gt; CHANGE Speed, Duration, Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sending SPEED WPM = 10</td>
</tr>
<tr>
<td>2. Character SPACING WPM = 10</td>
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<td>6. HELP (or change to presets)</td>
</tr>
<tr>
<td>8. SAVE Speeds</td>
</tr>
<tr>
<td>9. EXIT This Menu</td>
</tr>
</tbody>
</table>

Figure 8. The Sending Speed Option

Look at the right hand corner of your screen. Look at the number of words per minute. (On your screen, words per minute appears as WPM.) You are listening to ten or 10 words a minute.
11. Now type a 3 after ENTER new Sending Speed, ? and press ENTER. This slows down the sounds you hear. The right hand corner of your screen now reads WPM= 3.

12. Look at your screen. Read Option 9-EXIT This Menu.
Type a 9. This returns you to the screen you saw in step 8.

13. Now practice listening to different letters.

Type the letter a.
Now you should hear the didah clearly.

Type sos.
You hear dididit dahdahdah dididit

Now type cat.
What do you hear?
You hear dahdidahdit didah dah

Now turn to page 3 in your Practice Receiving Morse Code Workbook. When you finish the first exercise, you will be told to return to page of this manual.
14. Now that you finished the first exercise in your Practice Receiving Morse Code Workbook, you are ready to quit the program or change the speeds again.

If you want to quit the program

Press Esc

You see the Main Menu. Read option 9, and type a 9 after YOUR CHOICE? to exit this menu and quit the program.

If you want to change speeds again

Press F1

(Follow the directions on your screen. If you are not sure what to do next, return to step 8.)
DO YOU WANT A SUMMARY OF WHAT YOU DID IN CHAPTER 2?

You practiced listening to and receiving Morse code. You discovered that Morse code is made up of short and long sounds. Short sounds are called dots (sounded dit), and long sounds are called dashes (sounded dah). You can continue practicing listening to and receiving Morse code, or you can go on to Chapter 3. Chapter 3 tells you how to change the color and width of your display. If you do not have color on your screen, or you are not interested in changing the width of your screen, go on to Chapter 4.

Many, nice trip here.