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An online tutorial for training volunteers at the Women's Health Information Center (WHIC) at the Women's Hospital at the University of North Carolina at Chapel Hill was created. It was intended to be understood by all adult age groups from any walk of life for such complex topics as the reference interview, ethics, and evaluating online health information. Usability testing was conducted using "think aloud" protocols and a questionnaire. This study identified specific aspects of the WHIC tutorial that can be improved, such as creating consistent links, clarifying terms and phrases, and adding more sample conversation dialogs. This study has implications for tutorial design generally, because certain aspects of this tutorial worked very well for learning, such as the sample conversation dialogs, and the lesson opening statements, summaries and exercise reviews.

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USABILITY STUDY OF AN ONLINE TUTORIAL FOR VOLUNTEERS AT A  
HOSPITAL RESOURCE LIBRARY

by  
Angelique R. Jenks-Brown

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Approved by

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Barbara Wildemuth

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## 1 Introduction

Volunteers in a health information setting are traditionally trained face to face by professionals, typically librarians. In this case, volunteers at the Women's Health Information Center (WHIC) at the Women's Hospital at the University of North Carolina (UNC) at Chapel Hill were trained face to face by librarians at the Health Sciences Library (HSL) and by WHIC's manager. The WHIC manager approached the HSL librarians to devise a more efficient way of providing training for WHIC volunteers. They agreed to create an online tutorial. This tutorial would eliminate the need to schedule librarians and rooms for training sessions every semester. There were concerns that the online tutorial would not be as effective a learning tool as face to face training. To make the tutorial as effective as possible a usability study was conducted. This study employs volunteers to evaluate the WHIC tutorial for effective navigation, visual comprehension, and clear phrasing. The study sample was comprised of 10 adult female users, representative of WHIC volunteers, who are usually UNC students with a high turn over rate, and a couple of enduring retired women. The users were observed and recorded as they traversed Lessons One through Four of the tutorial and evaluated it through "think aloud" protocols and a questionnaire, with the option of completing the quizzes. The outcome of these evaluations is intended to enhance the learning experience of the tutorial.

## 1.1 Literature Review

Of the total staff at hospital libraries, almost half are volunteers (Kronick, Rees, & Roothenberg, 1971). Kronick's study did not report firm data about the amount and kind of training hospital library personnel have, but they did state that less than one third of all the personnel reported as librarians had a master's degree (1971). Dorner (1995) interviewed 10 hospital library librarians and found that the number of volunteers in each library varied with a range of four to 10. She also found that many, but not all, of the volunteers were retired. Treaster (2002) also reported her personal experiences with volunteers at the Saint Francis Health System library in Tulsa, Oklahoma, to say that most of her volunteers are retired professionals with experience in a variety of fields. According to a questionnaire study by McDiarmid and Auster (2004), 65% of hospital libraries use volunteers, and the average number of volunteers per library is two, with a range from one to 45.

The traditional training procedures for volunteers in the health sciences involve face-to-face training by professionals (Sullivan, Sharma, & Stacy, 2002, Linnan et al., 1990; Weinschenk, 1986; Wood & Poyner 2002; Willard 1999). For training professionals in the health sciences, it has been done face-to-face with a supplemental website (Wessel, Wozar, & Epstein, 2003) and using workbooks with supplemental audio tapes, video tapes, and a computing packet (Martin et al., 2001).

No literature could be found describing the creation or evaluation of online training tutorials for volunteers at health information centers, but web-based tutorials are being created for a variety of other types of library instruction (Loven, Morgan, Shaw-Kokot, &

Eades, 1998; Germain & Bobish, 2002; Foust, Tannery, & Detlefsen, 1999; Bower, 2000). With the trend toward providing consumer health information, hospital and community libraries are on the rise. Health agencies are partnering with libraries to promote consumer health information (Dewdney, Marshall, & Tihamiyu, 1991; Calvano & Needham, 1996). The traditional role of the information professional is to help clients find information. But with the perceived demystification of information retrieval by clients because of the internet, the growing role of information professionals also includes training and evaluating the quality of information (Marfleet & Kelly, 1999). Since health information centers are on the front lines of providing consumer health information, it is paramount that anyone interacting with the public be properly trained in such topics as evaluation for quality of information sources, the reference interview, legal and ethical issues. The Women's Health Information Center (WHIC) tutorial provides training on these complex issues.

For usability testing for online tutorials, web based training, and distance education, many studies have used the questionnaire method for evaluation (Anjaneyulu, Singer, & Harding, 1998; Marold, Larsen, & Shaw, 2002; Germain & Bobish, 2002; Brown & Lu, 2001). For non-library usability surveys, conclusions focused on the points of organization, enjoyment, color scheme, content understandability, and word choices (Marold, Larsen, & Shaw, 1999; Brown & Lu, 2001). For library usability surveys, conclusions focused on the supplemental value of the tutorials for class work and introductions to the library environment (Loven, Morgan, Shaw-Kokot, & Eades, 1998; Germain & Bobish, 2002).

## **1.2 The Setting**

An online training tutorial for the Women's Health Information Center (WHIC) at the Women's Hospital in Chapel Hill was created from July to December 2003 by a team of three librarians from the Health Sciences Library (HSL) at the University of North Carolina (UNC) at Chapel Hill, two students from the School of Information and Library Science at UNC-Chapel Hill, and the manager of WHIC. Traditionally the WHIC manager and HSL librarians have held face to face training sessions for teaching the volunteers about the responsibilities and valuable resources they will need as volunteer information providers. The desire to make the training sessions available online is three-fold. First, WHIC has been doing some recruitment outreach this semester with the hospital volunteer department and the medical students, therefore, WHIC is expecting a large influx of volunteers next semester. Second, the HSL librarians felt it would be more time efficient to create an online tutorial which would enable volunteers to learn at their own pace and on their own schedules. Finally, the HSL is going through renovations and does not have space available for training large groups or even multiple small groups.

## **1.3 WHIC Tutorial Development**

The tutorial is comprised of nine lessons (Appendix A1), with the same navigation on all lesson pages (Appendix A2). These units range in complexity from very simple lessons on WHIC's goals and mission and office procedures, to lessons on more complex issues such as ethics, the reference interview, and health information evaluation. The content for the tutorial is based on current instructional handouts and



PowerPoint slides used in the face to face training sessions. This material has been altered to fit the needs of online education. For example, the page layout for the in-class exercises had to be redesigned, and we added quizzes at the end of each lesson (Appendix E). During the creation process of the tutorial, we used the usability guidelines outlined by the National Cancer Institute's web site "Research-based web design and usability guidelines" (<http://www.usability.gov/guidelines/>), and Germain & Bobish's (2002), and Suarez's (2002) articles for guides on tutorial navigation, page layout, and content structure and organization. We also wanted to make the tutorial comparable to current popular tutorials such as the University of Texas's "Texas Information Literacy Tutorial" (TILT) (<http://tilt.lib.utsystem.edu/>), and at least of the caliber of the HSL's current tutorials (<http://www.hsl.unc.edu/services/learning.cfm>).

The best we can hope for, given previous studies about the effectiveness of online learning as compared to face to face training as an indication, is that the training provided by the tutorial would be equivalent to face to face training. However, there are still some things that will require face to face training, such as the physical layout of the WHIC and techniques for effectively dealing with the unique personalities of patrons; instruction in these areas will still need to be provided by WHIC's manager.

## **1.4 Preliminary Evaluation**

Before conducting an evaluation of the tutorial with end-users, we performed evaluations with HSL staff. The tutorial development team showed multiple tutorial prototypes to librarians and web developers at HSL and tested the prototypes for navigation, wording and visual comprehension. For navigation, we concentrated on the

accessibility of the points of navigation on the pages, and visual reference points so the learner could know where she is in the whole tutorial. When evaluating the wording, we specifically looked for library-specific vocabulary, keeping the text concise, and having lesson objective statements, summaries, and quizzes. For visual comprehension, we focused on the presentation of exercises, and whether images related to the content.

## **2 Usability Testing Methods**

This usability study evaluated an online tutorial intended to train volunteers at the information center of a women's health clinic. Of particular interest were usability issues related to navigation, visual comprehension, and phrasing, or the use of accurate descriptions and understandable terminology. Two types of testing were conducted with the same 10 users. The first part of the study asked the user to complete four lessons of the tutorial using the "think aloud" protocol (Preece, Rogers, & Sharp, 2002). This procedure asks the user to say everything he or she is thinking so that their thought processes are externalized. The second part of the study was a questionnaire. This provided demographic data on the users' experience with computers and tutorials. The questionnaire also asked about specific parts of the tutorial: the general navigation through the tutorial lessons and sections, the question-answer dialog box examples in Lesson 4 (Appendix A3), the pop-ups during exercises and the quizzes, and whether the tutorial was helpful. The usability testing methods are described in more detail below.

## 2.1 Volunteer Recruitment

Ideally, the study participants would have minimal computer skills to account for the possibility of training people with little computer knowledge. Everyone who agreed to participate was scheduled for a testing session, with preference given to those who stated they didn't have much computer experience. To recruit novice users, flyers (Appendix B) were hung in community centers, such as the Carrboro Town Hall, Carrboro Arts Center, the Weaver Street Market, the Women's Center in downtown Chapel Hill, the Piedmont Women's Health Center, and the Senior's Center in Chapel Hill. After five days without any calls, recruitment emails were sent out to a local medieval recreation listserv, who volunteer on a regular basis, and the investigator's email address book, asking if they knew anyone who would volunteer. One woman also distributed the flyer on a promotional list-serve. It took six weeks to obtain, schedule, and administer the study to 10 volunteers.

## 2.2 The Usability Station

The station is located in the Interaction Design Lab in the SILS Library in Manning Hall. The recorded output is a three-way split screen showing the participants' keyboard and mouse, face, and monitor screen. The station contains the following equipment:

\* Dell Pentium 4, 2.0GHz PC, 2GB RAM, 40GB hard disk, CDRW drive, 64MB nVidia GeForce4 AGP graphics card, 10/100Mb ethernet card, 19" hi-res monitor,

multimedia sound and speakers. Operating system is Windows 2000 and the standard School of Information and Library Science lab software package is installed.

- \* Sony SV-2000 Video Cassette Recorder
- \* Horita, Inc. VG-50 VITC Time Code Generator / LTC-VITC Translator
- \* 20" video monitor
- \* Focus Enhancements, Inc. TView Gold Pro PC-to\_TV Video Scan Converter  
(resolution up to 1024x768 with 32-bit color)
- \* Feral Industries QS-440 Quad Split Multiple Input Display and Image Resizing Device
- \* 2 Sony pan/tilt/zoom remote control video cameras

The usability station is in a separate room than the recording equipment and the participant was in the Usability Station Room alone for the tutorial evaluation. The Investigator was seated in front of the recording equipment monitoring the evaluation. She watched to make sure the participants finished modules 1 through 4 and then answered the questionnaire. The Investigator turned the volume off on the monitor and could not hear the participants' comments, so that they would feel comfortable being candid.

### **2.3 Volunteer's Evaluation**

Each participant was brought to the Usability Station, which already had the tutorial open. After the participant got comfortable, the participant was asked to read through the consent forms (Appendix C) and was left alone in the room. Once the

participant was finished, a signed copy of the form was kept by the investigator and another copy was kept by the participant. The investigator explained four things to each participant. First, she explained that they only needed to complete lessons one through four. Second, the purpose of the quiz printouts, sample WHIC brochure, and questionnaire (Appendix D) were explained. Third, the participants were asked to talk into the microphone to say what they were thinking about the tutorial, such as its navigation, content, or anything else. Last, they were asked to be candid, and that the investigator couldn't hear what was said so they didn't have to worry about her reaction when they were done. The investigator then asked if they had any questions. She answered any questions, then left the room and closed the door.

## **2.4 Analyzing the Data**

Transcripts were made of the video footage and reviewed for comments that would be useful for re-design of the tutorial. All of the questionnaire and quiz answers were entered into SPSS version 12.0, and frequency and correlation analyses were run.

# **3 Results and Discussion**

## **3.1 The Participants**

The 10 participants ranged in age from 20 to 59, with a mean age of 33 and a median of 26 (Table 1). All of them were adult females. Not many recruits volunteered from the printed flyers that were hung, but a lot of responses came as a result of sending

out email flyers. Most of the participants were either friends of the investigator (six participants) or acquaintances of friends of the investigator (three participants); one participant was a complete stranger. Unfortunately, there was an audio malfunction while recording the first participant, so only the questionnaire and quiz data were available for this participant.

In addition to getting feedback about the tutorial, the questionnaire was meant to help determine if computer experience has an effect on the usability of the tutorial. The experience questions asked about the frequency with which the participant used a computer, the number of learning tutorials taken, and how many of them were online or electronic, and which, of 27 devices, software, and systems, the participant had personally used and was familiar with. The last question was scored by totaling the number of items checked.

Table 1

*Description of the Participants*

	Mean	Standard Deviation
Age	32.7	13.100
Number of days per week of computer use	5.7	2.193
Number of learning tutorials taken	3.4	2.107
Number of online or electronic learning tutorials	2.5	2.062
Number of devices, software, and systems familiarity out of a list of 27	18.4	3.573

### 3.2 Performance on the Lesson Quizzes

Out of 10 volunteers, four completed the quizzes for the Lessons. By not mentioning that the quizzes were required, the investigator left completing the quizzes as optional. All four volunteers attained passing scores of 75% or higher (Table 2). However no one had 100% correct on all of the quizzes. There was confusion with the wording for Question 2 in Lesson 2: “List at least two places where patrons can find information about WHIC”. Two of the four participants didn’t understand that the question was referring to forms of media, such as brochures and the WHIC website. The quizzes helped volunteers to learn the material, as evidenced by the participants’ passing scores. Also, while taking the tutorial, three of the nine participants commented that the quizzes provided “interactive learning”, it’s “actually helpful to take this” and it provided an opportunity for the participant to reread parts of the tutorial, which three people did. However, there was a comment that some of the quiz questions were too subjective. Speaking with the experience of correcting the quizzes, it would have been easier if the answers were more objective. For example, for the entire Lesson 4: Ethics Quiz, one participant wrote “refer the client to a WHIC resource” and had gotten all of the answers correct. Perhaps the Ethics Quiz should be made up of true or false questions; or the Ethics Lesson should be taken after the WHIC Resources Lesson so that the volunteer has an opportunity to suggest a particular resource.

Table 2

*Quiz Performance*

	Mean Percent Correct	Mean Score	Standard Deviation of Score
Lesson 2 (9 answers)	81	7.25	0.433
Lesson 3 (5 answers)	95	4.75	0.433
Lesson 4 (5 answers)	90	4.5	0.500

### 3.3 The Questionnaire

There are two parts to the questionnaire: experience (discussed earlier) and tutorial evaluation. For the evaluation questions overall, the tutorial scored high. Each item was scored on a nine-point scale, with nine being highly positive. The median responses to the questions were consistently scored by the participants as 8 or 9; the mean scores ranged from 7.8 to 9 for the evaluation questions (Table 3). The lowest average scoring question was that “the information for each module was complete and informative” with a 7.8.

During the tutorial, there were numerous questions about the content of the tutorial, and those points may be the cause for the slightly lower score. While taking the tutorial, participants demanded clarity for things such as defining “excessive printing”, who WHIC serves (whether clients can be from out-of-state and what age groups), how often clients should fill out the surveys, the importance of not disclosing the key location, and why a volunteer would need to know where the accounting office is located. In spite of these comments, the highest scoring question was, “tutorial content was pertinent to the topics being covered,” with an 8.8. This implies that, even though there were a lot of



little questions about the content, the content was on target with the lesson plans outlined at the beginning of each lesson.

Table 3

*Evaluation Questions*

	Mean	Standard Deviation	Median
Learning how to use the tutorial	8.3	0.640	8.0
Overall satisfaction with the tutorial	8.0	0.894	8.0
Accessing the tutorial online	8.67	0.471	9.0
Moving between sections of the tutorial	8.7	0.458	9.0
Tutorial is well organized	8.4	0.663	8.5
Pop-up windows	8.56	0.685	9.0
Content was pertinent to topics being covered	8.8	0.400	9.0
Information for each lesson was complete and informative	7.8	1.249	8.0
Information was concise and to the point	8.5	0.671	9.0
Conversations in lesson 4 helped me use the information presented	8.5	0.671	9.0
The quizzes at the end of each module helped me check what I had learned	8.11	1.197	8.0

Next, correlation analyses were run for all of the questions. Table 4 only shows the significant correlations; all other correlations were not significant.

Table 4

*Variable Correlations*

Variable 1	Variable 2	Pearson's r	Statistical Significance
Age	Number of days per week of computer use	-0.83	0.003
Age	Number of tutorials that were online or electronic	-0.73	0.017
Age	Experience based on familiar computer devices	-0.66	0.037
Number of days per week of computer use	Experience based on familiar computer devices	0.66	0.039
Number of days per week of computer use	Number of learning tutorials taken	0.74	0.014
Number of learning tutorials taken	Number of online or electronic tutorials	0.69	0.027
Number of learning tutorials taken	Ease of moving between sections of the tutorial	0.64	0.045
Number of learning tutorials taken	Conversations in Lesson 4 helped me use the information	0.75	0.013
Experience based on familiar computer devices	Conversations in lesson 4 helped me use the information	0.77	0.01
Ease of learning to use the tutorial	Ease of accessing the tutorial online	0.71	0.033
Ease of learning to use the tutorial	Ease of moving between sections of the tutorial	0.65	0.043
Ease of learning to use the tutorial	Information for each lesson was complete and informative	0.70	0.024
Overall satisfaction	Tutorial was well organized	0.84	0.002
Overall satisfaction	Information for each lesson was complete and informative	0.72	0.02
Ease of accessing the tutorial online	Information was concise	1.00	.
Ease of moving between sections of the tutorial	Conversations in lesson 4 helped me use the information presented	0.81	0.004
Tutorial was well organized	Information for each lesson was complete and informative	0.7	0.024

There were three correlations between experience questions. As the number of days of computer use increased, so did the number of learning tutorials [Pearson  $r = 0.74$ ,  $p = 0.014$ ], and computer experience based on familiarity with computer devices [Pearson  $r = 0.66$ ,  $p = 0.039$ ]. As the number of learning tutorials increased, so did the number of online or electronic tutorials taken [Pearson  $r = 0.69$ ,  $p = 0.027$ ]. So perhaps computers are providing a popular medium for educators training people.

The only statistically significant negative correlations in this study have shown that, as age increases, frequency of computer use decreases [Pearson  $r = -0.828$ ,  $p = 0.003$ ], number of online tutorials taken decreases [Pearson  $r = -0.73$ ,  $p = 0.017$ ], and the participant was familiar with less computer devices [Pearson  $r = -0.66$ ,  $p = 0.037$ ].

There were three correlations between an experience variable and an evaluation variable. As experience based on a familiarity with computer devices increased [Pearson  $r = 0.77$ ,  $p = 0.01$ ], and as the number of learning tutorials taken increased [Pearson  $r = 0.75$ ,  $p = 0.013$ ], so did the helpfulness of the conversations in lesson four. This shows that computer experience and tutorial experience increased visual comprehension of the dialog conversations in Lesson 4. As the number of learning tutorials taken increased, so did the ease of moving between sections of the tutorial [Pearson  $r = 0.64$ ,  $p = 0.045$ ]. So paper and electronic tutorial experience also helped online tutorial navigation.

There were nine correlations between the evaluative questions as well. There was a strong correlation between the conversations in lesson four and moving between sections of the tutorial [Pearson  $r = 0.81$ ,  $p = 0.004$ ]. The easier it was for the participants to move through sections of the tutorial, the more the sample conversations

in Lesson 4 helped the participants learn. Perhaps this indicates that the easier navigation between sections was for the participants, the more they could concentrate on the sample conversations and were then better able to understand the lesson. Particularly interesting variables are overall satisfaction and learning to use the tutorial. As learning to use the tutorial was rated easier, so was accessing the tutorial online [Pearson  $r = 0.71$ ,  $p = 0.033$ ], moving between sections of the tutorial [Pearson  $r = 0.65$ ,  $p = 0.043$ ], and the belief that the information for each lesson seemed more complete and informative [Pearson  $r = 0.70$ ,  $p = 0.024$ ]. This shows that the tutorial layout and navigation enhanced the information presented. As overall satisfaction of the tutorial increased, the tutorial seemed more well organized [Pearson  $r = 0.84$ ,  $p = 0.002$ ], and the information for each lesson seemed more complete and informative [Pearson  $r = 0.72$ ,  $p = 0.020$ ]. To add to this last correlation and create a triad, as the tutorial seemed more well organized, the information for each lesson seemed more complete and informative [Pearson  $r = 0.70$ ,  $p = 0.024$ ]. These three factors seem to be linked when evaluating this tutorial. People's overall satisfaction with the tutorial may have been because they thought it was well organized and informative.

### **3.4 Evaluation Comments from the Think Aloud Protocols**

The video tapes of the user behaviors and think aloud protocols were used to supplement the data above, and also to glean evaluative comments about the tutorials navigation, visual comprehension, and phrasing, or the use of accurate descriptions and understandable terminology.

All 10 participants used the navigation at the bottom of the pages to get to the next sections and lessons. Two participants tried to click on the arrow image instead of the linked text to get to the next section. Once they figured out where to click, it was no longer a cause for frustration. There was a navigational issue that confused the novice computer users, and was recognized by the experienced users as they commented on it. The links are inconsistent throughout the tutorial; some of them open in new windows and the user has to close the window to get back to the tutorial, while other links open in the same window and the user can use the back button. Some of this inconsistency is caused by the quizzes, and some is caused by the outside pages, such as the UNC hospitals page, opening a new window for every link. Three participants made positive comments about the extreme usefulness of the Understanding the Tutorial page (Appendix A8) which explains the layout and navigation of the tutorial. Three participants also commented positively about the sidebar navigation for being able to recognize where they are in the tutorial and for easy navigation when reviewing the quizzes at the end of the lessons.

Visual comprehension refers to the visual design of the tutorial and the exercises for enhancing learning. Participants stated that the color scheme was very appealing, and that the pages were very simple, clean-looking, and not cluttered. Three people also stated that they especially liked the quilt graphic. This graphic is copyrighted by the Woman's Hospital and WHIC, so any considerations about using the graphic for future iterations of the tutorial by other institutions would not be an option without permission. According to two participants, the images did not always seem representative of the page content, especially for the What is WHIC section in Lesson 2 (Appendix A7) and the

Opening/Closing section in Lesson 3. One participant explained that she had envisioned there being pictures of the inside of WHIC similar to The Closet section in Lesson 3 (Appendix A5). There were two comments that people with eye trouble were finding it difficult to read some of the sections. Particularly on the pages without images, where the text extends all the way across the page (Appendix A4), these participants were finding it difficult to keep track of the line they were reading. One novice user was confused by the text being at the top of the page and having to scroll through a lot of blank space to reach the link for the next section. However, this layout cannot be changed because it is a result of the table format for the web pages. Last, but certainly not least, the conversation dialogs in Lesson 4 were a huge success. There were four comments about how the set-up of the sample dialogs really helped the participants imagine themselves in the situations and helped them to see the correct responses for interacting with clients. One person even suggested having a link to more sample conversations for difficult situations, such as someone probing a volunteer for advice and personal experience while still maintaining a professional dialog.

Phrasing was a problem that was expected to elicit user comments, because it is a design issue that has been raised in other tutorial evaluations. Some of the terminology will need to be clarified or changed, such as “Julie’s desk” (Julie is the name of the WHIC manager), “Ask-A-Librarian” (which is a service provided by HSL librarians for remotely answering patron questions), and “P2P” (the Point-to-Point campus bus shuttle). Another term that caused confusion occurred on the linked pages in the ethics section. The authors used the terminology “sample caution statements” referring to key phrases used for specific situations where the information provider cannot provide a diagnosis or

advice. They also used the term “doctor” numerous times instead of “healthcare practitioner”, which excludes such important healthcare providers as physical therapists, nurse practitioners, physician assistants, psychologists, and psychiatrists. Two of the participants made requests to take the two major links in the ethics section (“Guidelines for Providing Medical Information to Consumers” at <http://library.uchc.edu/departm/hnet/guidelines.html> and “Special Kinds of Questions: Medical and Legal” at <http://www.nlc.state.ne.us/ref/star/chapter9.html>) and make them more customized to WHIC. They suggested that this would pare down the online reading and clear up the terminology. Four participants commented that the two linked articles were too long to be in a tutorial; it must not have been clear that the tutorial designers had imagined volunteers printing out the content of the links and reading them later. The articles also received positive comments because their content was very useful. The Guideline Article received four positive comments, and the Special Kinds of Questions: Medical and Legal link received two positive comments. Last, the conversation review links, opening lesson statements, and the lesson summaries all received a total of seven positive comments about their usefulness for understanding the tutorial.

## **4 Conclusion**

The tutorial received high evaluative scores on the questionnaire, and the “think aloud” protocol provided valuable information pin pointing areas in which the tutorial could use revision. The two main areas of confusion were (1) that the links were

inconsistent on whether they were opening new windows or opening in the tutorial page, and (2) that the two links in the Ethics lesson were very long and created by an outside author. Participants suggested creating customized pages for the links, while the investigator suggests making it clear that the intent was for the volunteers to print out the articles to read them later. There were a few terms and statements that need to be clarified. Last, more sample conversations were requested. It was found that computer and tutorial experience play a positive role in the usefulness of the sample conversations. This study also found negative correlations between age versus the number of days per week of computer use, number of electronic tutorials, and familiarity with computer devices, software, and systems. This study also indicates that overall satisfaction is tied to the perception of the tutorial being well organized, and that the information is complete and informative. This study has implications for tutorial design more generally, because certain aspects of it worked very well for learning, such as the sample conversation dialogs, and the lesson opening statements, lesson summaries and exercise reviews.



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## Appendices

## Appendix A: WHIC Tutorial Screen Shots

Image A1: WHIC Tutorial Main Page

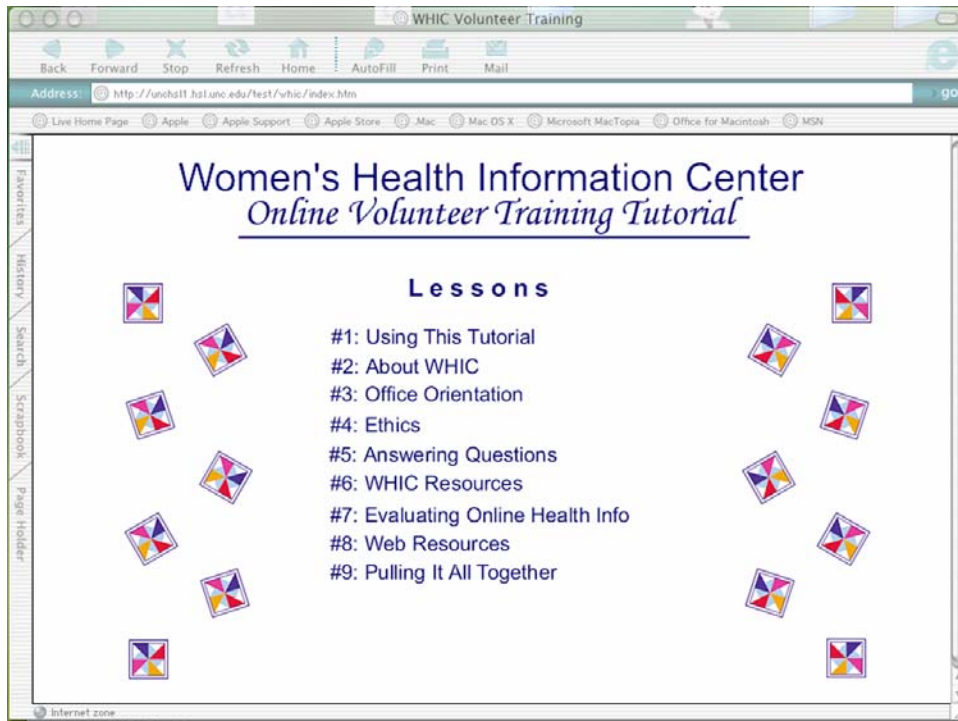


Image A2: Tutorial Lesson Page

WHIC Tutorial – Lesson 4 – Objectives

Address: [http://uncho11.hsl.unc.edu/test/whic/4\\_lesson.htm](http://uncho11.hsl.unc.edu/test/whic/4_lesson.htm)

## Lesson 4: Ethics

**Lesson 4 sections:**

- Objectives
- Guideline Article
- WHIC Code of Ethics
- First Sample Interaction
- Second Sample Interaction
- Summary
- Quiz

**Objectives**

Providing health information to consumers and patients can be challenging work.

This lesson prepares you for interactions with clients by demonstrating helpful ethical guidelines to follow.

In this lesson you will:

- read an article about providing health information to consumers;
- identify key points in the article;
- review how the Code of Ethics for WHIC embodies these key points;
- read and evaluate two sample interactions with clients;
- and then, check your knowledge with a quiz.

Ethics  
Next section: [Guideline Article](#)

Women's Health Information Center (WHIC) Volunteer Training Tutorial  
created in partnership with UNC Chapel Hill Health Sciences Library (HSL)

Image A3: Conversation Dialog in Lesson Four

WHIC Tutorial – Lesson 4 – First Sample Inter...


Address: [http://uncho11.hsl.unc.edu/test/whic/4\\_interaction1.htm](http://uncho11.hsl.unc.edu/test/whic/4_interaction1.htm)


## Lesson 4: Ethics

**Lesson 4 sections:**

- Objectives
- Guideline Article
- WHIC Code of Ethics
- First Sample Interaction
- Second Sample Interaction
- Summary
- Quiz

**First Sample Interaction: Does Vicki follow the WHIC Code of Ethics?**

 Vicki the Volunteer

 Connie the Consumer

V: Hi! How are you today.

C: Oh, OK, I guess. I'm here waiting for my turn to visit a friend who is in the hospital and saw your sign.

V: Glad you came in. Can I help you find something?

C: Well, I don't know. It's just that I keep waking up with pain on one side of my face, and I thought you might have something in here that would tell what causes that.

V: Oh really? Where is the pain?

C: Around my ear and it hurts worse when I open my mouth.

Image A4: Example of Text Extending Across the Page

WHIC Tutorial – Lesson 1 – Purpose

Address: [http://unchall.hsl.unc.edu/test/whic/1\\_lesson.htm](http://unchall.hsl.unc.edu/test/whic/1_lesson.htm) go

Lesson 1: Using This Tutorial

**Lesson 1 sections:**

- ▼ Purpose
- ▼ Page Layout
- ▼ Creators

[Go to Next Lesson](#)

[Training Outline](#)

[Tutorial Front Page](#)

**Purpose**

Welcome to the online volunteer training tutorial for the Women's Health Information Center. This tutorial will teach you information and skills useful in your role as a volunteer. As a volunteer, your role is not to provide a diagnosis or a response to medically related questions, but to guide clients to information resources appropriate to addressing their questions. In this tutorial, you will learn what it means to be a guide, what information resources are available, and where to refer clients if they need more information.

More specifically, you will:

- learn about the Women's Health Information Center (WHIC);
- learn your role in guiding clients to appropriate WHIC resources;
- learn how to evaluate online health information;
- learn about WHIC resources, including selected online consumer health resources.

The tutorial is separated into 9 lessons that are designed to build upon each other.

Using This Tutorial  
Next section: [Page Layout](#) ►

Women's Health Information Center (WHIC) Volunteer Training Tutorial  
created in partnership with the UNC Chapel Hill [Health Sciences Library](#) (HSL)  
December 2003

Internet zone

Image A5: Example of Tutorial Pictures One Participant Expected

The screenshot shows a web browser window titled "WHIC Tutorial - Lesson 3 - The Closet". The address bar shows the URL: [http://unchs11.hst.unc.edu/test/vhio/3\\_closet.htm](http://unchs11.hst.unc.edu/test/vhio/3_closet.htm). The browser interface includes navigation buttons (Back, Forward, Stop, Refresh, Home, AutoFill, Print, Mail) and a search bar.

The main content area is titled "Lesson 3: Office Orientation" and features a section for "The Closet". On the left, a sidebar lists "Lesson 3 sections:" with a list of links: Objectives, Opening/Closing & Security, Requests & Service Survey, The Closet, Client Computer, Pamphlets, Print Materials, Videos & VCR, Flyers & Labeling, Other Offices, and Quiz. Below this list are three buttons: "4 Go to Next Lesson", "6 Training Outline", and "Tutorial Front Page".

The "The Closet" section includes a photograph of a wooden door with a silver handle and a lock. To the right of the image is a text block:

The closet contains the informational assets of the center. As you walk in, on the right side are the pamphlets. Each one is in a specific section sorted by health topic. You should familiarize yourself with the general location of each topic so you can find the appropriate pamphlet when needed. In addition, on the shelves there are extra books and manuals, promotional materials, and office supplies. It is important that the closet remain locked. If you need to go in there for any reason, please ask Julie where the key is kept. It is on a large hospital quilt key chain. Please do not give the key to anyone not affiliated with the Center and do not disclose its location.

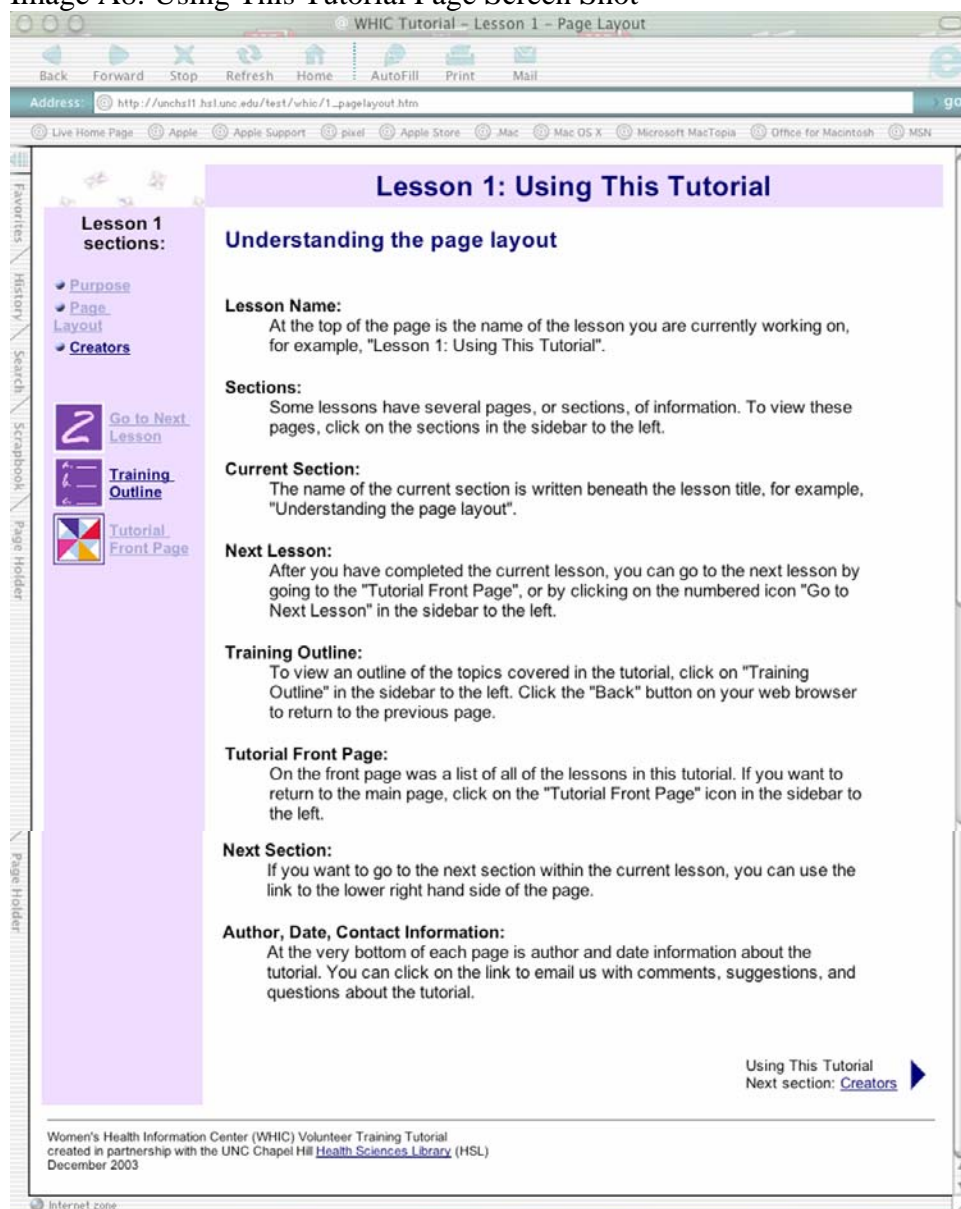
At the bottom right of the page, it says "Office Orientation" and "Next section: [Client Computer](#)".



Image A7: Example of Tutorial Picture Participants Thought Unrepresentative of Content

The screenshot shows a web browser window with the title "WHIC Tutorial - Lesson 2 - What is WHIC?". The address bar shows the URL "http://unchall.hsl.unc.edu/test/whic/2\_what.htm". The browser's navigation bar includes buttons for Back, Forward, Stop, Refresh, Home, AutoFill, Print, and Mail. Below the browser window, the tutorial page is displayed. The page has a purple header with the text "Lesson 2: About WHIC". On the left side, there is a sidebar with the heading "Lesson 2 sections:" and a list of links: Objectives, What is WHIC?, Who does WHIC serve?, What are WHIC's services?, Informing others about WHIC, and Quiz. Below these links are three larger icons with text: a purple square with the number 3 for "Go to Next Lesson", a purple square with a book icon for "Training Outline", and a colorful square for "Tutorial Front Page". The main content area has the heading "What is WHIC?" and features a photograph of a modern building. To the right of the photo, there is text explaining that WHIC is a joint partnership between the North Carolina Women's Hospital and the Department of Obstetrics and Gynecology, and that the center aims to help women and their families gather information for informed health decisions. At the bottom right of the main content area, there is a link "About WHIC" and a "Next section: Who does WHIC serve?" with a blue arrow pointing right. The footer of the page contains the text: "Women's Health Information Center (WHIC) Volunteer Training Tutorial created in partnership with the UNC Chapel Hill Health Sciences Library (HSL) December 2003".

Image A8: Using This Tutorial Page Screen Shot



WHIC Tutorial - Lesson 1 - Page Layout

Address: [http://unchs11.hsl.unc.edu/teet/whic/1\\_page1layout.htm](http://unchs11.hsl.unc.edu/teet/whic/1_page1layout.htm)

## Lesson 1: Using This Tutorial

**Lesson 1 sections:**

- [Purpose](#)
- [Page Layout](#)
- [Creators](#)

[Go to Next Lesson](#)

[Training Outline](#)

[Tutorial Front Page](#)

### Understanding the page layout

**Lesson Name:**  
At the top of the page is the name of the lesson you are currently working on, for example, "Lesson 1: Using This Tutorial".

**Sections:**  
Some lessons have several pages, or sections, of information. To view these pages, click on the sections in the sidebar to the left.

**Current Section:**  
The name of the current section is written beneath the lesson title, for example, "Understanding the page layout".

**Next Lesson:**  
After you have completed the current lesson, you can go to the next lesson by going to the "Tutorial Front Page", or by clicking on the numbered icon "Go to Next Lesson" in the sidebar to the left.

**Training Outline:**  
To view an outline of the topics covered in the tutorial, click on "Training Outline" in the sidebar to the left. Click the "Back" button on your web browser to return to the previous page.

**Tutorial Front Page:**  
On the front page was a list of all of the lessons in this tutorial. If you want to return to the main page, click on the "Tutorial Front Page" icon in the sidebar to the left.

**Next Section:**  
If you want to go to the next section within the current lesson, you can use the link to the lower right hand side of the page.

**Author, Date, Contact Information:**  
At the very bottom of each page is author and date information about the tutorial. You can click on the link to email us with comments, suggestions, and questions about the tutorial.

Using This Tutorial  
Next section: [Creators](#)

Women's Health Information Center (WHIC) Volunteer Training Tutorial  
created in partnership with the UNC Chapel Hill [Health Sciences Library](#) (HSL)  
December 2003

Internet zone

## Volunteers Wanted!



A mindful eye for the evaluation of an on-line tutorial.

The Health Sciences Library (HSL) and the Women's Health Information Center (WHIC) at UNC-Chapel Hill has collaborated to create a training tutorial for WHIC volunteers. If you are interested in evaluating the tutorial please contact Angelique Jenks-Brown. The evaluation session will take no longer than 1 hour.

To be included in the study, you must be an adult female.

Tutorial Evaluation Study  
Angelique Jenks-Brown  
ajenks@email.unc.edu  
(919)-960-9412

Tutorial Evaluation Study  
Angelique Jenks-Brown  
ajenks@email.unc.edu  
(919)-960-9412

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(919)-960-9412

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Angelique Jenks-Brown  
ajenks@email.unc.edu  
(919)-960-9412

Tutorial Evaluation Study  
Angelique Jenks-Brown  
ajenks@email.unc.edu  
(919)-960-9412

## Appendix C: Consent Forms



THE UNIVERSITY OF NORTH CAROLINA  
AT  
CHAPEL HILL

School of Information and Library Science  
Student Research Project  
Phone# (919) 962-8366; Fax# (919) 962-8071

The University of North Carolina at Chapel Hill  
CB# 3360, 100 Manning Hall  
Chapel Hill, N.C. 27599-3360

## Evaluation of an Online Tutorial for Volunteers

### Consent Form

#### Introduction to the Study:

I am inviting you to be in this study to help me, the Health Sciences Library, and the Women's Health Information Center at the UNC Women's Hospital to determine the usefulness of a web tutorial for training volunteers.

Your participation, along with nine other people, will help us make improvements to the tutorial and in the development of future tutorials.

This session will last 45 minutes to 1 hour.

Angelique Jenks-Brown ([ajenks@email.unc.edu](mailto:ajenks@email.unc.edu)) at the University of North Carolina at Chapel Hill is conducting this study as part of her master's paper at the School of Information and Library Science, under the supervision of Dr. Barbara Wildemuth ([wildem@ils.unc.edu](mailto:wildem@ils.unc.edu)).

#### Purpose:

The purpose of the study is to use your comments to improve the training tutorial.

#### What Will Happen During the Study:

1. You will be asked to complete modules 1 through 4 of the online tutorial.

2. While you are traversing the tutorial, you will be asked to speak aloud and tell me what you are thinking about the tutorial. These interactions will be videotaped.
3. After you've completed the modules, I will ask you to complete a questionnaire.

**Your Privacy is Important:**

- ' I will make every effort to protect your privacy.
- ' I will not use your name in any of the information collected from the study or in any of the research reports.

**Risks and Discomforts:**

I do not know of any personal risk or discomfort you will have from being in this study.

**Your Rights:**

- ' You decide on your own whether or not you want to be in this study.
- ' You will not be treated any differently if you decide not to be in the study.
- ' If you decide to be in the study, you will have the right to stop being in the study at any time.

**If You Have Any Questions**

- ' If you have any questions or concerns about the study, please contact me, [Angelique Jenks-Brown, (919) 960-9412, [ajenks@email.unc.edu](mailto:ajenks@email.unc.edu)], or my advisor, [Dr. Barbara Wildemuth, (919) 962-8072, [wildem@ils.unc.edu](mailto:wildem@ils.unc.edu)].

**Institutional Review Board Approval:**

- ' The Academic Affairs Institutional Review Board (AA-IRB) at The University of North Carolina at Chapel Hill has approved this study.
- ' If you have any concerns about your rights as a participant in this study, you may contact the AA-IRB at (919) 962-7761 or at [aa-irb@unc.edu](mailto:aa-irb@unc.edu).

I have had the chance to ask any questions I have about this study, and they have been answered for me.

I have read the information in this consent form, and I agree to be in the study. There are two copies of this form. I will keep one copy and return the other to the investigator.

---

(Signature of Participant)

---

(Date)



THE UNIVERSITY OF NORTH CAROLINA  
AT  
CHAPEL HILL

School of Information and Library Science  
Student Research Project  
Phone# (919) 962-8366; Fax# (919) 962-8071

The University of North Carolina at Chapel Hill  
CB# 3360, 100 Manning Hall  
Chapel Hill, N.C. 27599-3360

### Video Tape Consent Form

' The video tapes from the study will be seen only by Angelique Jenks-Brown and kept locked in a locker in the Department of Information and Library Science when not in my possession.

' Angelique Jenks-Brown may wish to show short clips of video to the web designers at the Health Sciences Library (HSL) and the University of North Carolina at Chapel Hill Hospital's Women's Health Information Center (WHIC).

' The video clips will not be shown at conferences, nor will they be shown to the public.

' The video tapes and video clips will be destroyed after the study is over.

I give Angelique Jenks-Brown permission to show the web designers at HSL and WHIC video clips from her study for the purpose of analyzing the web tutorial's performance through my usage.

---

(Signature of Participant)

---

(Date)

## Appendix D: The Questionnaire

## Questionnaire

Identification number: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_ male

\_\_\_\_\_ female

## Experience

1. On average, how many days a week do you use a computer?

\_\_\_ 0 days

\_\_\_ 4 days

\_\_\_ 1 day

\_\_\_ 5 days

\_\_\_ 2 days

\_\_\_ 6 days

\_\_\_ 3 days

\_\_\_ Everyday

2. How many learning tutorials have you taken?

\_\_\_ 0

\_\_\_ 1-5

\_\_\_ 6-10

\_\_\_ 10+

3. Approximately how many of them were online or electronic?

\_\_\_\_\_



4. Of the following devices, software, and systems, check those that you have personally used and are familiar with

- |   |  |
|---|--|
| <input type="checkbox"/> computer terminal    | <input type="checkbox"/> graphics software         |
| <input type="checkbox"/> personal computer    | <input type="checkbox"/> spreadsheet software      |
| <input type="checkbox"/> lap top computer     | <input type="checkbox"/> database software         |
| <input type="checkbox"/> color monitor        | <input type="checkbox"/> computer games            |
| <input type="checkbox"/> touch screen         | <input type="checkbox"/> voice recognition         |
| <input type="checkbox"/> floppy drive         | <input type="checkbox"/> video editing systems     |
| <input type="checkbox"/> CD-ROM drive         | <input type="checkbox"/> CAD computer aided design |
| <input type="checkbox"/> keyboard             | <input type="checkbox"/> rapid prototyping systems |
| <input type="checkbox"/> mouse                | <input type="checkbox"/> e-mail                    |
| <input type="checkbox"/> track ball           | <input type="checkbox"/> internet                  |
| <input type="checkbox"/> joy stick            |  |
| <input type="checkbox"/> pen based computing  |  |
| <input type="checkbox"/> graphics tablet      |  |
| <input type="checkbox"/> head mounted display |  |
| <input type="checkbox"/> modems               |  |
| <input type="checkbox"/> scanners             |  |
| <input type="checkbox"/> word processor       |  |

## Evaluating the Tutorial

5. Learning how to use the tutorial was
- |  |                   |  |      |    |
|--|-------------------|--|------|----|
|  | difficult         |  | easy |    |
|  | 1 2 3 4 5 6 7 8 9 |  |      | NA |
6. Overall, how satisfied are you with the tutorial
- |  |                   |  |           |    |
|--|-------------------|--|-----------|----|
|  | not at all        |  | extremely |    |
|  | 1 2 3 4 5 6 7 8 9 |  |           | NA |
7. Accessing the tutorial on-line was
- |  |                   |  |      |    |
|--|-------------------|--|------|----|
|  | difficult         |  | easy |    |
|  | 1 2 3 4 5 6 7 8 9 |  |      | NA |
8. Moving between sections of the tutorial was
- |  |                   |  |      |    |
|--|-------------------|--|------|----|
|  | difficult         |  | easy |    |
|  | 1 2 3 4 5 6 7 8 9 |  |      | NA |
9. The tutorial is well organized
- |  |                   |  |        |    |
|--|-------------------|--|--------|----|
|  | never             |  | always |    |
|  | 1 2 3 4 5 6 7 8 9 |  |        | NA |
10. The pop-up windows were
- |  |                   |  |       |    |
|--|-------------------|--|-------|----|
|  | confusing         |  | clear |    |
|  | 1 2 3 4 5 6 7 8 9 |  |       | NA |
11. Tutorial content was pertinent to topics being covered
- |  |                   |  |       |    |
|--|-------------------|--|-------|----|
|  | disagree          |  | agree |    |
|  | 1 2 3 4 5 6 7 8 9 |  |       | NA |
12. Information for each module was complete and informative
- |  |                   |  |        |    |
|--|-------------------|--|--------|----|
|  | never             |  | always |    |
|  | 1 2 3 4 5 6 7 8 9 |  |        | NA |
13. Information was concise and to the point
- |  |                   |  |        |    |
|--|-------------------|--|--------|----|
|  | never             |  | always |    |
|  | 1 2 3 4 5 6 7 8 9 |  |        | NA |

14. The conversations presented in module 4 enhanced my ability to use the information presented

disagree									agree	
	1	2	3	4	5	6	7	8	9	NA

15. The quizzes at the end of each module helped me check what I had learned

disagree									agree	
	1	2	3	4	5	6	7	8	9	NA

Please write any comments about the tutorial here:

---

---

---

---

---

Appendix E: Tutorial Quizzes and Answer Sheets for Lessons 2 through 4

## Lesson 2: About WHIC

### Quiz

**1. The Center's acronym stands for:**

- a. Women's Health Information Center
- b. Women's Health Resource Center
- c. Wyeth Health Information Library

**2. List at least 2 places where patrons can find information about WHIC.**

**3. WHIC's sole purpose is to serve hospital patients and their families.**

**4. List two of WHIC's services.**

**5. List at least 3 types of resources through which patrons can find health information at WHIC.**

## Lesson 2: About WHIC

### Quiz – Answer Sheet

**1. The Center's acronym stands for:**

- a. **Women's Health Information Center**
- b. Women's Health Resource Center
- c. Wyeth Health Information Library

WHIC, the center's acronym, stands for the Women's Health Information Center. One service of the Center is the Wyeth Women's Resource Library, which offers access to health information.

**2. List at least 2 places where patrons can find information about WHIC.**

Possible answers: brochures, bookmarks, fliers, website Patrons can find information about the library from handouts such as the brochures and bookmarks on the counter beneath the books or through the UNC Hospitals/WHIC website.

**3. WHIC's sole purpose is to serve hospital patients and their families.**

False! WHIC serves not only patients in UNC hospitals, but clients across the region and the state. **4. List two of WHIC's services.** Possible answers: Childbirth classes, maternity tours, access to health information The Women's Health Information Center not only provides access to health information but provides classes and tours of the UNC Women's Hospital facilities.

**5. List at least 3 types of resources through which patrons can find health information at WHIC.**

WHIC offers health information through books, videos, magazines, pamphlets, and computer searches.

## Lesson 3: Office Orientation

### Quiz

Select True or False based on the statement provided.

**1. You can give the client computer user name and password to anyone interested in using the computer.**

True  
False

**2. You should leave the closet door open and unlocked at all times.**

True  
False

**3. Clients can have free photocopies of information.**

True  
False

**4. Clients can have pamphlets free of charge.**

True  
False

**5. Every person visiting WHIC should fill out a *Tell Me What You Think* form.**

True  
False

## Lesson 3: Office Orientation

### Quiz – Answer Sheet

**1. You can give the client computer user name and password to anyone interested in using the computer.**

False. You should never give the computer login to anyone, only WHIC staff and volunteers can have access to the login.

**2. You should leave the closet door open and unlocked at all times.**

False. The closet door should be kept shut and locked. There are many valuables in the closet and since WHIC is open to the public we would like to prevent theft of our resources.

**3. Clients can have free photocopies of information.**

True. WHIC does not charge for copies or printing of informational material. Although we must be selective in the amount of material we copy, the copying and printing service is free.

**4. Clients can have pamphlets free of charge.**

True. Although we ask clients to fill out Pamphlet Request forms, these are for statistical purposes. WHIC does not charge for the pamphlets.

**5. Every person visiting WHIC should fill out a *Tell Me What You Think* form.**

True. We request that everyone visiting WHIC fill out the form, even if they just stopped by to read a magazine. The survey is important for determining which resources and services are used by WHIC clients. However, we also have to be careful about not pressuring someone into filling out the questionnaire.

## Lesson 4: Ethics

### Quiz

Five scenarios are listed below. From what you've learned in this lesson, write responses about how you would respond to the situation.

**1. A client you are working with describes a series of symptoms and asks you what you think might be causing those problems. You should:**

**2. You just lost twenty pounds using a regimen of careful eating and exercise. A client comes into the center to look for advice on how to lose weight and comments on your healthy physique. You should:**

**3. You have directed a client to information that she says is helpful. She calls you back and asks if you can tell her what a particular word means. You know the meaning of the word. You should:**

**4. A client you are working with is looking for information about supporting her sister who has breast cancer. Your sister had successful treatment for breast cancer several years ago. You should:**

**5. A client comes into the center directly from a doctor's visit and is looking for more information on the diagnosis she just received. You have never heard of the word she is using and are not even sure how it might be spelled. You should:**



## Lesson 4: Ethics

### Quiz – Answer Sheet

**1. A client you are working with describes a series of symptoms and asks you what you think might be causing those problems. You should:**

Answer: Mention that you cannot provide a diagnosis, but that it might be possible to find information in a book that would describe possible causes. Suggest that she take the information she finds to a health care professional to determine if it applies to her situation.

**2. You just lost twenty pounds using a regimen of careful eating and exercise. A client comes into the center to look for advice on how to lose weight and comments on your healthy physique. You should:**

Answer: Not share your personal success story with her, no matter how strongly you are tempted! You should help her find information resources about methods for healthy weight loss.

**3. You have directed a client to information that she says is helpful. She calls you back and asks if you can tell her what a particular word means. You know the meaning of the word. You should:**

Answer: Direct the client to a definition in a medical dictionary.

**4. A client you are working with is looking for information about supporting her sister who has breast cancer. Your sister had successful treatment for breast cancer several years ago. You should:**

Answer: Not mention your sister's experience with breast cancer. You should help the client locate materials that provide information about supporting relatives with breast cancer.

**5. A client comes into the center directly from a doctor's visit and is looking for more information on the diagnosis she just received. You have never heard of the word she is using and are not even sure how it might be spelled. You should:**

Answer: Ask the client to look the word up in a medical dictionary or in the index of a general health reference book. If she cannot find the word, suggest that she call her doctor's office and ask for the spelling. Do not try to guess!