Running head: FINAL PORTFOLIO AND PAPER

Final Portfolio and Paper

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Introduction

The e-learning module discussed in this portfolio is the recommended solution for teaching technical communicators the proper use of Microsoft Word styles. The instructional module, *How to Create and Use Word Styles*, introduces the inexperienced user to the world of formatting Word documents through defined styles. The proposed learning module is intended for use in a business environment.

Through styles, many document-formatting problems are eliminated along with the frustration that often accompanies this challenge. Many Word users are not aware of the power and complex functionality of the software application. Without an instructional introduction to the tool, users typically apply direct edits to sentences and paragraphs, to achieve the desired look. Manual edits are time-consuming and repetitious. A style can automatically format a sentence or paragraph with one click and produce a professional looking document with a consistent look and feel (Hargis et al., 2004).

Chapters in this portfolio include an audience and environment analysis, a content diagram, a project prototype, a usability inspection, and a script test plan. The usability inspection and script test plan do not pertain specifically to the e-learning module, *How to Create and Use Word Styles.* Instead, the last two chapters illustrate a usability inspection and test plan for an existing e-learning course developed by **element K**, *Microsoft Office Word 2007 New Features*.

Audience and Environmental Analysis

The initial phase of the project requires a learner and contextual analysis of the instructional intervention (Morrison, Ross, & Kemp, 2004). An analysis of the audience is critical to the success of the project to ensure the product meets the needs of the user. It is important to understand the goals of the user before any tasks are defined and to match user characteristics with the interface design (Stone, Jarrett, Woodroffe, & Minocha, 2005).

Learner characteristics have a direct impact on media selection. Age, attention span, prior knowledge, language preference, and interests are important factors that must be identified in the instructional design process (Seels & Glasgow, 1998). The more a designer knows about the target audience, the more effective and efficient is the instruction (Smith & Ragan, 1999). In addition to learner characteristics, contextual analysis provides insight into the target audience. For example, knowing why a student registers for a course and how the student might perceive the value of the learning experience can be beneficial to the design process (Morrison, Ross, & Kemp, 2004). Collecting data about learner preferences for the type of media is beneficial before the design and development process begins.

Learner analysis may be approached in a number of ways. Mager recommends (as cited in Brown & Green, 2006) gathering learner specifics such as age, educational background, attitudes about learning, and work skills. Heinich, Molenda, Russell, and Smaldino suggest (as cited in Brown & Green, 2006) focusing on general characteristics, entry competencies, and learning styles. Depending on the audience, topic, and type of instruction, the approach to learner analysis may vary. If most of the learners share many similarities, it may be beneficial to create a single learner profile that is most representative of the audience (Brown & Green, 2006).

The audience and environmental analysis for the e-learning module, *How to Create and Use Word Styles* addresses the following points:

- Who are the people using the interface?
- Do they have a lot of computer experience?
- How will the audience use the interface and the information in it?
- What is the social culture or organizational structure of the audience?
- What is the physical environment?

The focus of the investigation and the information gathered by the researcher are documented in Table 1.

Table 1 – Audience environmental analysis

How to Create and Use Word Styles **Audience and Environmental Analysis**	
Focus of Investigation	**Information Gathered**
The domain	The users are very knowledgeable with computers and are experienced in using Windows desktop publishing applications. Some users have experience with multiple operating systems and software applications.
The users	All users of the e-learning module are within a software company. The primary users are technical writers. The secondary users are software developers, quality assurance staff, and product development management.
Characteristics of the users	The technical writers are familiar with Word, however they are not all acquainted with many of Word's complex functions. The staff has been reliant on the experience of the senior writer for developing templates and styles. Word is the primary software tool for developing and maintaining product documentation. The primary users have college degrees that span journalism, business, and instructional design. Ages range from 40 to 51. There are 5 technical writers. There are 4 females and 1 male. Motivation and attitude are very high and positive. The software developers and quality assurance groups are casual users of Word. Their use of Word is for writing product specifications and marketing requirements. This group of users has college degrees that span programming, technology, and business. Ages range from 29 to 56. There are 12 males and 2 females. Motivation is moderate and attitude is positive.

How to Create and Use Word Styles **Audience and Environmental Analysis**	
Focus of Investigation	**Information Gathered**
Characteristics of the task	The characteristics of the tasks will range from easy to moderate, requiring the user to grasp concepts and then apply those concepts through practice. The e-learning tasks will require the user to read, listen to audio, view demonstrations, and take brief quizzes. The final task will allow the user to apply knowledge.
Physical environment	The work environment is quiet with good lighting, comfortable furniture, and quality air conditioning. If the learner cannot focus on the e-learning module in the work place, he may study from home.
Social environment	The social environment in the workplace is moderate, with generally low stress. There is a lot of collaboration amongst the developers and quality assurance staff. The technical writers generally work independently of each other; however, there is interaction with the development staff.
Organizational environment	The expectation is that all technical writers will participate in the e-learning module. Completion of the module will be recorded in the employee's personnel file. The tutorial will be available to the secondary users, but will not be mandatory.
User support	A help function will be built into the tutorial as a reference for questions and problems.
Qualitative usability aspects	The usability aspects of the tutorial will include intuitive navigation, terminology that is commonly used in the workplace, company colors, and easily recognizable icons.
Quantitative usability goals	The user will demonstrate his understanding of styles at the completion of the e-learning module. Quizzes will aid in measuring the learner's comprehension.
Constraints	The authoring tool will be *Lectora* by Trivantis. SnagIt and Camtasia will be used for screen captures and animations. No costs are associated with using the authoring tools. Time to develop the tutorial is 8 weeks. Workloads will be adjusted to allow for development of the tutorial and for learners to participate in the training. The tutorial will be web-based.
Trade-off	The trade-off is the benefit of one-on-one training sessions with an experienced Word user.

Content Diagram

Before development begins, a structural design is necessary to aid in sequencing the content. The instructional content must be organized in a fashion that allows the learner to achieve the instructional objectives. The structural design is analogous to an architectural blueprint or program specification. The interface design must be structured to coordinate with the content sequencing (Morrison, Ross, & Kemp, 2004).

Using content diagrams, a conceptual design can provide an architectural view of the module. The purpose of the diagrams is to show the infrastructure of the interface such as use cases, task objects, attributes, and actions. The designer must consider how the interface will enable the user to interact with the content. A *user function* such as viewing a demonstration requires a *system function* to play the demonstration and a *link* to enable the user to navigate to the next lesson when the demonstration is complete (Stone, Jarrett, Woodroffe, & Minocha, 2005).

The e-learning module, *How to Create and Use Word Styles,* uses content diagrams to illustrate the underlying structure of the interface. The content diagrams depicted in Figure 1 represent the proposed structure of the module. Specific symbols in the diagram depict user functions, system functions, and links. Symbols in each container afford a unique and concise view of the interface design. Each container in the diagram (Figure 1) indicates the purpose of the user task, such as *Applying Styles*. Within each container, elements are listed denoting functions, links, objects, and constraints. Symbols (circle, square, and triangle) within the containers designate the following (Stone, Jarrett, Woodroffe, & Minocha, 2005):

- *Circle* signifies a user function
- *Square* signifies a system function

- *Triangle* signifies a link

Other approaches for documenting user interface specifications include a menu-selection tree, dialog boxes, transition diagrams, and flowcharts. Menu trees are great visuals to reveal the entire structure of the interface within a single illustration. Transition diagrams, very similar to the content diagram, depict user actions (Shneiderman & Plaisant, 2005). Flowcharts expose the structure and sequence of the application, all possible decisions, and provide a big picture view (Alessi & Trollip, 2001).

Navigation of the proposed module is outlined in Table 2. The main screen introduces the content and explains the material to be covered, learning objectives, and instructions for navigation. From the main screen, the user may navigate to any lesson by clicking on the lesson buttons on the left side of the screen or by clicking *Next* to follow a linear path, screen-by-screen, and lesson-by-lesson. Each lesson includes audio, a demonstration, and a quiz or exercise for review. A summary of the lesson is presented to the learner at the end of the module. A final quiz includes a review of the lessons in the module and an assessment of the learner's comprehension.

The navigation design offers flexibility for the learner. Research shows that learners with differing levels of computer experience exhibit preferences for navigation consistent with their level of experience. In a study conducted by Mitchell, Chen, and Macredie (2005), findings imply that the level of user experience influences the choice of navigation strategies. Studies of learning style preferences have shown that students with a preference for learner control discover more when given the opportunity to create their own path rather than following a prescribed linear navigation (Liegle & Janicki, 2006). The navigational controls of the proposed learning module will allow students flexibility to jump to a lesson without the need to page through each preceding lesson, screen-by-screen.

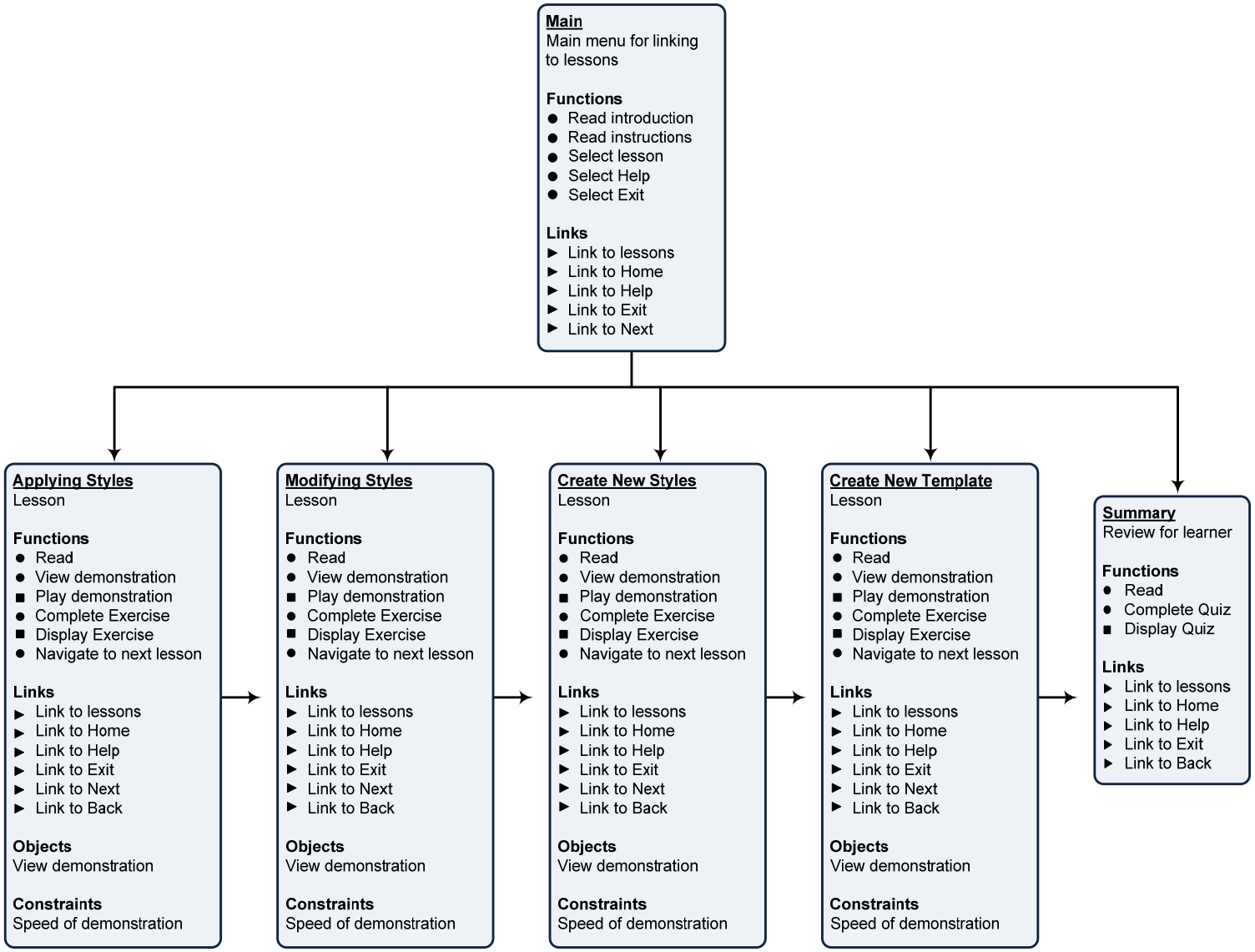


Figure 1 – Content diagram

Table 2 – User navigation

Main	**Can Link To**
1. Introduction	Next Lesson
2. Instructions	Any Lesson
	Help
	Exit

Applying Styles	**Can Link To**
1. Read	Next Lesson
2. Play demonstration	Any Lesson
3. Complete exercise	Help
	Exit

Modifying Styles	**Can Link To**
1. Read	Next Lesson
2. Play demonstration	Any Lesson
3. Complete exercise	Help
	Exit

Create New Styles	**Can Link To**
1. Read	Next Lesson
2. Play demonstration	Any Lesson
3. Complete exercise	Help
	Exit

Create New Template	**Can Link To**
1. Read	Next Lesson
2. Play demonstration	Any Lesson
3. Complete exercise	Help
	Exit

Summary	**Can Link To**
1. Read	Any Lesson
2. Complete Quiz	Help
	Exit

Project Prototype

The next phase in the design process utilizes a storyboard to represent the user view of the interface. The storyboard also focuses on user interaction with the content. In this phase, the designer, subject matter expert, and user representative collaborate and assess the cohesion and utility of the design (Alessi & Trollip, 2001).

The storyboard acts as a prototype to represent the design of the learning tutorial and indicates the type of media used along with the supported navigation for each screen (Alessi & Trollip, 2001). A prototype is an excellent vehicle for testing ideas, gauging user response, and validating the usefulness of the product (Stone, Jarrett, Woodroffe, & Minocha, 2005). Storyboards show all the detail of the application, in particular the look and feel presented to the user (Alessi & Trollip, 2001).

Effective storyboards illustrate what occurs within each screen, such as links, text or content, decisions, and user interaction. Use of storyboards is an effective and efficient approach in the design process before actual product development begins (Alessi & Trollip, 2001). Prototypes can be produced using standard desktop publishing applications such as PowerPoint, Word, and Publisher; they may also be produced via hand-drawn sketches. Alessi and Trollip (2001) provide storyboard forms in the appendix of their textbook. Tools such as Visio provide ready-made templates for creating storyboards. The following sections illustrate and document the prototype for the e-learning module, *How to Create and Use Word Styles.*

Software tools used during the development of the prototype include *Lectora*, *Camtasia*, and *SnagIt.* Lectora is an authoring tool for e-learning and website development. The interface design of the learning module, *How to Create and Use Word Styles,* is an adoption from the templates available within Lectora's design gallery. Design templates provided by Lectora are

made available by the vendor, Trivantis, for the end-user. Content was developed by the researcher through her years of experience using Microsoft Word. Screen captures and images were created by the researcher. With the exception of the design template, all content is original and free of copyright infringement. The e-learning module prototype was developed using Word 2003.

No additional technologies were considered during the design of the e-learning prototype. The module has been designed for viewing as a stand-alone executable on a personal computer or may be accessed via the Internet via a link to an internal company website.

Introduction

The main screen introduces the topic, lists the instructional objectives, and provides the learner an opportunity to become familiar with the interface design, the screen layout, and navigational controls. The learner has control of all activities.

- An introduction message may be read via transcript or the learner may click the audio icon to hear a brief welcome and introduction
- Learner can select a lesson on the left navigation bar or click **Next** to proceed to the next screen. From the main screen, the next screen begins the first lesson, *Apply Styles*.

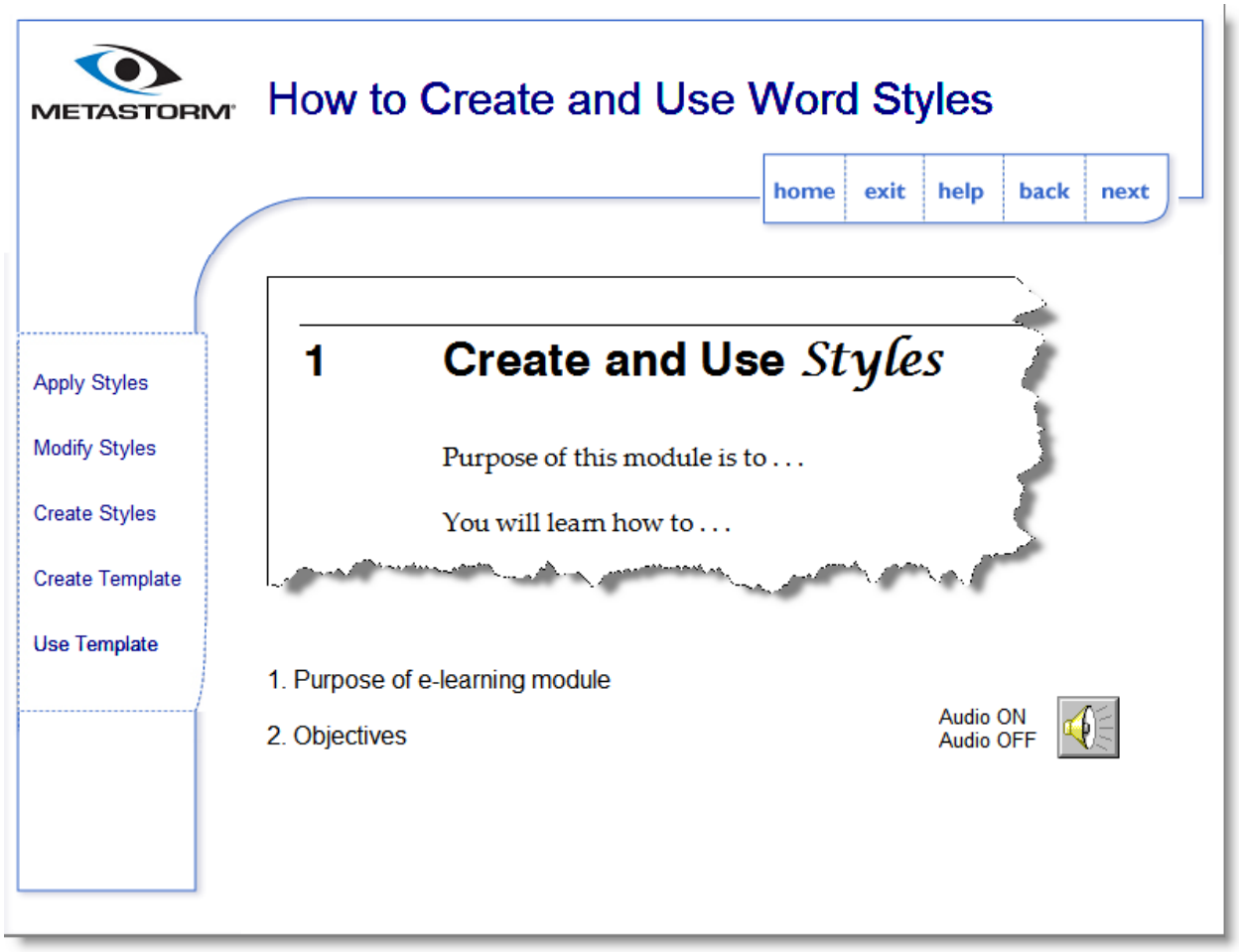


Figure 2 – Prototype introduction screen

Apply Styles

Within the lesson, *Apply Styles*, the learner can view a demonstration of how a Word style is applied to an existing document.

- Learner is presented with a brief explanation of the upcoming demonstration
- Learner is instructed to click the **Demonstration** button to view a demonstration of a document formatted with styles.
- Learner clicks **Next** to proceed to the next screen within the lesson

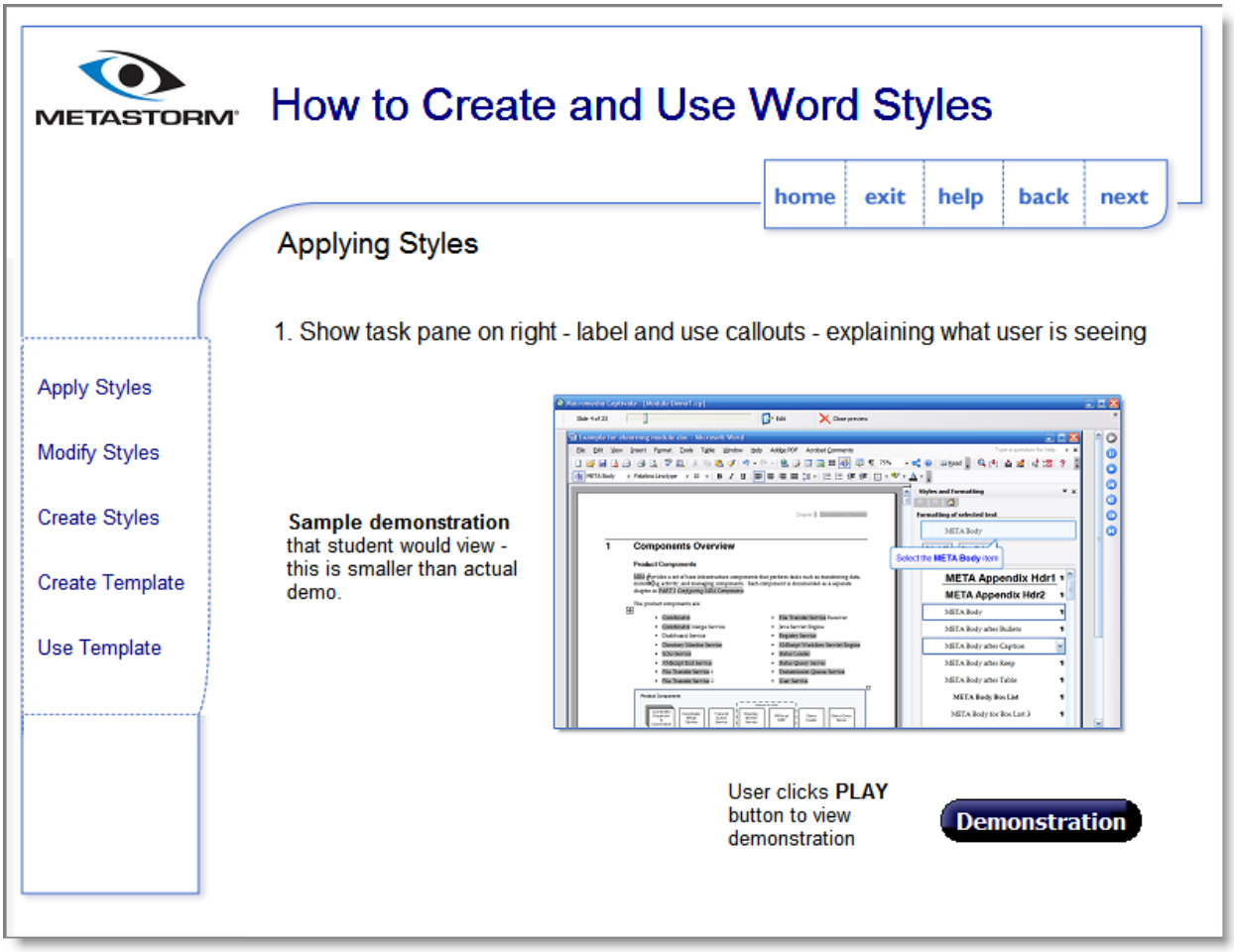


Figure 3 – Prototype apply styles screen

Exercise

Exercises provide opportunities to practice and apply new knowledge.

- Learner applies new knowledge through interaction
- Learner clicks on the **Exercise** button to engage in the interactive exercise
- Learner clicks **Next** to proceed to the next screen within the lesson

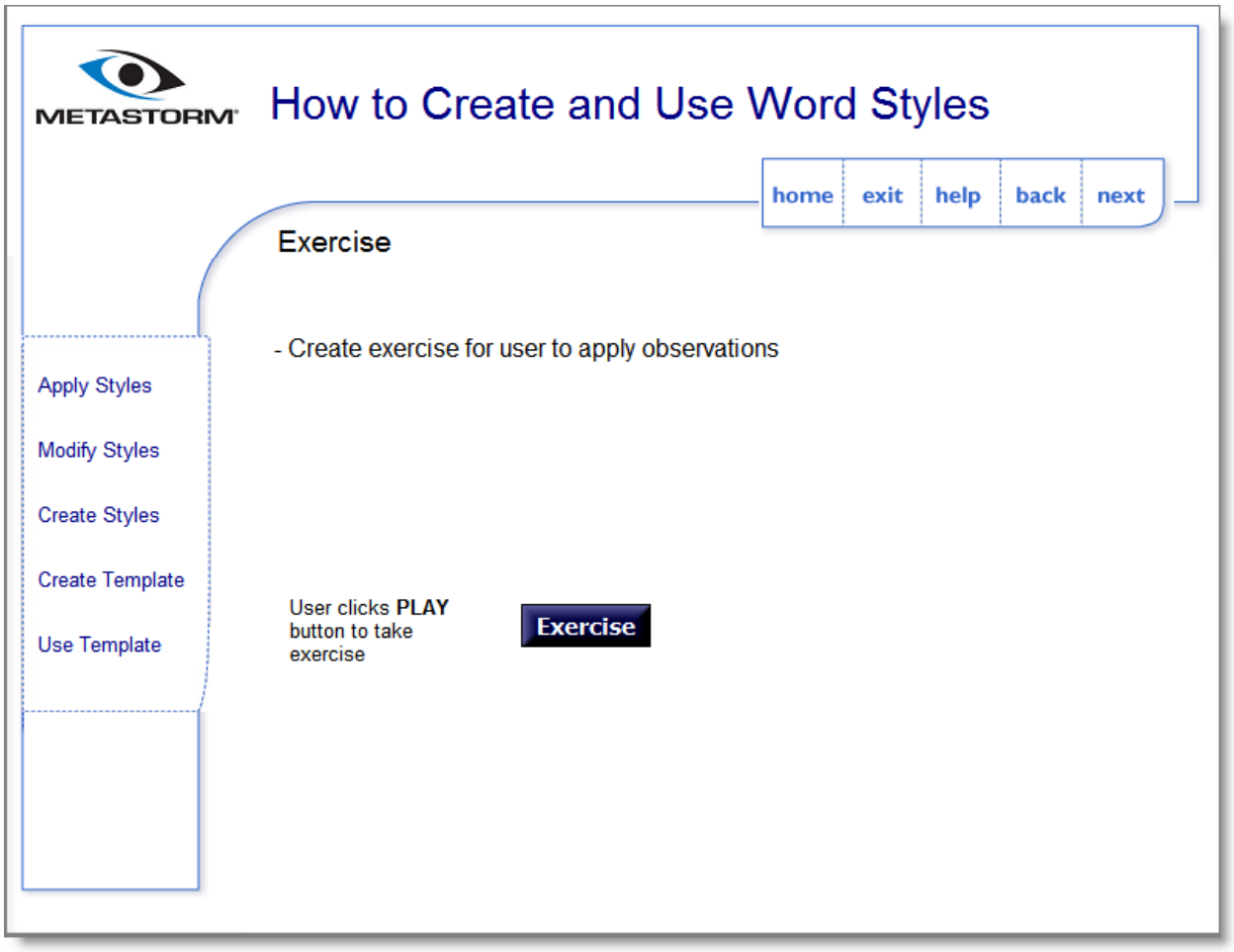


Figure 4 – Prototype exercise screen

Modify Styles

In the lesson, *Modify Styles*, the learner applies new knowledge acquired from previous lessons. The learner must study the scenario, determine how to approach the problem, and then view the demonstration.

- Learner is presented a scenario and studies the Word document
- Learner views the demonstration that demonstrates the following tasks:
  - Explain the current text format
  - Select a line of text
  - Change the target text to an indented bullet
  - Audio and callouts are incorporated into the demonstration to provide adequate detail of how to make the change
- Learner may view the demonstration multiple times
- Learner clicks **Next** to proceed to the next screen

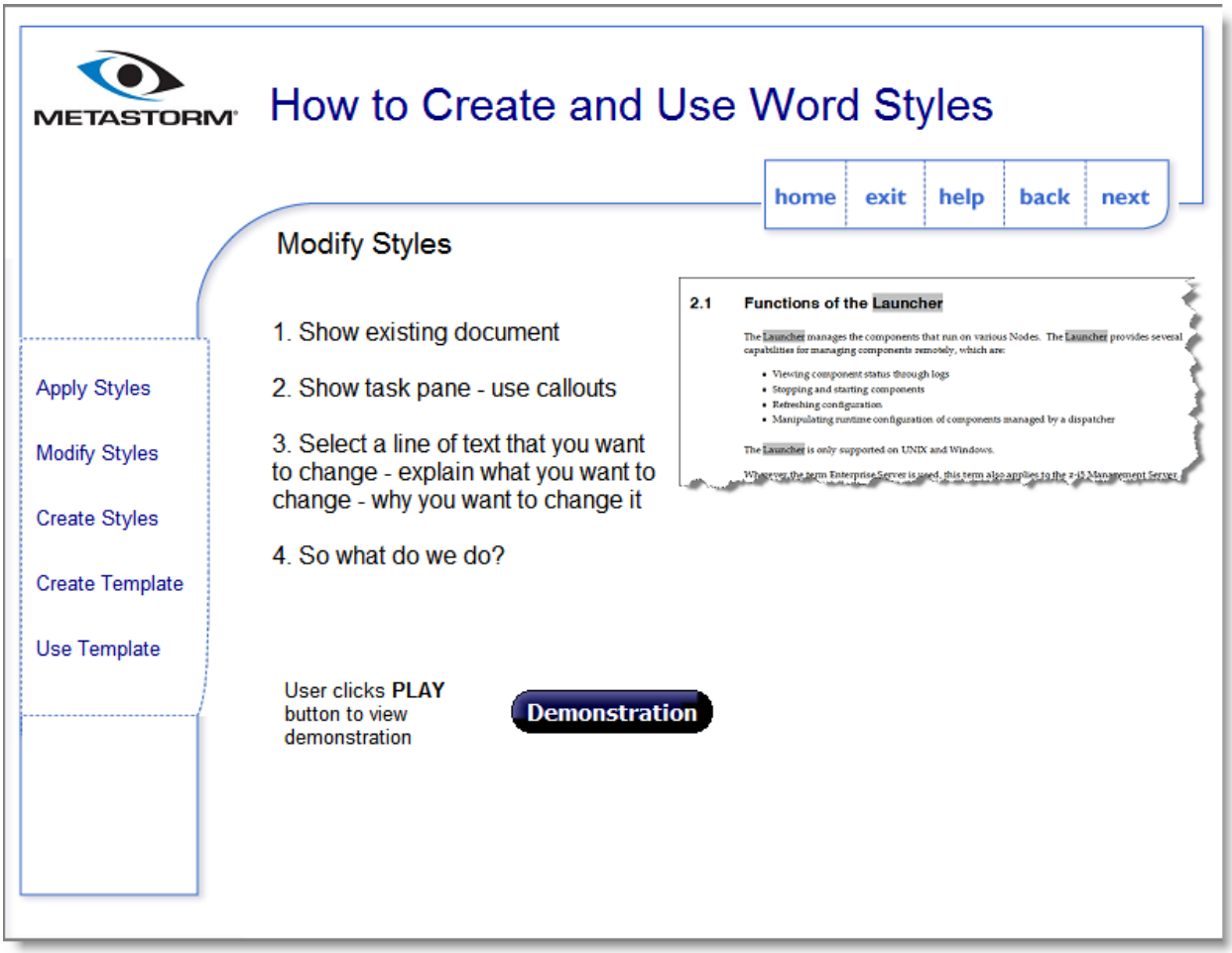


Figure 5 – Prototype modify styles screen

Create Styles

The Create Styles lesson is another example of building on the learner's newly acquired knowledge. This lesson will span multiple screens, providing a brief review of the concepts covered to this point. This reinforces the material and prepares the learner for the next task, creating a new style.

- Learner reads the introduction to this lesson explaining why one would create a style
- Learner reads the steps involved for creating a style
- Learner views a demonstration
- Learner may click **Next** to proceed to the next screen

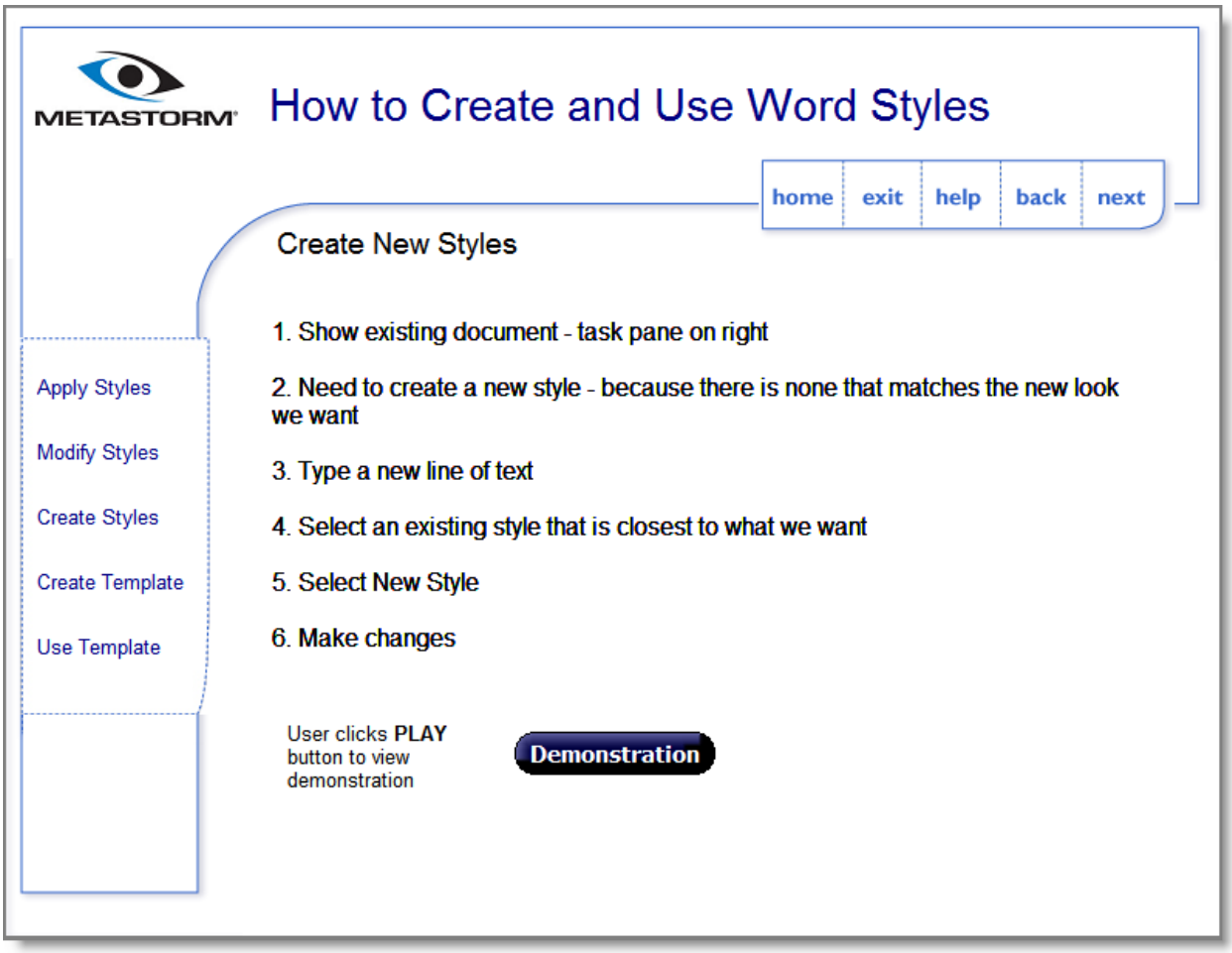


Figure 6 – Prototype create styles screen

Usability Inspection

Once a product has been designed and developed, an evaluation is recommended to test the effectiveness of the content and whether it has achieved the instructional objectives. The interface design must also be evaluated for its usability and how it helps or impedes the learner (Morrison, Ross, & Kemp, 2004). Evaluation of an interface may be conducted through various approaches. Usability evaluation involves a testing technique and a method to collect data that can indicate the level of user satisfaction (Preece, Rogers, & Sharp, 2002). Choosing a test method is dependent on factors such as available resources and the objectives of the evaluation (Mack & Nielsen, 1994). Holzinger (2005) divides usability evaluation into two branches, *inspection methods* and *test methods*. Within inspection methods there are three approaches: heuristic evaluation, cognitive walkthrough, and action analysis. The tactics for test methods include thinking aloud, field observation, and questionnaires. Each method within the two branches has different requirements such as required time, number of test users, number of evaluators, required level of expertise, applicability in design phase, and level of intrusiveness.

This chapter explores an evaluation using Nielson's Heuristics (Stone, Jarrett, Woodroffe, & Minocha, 2005) that covers a broad area, typically disclosing the most common problems encountered in interface design. The usability inspection discussed in this portfolio was conducted against an existing learning module, *Microsoft Office Word 2007 New Features,* an online course from **element K** (http://www.elementk.com/). The course topic is related to the prototype e-learning module, *How to Create and Use Word Styles.*

The heuristics listed in Table 3 include the analysis and rating of the *element K* course. The references to figures within Table 3 immediately follow the table. The *element K* course

provides excellent navigation, a great mix of media, wonderful help resources, and good visibility techniques that guide the student through the course.

Table 3 – Usability inspection for e-learning module

Nielson's Heuristics	**Analysis**	**Rating 1 – 10 1=worst 10=best**
Visibility of system status	The user can easily determine his status within each module and progress for how many more modules are remaining within the course. As the student progresses within the course, the navigation pane (on the left) shows the current lesson highlighted. The navigation pane automatically scrolls as the learner progresses through the course. The student can also determine how long a lesson will take by the time that displays in the upper left corner of the lesson window. During each lesson, the number of slides displays indicating where the student is within the lesson. For example, if lesson 1 has 5 slides, the student will see 1 of 5. See Figure 9 and Figure 10.	10
Match between system and the real world	This lesson introduces the user to Word 2007. There is an assumption that the user has Word experience. However, if the user needs help, multiple tabs located on the right side of the window provide the user multiple resources for understanding the topic. See Figure 17. The learner can select Additional Reading, Resource, and Glossary on the right using tabs. Along the bottom of the window, the user can select Help and view a new page that explains course navigation. See Figure 14 and Figure 21	9
User control and freedom	There is no exit button. The course exit is controlled through standard browser controls. The user clicks the red X in the upper right corner of the Window to exit the course or any dialogue screen. This action does not prompt the user to confirm. The user has complete control over navigation within the course. The user can select any lesson, page back, and page forward. The user can control audio, pause or play video, and select any of the available help resources during the lesson. There is also a My Notes tab where the student can enter notes about each lesson. Within each Lesson, the student can select the Topic Map (located on the bottom of the display) and navigate directly to a specific topic. See Figure 7, Figure 8, Figure 13, Figure 15, Figure 16.	9
Consistency and standards	All terminology and actions are consistent within the course.	10
Error prevention	The course does not produce any error messages or present the user with decisions based on errors.	10

Nielson's Heuristics	Analysis	Rating 1 – 10 1=worst 10=best
Recognition rather than recall	There is essentially no cognitive overload placed on the learner. Demonstrations allow the user to select custom options for learning the material. The options are presented as levels: Show me Full Demo, Guide me Through, and Let Me Try. This is a great approach to teaching because it provides interaction and allows the student to select the level. As the student becomes more comfortable with the content, the level may change as required. See Figure 11. The course also provides Lesson Labs and Lesson Follow-up for practice and review. See Figure 18.	10
Flexibility and efficiency of use	The student can select modules and specific lessons within the module. The student is not required to view each lesson in order. This approach allows the more experienced user to select lessons based on need. See Figure 7, Figure 8, Figure 12.	10
Aesthetic and minimalist design	The audio that accompanies each lesson is brief and to the point. It is just enough information to maintain the learner's interest, but not too much to bore the student. A transcript is also available as a tab on the right side, for learners that prefer to read and/or print the material. See Figure 19.	10
Help users recognize, diagnose, and recover from errors	No error messages were encountered while viewing the e-learning module.	10
Help and documentation	Help resources are abundant in this e-learning course. The student can select Help button on the bottom bar of the display. There are also 3 helpful tabs on the right side of the display: Text Version, Additional Reading, Resources, Glossary, and My Notes. See Figure 14, Figure 17, Figure 20, Figure 21	10

Screen Shots

The following screen shots are discussed in Table 3.

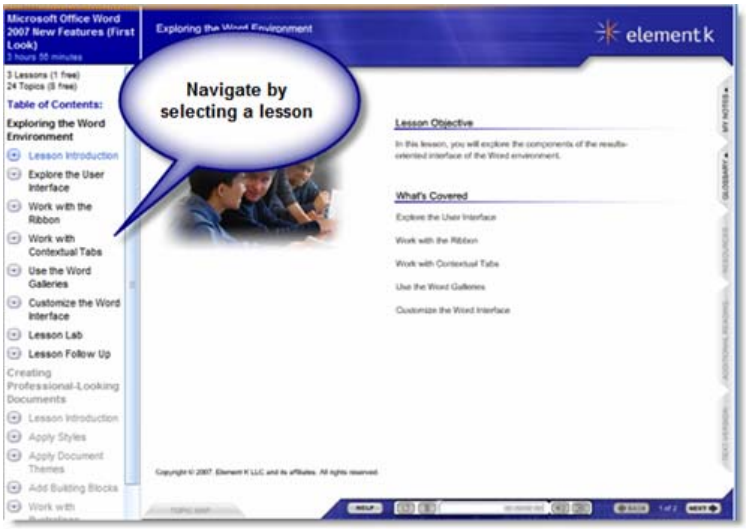


Figure 7 – Navigate the course through the links within left pane

Figure 8 – Select a lesson within the module

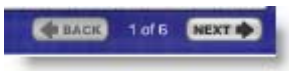


Figure 9 – Visibility control within lesson

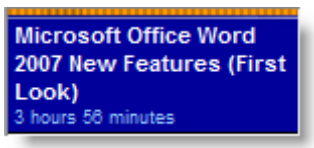


Figure 10 – Visibility control within course

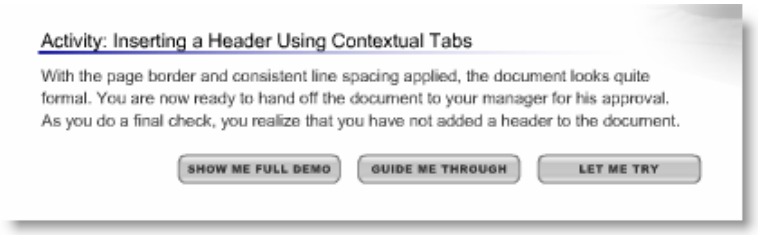


Figure 11 – Determine level of interaction

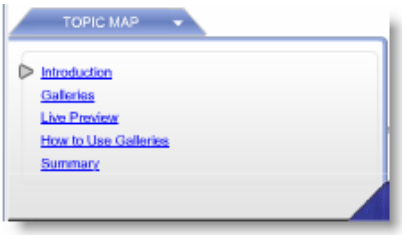


Figure 12 – Additional navigation options for student within Topic Map

Figure 13 – Learner controls for paging, audio, play, stop, and help

Figure 14 – Help button

Figure 15 – Replay and Stop buttons

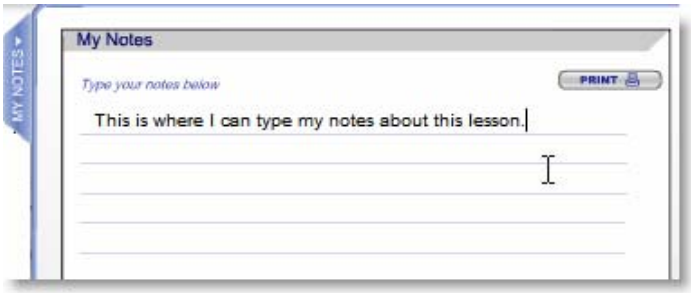


Figure 16 – My Notes tab

Figure 17 – Navigation tabs on right

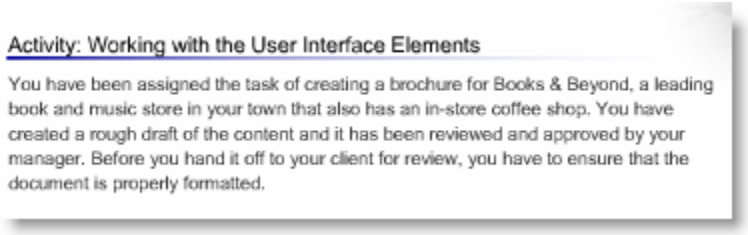


Figure 18 – Lesson Lab

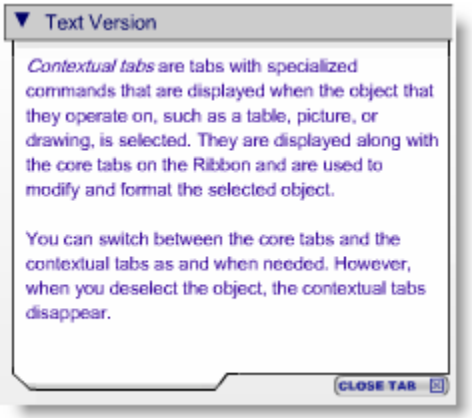


Figure 19 – Transcript Tab example

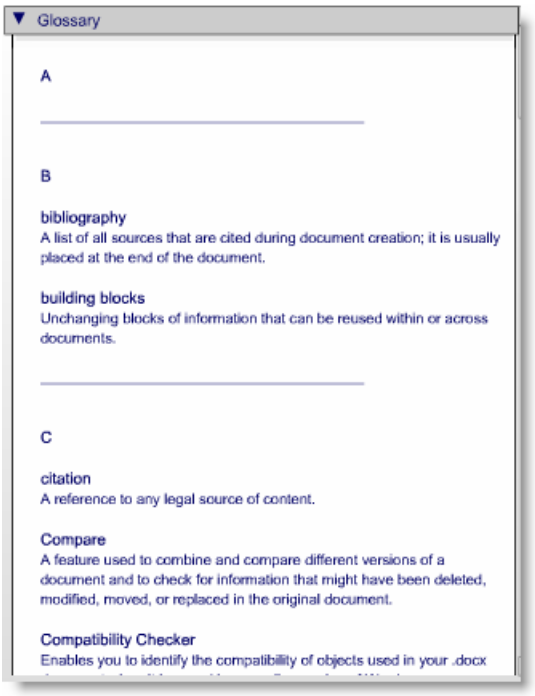


Figure 20 – Glossary

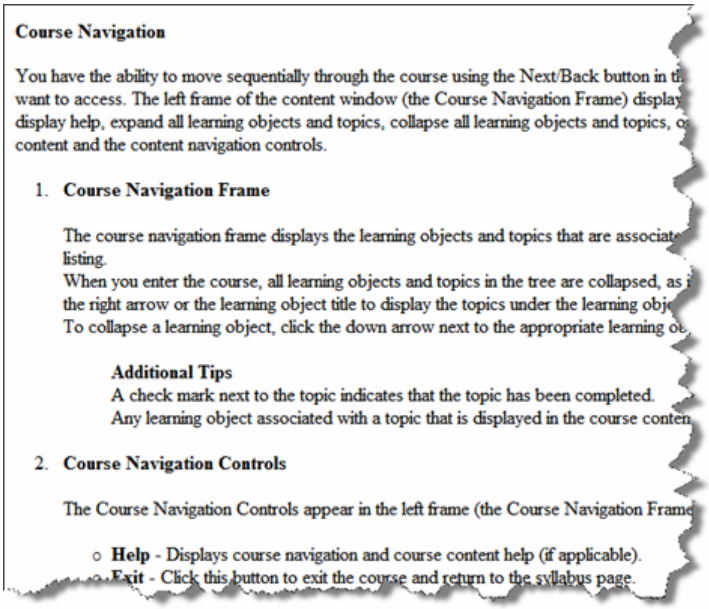


Figure 21 – Help display

Script Test Plan

Testing Procedure

A scripted test plan assures the researcher that usability testing is thorough and controlled. Scenario-based evaluations must be thoughtfully planned to realistically reflect how real users will interact with the interface. Scenarios can ensure that specific areas of the software are exercised. If participants are not provided with specific objectives, they may explore the interface pursuing tasks that are personally meaningful (Mack & Nielsen, 1994). The scenario must be in the user's words, brief, and unambiguous (Dumas & Redish, 1999). One of the most common test methods is *thinking aloud*.

The usability evaluation was conducted for the **element K** online course, *Microsoft Office Word 2007 New Features.* The think aloud method was used in two separate sessions in the home office of the researcher. Upon arrival, the participants were seated in the office and informed of the test proceedings (Dumas & Redish, 1999). Participants reviewed and signed the Statement of Informed Consent (Barnum, 2002) (Appendix A). The script was verbally presented to the participant and reviewed to ensure that the participant understood his role and the role of the researcher (Appendix B). The researcher assured the participant that the procedure is a usability evaluation of an online course and is not a test of the user's computer skills or intelligence. The participant was requested to think out loud, as the posted signs were noted by the researcher as a friendly reminder (Appendix C). Once the participant was comfortable and acknowledged readiness, the task list was presented for the user to review before beginning the test (Appendix D).

Upon completion, the researcher presented the participant with the Participant Profile for recording demographic information (Appendix E). A brief review of the participant's findings

was conducted with the participant to allow the researcher to make any final notes. Observations of each participant's response to the tasks were recorded in the usability scorecard (Appendix F).

Participant Summaries

Two subjects participated in the usability evaluation. One participant is in the 46 to 55 age group and one participant is in the over 55-age group. Both participants have a college education, are experienced Internet and computer application users, and have taken previous online courses (Appendix E).

Each participant approached the scenario slightly differently and each participant discovered a new problem. All participants were very effective in verbalizing their thoughts during the session. Participant 1 was particularly vocal throughout the test. No one asked any questions except for Participant 2 when a technical problem occurred.

Qualitative Results

All participants were successful in executing most of the tasks in a timely fashion (Item F). Major problems encountered with Task 21 and Task 23 are noted in the following sections.

Task 21. *Do you understand what specific actions are expected after viewing the demonstration?*

Both participants had to review the instructions before proceeding. This section is dramatically different, causing both participants to stop and ponder the next action. The large window where the demonstration occurs is distracting when trying to view the Milestone/Instructions box in the lower right corner, where the instructions reside. The participants viewed the demonstration a few times, and then read the Milestone/Instructions box a few times before proceeding.

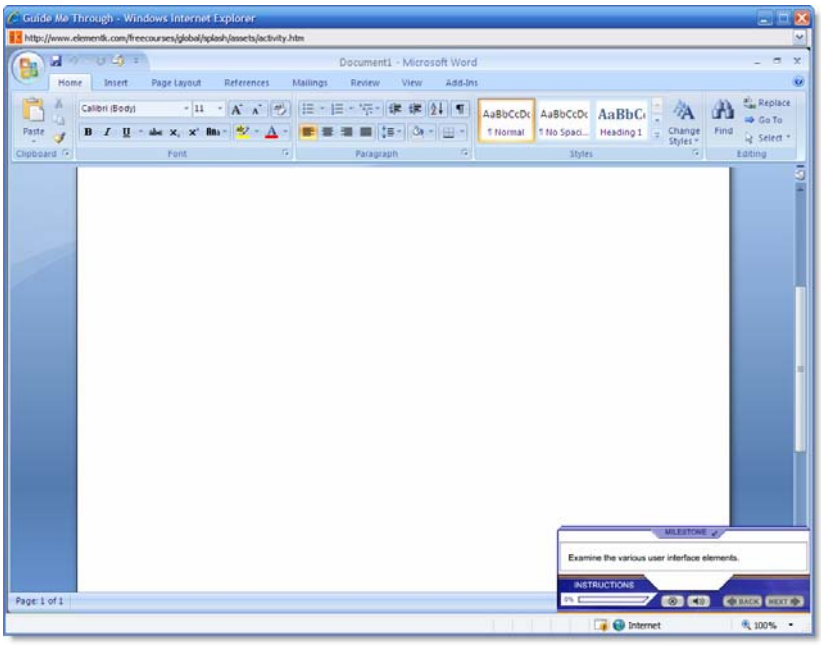


Figure 22 – Guide Me Through screen 1

When the demonstration ended, the display in Figure 23 appeared.

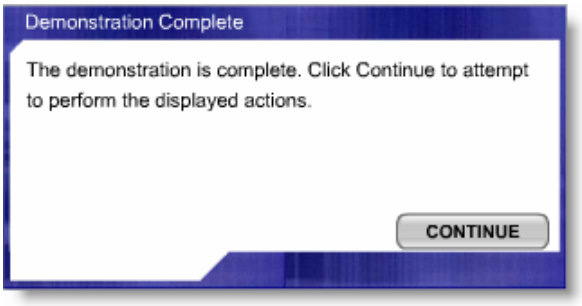


Figure 23 – Guide Me Through screen 2

Task 23. *Follow the instructions in the demonstration and use the hints as required*

Task 23 requires the user to perform the tasks as shown in the demonstration just viewed. The change of pace and the changing windows seemed to confuse the users. The Milestone/Instructions box in the lower right corner of the window contains the instructions. It also offers hints through the Hint button. Users were uncomfortable with this part of the course. They were cautious, clicking around before becoming confident of the next step.

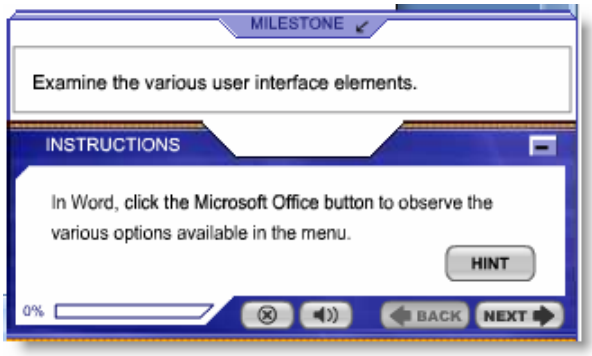


Figure 24 – Instructions for performing actions after viewing demonstration

During one of the tasks in this section, if the user clicked in the wrong place, a Support screen appeared, but it is obscured by another window. This confused the user, unsure of what action to take to clear the problem.

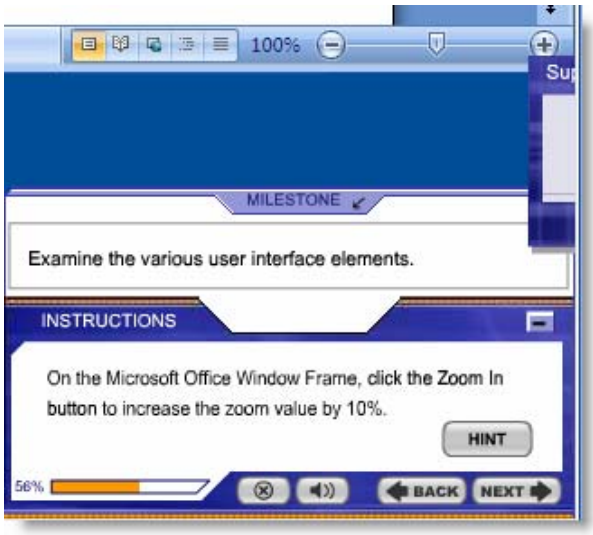


Figure 25 – Information screen is obscured by window

To escape from the problem noted in Figure 25, the user must click again to try to complete the task. If the user clicked on the zoom bar, then the Support window moved. The user had to click a button in the Support window to move beyond this task.

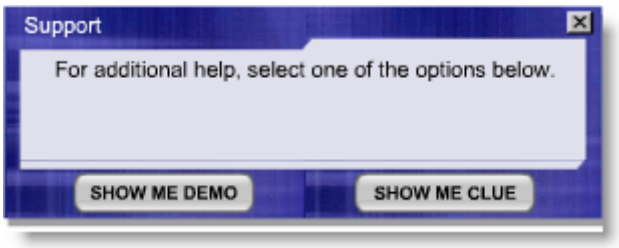


Figure 26 – Support window

Recommendations

Both participants experienced confusion in the *Guide Me Through* section of the learning module. Audio instructions would be helpful, to ease the user into the activity. These instructions should be minimal, with repetition to help reinforce the expected actions of the user.

Summary

Function and Rationale of Portfolio Pieces

Each portfolio piece in the interface design has been evaluated and supported with literature references. Rationale for each design piece has been provided and supported through research literature. Alternative approaches for each design phase discussed in this portfolio are noted and supported with research literature.

Technology

Tools used in the design and development of the prototype is documented in the Prototype chapter. The software tools are owned by the researcher and more than met the needs of the project. No additional technologies are required to develop the e-learning module as defined within this portfolio.

Original Designs and Ideas

All content to support the topic is original, derived through the researcher's personal and work experience using software such as Word. Ideas, images, and screen captures are all original. No copyright infringements apply to this work.

What was Learned

The researcher has gained valuable knowledge into the insight of designing a usable interface. Content diagrams were an entirely new subject for the researcher/student during this project. Given my newly acquired knowledge of interface design, I would spend more time evaluating the needs of the user, to develop useful content. During the prototype phase, I would involve the user again, to determine the effectiveness of the interface.

Looking back on my interface design, there are some areas that warrant enhancements such as navigation, additional user controls, and accessibility features such as transcripts for all content.

Appendixes

Appendix A

STATEMENT OF INFORMED CONSENT

I state that I am over 18 years of age and wish to participate in a project of evaluation being conducted by Diane Hogan for partial fulfillment of the requirements for the Graduate School of Education at Capella University.

The purpose of the project is to assess the usability of an element K online course.

The procedures involve the monitored use of the element K course site. I will be asked to perform specific tasks using the element K course. I will also be asked to complete a participant questionnaire about the course evaluation experience and a questionnaire about my age, my general use of the Internet, and my education level.

All information collected in the study is confidential, and my name will not be identified at any time.

I understand that I am free to ask questions or to withdraw from participation at any time.

Signature of Participant Date

Appendix B

SCRIPT READ TO PARTICIPANTS

You are participating in a usability evaluation of an online course by **element K**, *Microsoft Office Word 2007 New Features.* Element K (http://www.elementk.com/) offers many state-of-the-art online courses. The selected course is an introduction to the new features in Word 2007.

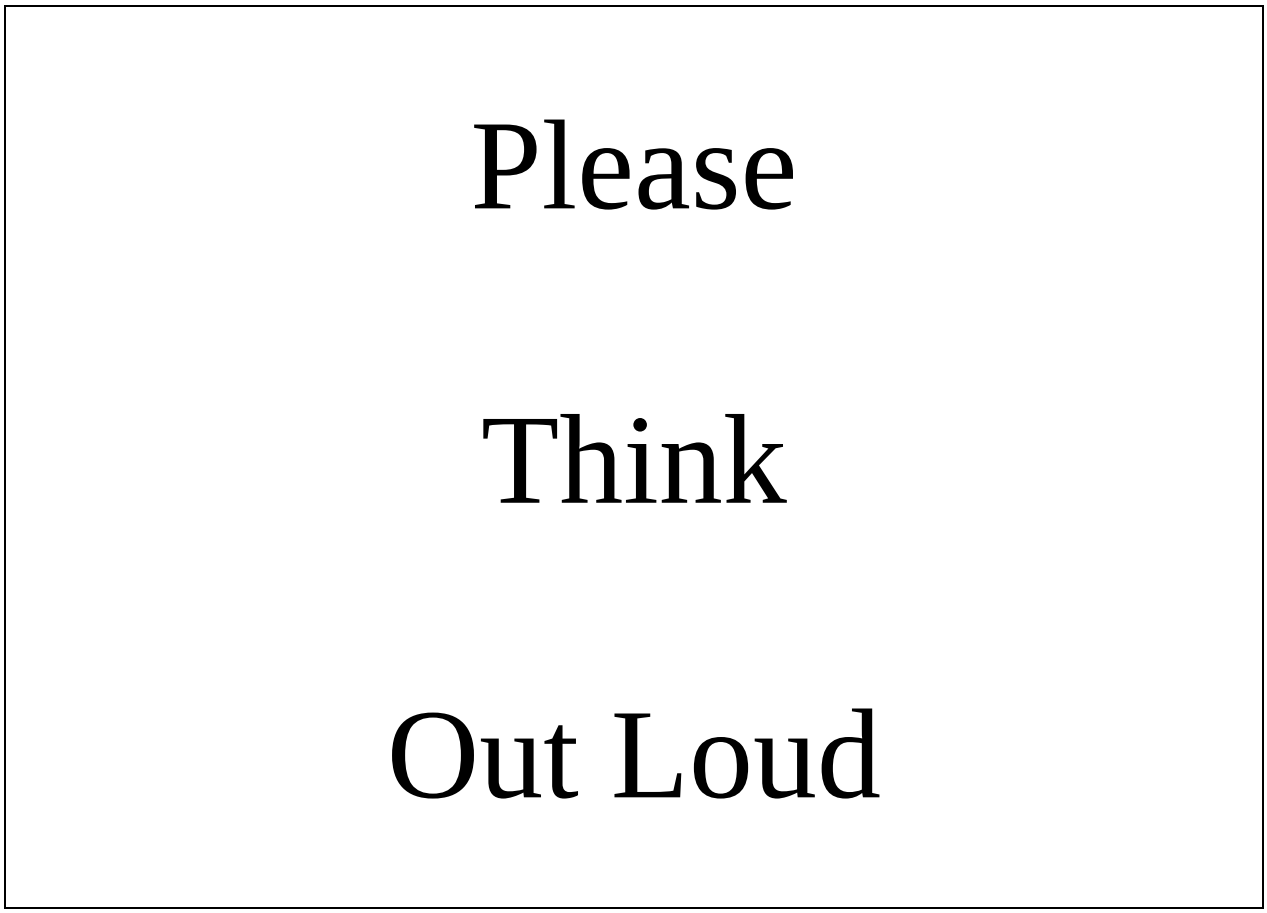
The researcher will provide you with a scenario for using the online course. Please complete the scenario in the order presented. The study is designed to gauge the effectiveness of the course design and architecture. The study is not a test about your computer abilities, but rather a study of your impressions of the effectiveness of the course design. The primary purpose of the element K course is to introduce new features in Word 2007. Your participation will help to determine if any parts of the course do not meet the needs of potential users.

Please help the researcher by verbalizing your thoughts as you progress through the scenario. The researcher is not allowed to help you complete the tasks; however, the researcher may answer any questions about the scenario. You may be prompted as you progress through the scenario, reminding you to think out loud in order to allow the researcher to understand what you are thinking. The evaluation is dependent upon your continuous and valuable feedback.

The evaluation is designed to take no more than one hour of your time. After you have completed the scenario, please complete the brief questionnaire provided to you by the researcher. Thank you very much for your participation in this usability evaluation.

Appendix C

TESTING AREA POSTED REMINDERS



Appendix D

TASKS PRESENTED TO PARTICIPANTS

The objective of the usability study is to obtain measurements of the level of difficulty that participants encountered while performing each task.

1. Read the lesson objectives and lesson scope and proceed to the next screen. (Lesson Introduction p. 1)
2. After proceeding to next screen, can you hear the audio and view graphics? (Lesson Introduction p. 2)
3. Find the text version of the audio introduction from page 2 of the Lesson Introduction.
4. Close the text information.
5. Navigate to the next entry in the table of contents. (Explore the User Interface)
6. Select a sub-module labeled The Ribbon. (Lesson within Explore the User Interface. (p. 3 of 7)
7. Navigate to the Additional Reading, using one of the two mechanisms.
8. Close the Additional Reading tab.
9. Proceed to the next screen. (p. 4 of 7)
10. Pause the audio.
11. Proceed to the next screen. (p. 5 of 7)
12. Interact with the lesson on p. 5 of 7 by clicking the functions on the mock-up of the frame.
13. Locate the replay button.
14. Locate the closed captioning button.
15. Enable closed captioning.
16. Find the Help function.
17. Find the Hotkey for *My Notes* within the Help function.
18. Enter a note on the *My Notes* tab.
19. Proceed to the next screen. (p. 6 of 7)
20. Read the instructions and select the *Guide Me Through* option.
21. Do you understand what specific actions are expected after viewing the demonstration?
22. Follow the instructions in the demonstration and use the hints as required.

Appendix E

PARTICIPANT PROFILE

Table 4 – Participant Profile Summary

Usability Evaluation							
Participant Profile Summary							
Participant #	**Are you an Internet user?** **Y/N**	**Have you used or ever wanted to use the Internet to take a course?** **Y/N**	**Education Level** 1=High School 2=College Graduate 3=Graduate Studies 4=Vocational/Technical Studies	**Age** 1=18-25 2=26-35 3=36=45 4=46-55 5=Over 55	**What is your occupation?**	**% of Daily Time Spent on the computer**	**Primary Language** (spoken/read)
1	Y	Y	3	5	Project Manager	75	English
2	Y	Y	3	4	Instructional Designer	75	English

Appendix F

OBSERVATIONS

Table 5 – Usability Scorecard Participant 1

element K Usability Scorecard					**Participant 1**
Task	**Observed Level of User Difficulty**				**Researcher Comments**
	Not Complete	**Easy**	**Mod**	**Difficult**	
1. Read the lesson objectives and lesson scope and proceed to the next screen		✓			Immediately recognizes how to proceed.
2. After proceeding to next screen, can you hear the audio and view graphics?		✓			Yes
3. Find the text version of the audio introduction from page 2 of the Lesson Introduction			✓		Hesitates a bit, but does find it.
4. Close the text information		✓			Likes the text version – very helpful for review.
5. Navigate to the next entry in the table of contents			✓		Wanted to study screen for a few seconds – then found the table of contents pane.
6. Select a sub-module labeled *The Ribbon*.		✓			Easy
7. Navigate to the *Additional Reading.*		✓			Easy
8. Close the *Additional Reading* tab		✓			Easy
9. Proceed to the next screen.		✓			Easy
10. Pause the audio		✓			Easy
11. Proceed to the next screen		✓			Easy
12. Interact with the lesson on p. 5 of 7 by clicking the functions on the mock-up of the frame.			✓		Studied the screen, read the text version, then proceeded.
13. Locate the **replay** button.		✓			Easy
14. Locate the **closed captioning** button.			✓		Studied the media buttons for a few seconds, then found it. Was surprised this function available.

15. Enable closed captioning.		✓			Easy
16. Find the Help function.		✓			Easy
17. Find the Hotkey for *My Notes* within the Help function.		✓			Easy
18. Enter a note on the *My Notes* tab.			✓		Studied the screen for a few seconds, then noticed the tab on the right. Thinks this feature is very nice.
19. Proceed to the next screen.		✓			Easy
20. Read the instructions and select the *Guide Me Through* option.		✓			Easy
21. Do you understand what specific actions are expected after viewing the demonstration?			✓		Re-read the instructions, re-played the video, read the text version.
22. Follow the instructions in the demonstration and use the hints as required.			✓		Stumbled a bit here. This was a bit confusing for the user.

Table 6 – Usability Scorecard Participant 2

element K Usability Scorecard					Participant 2
Task	**Observed Level of User Difficulty**				**Researcher Comments**
	Not Complete	**Easy**	**Mod**	**Difficult**	
1. Read the lesson objectives and lesson scope and proceed to the next screen			✓		Hesitated a bit, read the screen, then clicked Next.
2. After proceeding to next screen, can you hear the audio and view graphics?		✓			Easy
3. Find the text version of the audio introduction from page 2 of the Lesson Introduction		✓			Easy
4. Close the text information			✓		Was not expecting a text version to be available. Took a few seconds to find.
5. Navigate to the next entry in the table of contents		✓			Easy
6. Select a sub-module labeled *The Ribbon*.			✓		Hesitated a bit. The table of contents pane was a little confusing at first, then replied that yes – this makes sense.
7. Navigate to the *Additional Reading.*		✓			Easy
8. Close the *Additional Reading* tab		✓			Easy
9. Proceed to the next screen.		✓			Easy
10. Pause the audio		✓			Easy
11. Proceed to the next screen		✓			Easy
12. Interact with the lesson on p. 5 of 7 by clicking the functions on the mock-up of the frame.		✓			Easy
13. Locate the **replay** button.			✓		Was confused at first. I think the change of pace catches them off guard.
14. Locate the **closed captioning** button.		✓			Easy
15. Enable closed captioning.		✓			Had been studying the media buttons, so was already familiar.

16. Find the Help function.		✓			Easy
17. Find the Hotkey for *My Notes* within the Help function.		✓			Easy
18. Enter a note on the *My Notes* tab.		✓			Easy
19. Proceed to the next screen.			✓		Hesitated a few seconds, then found it.
20. Read the instructions and select the *Guide Me Through* option.		✓			Easy
21. Do you understand what specific actions are expected after viewing the demonstration?		✓			Easy
22. Follow the instructions in the demonstration and use the hints as required.			✓		Unsure

References

Alessi, S. M., & Trollip, S. R. (2001). *Multimedia for learning* (3rd ed.). Boston: Allyn and Bacon.

Barnum, C. M. (2002). *Usability testing and research.* New York: Longman.

Brown, A., & Green, T. D. (2006). *The essentials of instructional design*. Upper Saddle River, NJ: Pearson.

Dumas, J. S., & Redish, J. C. (1999). *A practical guide to usability testing*. Exeter, England: Intellect Books.

Hargis, G., Carey, M., Hernandez, A. K., Hughes, P., Longo, D., Rouiller, S., & Wilde, E. (2004). *Developing quality technical information – A handbook for writers and editors*. Upper Saddle River, NJ: Prentice Hall.

Holzinger, A. (2005). Usability engineering methods for software developers. *Communications of the ACM, 48*(1), 71-74. Retrieved July 8, 2006, from The ACM Digital Library.

Liegle, J. O., & Janicki, T. N. (2006). The effect of learning styles on the navigation needs of Web-based learners. *Computers in Human Behavior, 22*, 885-898. Retrieved April 5, 2006, from Elsevier Science Direct.

Mack, R. L., & Nielsen, J. (1994). Executive summary. In J. Nielsen & R. L. Mack (Eds.), *Usability inspection methods* (pp. 1-23). New York, NY: John Wiley & Sons, Inc.

Mitchell, T. J. F., Chen, S. Y., & Macredie, R. D. (2005). Hypermedia learning and prior knowledge: Domain expertise vs. system expertise. *Journal of Computer Assisted Learning*, *21*(1), 53-64. Retrieved May 2, 2006, from Blackwell Synergy.

Morrison, G. R., Ross, S. M., & Kemp, J. E. (2004). *Designing effective instruction* (4th ed.). Hoboken, NJ: Wiley.

Preece, J., Rogers, Y., & Sharp, H. (2002). *Interaction design: Beyond human-computer interaction.* New York: John Wiley & Sons, Inc.

Seels, B., & Glasgow, Z. (1998). *Making instructional design decisions* (2nd ed.) Upper Saddle River, NJ: Merrill Prentice Hall.

Shneiderman, B., & Plaisant, C. (2005). *Designing the user interface: Strategies for effective human-computer interaction*. Boston: Pearson.

Smith, P. L., & Ragan, T. J. (1999). *Instructional design* (2nd ed.) New York: John Wiley & Sons, Inc.

Stone, D., Jarrett, C., Woodroffe, M., & Minocha, S. (2005). *User interface design and evaluation*. San Francisco: Morgan Kaufmann.

TechSmith (2004). *Camtasia Studio* (Version 2.1.0). [Computer software]. Okemos, MI.

TechSmith (2007). *SnagIt* (Version 8.2.0). [Computer software]. Okemos, MI.

Trivantis (2006). *Lectora* (Version 2006). [Computer software]. Cincinnati, OH.