JUSTIFICATION STATEMENT

The unit of instruction chosen is based on web accessibility guidelines Valdeverde et al. (2011) put forth by the California Community College Chancellor’s Office. The concepts of web accessibility challenges are explored to deepen learner’s understanding of web both challenges and actions learners can take to enhance the accessibility online materials. Word 2010 was the chosen focus of this unit of instruction due to it being a common authoring tool by a majority of distance education. Procedural knowledge will be supported by graphics, videos, and multimedia. The website is an extension of a workshop conducted on campus to teach faculty how to make their word processed documents more accessible. All visuals and learning materials are based on the assumption that the user utilizes Word and has attended these face to face workshops. Upon completion of the entire unit, the learner will have a working knowledge of accessibility as it pertains to documents authored in Microsoft Word.

UNIT DESIGN – WELCOME, INTRODUCTION, AND CONCLUSION

WELCOME

The unit is titled “Word 2010 Accessibility Tutorial” and consists of four lessons. The initial entry point Welcomes the user and provides them with a preview of learning and names of key concepts with links to allow for previewing some of the key terminology. Clark & Mayer (2008) state that pretraining learners by providing names and characteristics of key concepts in a lesson aids in learner retention and allows advanced processing of the material. The decorative visual of the word was intended to create interest and motivation. Lohr (2007} states that “decorative visuals are used to make instruction more appealing and motivating.” (p. 191) Moreover, visuals should have a strong association with the instructional content. The vocabulary in this visual are associated with the learning materials to come in each lesson. In addition, Lohr (2007} states that “learners have been found to choose to study displays that have many rather than fewer elements with irregular arrangements.” (p.127) The
arrangement of the words were to create visual interest as opposed to having just a bulleted list or a link to a list of words.

**INTRODUCTION**

In addition to the welcome page, an introduction page was added as the starting point for the unit. This page was intended to give a context for the purpose of accessibility as outlined in Valdeverde et al. (2011), as well as introduce some of the challenges that are faced on the web. Davidson-Shivers & Rasmussen (2006) state that an orientation to learning “sets the stage for the unit of instruction, outlines instructional expectations, and facilitates the learner in completing the activities and assignments and learning the content.” (p. 220-222) The Introduction provides a bulleted list of objectives, videos to put the instruction into context, and provides information about obtaining help with navigating the site to provide directions on how to get started. In addition, a graphic was utilized to help the learner organize the content of the lessons. The graphic uses shapes, images, and a numbering system inside of a table to create a generative strategy that allows learners to efficiently create their own meaning by outlining content and creating mental image. (Lohr, 2007)

**CONCLUSION PAGE**

After the Unit of Instruction is a Conclusion page. This was included to address a closure principle outlined by Davidson-Shivers & Rasmussen (2006) to “enhance and enrich learning” beyond what is in the unit. The summary and close component in the conclusion is an instructional strategy to direct learners attention back to the main points and to enable them to see future efforts of web accessibility. The hope is to motivate the learners to extend their knowledge on the subject to address the guidelines put forth by the California Community College Chancellor’s Office.

All pages in the instructional Unit contain a visual hierarchy created by using cascading style sheets and by using header hyper-text markup language for structure. The heading tags create a “series of cues or signs to direct the eye toward certain information in a certain order.” (Lohr, 2008) They were designed to catch and draw the learners attention visually on the page. Visual cueing can facilitate processing unfamiliar information; although
it may not be needed with higher-ability students. Because the learning will be mostly self-directed, it is important for the information to be clear and easy to follow.

Finally, all three pages (Welcome (Home Page), Introduction, and Conclusion) contain a personalization agents that will read the text to them on the screen. These agents were created using Voki to provide motivational strategies (Lohr, 2007), as well as to address what (Clark & Mayer, 2008) call the personalization principle. The personalization principle states that using on-screen coaches can promote learning and guide the educational process. This reduces cognitive load for students and also provides multiple ways that learners can get the same content (allowing the learner to choose their path). Two separate studies outlined by Clark & Mayer (2008) support pedagogical agents as a way to enhance learning over no agents present.

LESSONS

The unit was divided into four separate lessons in an effort to chunk the information in related sets of data. The lessons were divided to help the learner process the information more quickly. For instance, part of creating structure includes creating alternative text for tables (also considered a graphic). In order for learning to be more efficient, information on this was included in both lessons to help the learner chunk the information relevant to the lesson and concept at hand. Lohr (2007) (page 125) states that the chunking sizes can vary, as is the case with this unit. Lesson 2 has more information than most of the other lessons; therefore, more graphics were provided to make smaller chunks out of that particular lesson.

All lessons include three common graphics; a video graphic, document graphic, and discussion board graphic. All of the graphics use basic shapes to convey an actionable idea using a drop shadow to enhance the depth and create visual interest. The drop-shadow creates good visual contrast signifying an action and helping the graphic stand out on the page. These actions can help enhance figure and ground and help the learner know what to do efficiently, especially if it is repetitious and easy to use. Lohr (2008)
This lesson has a single graphic used to convey the meaning of alternative text. It is a picture of a picture with words reading “I am an image”. Lohr (2008) asserts that interpretive visuals help “learners understand difficult and ambiguous content. In general, they help make information more comprehensible.” This graphic is a model of the concept and fits well as an interpretive graphic of what the idea behind alternative text really is.

LESSON 2

Again, a single image was utilized to convey the idea behind creating structure as the first graphic seen when encountering the page. There is a picture of a document with a Header 1, Header 2, Header 3, and Title. Additional screen shot graphics were utilized with arrows and words where appropriate to help the learner see what menu options would achieve the desired outcomes of the learning.

LESSON 3

A transformative graphic was used for association in lesson 3. A stoplight with arrows pointing to words on good contrast (green light), questionable contrast (yellow light), and poor contrast (red light) were used to help affect long term memory. Lohr (2008) asserts that transformative visuals “affect long term memory because they rely on analogy or previous experiences stored in memory as devices to help people learn.” The association created between existing memory (the stop light) and examples of good, questionable, and poor contrast create a link in the learners mind to aid in retention. This graphic was developed to help learners draw the link as well as what Lohr (2008) describes as “psychological associations” with environmental cues. (p. 470)

LESSON 4

A single representational graphic was utilized on this page in order represent what Word 2010’s new accessibility checker will do for the learner. The graphic is a wheelchair symbol with a check mark on the top in green. The wheelchair represents people with disabilities and is a universal sign for that. The checkmark conveys the idea of completeness. The two together convey the idea that we are checking for people with disabilities.

HELP
Alessi & Trollip (2001) state that “learners do not automatically use navigational features well. “Rather than simply providing navigational features, hypermedia programs can be more successful if they provide support for learners to use these features effectively.” The help area was created for this very reason. On the Help page, graphics and directional arrows with assistance is provided on all elements of the website including navigation, participating in discussion boards, progressing through each lesson, and the graphical icons used to assist in watching videos, downloading how to guides, and participating in discussion boards.

Alessi & Trollip (2001) continue by saying that learning materials in hypermedia should include cognitive mapping features that assist the learner with depicting concepts in boxes linked by arrows to show various relationships. Many of the graphics on this page contain concepts in call out boxes with linked arrows to show the actionable relationships that end users need to utilize in order to navigate effectively.

**WEBSITE AND NAVIGATIONAL FEATURES AND DESIGN**

The website was designed with simplicity in mind to make navigation quick, efficient and easy. Each page within the program allows a single click to return to any other page within the user interface. In addition, navigational features pointing to the next and previous lesson were added to the bottom of all Lesson pages 1-4 in order to allow the progression and efficiency of navigation. Arrows were used before and after. Lohr (2008) states that shapes can aide in hierarchy or the act of creating a series of cues or sign to direct the eye toward certain information. Bolding the “next” lesson aids in this concept.

Since the majority of instruction is being delivered online and in a self-paced format, colors and font choices were of important consideration. The green was chosen as the color for navigation along with a blue background. Lohr (2007) states that green represents growth and freshness. Blue represents serenity. Due to the subject matter and legal requirements surrounding the instruction, these colors were chosen to influence the mood of faculty. Sans Serif fonts were chosen to aide in reading online. Lohr (2007) states that fonts without serifs are considered easier to read on a computer monitor. Verdana was designed to be more readable; although it is not on every computer. The cascading style sheet also uses Helvetica and Arial as the font family to aid in readability of the text on the pages.
CARP principles outlined by Lohr (2007) were kept in mind with color choices, rollover effects in the navigation, and consistent icons utilized for navigation signaling actions. All pages are left aligned with consistent placement of graphics or personal agents. Visual contrast was created with both headers and color choices. Text was placed in close proximity to graphics throughout the learning site. Repetition was created by similar placement of graphics, consistent navigation, and consistent icons to represent videos, documents, discussion boards.

Finally, the whitespace utilized throughout the pages was an important consideration. Beaird (2010) assert that some designers often “feel a need to fill every inch of a web page with photos, text, tables, and data; empty space on a page is every bit as important as having content.” (p. 9) Whitespace must be considered to provide breathing room and allow a user's balance and unity. While Bradshaw & Johari (2002) found that whitespace differences had no significant impact on learning, they did not dismiss the importance of whitespace as a design element. Little differences between spacing and table borders had no hinderance on learning, suggesting that small deviations are not significant considerations for design. The authors did acknowledge that interference free presentations result in higher achievement scores for learners. My design considered these factors in an attempt at a simple navigation, good use of whitespace, and consistent graphics throughout in an effort to prevent any interference in the presentation.
REFERENCES


