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ABSTRACT

COMPUTER ANXIETY'S IMPACT ON COMPUTER USER DOCUMENTATION

by

Brenda Y. Moore

Computer anxiety is the fear or avoidance of the computer and the environment it represents. The anxiety can manifest in all computer users regardless of their experience or complexity of the tasks they must complete. The anxiety can be alleviated on one task, but as technology changes and advances, the user's comfort level is compromised and the anxiety reappears. Understanding computer anxiety as it relates to computer user documentation is a compelling research question. Although there have been many efforts to understand computer anxiety, there has been no clear way for technical communicators to resolve this problem in their approach to writing computer user documentation.

This study will determine the impact of computer anxiety on the preparation of computer user documentation as well as attempt to apply Carl Rogers "Rogerian" theory to computer anxiety as a means of describing what needs to happen in fostering a positive interaction between the user and the computer. In addition, a discussion of the "Minimalist Manual," as an effective computer user documentation strategy will show a parallel between features of minimalism and the "Rogerian" theory.

COMPUTER ANXIETY'S IMPACT ON COMPUTER USER DOCUMENTATION

by

Brenda Y. Moore

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To my beloved family

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CHAPTER 1

INTRODUCTION

Computer anxiety is the fear or avoidance of the computer and the environment it represents. The anxiety can manifest in all computer users regardless of their experience or complexity of the tasks they must complete. The anxiety can be alleviated on one task, but as technology changes and advances, the user's comfort level is compromised and the anxiety reappears. Technical communicators face the challenge of writing computer user documentation that will encourage and support the computer anxious in their quest to become proficient on computer tasks.

1.1 Research Statement

This purpose of this study is to determine the impact of computer anxiety on the preparation of computer user documentation. A discussion of computer anxiety will include the three documented types and roots as well as some methods that are being used to alleviate the negative human-computer interaction.

This study will also attempt to apply Carl Rogers "Rogerian" theory to computer anxiety as a means of describing what needs to happen in fostering a positive interaction between the user and the computer. The application of the Rogerian theory to computer anxiety will focus on the unique relationship between the user and the computer.

In addition, a discussion of the "Minimalist Manual," as an effective computer user documentation strategy will show a parallel between features of minimalism and the "Rogerian" theory. Finally, the methods used in this research as well as the results will be discussed and evaluated.

1.2 Computer User Documentation

Computer user documentation is documentation supplied with software by the manufacturer that supports training and on-going use. Documentation supplied with the software are tutorials, task-based user guides, alphabetical reference of commands, on-line help, and quick reference cards (Brockman, 1990). Some computer user documentation is in the form of third-party manuals such as the popular “Dummies” or “Idiots” series. This version of computer user documentation, which translates system concepts and vocabulary into more user-friendly terminology, is an alternative to manuals typically supplied with computer software.

1.2.1 Computer User Documentation Strategies

Technical communicators responsible for preparing computer user documentation are encouraged to follow the Standard Documentation Process (SDP). The Standard Documentation Process by definition is a series of widely accepted and organized techniques (Brockman 321). The techniques are steps or tasks that include developing document specifications, prototyping, drafting, editing, reviewing, field testing, production, distribution and maintenance.

The task of developing document specifications is most important because it includes identifying the audience and determining what writing approach is appropriate for that audience. The traditional computer user documentation utilizes the textbook or conventional approach. This approach is based on classroom structure or teacher-led instruction. Conventional manuals tend to strive for a complete overview of the possibilities and procedures of a program. Information Mapping™ is an approach to computer documentation that employs the use of structured writing. Originally developed by Robert Horn (1969) this

approach involves information blocks (Brockman 204-206). These blocks contain information for one particular topic and consist of chunks or short sentences. Information Mapping™ has a specific layout that provides a smooth transition from one topic to another. Minimalism, also known as “Minimalist Manual,” is task-based instruction and is another popular approach to writing computer documentation. The goal of the minimalist manual is to present material appropriate to the adult learner by encouraging active participation and application of knowledge (Carroll 21).

1.3 The Computer User

As stated before, identifying the users and understanding their documentation needs are important in the Standard Documentation Process. Typically the end-user for computer user documentation is the adult learner. Adult learners have many attributes, a few being impatience and a desire to get started on their tasks quickly. Adult learners rarely read through the large, detailed manuals supplied with their software, and, if they do, they tend to skip around. Although adult learners are prone to making mistakes, they learn by correcting those mistakes. Adult learners are best motivated by self-initiated exploration (Brockman, 1990, p. 94).

In writing software documentation, technical communicators usually focus their efforts on adult learners who fall between the novice and expert range. Table 1.1 describes computer user types defined by Brockman (1990, p. 103-105).

Table 1.1. Computer User Types (Brockman, 1990, p.103)

User Types	Description	Requirements
Parrot	Users who have the least experience with computer software.	Ten minute task-oriented guide; rapid sense of success; practice on projects
Novice	Parrot users who have gained experience and are able to attach meanings to instructions.	Task-oriented tutorial; visualization of whole system or product; practice
Intermediate	Users who have progressed from the novice status.	Product capability reference manual; visualization; practice
Expert	Users who have confidence in their ability to learn software in a small time frame.	Quick reference card
Intermittent	Infrequent users	Visualization; strictly focused, limited, immediate applicable coverage of information; system intelligibility through robust HELP system
Transfer	Experienced user on different software products.	Summary of how new system or product differs from previous system or product

The expert has a high level of confidence in his or her ability to learn new technology and basically uses the computer user documentation for reference or assistance on a particular task. The novice user, however, has a unique set of expectations to which the technical communicator must adhere (van der Meij, 1990, p. 8). The “Dummies” and “Idiots” version of third-party documentation focuses on the novice user. The novice user is usually in a situation where the constraints of work such as deadlines and lack of time are imposed. Becoming proficient is an issue particularly in the area of cost in time and effort. Proficiency is accomplished by exploring the software, reading and thinking, and hands-on user participation. The novice user expects that the computer user documentation will include

relevant tasks needed to support quick turn-around on training. In addition, the novice user expects the documentation to have an efficient and usable layout that encourages and provides easy access during and after initial learning.

Computer anxiety makes the task of preparing user documentation more challenging to technical communicators. In addition to focusing on the novice user, technical communicators must incorporate strategies in documentation that will empower the computer-anxious user to learn. The next sections will describe the novice user with respect to computer anxiety.

CHAPTER 2

COMPUTER ANXIETY

2.1 Description of Computer Anxiety

Computer anxiety is the fear or apprehension felt by an individual when using computers, or when considering the possibility of computer use. The type of fear experienced by the computer user varies from one individual to the next. Computer anxiety, also termed computer phobia, is a category of technophobia. Whereas the object of technophobia is fear and avoidance of technology in general, the object of computer anxiety is focused specifically on the computer and what it represents. In discussing computer anxiety, it is important to note that the interaction between the individual and the computer is a unique relationship. This concept will be discussed in Chapter 3 - Carl Rogers.

The terms “computer anxiety,” “computer phobia,” and “technophobia” will be used interchangeably throughout this section.

2.2 Computer Anxiety Measures

Measuring and differentiating between various levels of anxiety and response modes is an important first step to identify and isolate anxious groups. Drs. Larry D. Rosen and Michelle Weil, professors at California State University Psychology Department, developed the following measures that identified three types of computer phobia: anxious computer phobia, cognitive computer phobia, and uncomfortable computer phobia also termed the “uncomfortable user” (Rosen et al, 1989, p.9-13). Their research ultimately resulted in the implementation of the “Computerphobic Reduction Program.” The program’s purpose is to reduce

computerphobic reactions among post-secondary education students. Although computer experience alone does not eliminate computer anxiety (Rosen & Maguire, 1990), there is some evidence that computer anxiety does decrease with structured computer use in educational contexts (Cambre & Cook, 1987).

The following are the measures developed and a brief description of each measure. These measures have been used for various studies conducted on computer anxiety.

- CARS-C: Computer Anxiety Rating Scale: The Computer Anxiety Rating Scale (Form C) contains 20 items that measure technological anxiety on a five-point scale.

COMPUTER ANXIETY RATING SCALE					
(Form C)					
The items in this questionnaire refer to things and experiences that may cause anxiety or apprehension. For each item, place a check under the column that describes how anxious (nervous) each one would make you at this point in your life.					
	Not at All	A Little	A Fair Amount	Much	Very Much
1. Thinking about taking a course in a computer language					
2. Taking a test using a computer scoring sheet					
3. Applying for a job that requires some computer training					
4. Sitting in front of a home computer					
5. Watching a movie about an intelligent computer					
6. Looking at a computer printout					
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Figure 2.1. CARS-C: Computer Anxiety Rating Scale

- CTS-C: Computer Thoughts Survey: The Computer Thoughts Survey (Form C) contains 20 items that measure specific thoughts and cognitions that people have when working with technology or when contemplating working with technology.

COMPUTER THOUGHTS SURVEY					
(Form C)					
Please check the box that indicates how often you currently have each of the following thoughts when you use a computer or think about using a computer.					
	Not at All	A Little	A Fair Amount	Much	Very Much
1. I am going to make a mistake.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. This will be fun.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Everyone else knows what they are doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I enjoy learning about this.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I like playing on the computer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I feel stupid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
© 1988 Michelle M. Weil and Larry D. Rosen					

Figure 2.2. CTS-C: Computer Thoughts Survey

- GATCS-C: General Attitudes Toward Computers Scale: The General Attitudes Toward Computers Scale (Form C) contains 20 items that measure a variety of attitudes toward computers and technology on five-point Likert scales.

GENERAL ATTITUDES TOWARD COMPUTERS SCALE					
(Form C)					
The following statements address general attitudes toward computers. Place a check under the column that describes your level of agreement (Strongly Agree, Agree, Neutral, Disagree, or Strongly Disagree) to each statement.					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Computers can save people a lot of work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. It takes a good math background to learn to use a computer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. You need to know how to use a computer to get a good job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Computers can help solve society's problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Figure 2.3. GATCS-C: General Attitudes Toward Computers Scale

2.3 Roots and Types of Computer Anxiety

The following sections describe the three types of computer phobia, as defined by Rosen and Weil (1989), along with their associated roots developed by Howard and Smith (1990). Treatments used to combat computer phobia within the "Computerphobic Reduction Program" are discussed as well.

2.3.1 Anxious Computerphobic

Anxious computerphobics are individuals who exhibit the classic signs of anxiety disorders (e.g. sweaty palms, racing heart, blank mind) when working on a computer. Its roots are psychological and stem from personality traits that manifest themselves as technological alienation (Howard & Smith, 1990, p. 615). Treatment for this category is desensitization (Rosen & Weil, 1989, p. 17). Desensitization in Rosen and Weil's Computerphobic Reduction Program involves having the client and his mentor develop an hierarchy of imagined scenes that represent increasing levels of intensity and interaction with the computer (Rosen & Weil, 1989, p. 17). The client is taught relaxation techniques that will be eventually used as coping mechanisms with the scenes on the hierarchy. The client, as a result, will be able to develop the ability, desire, and confidence to interact with the computer. Because this type of computer phobia is psychological in nature, its treatment is more time consuming than the other types.

2.3.2 Cognitive Computerphobic

Cognitive computerphobics are individuals who are incapable of working with computers because have they bombarded themselves with negative internal dialogue (Rosen & Weil, 1989, p.9). Examples of which are: "*If I hit this button, the whole system will crash.*" Cognitive computer phobia is rooted in education or the lack of education and knowledge about the capabilities and particularly about the limitations of computers (Howard & Smith, 1990, p.615). Successful cognitive therapy focuses on educating the client about the limitations of computers thereby dispelling any false beliefs (Rosen & Weil, 1989, p.18).

2.3.3 Uncomfortable Computerphobic

Uncomfortable computerphobics or “uncomfortable users” are users who lack or do not have access to adequate information about computers. Rosen and Weil describe this type of computerphobic as “slightly anxious and who use some negative self-statements” (Rosen & Weil, 1989, p.18). Treatment for the uncomfortable user in the Computerphobic Reduction program involves group discussions that attempt to educate, and provide skills acquisition and problem solving techniques.

The uncomfortable user represents a large segment of our society within the United States. Within this subgroup are teachers, parents, students on all levels, the unemployed and the under-employed. These groups also represent minorities and women, who without intervention, may never grasp the fundamentals of today’s technology. Uncomfortable computer phobia is based on simple computer functions such as where the power switch is located or how to insert diskettes. Increased computer experience and the intervention of effective training is a viable option to treat this source of computer phobia.

The uncomfortable user is the type of computerphobic on which this research is based. Not only because of its impact to the professional and technical communicator in terms of responsibility and future opportunities, but technical communicators may find the examination and utilization of methods to translate information their realm of expertise.

The following section describes Carl Rogers “Rogerian” theory and its application to computer anxiety.

CHAPTER 3

CARL ROGERS

Carl Rogers, proponent of the Rogerian theory, is best known for his views about the therapeutic relationship. According to Rogers (1942), the relationship between the therapist and the client provides the atmosphere that encourages clients to solve their own problems. The “Rogerian” theory of communication emerged from his “non-directive therapy,” later modified to “client-centered therapy,” and then later to the “person-centered approach” (Cissna & Anderson, 1990, p.130). Rogers concepts on communication were used by the first interpersonal communication scholars and teachers of speech communication (Cissna & Anderson, 1990, p.133).

Carl Rogers is also known for his views on experiential learning, which is applied knowledge such as learning about engines in order to repair a car (Freilberg, 1994). Experiential learning addresses the needs and wants of the learner and is equivalent to personal change and growth. Rogers believed that all human beings have a propensity to learn. His view of the teacher, or in this case, the technical communicator, is a facilitator of the learning process who sets a positive climate for learning, clarifies the purposes of the learner(s), organizes and makes available learning resources, balances intellectual and emotional components of learning, and shares feelings and thoughts with learners but does not dominate the learning process.

Rogerian theory is appropriate for this research because it engages technical communicators and users in a perceived relationship that facilitates confidence, trust and positive self-regard in the user. The user is then able to constructively engage those qualities and successfully complete computer tasks with minimal anxiety.

The Rogerian theory consists of the following six conditions that enable the therapist the ability to facilitate a change in the client's behavior (Kirschenbaum, et. al, 1989, p.135-136):

1. Psychological contact
2. Incongruency
3. Congruency
4. Unconditional positive regard
5. Emphatic understanding
6. Helpfulness and comprehensibility

Psychological contact involves a degree of psychological availability which is a therapist's willingness or ability to enter into a relationship with the client (Cissna & Anderson, 1990, p. 134). The client, being vulnerable or anxious, is in a state of incongruence while the therapist is congruent or integrated in the relationship. Rogers interpretation of congruence refers to a "matching among experience, feelings or awareness, and overt communication" (Cissna & Anderson, 1990, p.134). Overt communication refers to what is said or done that serves as messages to others. Unconditional positive regard given to the client from the therapist takes the form of feedback and positive reinforcement. The therapist experiences an emphatic understanding of the user's internal frame of reference and endeavors to communicate this experience to the client. The communication to the client of the therapist's emphatic understanding and unconditional positive regard is achieved (Cissna & Anderson, 1990, p.134).

Anxious and cognitive computerphobics generally have been treated through psychological counseling involving desensitization (Rosen & Weil, 1989, p.18) techniques and skills training similar to Albert Ellis' Rational Emotive Therapy. RET, as it is called, allows the patient to reinvent his life rationally through

the application of “new” perceptions to old irrational fears and attitudes. Ellis stresses that skills training in combination with desensitization is necessary because relapses may occur as the anxiety presents itself in another arena. The therapist in this case has an emotional and supportive relationship with the patient. The therapist has the task of 1) unmasking unrealistic ideas and making the patient aware of them, 2) illustrating how the ideas are responsible for the problems the patient is experiencing, 3) assisting the patient in revising assumptions constructively and, 4) encouraging the patient to activate his new ideas (Goldenson, 1970, p.1095-1096). RET therapy is similar to Carl Rogers person-centered approach because of the role the therapist takes which is the “facilitator.” The therapist in RET allows the individual to work through her dilemma with the minimal interjection that is characteristic of coaching.

The Rogerian theory’s application to the uncomfortable user differs from the it’s application to anxious and cognitive computerphobics. Because uncomfortable computer phobia is rooted in operation (Howard & Smith, 1990, p. 615), Rogerian application takes the form of “affective” contact (Nahl, 1993). Diane Nahl, as part of her Ph.D. dissertation, examined the topic of computer phobia relating to information searching in library systems. Nahl’s dissertation (1993) titled “An Integrated Theory of Information Behavior: Taxonomic, Psychodynamic, and Ethnomethodological” studied “technophobic behaviors” in novices within information seeking situations. Her application of the Carl Rogers six principles for constructive personality change to information seeking was appropriate in the discussion of coping methods and strategies. Diane Nahl referred to the Rogerian theory for the importance of affective instructions (1993). Nahl regarded technophobic responses such as fear, avoidance, and non-use as “affective

reactions” that users employ to cope with the anxieties. Thus, we may apply Rogerian theory to computer anxiety by exchanging therapist with technical communicator and client with computer user. Given this construct, we may review the following six Rogerian conditions in terms of computer anxiety.

1. Following Nahl (1993), we may consider psychological contact as affective contact. Affective contact is contact that the technical communicator, through tone, language, and visual indicators focuses on the computer user (Nahl, 1993). This affective contact transmits the technical communicator’s willingness to embrace the responsibilities of providing encouragement and support to the computer user.
2. Incongruency represents the problems associated with computer anxiety that must be perceived as a lack of sufficient knowledge rather than a lack of motivation on the user’s part. Computer users enter a teaching-learning setting with a wide range of skills, abilities, and attitudes, and these need to be considered in the instructional planning process.
3. Congruency is the technical communicator’s acceptance of the computer anxiety while simultaneously assisting the computer user in his or her quest for positive self-regard.
4. The technical communicator’s tone reflects the unconditional positive regard. The environment provided by the technical communicator should allow each computer user to proceed at a pace best suited to the individual and should focus on practical problem solving. Problem solving features can take the form of the “minimal encouragers” which are normal feedback provided to encourage and free the user to focus on specific tasks. Minimal encouragers provide what is needed to convey the required information (Killam, 1991, p. 123).

5. Emphatic understanding is an attempt to obtain the computer user's internal frame of reference. Obtaining the user's internal frame of reference is incorporated in the Standard Documentation Process (SDP) mentioned in Chapter 1, which assumes that an effective writing process includes conducting task analysis, surveys, and user interviews (Killam, 1991, p.122).
6. Helpfulness and comprehensibility is accomplished by follow-up tasks that ascertain user comprehension and usability. It is important to help learners continuously assess their progress and make feedback a part of the learning process. Self-evaluation is the principal method of assessing progress or success.

The application of the Rogerian theory to computer anxiety is useful in creating the necessary environment conducive for the positive interaction between the uncomfortable user and the computer. Although the computer is an inanimate object, a relationship is formed between the user and the computer interface and consequently the software they are using. "The user does not operate the computer. He communicates with it to accomplish a task" (Card, Moran, & Newell, 1987, p.7). The computer receives the communication through user input and replies via verbal and visual feedback. The computer user documentation facilitates the communication in the relationship.

The designer in all instances of human-computer interaction is similar to the therapist in the Rogerian theory. The therapist's primary goal in the Rogerian theory is to provide to the client an environment that will encourage and support a positive behavioral change. The goal of the designer is to provide that same environment through vehicles such as the graphical user interface (GUI) and computer user documentation.

CHAPTER 4

THE MINIMALIST MANUAL

The “Minimalist Manual” was chosen for this study because it has been regarded by technical communicators and human-computer interaction professionals as an effective approach to writing computer user documentation (Brockman, 1990, p.94-97). In addition, the Rogerian theory is inherent in many of the minimalist manual design guidelines. John M. Carroll, a major proponent of the minimalist manual, views the writing approach as being primarily intended for the instruction of novice learners or first-time users of a new application (1998, p.19). This user group can be categorized as “uncomfortable users,” if the prospect of learning new applications brings forth anxiety. As stated before, the uncomfortable users are users within the computer phobic genre who lack information and support about the technology they are required to learn.

4.1 Analysis of the Minimalist Manual

The following sections describe three studies conducted on the effectiveness of the minimalist manual.

4.1.1 J. R. Brockman

J. R. Brockman (1990) cited four case studies in which existing documents were revised into minimalist documents, then tested against the originals for their effectiveness in training new users. He reported that tests between the original and revised page manual, organized by type of manuals found that using the minimal manual resulted in the following (Brockman, 1990, p. 97):

- 40% less learning time

- 58% more tasks completed
- 93% more tasks completed per unit of time from computer users
- 20% fewer errors and 10% less time recovering from errors.

4.1.2 Carl Stieren

Carl Stieren (1998, p. 103-104) designed a usability test that tested three manuals for minimalism and their effectiveness. The three manuals were (A) Microsoft Access Step By Step, (B) Access for Windows 95 for Dummies, and (C) Mastering Access for Windows 95. The tasks (T1, T2, and T3) were chapters taken from each of the three manuals. Procedure and brevity were the two minimalist criteria used to rank the three books. The the results identified (A) Microsoft Access Step by Step as “1,” (B)Access for Windows 95 for Dummies as “3,” and (C)Mastering Access for Windows 95 as “2.” Brevity, measured by word count, determined which manual was the most minimalist. Stieren’s conclusions stated that “both beginners and advanced users had the shortest completion times with *Microsoft Access Step by Step*. The Step by Step book contained clearer instructions with less declarative information and a level of understanding that the Dummies book lacked.” Despite the fact that all users did best with Microsoft Access Step by Step, users rated Access for Dummies as the most understandable. This may be due to the fact that the Dummies version incorporates more graphics and the text is written to bring about a change in the users comfort zone (Stieren, 1998, p. 110).


4.1.3 Hans van der Meij


Hans van der Meij (1992), in his article titled “A Critical Assessment of the Minimalist Approach to Documentation” analyzed aspects of the minimalist manual that had not been evaluated for effectiveness at that time (1992, p. 7). His concerns were that some of the minimalist claims for superior effectiveness were untested.


The results from the study supported Carroll's finding that the minimalist manual significantly improves the subjects' scores on a performance test, compared with the control (conventional) manual (van der Meij, 1992, p. 15). The minimal manual in this study helped subjects complete tasks faster, make fewer errors and occupy less time on errors and error recovery (Lazonder & Van der Meij, 1992). In addition, the minimalist manual made subjects more independent from the manual.

4.2 Design Principles of the Minimalist Manual


There are four basic design principles for developing the minimalist manual (Carroll, 1998, p. 19-53). The following section will describe the principles and discuss how each principle might alleviate anxiety in the uncomfortable user. Figure 4.1 represents the design of minimalist documentation. According to Jakob Nielsen (1993, p.154), Figure 4.1 shows an example of guided exploration. The instructions place the user in an immediate action mode. Graphics serve as visual cues to guide and support the user during the task. (Example: Ambulance and hand sign (Nielsen, 1993, p.155)).


 **Calculating a formula**
Click the mouse in the cell where you want the result to be displayed

 Type an equal sign (=) followed by the formula you want to calculate.

 For example, =4-6 or SUM (B2:B1C)

You can edit the formula by back-spacing with the delete key or by using the mouse.
Press the enter key (the long key at the lower right corner of the keyboard) to finish editing the formula.

 After you press the enter key, the cell shows the result as a number and the formula is not visible.

 Did you type an equal sign (=) as the first character?




Figure 4.1. Example of Minimalist Documentation Design (Nielsen, 1993, p. 154)

4.2.1 Principle 1: Choose an action oriented approach

Choosing an action-oriented approach refers to the idea that instructions include opportunities for the user that immediately places him in an action mode. Carroll states that in conventional manuals, action is not required until the user has read one quarter of the manual. The minimalist manual however, provides a hands-on

opportunities very early in the manual (Carroll, 1998, p.21). Providing opportunities for action gives the user a sense of accomplishment very early in the training process. The user gains confidence and is able to move forward with decreased anxiety.

Carroll states that users should always feel in control of their own activities (1998, p.23). Guided exploration and innovation in the form of “On Your Own” and “Try This” sections in the minimalist manual give the user a feeling of control which is conducive to learning. The problem solving side of the minimal manual is evidenced in sections named “On your own.” These sections mention goals that closely resemble the one(s) practiced in the chapter and that users may want to accomplish. For example, the section “On your own” in a chapter that explains searching a text, prompts users to try searching a text anywhere in the document by accessing the Search>Next or Search>Previous option. The figure below is an example of “On your own” instructions developed by Lazonder and van der Meij (1994).

Searching a Text

You can position the cursor quickly to a word or part of a sentence by searching for this text.

1. Position the cursor at the beginning of the file
2. Go to the menubar and press twice on the → key
3. Choose the command FORWARD and press the ENTER key

WordPerfect asks what you want to search for. Check to see if the prompt -> **Search:** is on your screen.

4. Type any word(s) from the text
5. Press the F2 key

If the code [Hrt] appears after the word, you have pressed the ENTER key instead of the F2 key. Remove the code by pressing the BACKSPACE key. Then press F2 for searching the word(s).

WordPerfect automatically positions the cursor at the first occurrence of the word(s) in the text.

*If you hear a bleep and the text ***Not found*** appears, you may have made a typing mistake. Try again.*

On your own: Searching text

The commands NEXT and PREVIOUS enable you to find out if the word you have been searching can also be found elsewhere in the text. You can find these commands under the SEARCH option. Try them and see.

Figure 4.2. “On Your Own” example (Carroll, 1998, p. 64)

Active exploration by the user is encouraged in the minimalist approach. Exploration can be very motivating and rewarding for the “uncomfortable user.” Exploration gives the user the opportunity to step away from the structure of the task and take control of the learning experience. In exploration, the users are required to utilize their own frame of reference or prior experience (Carroll, 1998, p. 32). If users have successfully explored some functions they are more likely to believe that it is due to their own efforts. Accomplishing a task builds self-esteem in the user and encourages further learning. Figure 4.3 “Adjusting Ring Volume” is an example of exploration.



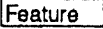







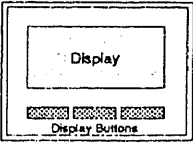




Introduction	Your Norstar M7310 Phone offers the simplicity of a standard telephone plus the versatility of many special features. This card will help you to use your new Norstar phone and to customize some of its features. When using your phone refer to the detachable Feature List and the Receiver Card under the receiver for quick reference.	
Telephone Buttons		To release a call or a feature press this button.
		To put a call on hold press this button.
		To use a feature press this button and then enter a feature code.
		Press the dialpad to make a call or to enter feature codes.
		When using the receiver, handsfree speaker or headset, press this button to adjust the volume.
Adjusting Ring Volume	Try using some of these buttons now to set the volume of your phone's ring.	
	1 To make your phone ring press  *   .	
	2 To reach desired volume press   repeatedly.	
Display and Display buttons	<p>Display The top line shows you the time and date, and call information. The display helps you use Norstar features. Follow the instructions.</p> <p>Display buttons Function-names for the three display buttons appear on the second line of the display.</p>	
Selecting Ring Type	Now select a distinctive ring to help you distinguish between your phone and others nearby.	
	1 Press  *  .	
	2 Press the  display button until you hear the ring type you want.	
	3 Press  display button to finish.	

Figure 4.3. Exploration example (Carroll, 1998, p. 30)

Action activities such as “On Your Own” and “Try This” are presented in the form of an invitation or suggestion so that the user has the opportunity to choose. It is important for the user to have the flexibility to work at his or her own pace without overt intervention from the instructions.

4.2.2 Principle 2: Anchor the tool in the task domain

This principle refers to the tool as the application or software that the user is required to learn. In the minimalist manual, the tool or application is regarded as the vehicle the user needs to complete his or her tasks. Unlike conventional manuals, instructions in the minimalist manual focus on the real tasks of the user. Manuals that describe the application's functionality or possibilities in detail before the user is presented with the task can confuse or increase anxiety in the user (Carroll, 1998, p. 28).

Designers of the minimalist manual, in order to capture the interest of the user, select relevant tasks within the functionality of the application. The tasks in the manual are structured in a way that the user can view the whole picture. Headings are designed to present the tasks in a complete flow. Selection of the tasks must be meaningful and complete that ultimately result in increased motivation and interest (Carroll, 1998, p.31).

4.2.3 Principle 3: Support error recognition and recovery

Adapting the manual to the user means getting in touch with him or her early in the design process, and staying in touch. Iterative testing is an integral part of the development of the minimal manual (van der Meij, 1992, p. 7). Such testing (in addition to task analyses) is of special importance for locating hot spots in the manual and for showing where to put what error-information in the manual (Carroll 1998, p. 34-35).

Being able to prevent, diagnose, and correct errors is an important skill for all users who need to master a computer program. Corrective skills provide a safety net when users explore the possibilities of a program on their own (van der Meij, 1992, p.10). In the minimalist manual, error-information is presented so that users

can detect and correct errors. This approach helps users simulate and recover from their errors. Simulation involves the user processing a task correctly and then returning to the same task to make a mistake and correct that mistake with the error information provided. With this type of support, users experience reduced fear and anxiety.

4.2.4 Principle 4: Support reading to do, study and locate

The minimalist manual is designed in a modular format. The chapters are self-contained so that users are allowed the freedom to browse and choose what tasks they wish to complete. This modularity gives the users the ability to stop at a convenient place within the manual. Chapters are short and are designed so that readers can complete a chapter in a single session of about fifty minutes (van der Meij, 1992).

Chapters in the minimal manual are characterized by closure that allow the user to begin the next chapter without referring to previous chapters. Referencing is accomplished by describing the goal(s) that users must achieve before they can start a new task. The first time such a prerequisite goal is mentioned the manual may briefly describe the necessary actions. In the chapters that follow, users are expected to know how to reach these goals, or to find the appropriate method(s) by consulting the headings (van der Meij, 1992, p.11).

4.2.5 Rogerian Theory and the Minimalist Manual

The application of the Rogerian theory can be seen throughout the minimalist manual. The goals of the minimalist manual parallels the therapist-client relationship outlined in the Rogerian theory. The following table describes the parallels between the Rogerian theory and the minimalist manual:

Table 4.1. Rogerian Theory and Minimalist Manual Parallels

Rogerian Theory	Minimalist Manual
Affective Contact	Opportunities for quick action that decrease anxiety and increase confidence, interest, and motivation in the user are provided.
Incongruency	The minimalist manual provides an environment that encourages and supports the computer user.
Congruency	Error-information is presented so that users can detect and correct errors.
Unconditional Positive Regard	The minimalist manual allows the user the ability to work at his or her own pace by providing closure to each chapter; grounding the application in relevant user tasks; and organizing tasks in structures that assist in easy referencing.
Emphatic Understanding	The minimalist manual exploits the users prior experience. Experience refers to the users conceptual knowledge of tasks to be performed as well as computer experience. This is similar to the therapist having an understanding of the users internal frame of reference.
Helpfulness & Comprehensibility	The minimalist manual provides opportunities to the user that support and encourage on-going learning. This is accomplished by hands-on exercises.

The following sections describe methods used in this study to determine and support the premise that computer anxiety is alleviated with the use minimalist documentation.

CHAPTER 5

METHODS OF RESEARCH

5.1 Overview

In this study two tools were selected as methods of research: A usability test on a popular 3rd party manual and a questionnaire that rated manuals for features or principles of minimalism. Usability test participants were selected based on known levels of competency with a software application that ranged from novice to intermediate. Questionnaire participants were selected based on their orientation to human-computer interaction and technical communications.

5.2 Usability Test

5.2.1 Purpose

The purpose of this usability test was to identify features in the documentation for PageMaker 6.0 that would lend itself to user-friendly interaction culminating in satisfactory completion of assigned tasks. The “Dummies” manual was chosen for this test because of its popularity and accessibility to potential and existing consumers. The test was also designed to reveal what, if any, features were helpful to the uncomfortable user.

5.2.2 Method

All subjects were given an “User Profile Survey” to complete. They were given oral and written instructions that included an overview of the test. After signing the usability test consent form, the experimenter distributed the “User Evaluation Script” that guided the subjects through the tasks and the diskette containing necessary files. The experimenter coordinated each evaluation and observed and

recorded observations on the "Observation Log Sheet." A "Task Key," with expected results for each completed task step, was completed by the experimenter. During the evaluation, all participants were encouraged to think aloud-- voicing their responses, questions, and concerns. After each task, the user rated the document's usability. Following completion of all tasks, users filled out a questionnaire regarding the document's general ease-of-use.

5.2.3 Usability Test Task List

The task list is derived from "Adobe PageMaker 6.0: Classroom in a Book - Chapter One." This chapter consists of instructions on how to create a flyer using defined text and graphics supplied by the manufacturer on diskette. This chapter also represents one of the three manuals rated for minimalism in Section 5.3. The following tables describe the usability test scenario and task list given to each subject to complete.

Scenario	Your employer has a flyer that he would like you to put on the computer. You will use PageMaker 6.0 to duplicate the flyer.
----------	---

Table 5.1. Task List

	Task	Expected Results
Task 1	Create a new publication.	User will choose File>New from the menu bar. The Document Setup dialog box will be displayed. User selects OK to accept default settings. A blank page is displayed.
Task 2	Format the layout for two columns. Apply guides as needed.	User chooses Layout>Column Guides from the menu bar. The Column Guides dialog box is displayed. User specifies settings (two columns -equal width) and chooses OK. The page is displayed with the two columns.

Table 5.1. Task List (Continued)

	Task	Expected Results
Task 3	Create Head Line as shown on sample.	User selects the text tool from the Control Palette.
Task 4	Place text B in upper left column.	User selects File>Place from the menu bar and selects appropriate file from the Place Document dialog box. User clicks the mouse in the upper left corner. The text will flow to the end of the column.
Task 5	Place text A in left column.	User selects File>Place from the menu bar and selects appropriate file from the Place Document dialog box. User clicks the mouse in the upper right corner. The text will flow to the end of the column.
Task 6	Place graph in left column making sure that text is aligned to go around it.	User selects File>Place from the menu bar and selects appropriate file from the Place Document dialog box. User clicks the mouse in the upper left corner. The graphic will appear in the area covered by the mouse.
Task 7	Create the circles as shown on flyer.	User selects the appropriate graphic from the toolbar.
Task 8	Print out the flyer.	User selects File>Print from the menu bar.

5.2.4 User Profile Information

Three subjects participated in the usability test and completed a user profile survey. The criteria for the selection of subjects was proficiency in personal computer use. Data regarding proficiency was gathered from the subjects self-evaluation. The criteria of prior experience to PageMaker 6.0 was also necessary in order to determine if any of the anticipated difficulty experienced during the usability test was application related or due to lack of information, or organization and design of the manual.

The following table shows the age, sex, occupation, and education level of each participant. It also shows the amount of time each participant uses the computer each week. The table also indicates the participants were well educated.

Table 5.2. User Profiles

Subject	Age Range	Sex	Occupation	Education Level	Computer Usage
1	18 - 25	M	Student	Sophomore level in college	15 hrs/wk
2	35-60	F	Administrative Assistant	BS	40 hrs/wk
3	25-35	F	Graduate Student	BS + 15 hrs graduate school	30 hrs/wk

In the case of Subject 2 and 3, prior knowledge of PageMaker 6.0 was indicated on the user profile survey. The subject's experience ranged from inexperienced to intermediate as follows:

Subject 1: The inexperienced subject, although proficient in word processing and spreadsheets, did not have any document layout skills.

Subject 2: This subject had proficiency in other applications as well as exposure to PageMaker 6.0. The subject, however, considered herself to be below beginner and claimed to have forgotten all acquired skills obtained in a recent document design course.

Subject 3: The subject was identified as a expert on PageMaker 6.0, but through her own admission maintained intermediate status.

5.2.5 Usability Test Results

Overall, all of the subjects completed the tasks successfully. Subject 3, however, towards the end of the test expressed relief and did not print flyer (Task 8). The test was project-driven and may have contained an excessive amount of tasks given the skill level of the participants. Table 5-3 describes the subject's completion times for each task.

Table 5.3. Task Completion Times^a

Participants	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8
Subject1	10	13	3	7	1	6	2	>1
Subject2	1	3	9	6	5	3	10	>1
Subject3	3	1	3	7	-	5	3	>1

a. Times in minutes calculated from start of task to end of task.

All of the subjects were instructed to use the manual. Initially, Subject 2 and 3 bypassed the manual until some difficulty was experienced. Subject 1 was the only participant to begin the tasks by reading (skipping through the manual to relevant task related subject areas). This was because the subject had no prior layout experience.

It was interesting to note that all of the participants indicated through verbal or written comments that the index was most helpful. However, the general consensus was that too much information was presented in some cases. Subject 2 stated that the terminology was unclear. This may be due to the fact that most computer users carry an understanding of terminology from one software application to another. For example, in PageMaker 6.0, inserting text is done with the **PLACE** command as opposed to the **INSERT** command in word processing applications. Also, Subject 3 stated that **PLACE** in the index referred to graphics vs. text.

Test participants were asked to rate the Dummies manual on the adjective pairs seen in the table below.

Table 5.4. Adjective Pairs

Adjective Pairs	
Entertaining	Monotonous/routine
Simple	Complicated
Reliable	Unreliable
Easy to use	Intricate
Familiar	Unfamiliar
Professional	Tacky/unprofessional
Attractive	Repulsive/unattractive
High quality	Low quality
Interesting	Boring
Easy to learn	Complex
Efficient to use	Cumbersome
Pleasant to use	Awkward
Easy to remember	Difficult to remember
Presence of writer	Persona of writer absent
Colorful	Black and white
Clear illustrations	Illustrations- confusing
Instructions task-driven	Instructions - operational
Graphics appropriate	Graphics - silly
Reinforcement - positive	Reinforcement - negative

The results indicated that the Dummies manual rated extreme positive on entertaining, familiar, professional, easy to learn, attractive, and high quality. Extreme negative features were complicated, intricate, awkward, and persona of writer absent. Subject1 also rated the manual as being unreliable, complex, and cumbersome. Subjects 2 and 3 rated graphics as appropriate and the reinforcement of instructions in the manual were positive.

5.3 Questionnaire

5.3.1 Purpose

As a result of the usability test on the “PageMaker 6.0 for Dummies” manual, it was determined that further evaluation should be conducted to see if the Dummies manual could be identified as a minimalist manual. Two other manuals were also evaluated to ascertain which one of the manuals rated the “most minimalist” and what features of the manual gave it that distinction. The evaluation took the form of a questionnaire.

5.3.2 Questionnaire Subjects

Two groups of subjects were selected. The first group (GroupA) consisted of eight graduate students majoring in technical communications - four from Fairleigh Dickinson University, Teaneck, NJ and four from Polytechnic, in Brooklyn, NY. Their technical communications instructor administered the questionnaire as part of a class on effective technical writing strategies. Running separate groups allowed the comparison of the features found in each chapter. In order to obtain preference data, GroupA evaluated all three chapters in varying order.

GroupB consisted of six telecommunications professionals: four usability engineers, one system engineer, and one graphical designer. Their job responsibilities include the design and evaluation of graphical user interfaces (GUIs) in computer software. GroupB’s experience with the design of computer software was an important factor in that their evaluation included human-computer interaction.

5.3.3 Materials

The three chapters used for this study were taken from the following PageMaker manuals:

- Chapter 1 Adobe PageMaker 6.0: Classroom In A Book, Adobe Systems Incorporated, Hayden Books: Indianapolis, IN, 1995
- Chapter 2 PageMaker 5 By Example, PC Edition, Webster & Associates, M&T Books: New York, 1993
- Chapter 3 PageMaker 6 for Windows for Dummies, 2nd Edition, Deke McClelland and Galen Gruman. IDG Books Worldwide, Inc.: Foster City, CA, 1995.

5.3.4 Development of Questionnaire

The questionnaire was based on Carl Stieren's study on minimalist manuals. The features evaluated are the principles and heuristics of the minimalist manual developed by John Carroll. The following table represents the questionnaire.

Table 5.5. Features Questionnaire

Features Does the Chapter:
Get started fast (hands-on)
Encourage reasoning and improvising (user's own projects)
Support reading in any order
Use the situation (user needs and tasks)
Focus on the user
Exploit the user's prior knowledge
Support continuous learning
Select or design instructional activities that are real tasks

Table 5.5. Features Questionnaire (Continued)

Features Does the Chapter:
Provide error information that supports detection, diagnosis, and recovery
Provide on-the-spot error information
The components of the instruction reflect the task structure
Provide closure to chapters
Provide brief instructions and does not spell out everything
Provide an immediate opportunity to act
Encourage and support exploration and innovation
Respect the integrity of the user's activity
Prevent mistakes whenever possible
Provide error information when actions are error prone or when correction is difficult

5.3.5 Procedure

The questionnaire was administered by the following methods.

Table 5.6. Questionnaire Procedures

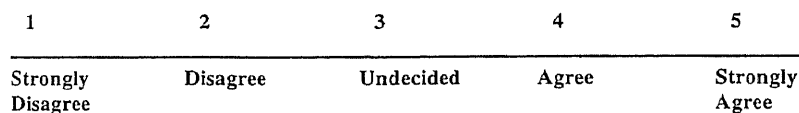
Group	Method
GroupA (Subjects 1-8)	Each subject in this group was given three evaluation sets that consisted of a chapter and the questionnaire. The chapters in each set were ordered so that the subjects analysis of the chapter would not be compromised by the previous chapter. The subjects did not receive any explanation from the instructor other than to read the chapter attached and complete the questionnaire. After the completion of the questionnaire, subjects were asked for their opinions of the chapters read.

Table 5.6. Questionnaire Procedures (Continued)

Group	Method
GroupB (Subjects 9-14)	The subjects in this group were asked to complete one evaluation set from a group of three chapters. The evaluation set consisted of one chapter and a questionnaire. Their selection of the evaluation set was random, in that the sets were stacked without any particular order. These subjects did not receive any explanation other than to read the chapter and complete the questionnaire attached. The subjects were also encouraged to write any comments they had on the questionnaire.

5.3.6 Results of the Questionnaire

The likert scale in the figure below was used to measure the responses for each of the principles. For the purposes of data analysis, the selection of 1 and 2 represented the “No” and 4 and 5 represented “Yes.”

**Figure 5.1.** Likert Scale

The following figures describe the responses to the questionnaire. Figure 5-3 indicates that Chapter 2 was rated “most minimalist” by GroupA. Chapter 3 from the Dummies manual was rated “most minimalist” by GroupB.

	Chapter 1		Chapter 2		Chapter 3	
	GroupA	GroupB	GroupA	GroupB	GroupA	GroupB
Count5	19	5	18	1	9	0
Count4	65	10	76	17	71	23
Total = Yes	84	15	94	18	80	23
Count2	40	7	25	11	29	7
Count1	3	4	3	0	6	0
Total = No	43	11	28	11	35	7
Total Responses	143	35	144	36	142	36
#Yes/Total Responses	0.5874	0.4286	0.6528	0.5000	0.5634	0.6389
#No/Total Responses	0.3007	0.3143	0.1944	0.3056	0.2465	0.1944

Figure 5.2. Analysis of Questionnaire Data

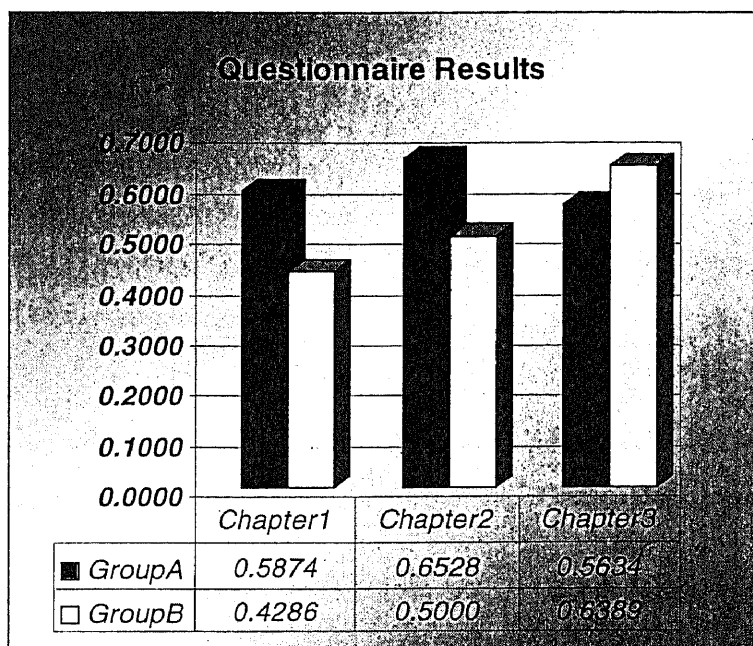


Figure 5.3. Chapter Ratings for Minimalist Features

Each subject from both groups took the time to thoroughly read the chapters before completing the questionnaire. Subjects from both groups commented on the difficulty in reading and comprehension of the instructions in Chapter 1. Chapter 3 was easily recognized as a “Dummies” or “Idiots” manual. Subjects in GroupA commented favorably on Chapter 2’s exercise section that provided a hands-on experience for the user.

CHAPTER 6

CONCLUSIONS

6.1 Summary of Results

The findings of this study did not conclusively determine that computer anxiety could be alleviated with the application of the Rogerian conditions or the use of the “Minimalist Manual.” The study did, however, show the parallel between the Rogerian theory and minimalism.

6.1.1 Usability Test

The usability test yielded results that were significant for preference analysis but insignificant for performance analysis. Because the test environment for Subjects 2 and 3 took place in an active workplace, the performance data was unreliable. All three subjects completed the tasks with at least a minimal use of the manual. The subjects rated the Dummies manual positive for attributes such as entertaining, familiar, professional, easy to learn, attractive, and high quality. Negative attributes focused on instructions that were complicated, intricate, and awkward.

Suggestions for future studies include the use of two groups: one group tested for computer anxiety and the other a control group of novice users. Also, either two to three manuals or a minimalist document designed specifically for the test should be used.

6.1.2 Questionnaire

The questionnaire was useful in evaluating the manuals for minimalist principles. The results found that the Dummies manual could be considered a minimalist manual even though the technical communications students rated the PageMaker by Example manual “most minimalist.” Further studies on all three manuals should also include a usability test using the same test groups mentioned in the previous section.

6.2 Significance of Study

The “Minimalist Manual” holds much promise for instructional design geared towards the uncomfortable user. While its basic principles differ somewhat from conventional manuals, it addresses areas often ignored. Perhaps a beneficial outcome to using the Minimalist Manual is increased comfort with computer use. If it can be established that it does indeed cause significant change in computer anxiety, methods and contexts with that these changes occur should be empirically explored and shared.

Further research on the Rogerian theory’s application in computer anxiety and human-computer interaction as a whole is important particularly within the education environment. The “uncomfortable user” represents a large segment of our society within the United States. Within this subgroup are teachers, parents, students on all levels, the unemployed and the under-employed. These groups also represent minorities and women who without intervention may never grasp the fundamentals of today’s technology. Teachers as facilitators in the learning of technology have the ability to transcend our children’s educational experience to new global heights. Our students will be able to take advantage of the following benefits:

- **Cross-Cultural Understanding**

Use of global communications by school children suggests that collaborative projects and information exchanges can promote cultural awareness and understanding. Students who correspond with and learn from kids in other parts of the world demonstrate greater tolerance for cultural differences and appear to benefit from discussions there.

- **Writing and Communication**

Communication with peers about issues that matter to them encourage students to work more diligently and exhibit greater commitment to what they produce.

- **Critical Thinking and Problem Solving**

Students develop the ability to think through problems and develop an understanding of how problems are addressed by scientists and researchers. Exposure to a wide range of information requires students to develop such higher order skills of comparing, contrasting, and analyzing information in order to find that which will be of most use to them.

- **In-depth Content-area Learning**

Access to a wide variety of resources information allows students to pursue academic subjects in greater depth than traditionally possible with textbook and school library resources.

- **Collaborative Learning**

The cooperative nature of learning has been shown to extend beyond the classroom walls, to involve students in other schools, other states, and often other countries. Students develop skills that enable them to share information, learn from peers, and offer their own contributions.

The “uncomfortable user” is the category that represents the most impact to the professional and technical communicator in terms of responsibility and future opportunities. Communicators may find the examination and utilization of methods to translate information and provide support for its instruction within their realm of responsibility and expertise.

APPENDIX A: USABILITY TEST

Appendix A contains the following materials used in the Usability Test:

- User Profile Survey
- Observation Log
- User Instructions
- Usability Test Task List
- Post-Task Questionnaire
- Sample Flyer
- Post Test Questionnaire

User Profile Survey

Name:

Address:

Phone:

Please answer the following questions below in order to help us understand your background and experience.

Education: (Please circle the highest grade level achieved below.)

					Major Course of Study
Grade School					
High School					
College	1	2	3	4	
Graduate	1	2	3	4	
Post Graduate					

Computer Experience:

1. What is the total length of time you have been using personal computers?
2. On a typical day, how often do you use a computer to perform your job?
3. Please indicate the types of computer applications you have used before?

Database _____

Spreadsheet	_____
Word Processing	_____
Desktop Publishing	_____
Design (CAD,CAM)	_____
Manufacturing	_____
Engineering	_____
Other:	_____

PageMaker 6.0 Experience

1. Have you worked with any of the following layout software packages?

	Version	How Long?
PageMaker		
Quark		
Microsoft Publisher		
Other:		

2. If you have worked on PageMaker or any of the above before, what types of tasks have you done?

3. Circle the number that best expresses your proficiency with PageMaker

No Experience	Beginner	Intermediate	Advanced
1	2	3	4

Observation Log

Date:

Products tested: Dummy's PageMaker 6.0 manual

Participant

Observer Brenda Moore

Scenario Work environment

Task # 1

Code List

C Confused	F Frustration	B Body language
X Incorrect action	H Happiness	V Verbal language
P Prompted by test monitor	A Asked question	Q Quit, gave up
R Reading manual	O Accessing online help	

Starting Time: _____

Time	Code	Comments

Ending Time: _____

User Instructions

Objective: To duplicate the attached flyer using PageMaker 6.0 with as many of the original features as possible.

The following files are saved on your 3.5 disk drive. Depending on your PC, that is A or B.

- 01TEXTA - RIGHT COLUMN TEXT
- 01TEXTB - LEFT COLUMN TEXT
- HOUSE.TIF - GRAPH OF HOUSE

Please use the manual located by your PC.

You will be observed. If you have any questions, please ask the monitor. That's me.

Usability Test Task List

Table A.1.Usability Test Task List

Task 1	Create a new publication.
Task 2	Format the layout for two columns. Apply guides as needed.
Task 3	Create Head Line as shown on sample.
Task 4	Place text B in upper left column.
Task 5	Place text A in left column.
Task 6	Place graph in left column making sure that text is aligned to go around it.
Task 7	Create the circles as shown on flyer.
Task 8	Print out the flyer.

Post-Task Questionnaire

		Very Easy	Easy	Neither	Difficult	Very Difficult
1	The task you just completed was:	1	2	3	4	5
2	Did you use the manual?	Yes	No			
3	If you used the manual, did it help?	Yes	No			

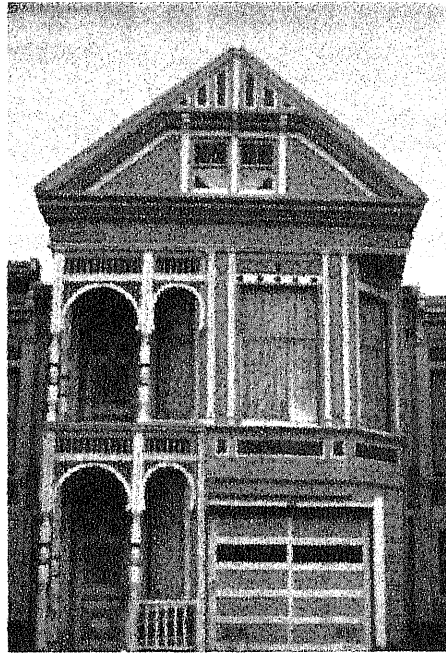
If not, why?

4	On this task, what did you like about the manual?

Sample Flyer

In the heart of the Boston area lies a true architectural gem. This Victorian dwelling exemplifies turn-of-the-century New England architecture at its best. In addition to its prime location just minutes from downtown Boston, this home enjoys spectacular views of the Charles River and the downtown Boston skyline.

Completely restored with attention to historic detail this three-story, three-bedroom residence has incorporated the functional requirements of today's home. The magnificent interior boasts all original oak finishing, including a breathtaking spiral banister, and built-in bookcases in the library. The kitchen has been fully modernized with state of the art appliances, yet retains the house's original charm with its high ceilings, ornate moldings, and functional wood stove. The original bay windows, refinished hardwood floors, and ornate paint trim make this home's interior equally spectacular as its exterior.



Consistent with the practical beauty of Victorian architecture, no space is wasted. The most spectacular room of all is the converted attic, taking full advantage of its utterly gigantic size and high ceiling with skylights, windows, and a stairway leading out to a widow's walk.

This home bestows the colonial charm of New England's past upon this quaint neighborhood. It resides just two blocks from the historic house used as George Washington's headquarters in 1775, and later occupied by poet Henry Wadsworth Longfellow. A stroll north on Lyon Street past a hilly intersection looks out over the pine and maple woods of a nearby park, a dramatic contrast with the blue Massachusetts bay beyond. These stunning views must have inspired architects to execute their best work. For more information about this property and others in the Boston area contact Joan Rutherford at Harbor Realty.

Post Test Questionnaire

Please check the appropriate answer.

Dummy's PageMaker 6.0 Manual

		True	False	NA
1	The organization was explicit and obvious.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Too much information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The terminology was confusing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The index was well designed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Too little information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	The text is conversational.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please circle the number nearest the term that matches your feelings.("0" means No Preference)

Table A.2.Features Table

Entertaining	3	2	1	0	1	2	3	Monotonous/routine
Simple	3	2	1	0	1	2	3	Complicated
Reliable	3	2	1	0	1	2	3	Unreliable
Easy to use	3	2	1	0	1	2	3	Intricate
Familiar	3	2	1	0	1	2	3	Unfamiliar
Professional	3	2	1	0	1	2	3	Tacky/unprofessional
Attractive	3	2	1	0	1	2	3	Repulsive/unattractive
High quality	3	2	1	0	1	2	3	Low quality
Interesting	3	2	1	0	1	2	3	Boring
Easy to learn	3	2	1	0	1	2	3	Complex
Efficient to use	3	2	1	0	1	2	3	Cumbersome
Pleasant to use	3	2	1	0	1	2	3	Awkward
Easy to remember	3	2	1	0	1	2	3	Difficult to remember
Presence of writer	3	2	1	0	1	2	3	Persona of writer absent
Colorful	3	2	1	0	1	2	3	Black and white
Clear illustrations	3	2	1	0	1	2	3	Illustrations- confusing

Table A.2.Features Table (Continued)

Instructions task-driven	3	2	1	0	1	2	3	Instructions - operational
Graphics appropriate	3	2	1	0	1	2	3	Graphics - silly
Reinforcement - positive	3	2	1	0	1	2	3	Reinforcement - negative

Please check the appropriate statement:

- I always use documentation.
- I use documentation only when I must.
- I never use documentation.

Thank you for your assistance.

APPENDIX B: QUESTIONNAIRE

Appendix B contains the following materials used on the Questionnaire:

- Features Questionnaire
- Questionnaire Data

Features Questionnaire

Please evaluate the attached chapter in the table below. Use the likert scales to record your responses. Also, any additional comments are welcome. Thank you in advance for your cooperation.

Table A.3. Questionnaire

Features Does the Chapter:					
Get started fast (hands-on)	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Encourage reasoning and improvising (user's own projects)	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Support reading in any order	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Use the situation (user needs and tasks)	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Focus on the user	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Exploit the user's prior knowledge	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Support continuous learning	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Select or design instructional activities that are real tasks	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree

Table A.3. Questionnaire (Continued)

Features Does the Chapter:					
Provide error information that supports detection, diagnosis, and recovery	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Provide on-the-spot error information	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
The components of the instruction should reflect the task structure	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Provide closure to chapters	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Provide brief instructions and does not spell out everything	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Provide an immediate opportunity to act	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Encourage and support exploration and innovation	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Respect the integrity of the user's activity	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree

Table A.3. Questionnaire (Continued)

Features Does the Chapter:					
Prevent mistakes whenever possible	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree
Provide error information when actions are error prone or when correction is difficult	1 Strongly Disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly Agree

Questionnaire Data

Chapter 1

Table A.4. Questionnaire Data - Chapter 1

Chapter 1	Subjects									
Features	1	2	3	4	5	6	7	8	9	10
Get started fast (hands-on)	3	4	5	5	2	2	4	4	4	5
Encourage reasoning and improvising (user's own projects)	4	2	5	4	2	4	2	4	4	2
Support reading in any order	4	4	4	4	2	2	5	4	4	3
Use the situation (user needs and tasks)	5	4	4	4	2	3	3	4	3	3
Focus on the user	4	5	4	4	2	2	5	5	4	2
Exploit the user's prior knowledge	3	3	3	4	4	4	2	4	5	4
Support continuous learning		4	4	4	3	4	4	4	3	3
Select or design instructional activities that are real tasks	3	5	4	4	2	4	5	5	5	4
Provide error information that supports detection, diagnosis, and recovery	2	2	2	4	1	2	5	4	2	1
Provide on-the-spot error information	3	2	2	2	1	2	5	3	2	1
The components of the instruction should reflect the task structure	4	4	4	4	4	4	5	4	4	
Provide closure to chapters	4	5	5	4	4	2	4	5	2	4
Provide brief instructions and does not spell out everything	2	2	2	5	2	1	2	4	4	5
Provide an immediate opportunity to act	4	4	4	5	2	4	4	4	4	5
Encourage and support exploration and innovation	4	2	4	4	2	2	4	4	3	3
Respect the integrity of the user's activity	4	4	4	4	2	2	3	4	3	2
Prevent mistakes whenever possible	3	2	2	2	2	4	4	3	3	1
Provide error information when actions are error prone or when correction is difficult	3	2	2	4	2	2	3	3	2	1

Chapter 2

Table A.5. Questionnaire Data - Chapter 2

Chapter 2	Subjects									
	1	2	3	4	5	6	7	8	11	12
Get started fast (hands-on)	5	4	2	4	4	2	4	5	2	5
Encourage reasoning and improvising (user's own projects)	5	2	2	5	4	3	4	4	2	4
Support reading in any order	5	4	2	3	4	2	2	4	4	4
Use the situation (user needs and tasks)	5	4	4	4	4	4	4	4	2	4
Focus on the user	5	4	2	5	4	4	4	4	4	3
Exploit the user's prior knowledge	4	4	2	4	3	4	4	2	4	4
Support continuous learning	5	4	3	4	3	4	4	3	4	4
Select or design instructional activities that are real tasks	5	4	4	4	4	4	4	5	2	3
Provide error information that supports detection, diagnosis, and recovery	4	3	3	2	4	3	2	2	2	3
Provide on-the-spot error information	4	1	3	1	4	3	1	2	2	3
The components of the instruction should reflect the task structure	4	4	3	4	4	4	4	4	4	3
Provide closure to chapters	4	4	3	4	4	5	4	5	4	4
Provide brief instructions and does not spell out everything	5	3	4	2	4	2	2	4	4	3
Provide an immediate opportunity to act	5	4	4	5	4	2	4	4	2	4
Encourage and support exploration and innovation	5	2	4	4	4	3	4	4	2	3
Respect the integrity of the user's activity	5	4	3	4	3	4	4	3	2	4
Prevent mistakes whenever possible	4	3	2	3	4	4	2	2	2	4
Provide error information when actions are error prone or when correction is difficult	4	3	2	2	4	3	4	2	2	4

Chapter 3

Table A.6. Questionnaire Data - Chapter 3

Chapter 3	Subjects									
	1	2	3	4	5	6	7	8	13	14
Get started fast (hands-on)	4	4	4	2	1	4	1	4	4	2
Encourage reasoning and improvising (user's own projects)	5	4	4	3	4	3	4	5	4	4
Support reading in any order	4	3	3	4	1	4	1	4	4	4
Use the situation (user needs and tasks)	5	4	4	4	2	4	2	5	4	3
Focus on the user	5	4	4	3	4	4	4	4	4	2
Exploit the user's prior knowledge	4	2	4	4	4	2	4	3	4	4
Support continuous learning	4	4	4	4	2	2	2	3	4	3
Select or design instructional activities that are real tasks	4	4	3	4	4	4	4	3	2	3
Provide error information that supports detection, diagnosis, and recovery	2	3	2	3	2	2	2	4	4	3
Provide on-the-spot error information	3	3	3	3	2	2	2	2	4	2
The components of the instruction should reflect the task structure	4	4	4	4	4	4	4	4	4	3
Provide closure to chapters	4	3	4	4	4	4	4	5	4	4
Provide brief instructions and does not spell out everything	2	2	4	2	1	3	1	2	2	4
Provide an immediate opportunity to act	5	4	4	2	2	4	2	4	4	2
Encourage and support exploration and innovation	5	5	4	3	4	2	4	4	4	2
Respect the integrity of the user's activity	4	4	4	4		4		4	4	4
Prevent mistakes whenever possible	3	4	3	3	4	2	4	2	4	3
Provide error information when actions are error prone or when correction is difficult	2	3	3	3	3	3	3	2	4	4

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