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**An Accessibility and Usability Review of the
Articulate and Captivate E-Learning Software Packages**

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**AN ACCESSIBILITY AND USABILITY REVIEW OF THE
ARTICULATE AND CAPTIVATE E-LEARNING SOFTWARE
PACKAGES**

Human-Computer Interaction Memorandum Series # 137

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INTRODUCTION

Since June 2001, federal regulations have required that U. S. Government Web sites and other software developed by or for the U. S. Government provide comparable access to the information for all users¹. Computer users who have visual and or other disabilities are entitled to have the same access as users who do not currently have any disabilities

Some practitioners consider accessibility to be a subset of usability, while others think of accessibility as related to, but separate from usability. Accessibility guidelines have several checkpoints that address general usability issues, such as a logical tab order, dividing large information blocks into manageable groups, and using the clearest and simplest language appropriate. Even if the application complies with the accessibility regulations, it still may not be usable, as the Census Bureau's Usability Lab has found in other testing. Both usability and accessibility testing need to be done to identify problems that actual users may have.

BACKGROUND

This accessibility evaluation was performed on two software packages being considered to program the Web Time and Attendance (WEBTA) E-Learning course. WEBTA is an application which provides training to employees to inform them how to enter their time and attendance information on-line. The Systems Support Division (SSD) requested that the Statistical Research Division (SRD) use its expertise to identify accessibility problems in the two software packages under consideration, Adobe Captivate (version 4) and Articulate (version 9) from Articulate Global.

PURPOSE

The purpose of this evaluation is to report and rate the severity of accessibility problems to SSD developers using Captivate and Articulate, first comparing how accessible both software packages are without additional programming, and second by reviewing the usability and accessibility of the WEBTA E-Learning screens.

SCOPE AND METHOD

This evaluation is primarily focused on testing accessibility for computer users with visual disabilities. Accessibility testing was performed using the Job Access With Speech (JAWS) 9 screen reader software². For the purpose of this report, an input task (data entry, check box, radio button, button, link, etc.) is judged to be accessible (compliant with the regulations) if it can be accessed by keyboard commands. Usability problems are detected by visual inspection by an analyst familiar with usability. These problems are included in this report as issues to evaluate in formal usability testing if resources are available.

FINDINGS

Findings for the Articulate software package are listed first (Figures 1-5), followed by the

¹ <http://www.section508.gov/index.cfm?FuseAction=Content&ID=3>

² <http://www.freedomsscientific.com>

Captivate package (Figures 6-21). The priority for accessibility problems will be rated high, medium, or low. An item flagged as high means that the user could not perform the task at all. An item flagged as medium means that the user could perform the task, but with difficulty. An item flagged as low priority means that the user with visual or other disabilities is not presented the same information as the able-bodied user, but can still perform the task. **All accessibility and usability issues are high priority.** The packages have these accessibility issues:

Articulate:

- The tabbing order did not match the visual display in the screen navigation window. (Figure 1).
- Many entries on the left navigation bar are announced as numbers instead of text (Figure 1).
- Screen text is inaccessible on every screen (Global). A global finding indicates presence of a violation on every screen for this software package. (Figure 1).
- Pop-up windows are inaccessible (Figure 2).
- Navigation labels are announced as numbers (Figure 3).
- The Articulate quiz maker module creates a reading order that alternates between the left navigation bar and the quiz responses (Figure 5).
- The only method to navigate between quiz screens is to click on the submit button (Figure 5).

Captivate:

- Navigation buttons are not labeled (Figures 6 and 7).
- The MUTE button on the media player is not accessible (Figure 10).
- Tab order alternates between navigation buttons and media player controls (Figure 10).
- “Roll over” images are not accessible to JAWS users (Figure 12).
- JAWS users cannot proceed to the next quiz question because they must left-click their mouse (Figures 14, 16).
- Drag and drop actions are not accessible because they require usage of the mouse (Figures 17, 19).
- The Completion Certificate text is inaccessible because the JAWS screen-reader could not detect any text (Figure 21).

During the process of accessibility testing, these usability problems were detected for each of the software packages:

Articulate:

- There are tab stops between some entries on the left navigation bar (Figure 1).
- The background image makes the screen text difficult to read (Figure 3).
- Redundant text is used eight times on the Course Objectives screen (Figure 4).
- Contrast is poor on screens with colored text (green and/or red on blue, Figure 4).
- The left navigation menu is still detected by JAWS even when it is turned off by the widget in the lower right corner (Figure 5).

Captivate:

- JAWS users must navigate backwards to hear content, causing an undue burden to users (Figure 8).
- Spelling errors slow down the JAWS user because they may need to listen to the text again to determine meaning. (Figures 7, 9, 12, 13).
- Captioned text is broken up and difficult to read (Figure 10).
- A quiz instruction uses poor grammar (Figure 13).
- Quiz question feedback text requires backwards navigation (Figures 14, 20).
- The background image interferes with reading the screen text (Figure 15).
- The matching activity in a quiz question cannot be performed by any user because there are no topics in column 2 (Figure 18).
- Contrast is very poor on activity screens because of a small white font on a black background and small red buttons with black text (Figures 6-13,16-20).

ARTICULATE

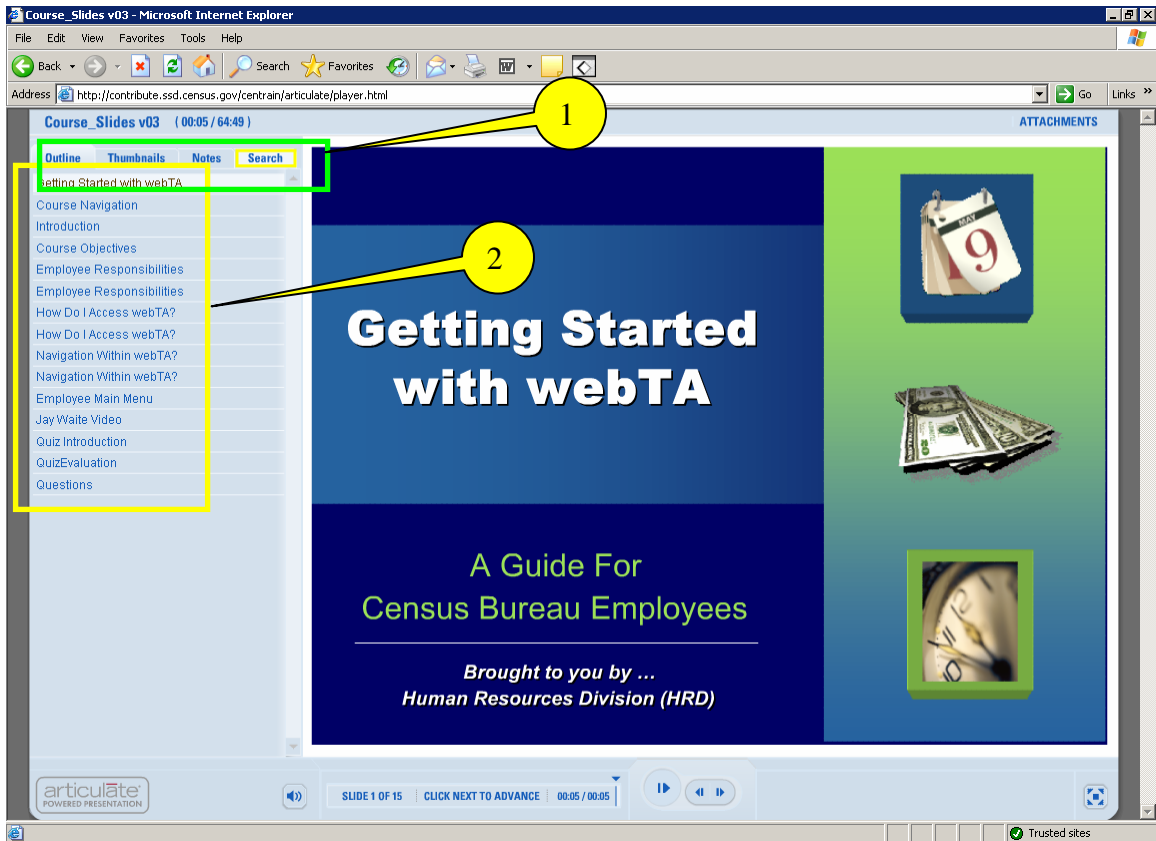


Figure 1. The Articulate software did not generate a logical tab order and labels for entries in the left navigation bar.

1. The tabbing order did not match the visual display in the screen navigation window.
2. Many navigation entries are announced as numbers, and there are tab stops between some entries.

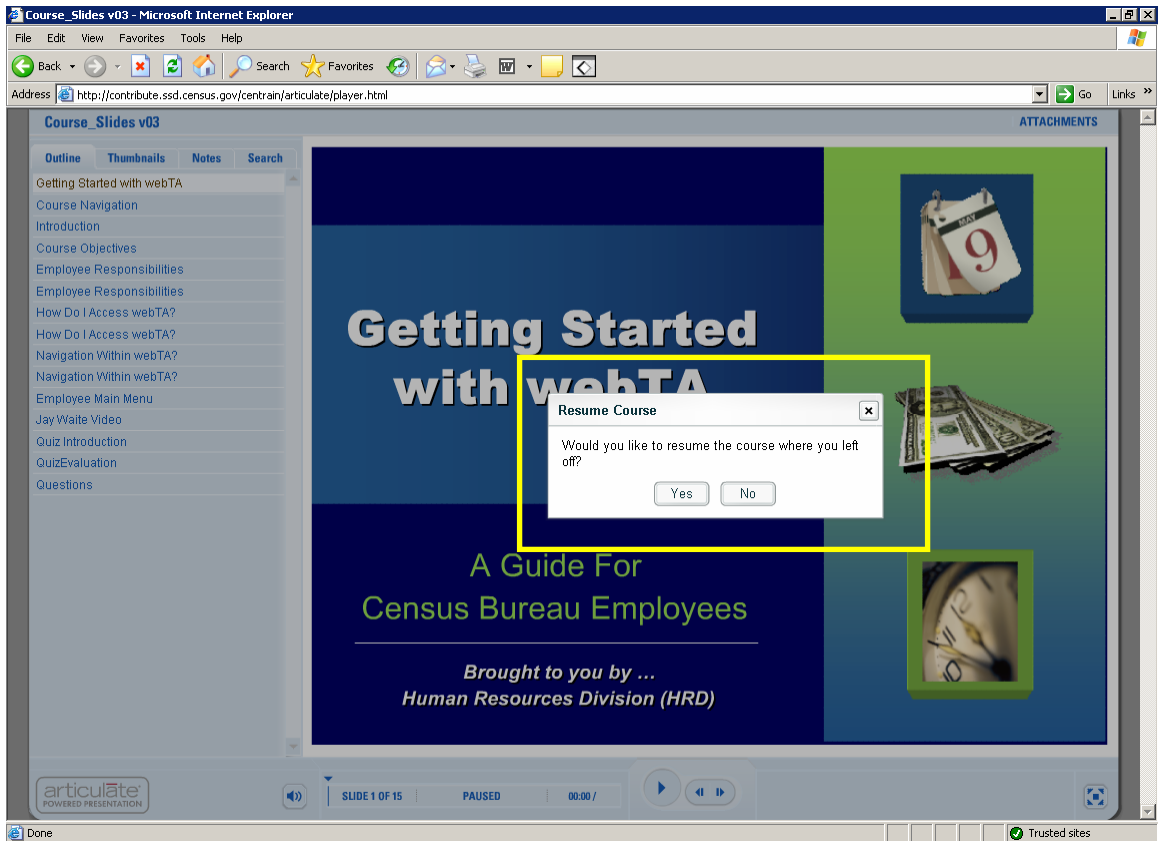


Figure 2. Articulate generates inaccessible pop-up windows.

The JAWS screen-reader could not detect any text in the Resume Course pop-up window.

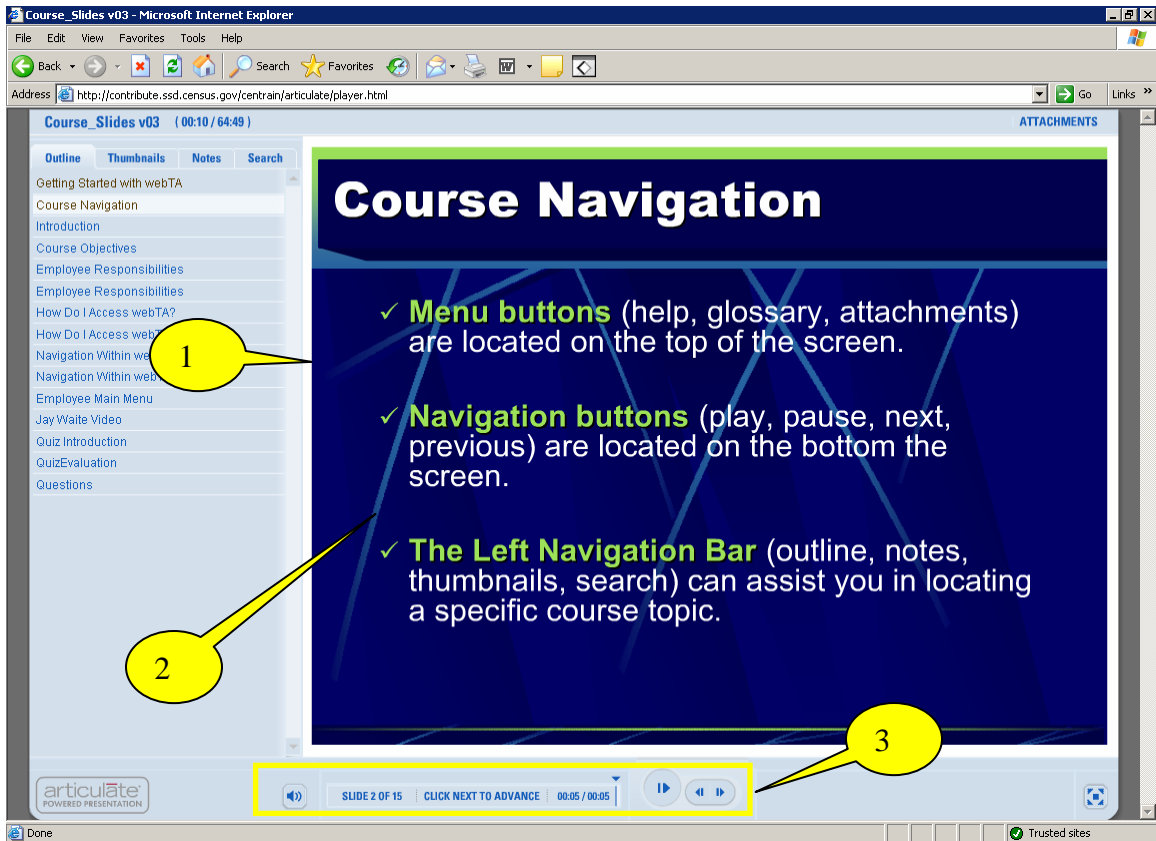


Figure 3. Articulate creates inaccessible slide content.

1. The JAWS screen-reader cannot detect any text on the slide (Global).
2. The background image makes the screen text difficult to read. We recommend a white background, with black text and bolding if necessary. (Global)
3. Navigation controls are not labeled. (Global)

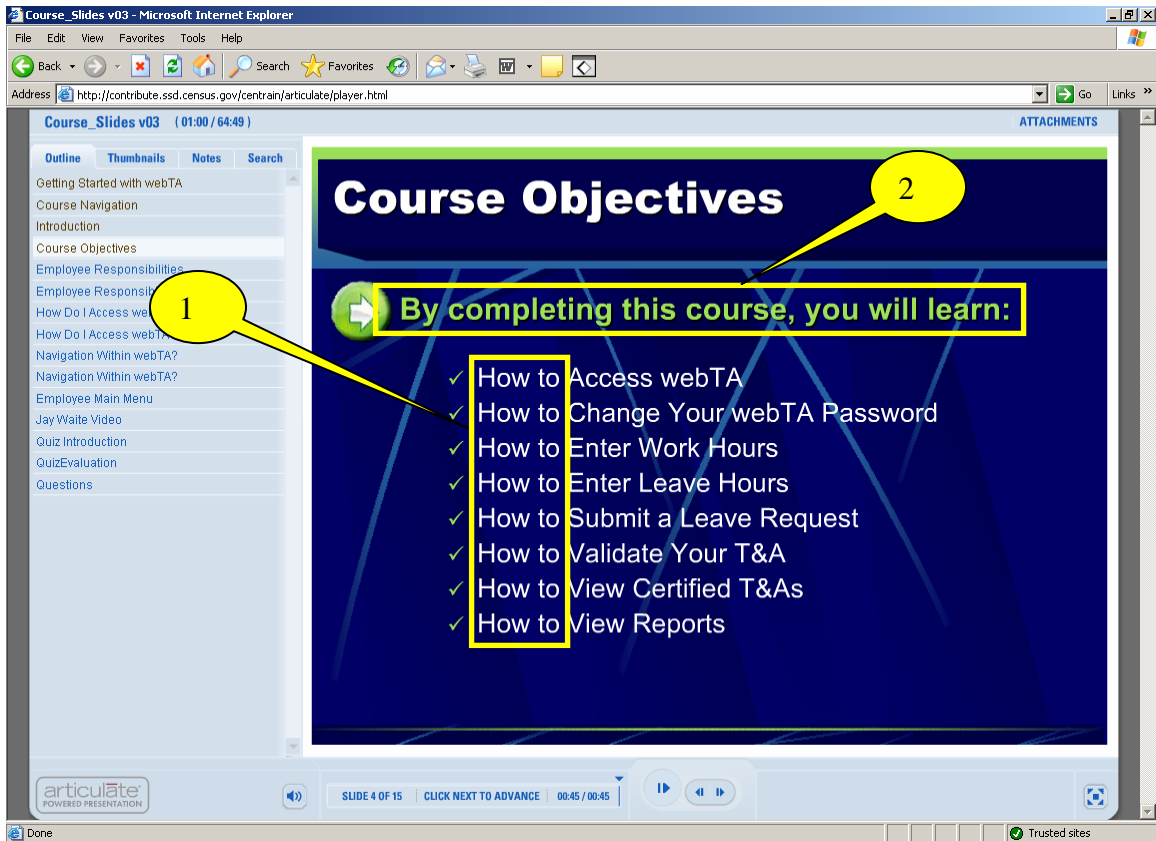


Figure 4. The Articulate Course Objectives screen contains redundant text.

1. We recommend placing the phrase “How to” in the statement above the bullet points so users do not have to hear or read the same text eight times.
2. Contrast is poor on screens with colored text (green and/or red on blue). Use of a different color for a word or phrase in a sentence or paragraph already in color emphasizes nothing. We recommend using only one color for the text on a background with high contrast.

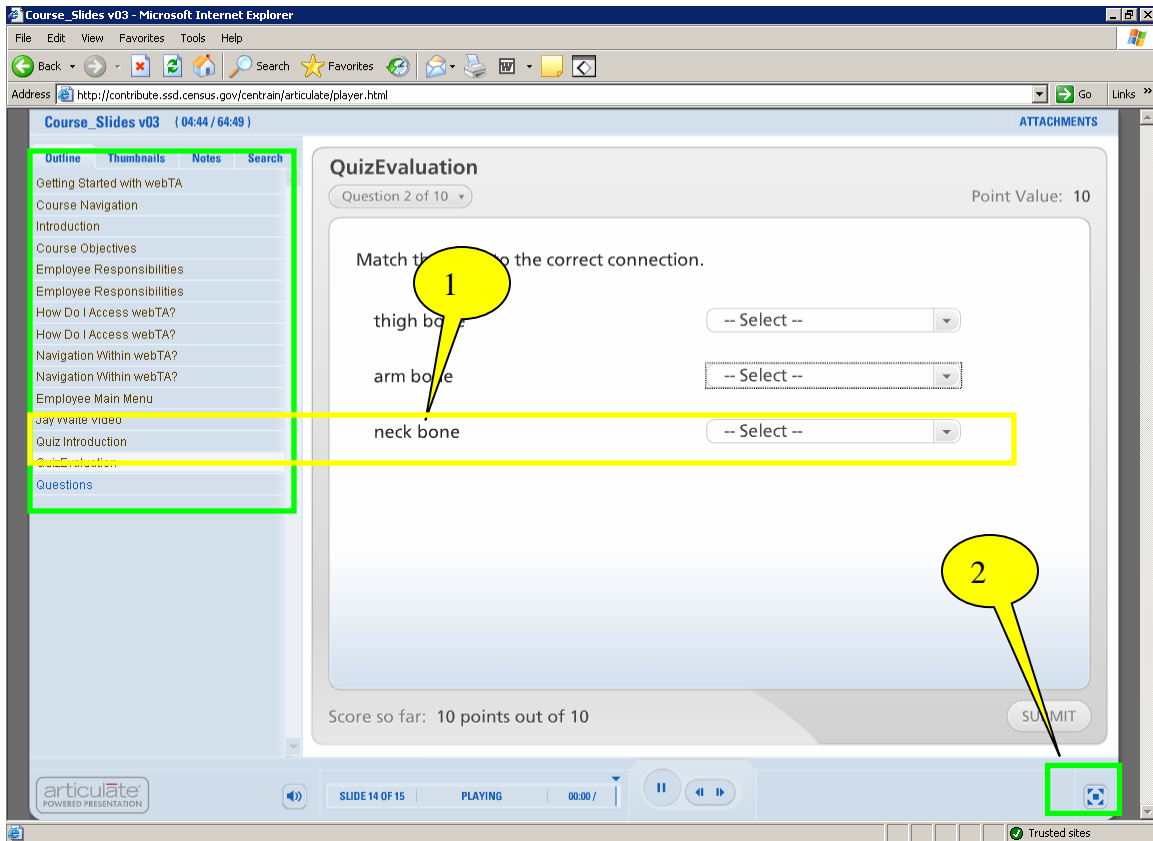


Figure 5. The Articulate quiz maker module creates a reading order that alternates between the left navigation bar and the quiz responses instead of reading navigation options first followed by the quiz.

1. Reading order goes back and forth between the left navigation bar and the quiz responses. We recommend tab order be corrected so navigation options are read first, followed by the quiz topics.
2. The left navigation menu is still detected by JAWS even when it is turned off by the widget in the lower right corner. We recommend that the tab order be reprogrammed so the left navigation menu options are skipped when the left navigation bar is invisible.

CAPTIVATE

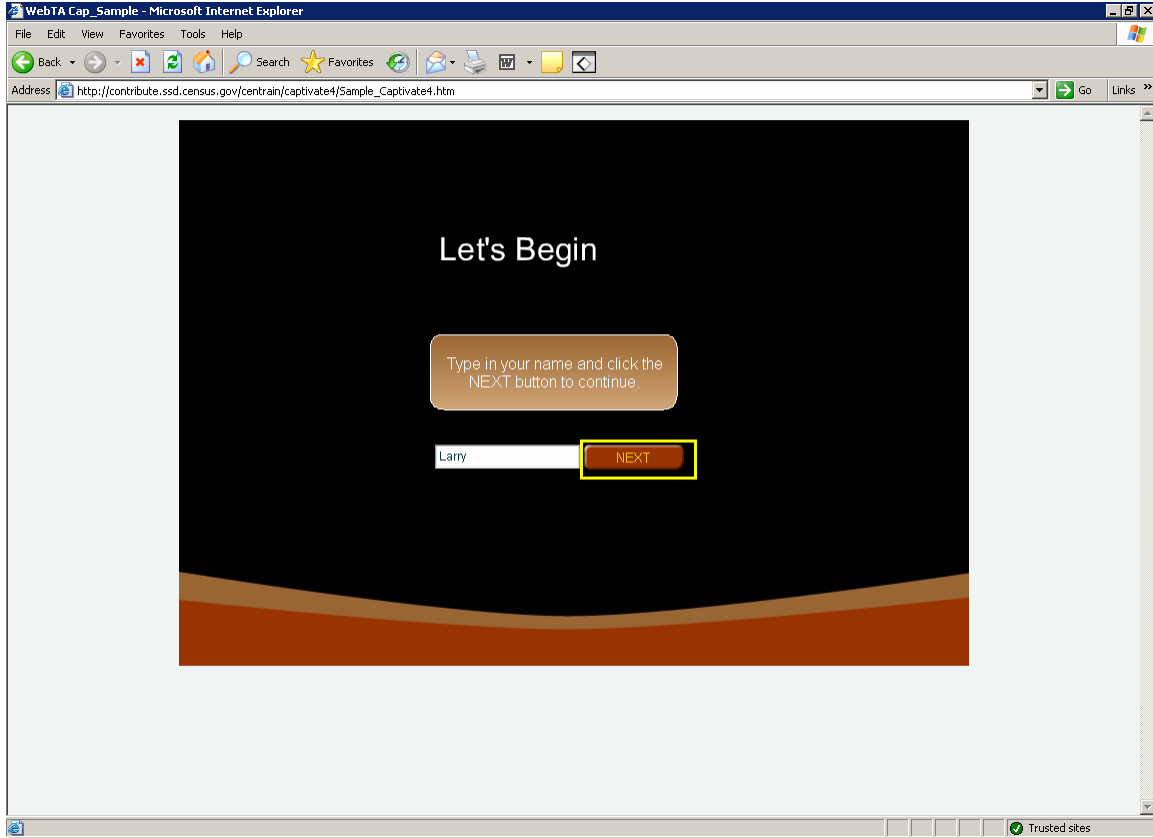


Figure 6. The “Next” button is not labeled on the initial Captivate screen.

The Next button is announced as “button button.” We recommend this button be labeled with “Next.”

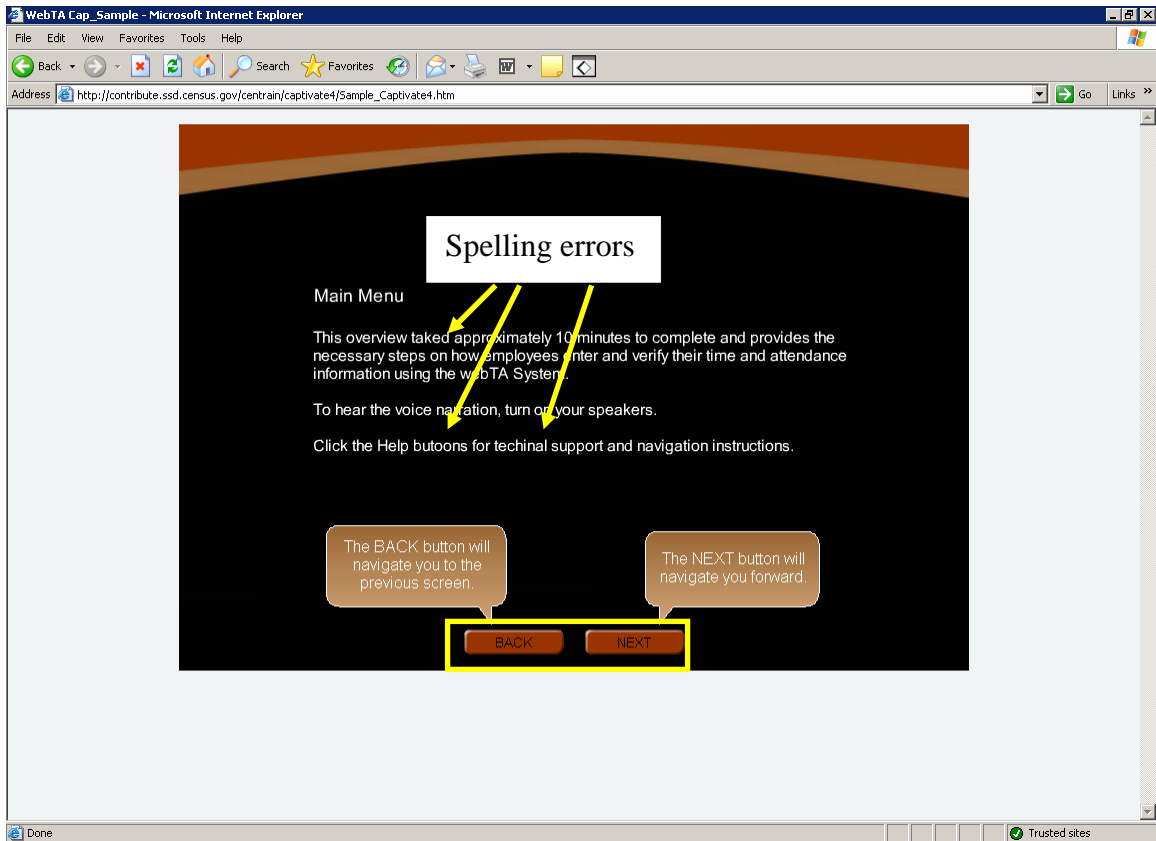


Figure 7. The navigation buttons are not labeled and there are spelling errors on the Main Menu Captivate screen.

Navigation buttons are announced as “button button” (global). The navigation buttons should be labeled “back” and “next.”

There are spelling errors as noted above in Figure 7 which may cause JAWS users to listen to the text again to understand the content.

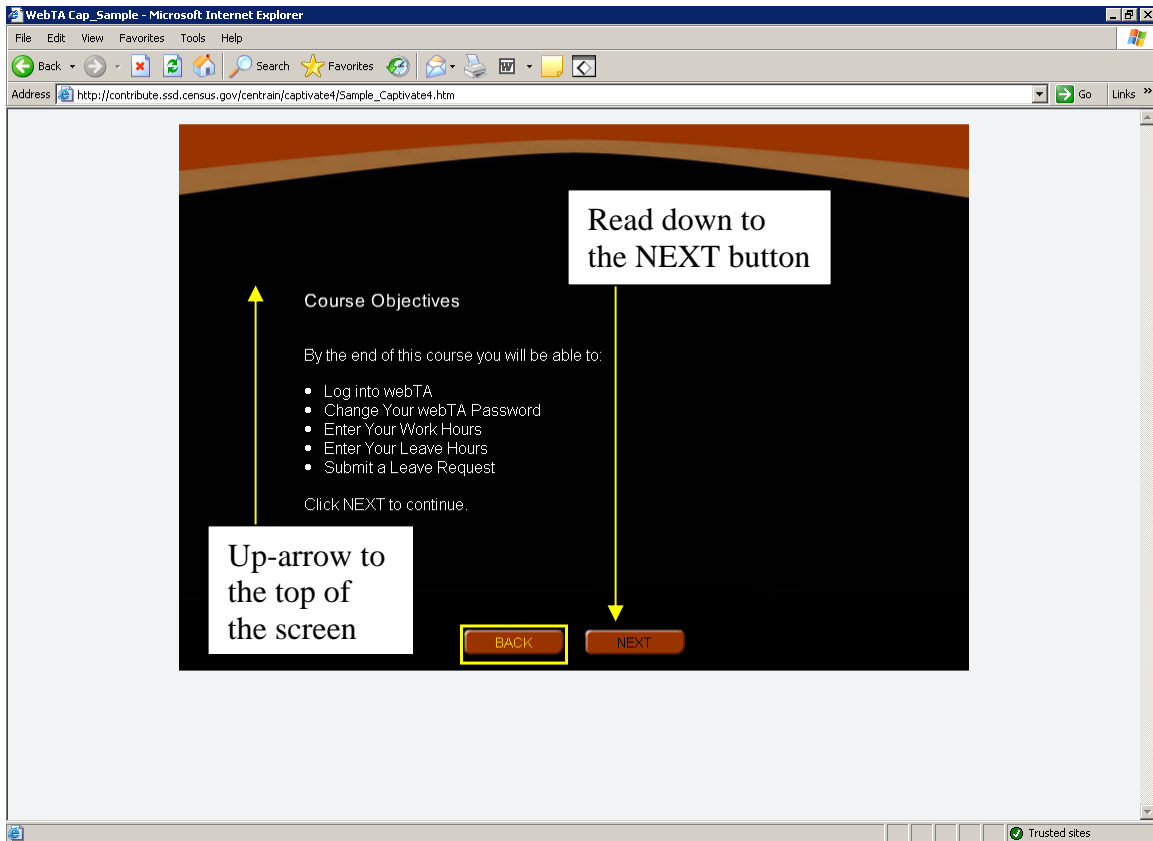


Figure 8. JAWS users must navigate backwards to hear content on the Captivate Course Objectives screen.

This screen is accessible, but navigation is not ideal. When this screen is loaded, focus is put on the “BACK” button. A JAWS user must use the up-arrow key to hear content, then read down.

We recommend when this screen is loaded, keyboard focus be placed on the “Course Objectives” header so screen content is read by the JAWS screen-reader from the top to the bottom.

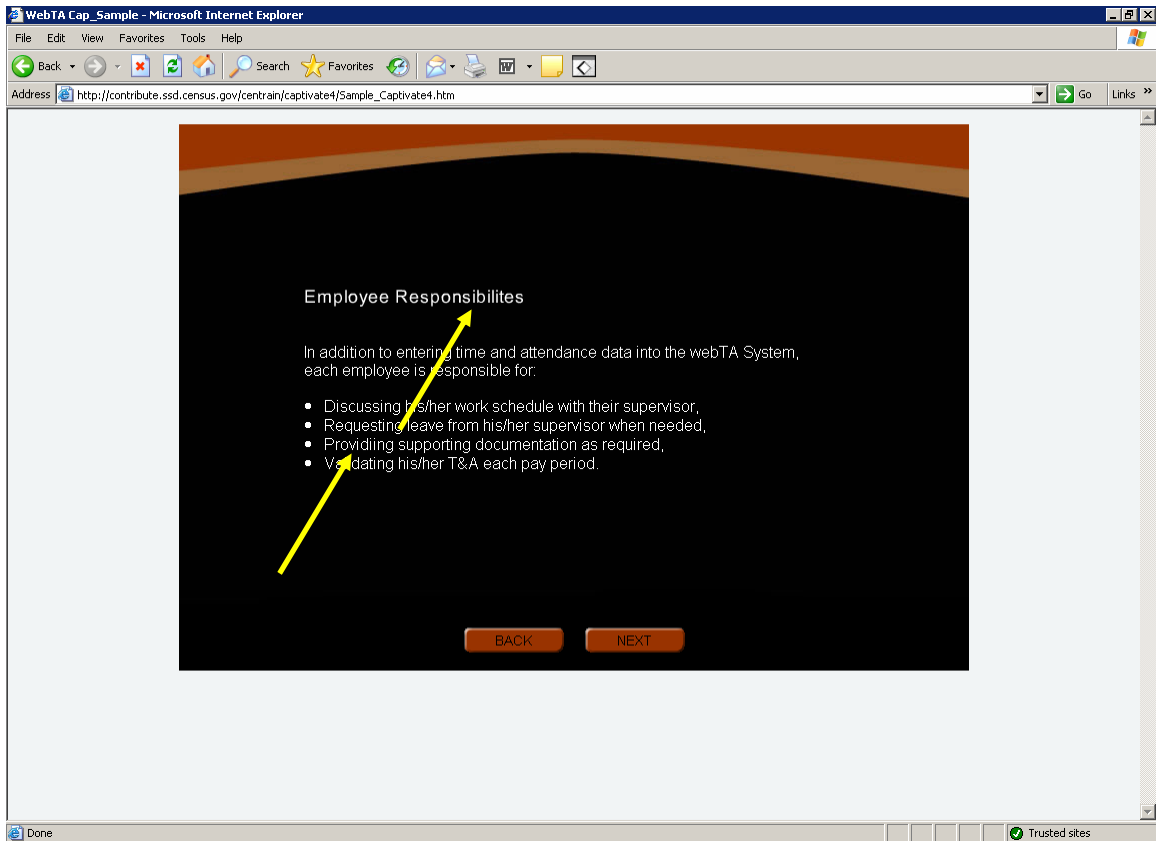


Figure 9. There are spelling errors on the Captivate Employee Responsibilities screen.

The misspelled words should be replaced with “Responsibilities” and “Providing” as noted in Figure 9.

We recommend substituting “his/her” in the second and fourth bullet points with “the.” Both genders have the same responsibilities so employee gender does not need to be defined here.

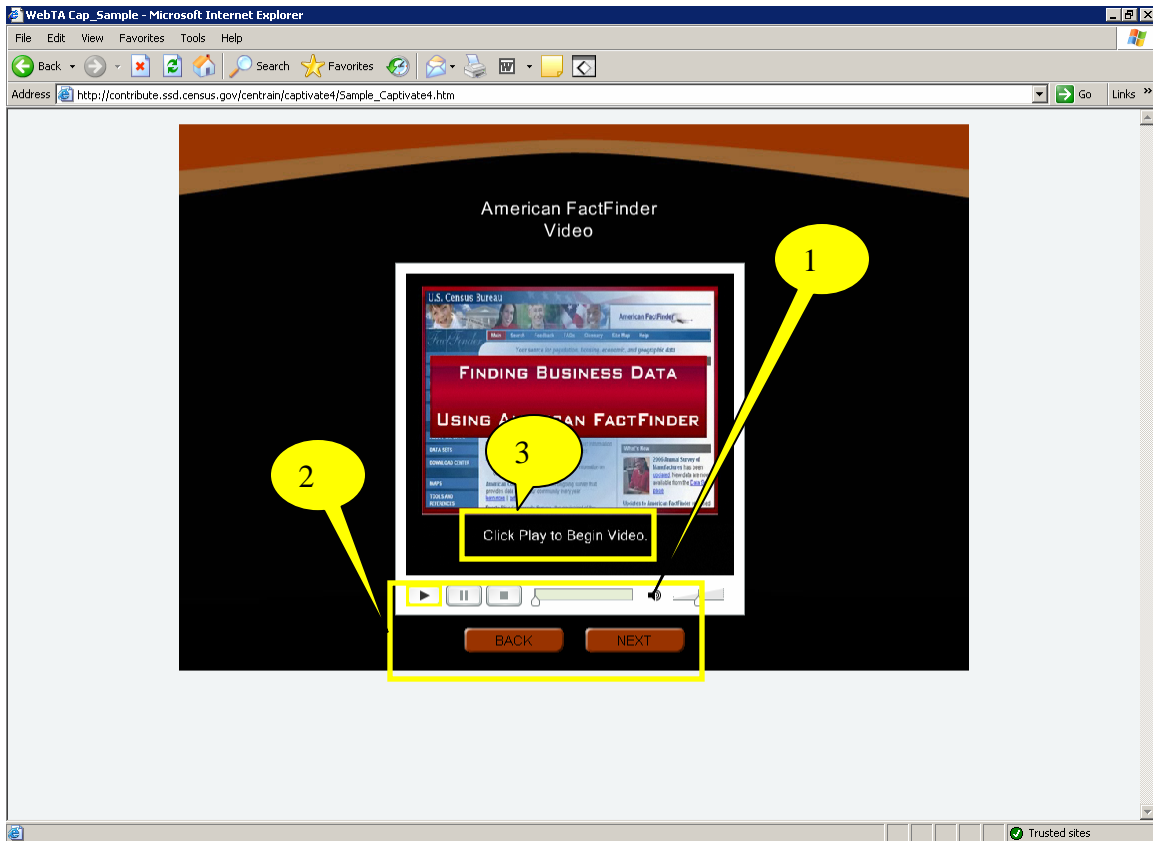


Figure 10. The media player mute button is not labeled appropriately and is inaccessible on the Captivate Video screen.

1. The Mute button is labeled as “10” (ten). It is not accessible through keyboard commands. We recommend the button be labeled as “mute” and reprogrammed to be in tab order.
2. Tab order moves back and forth between the media player buttons and the navigation buttons. We recommend tab order first proceed through the media player then the navigation buttons.
3. Captioning is broken up and challenging to read. Horizontal and vertical lines do not meet at the corners of characters (e.g., upper case L). We recommend selecting a different font that is easy to read.

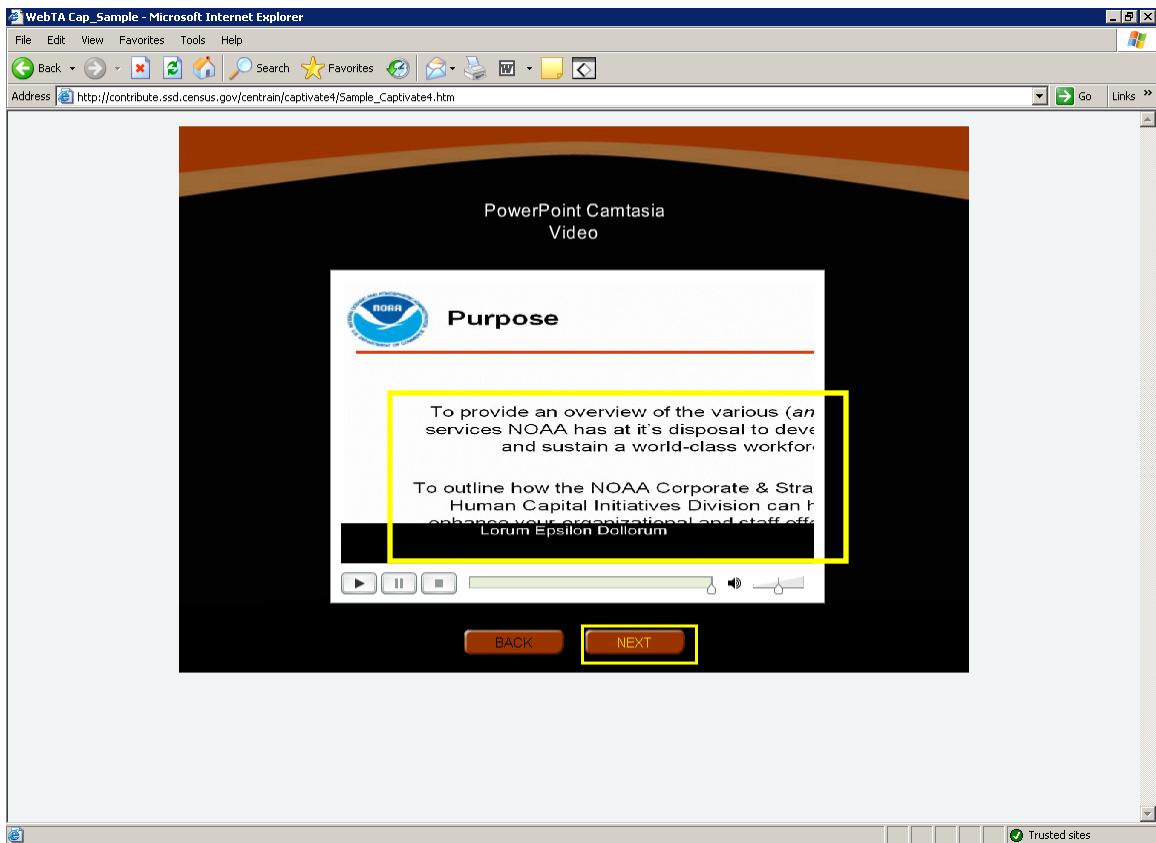


Figure 11. Text is cut off on the right side in the media player used in the Captivate Powerpoint Camtasia video screen.

Text needs to be reformatted to fit inside the video window.

All accessibility findings from Figure 10 apply to Figure 11.

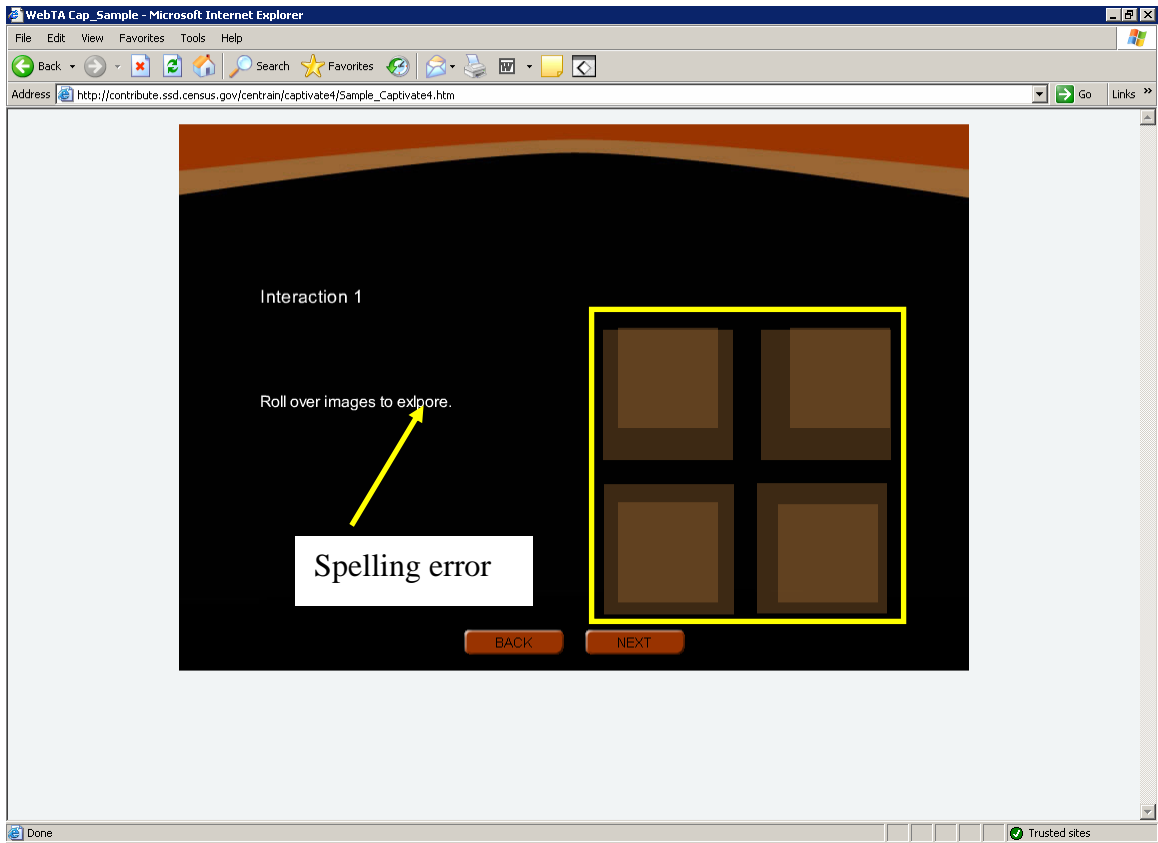


Figure 12. JAWS users are not provided any information about what is being shown in the four rollover images for the Captivate Interaction 1 screen.

All the JAWS user hears when tabbing over the four boxes is “rollover area button.” These buttons should be tagged with ALT text.

The word “explore” is misspelled.

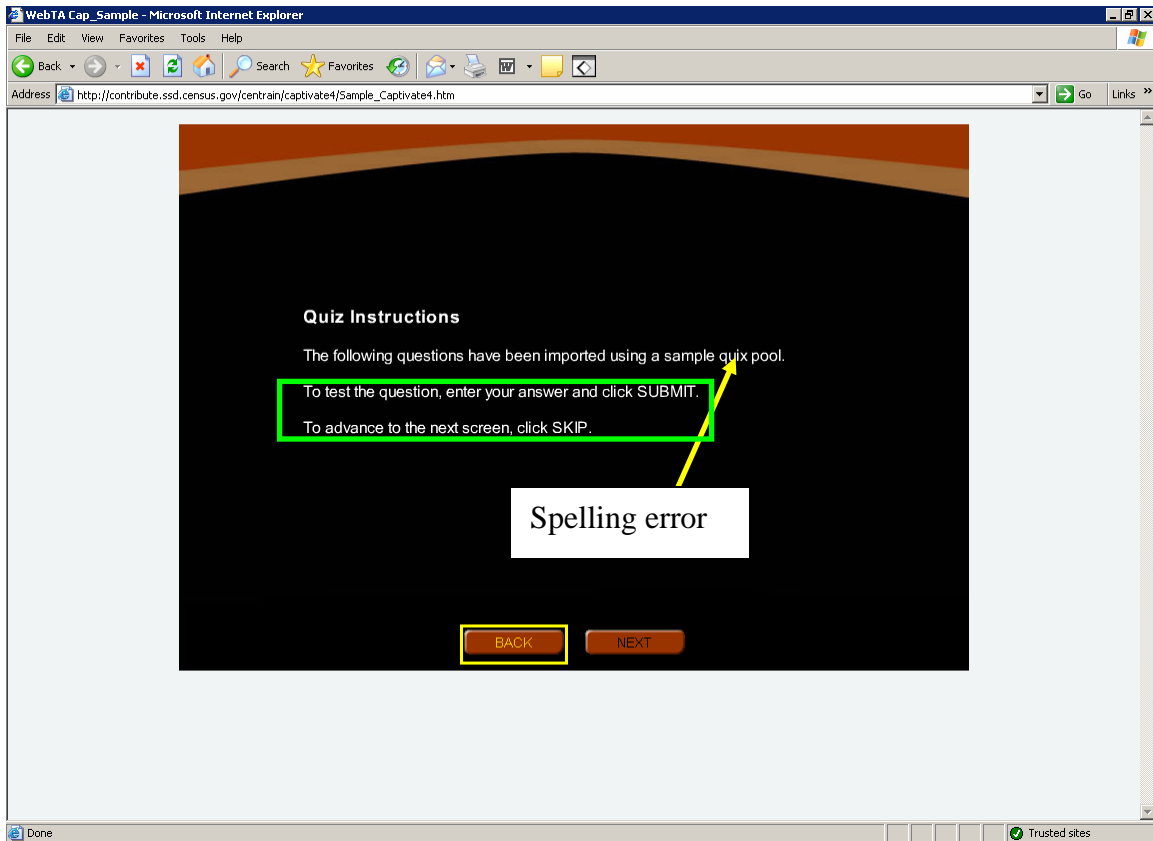


Figure 13. This Captivate Quiz Instructions screen has a spelling error and fails to consider the needs of keyboard users. The instructions assume the user will read and remember them.

The instructions noted in Figure 13 should be rephrased. We recommend replacing the existing sentences with “After selecting your answer, select the SUBMIT button” and “To advance to the next screen, select the SKIP button” It would be better to place any instructions about quiz navigation on the first quiz screen because users may not remember these instructions when they reach the quiz.

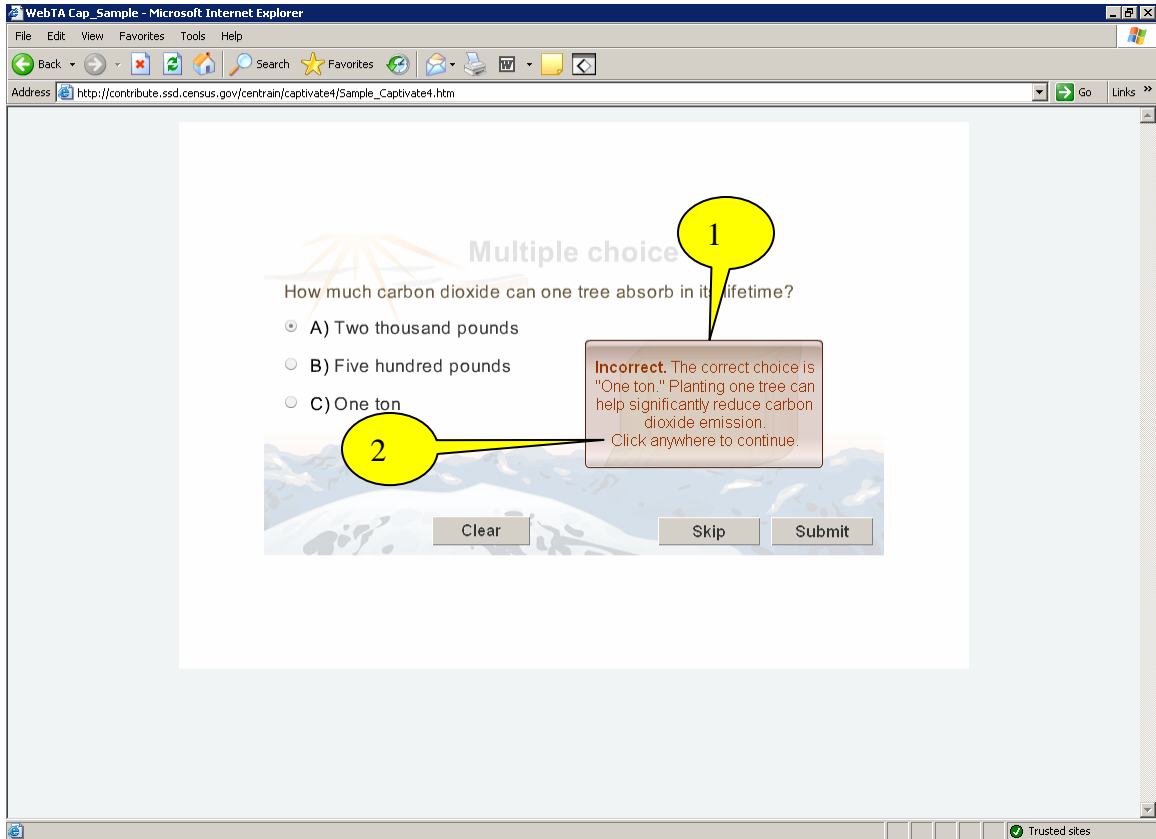


Figure 14. After submitting a response, a JAWS user cannot proceed to the next screen on this Captivate multiple choice screen.

1. Option A was selected (two thousand pounds) and the feedback message said it was incorrect because the proper response is one ton. Two thousand pounds and one ton are the same quantity. We recommend fixing this programming error or rephrasing the question.

Backward navigation was required to access the feedback text. We recommend a pop-up window which would be superior to the current design. The current design does not inform the JAWS user that there is feedback, so this information may be missed. A pop-up window is a better design because when it appears, JAWS users are alerted of its presence with an announcement of “new window.” The JAWS user can then hear the feedback text and dismiss the window with keyboard commands and go to the next quiz screen.

2. JAWS users will not know how to proceed past this point because of the instruction to click anywhere. (Global)

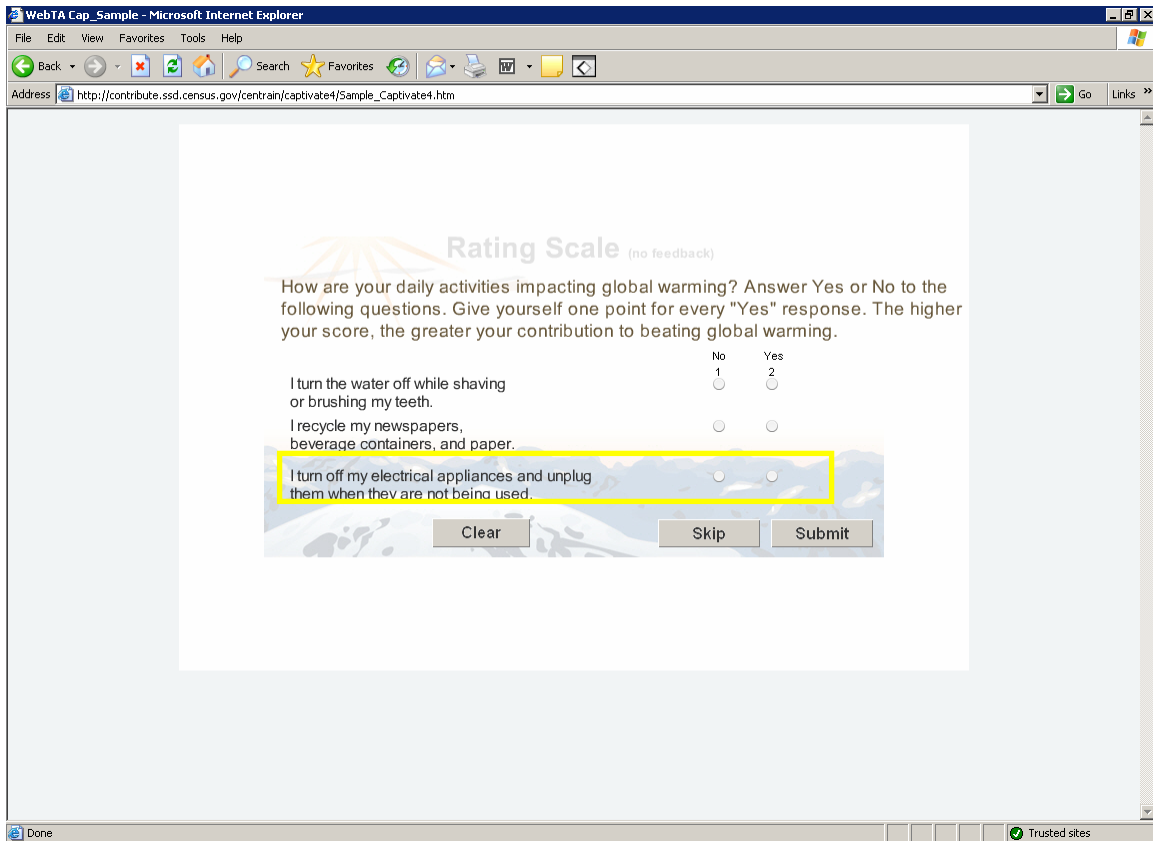


Figure 15. The background image used on this Captivate Rating Scale screen interferes with reading the text.

The third rating item and the responses are difficult to read due to the image of the mountain range. We recommend the graphic be removed.

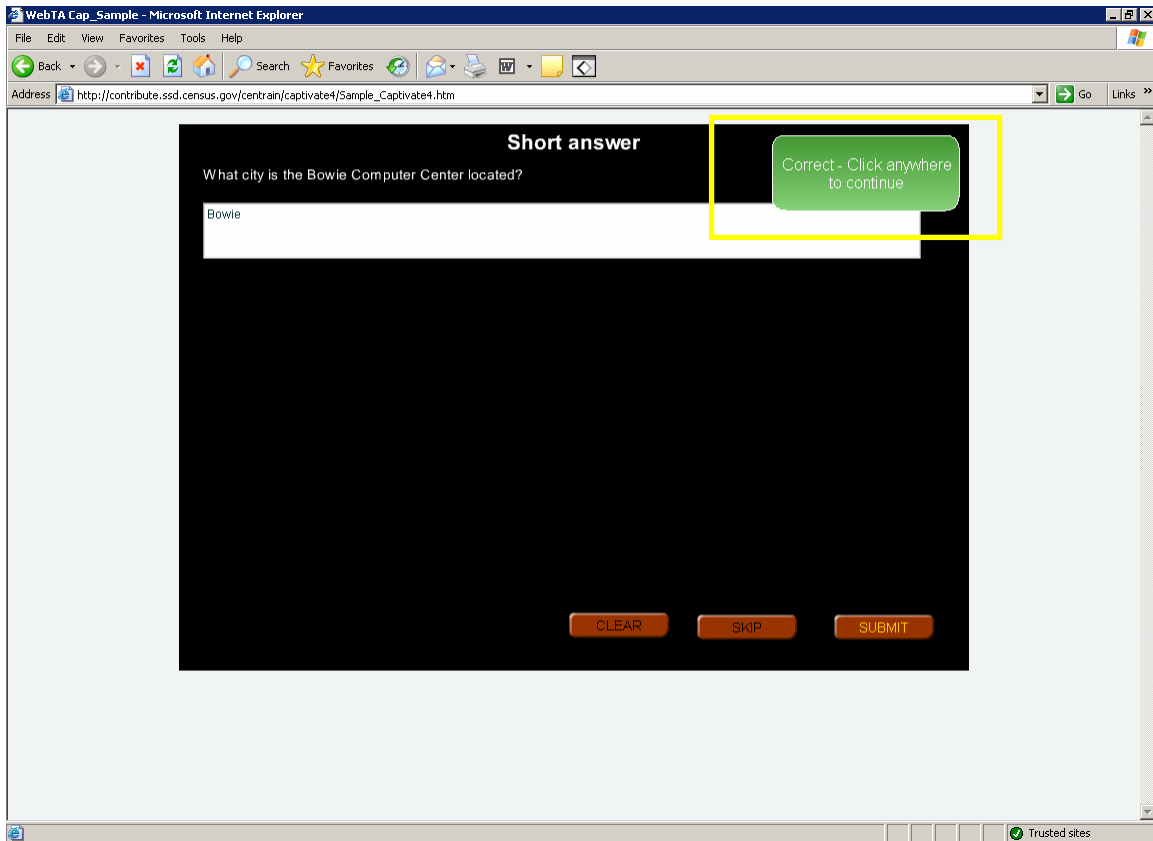


Figure 16. JAWS users cannot navigate to the next screen by keyboard commands on this Captivate Short answer screen.

JAWS users cannot go past this screen because of the “click anywhere” instruction.

We recommend placing accessible navigation buttons in tab order so JAWS users may navigate by keyboard commands.

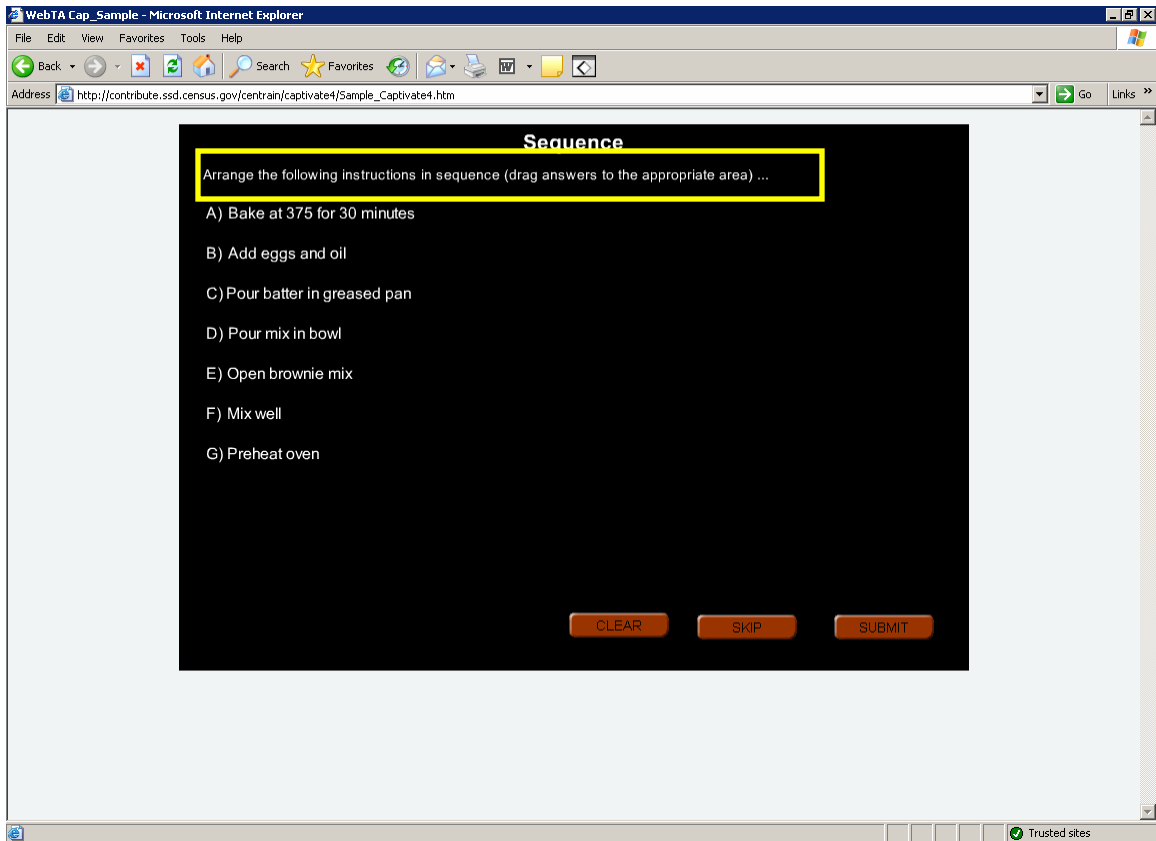


Figure 17. Instructions on this Captivate screen require users to arrange items in sequence.

Drag-and-drop actions are not accessible because they require use of the mouse. We recommend placing sequence steps into lists sorted in different orders as radio button options. The user would be asked to select the radio button option with the correct sequence.

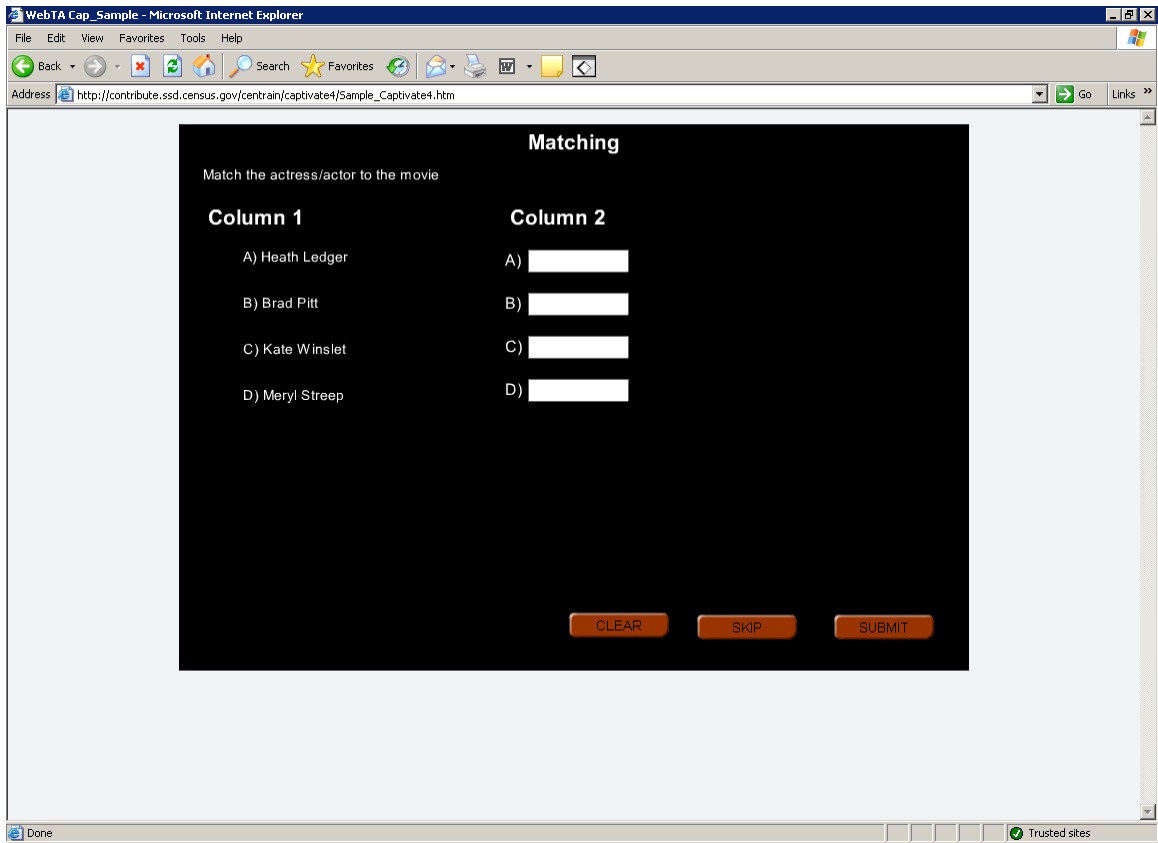


Figure 18. There seems to be a programming error on this Captivate Matching screen because no movies are listed.

All users will need the movie names as labels for items in column 2 to complete this task successfully.

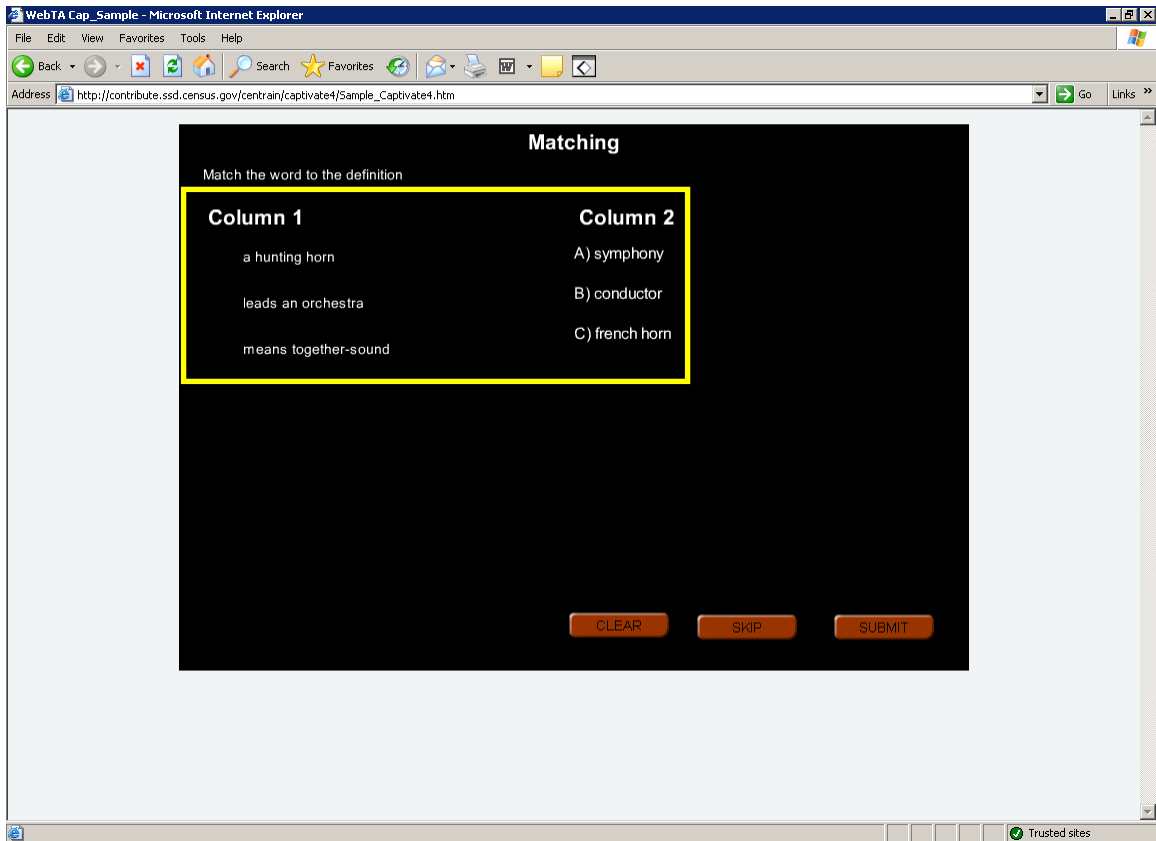


Figure 19. It is unclear how users are supposed to match items in column 2 to items in column 1 on this Captivate matching screen.

The JAWS screen-reader does not detect the items in column 1. There is no area in column 1 that could be seen as a target for items in column 2. It is not clear if this is a drag and drop activity, which is inaccessible, or whether the user is supposed to type a response letter into a box.

We recommend discarding the current design and replacing it with placing the three pairs of topics into lists sorted in different orders as radio button options. The user would be asked to select the radio button option with the correct pairings of topics.

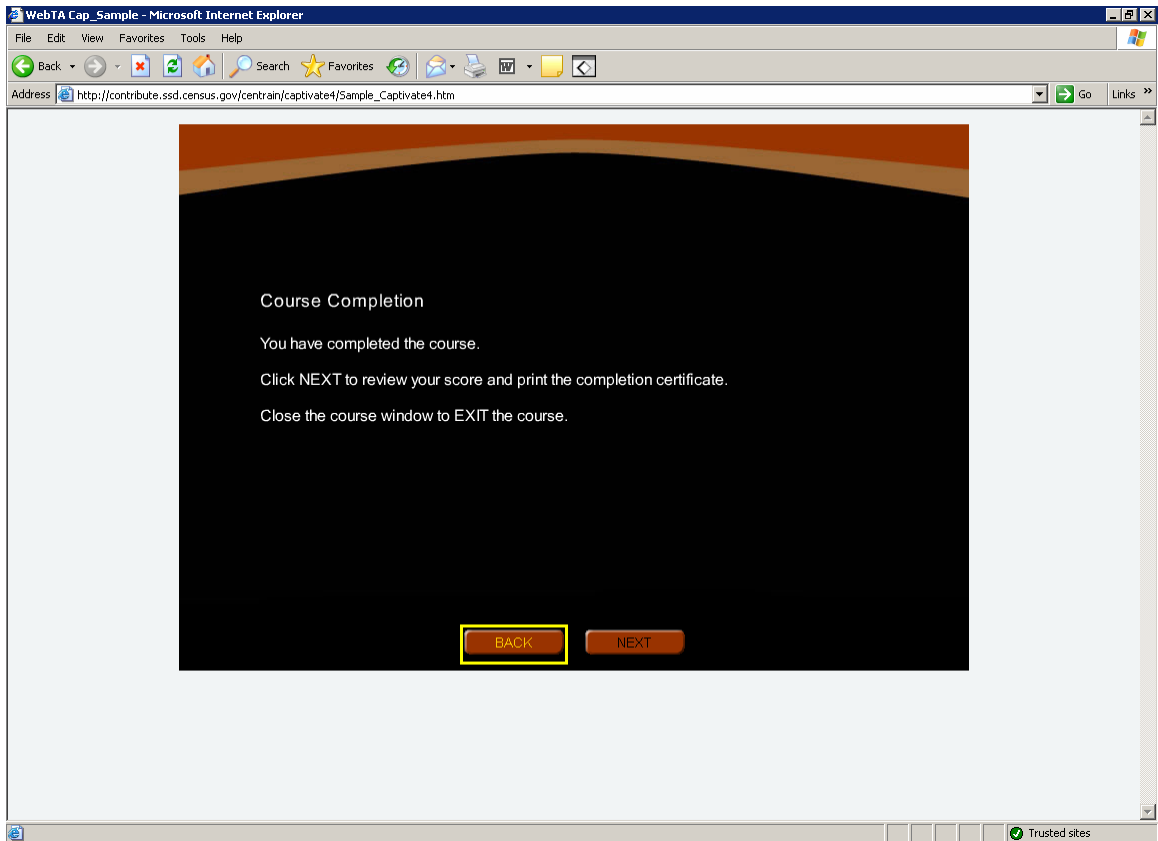


Figure 20. Users must navigate backwards to hear screen text.

This screen is accessible, but navigation is not ideal. We recommend when this screen is loaded, keyboard focus be placed on the "Course Completion" header so screen content is read by the JAWS screen-reader from the top to the bottom.

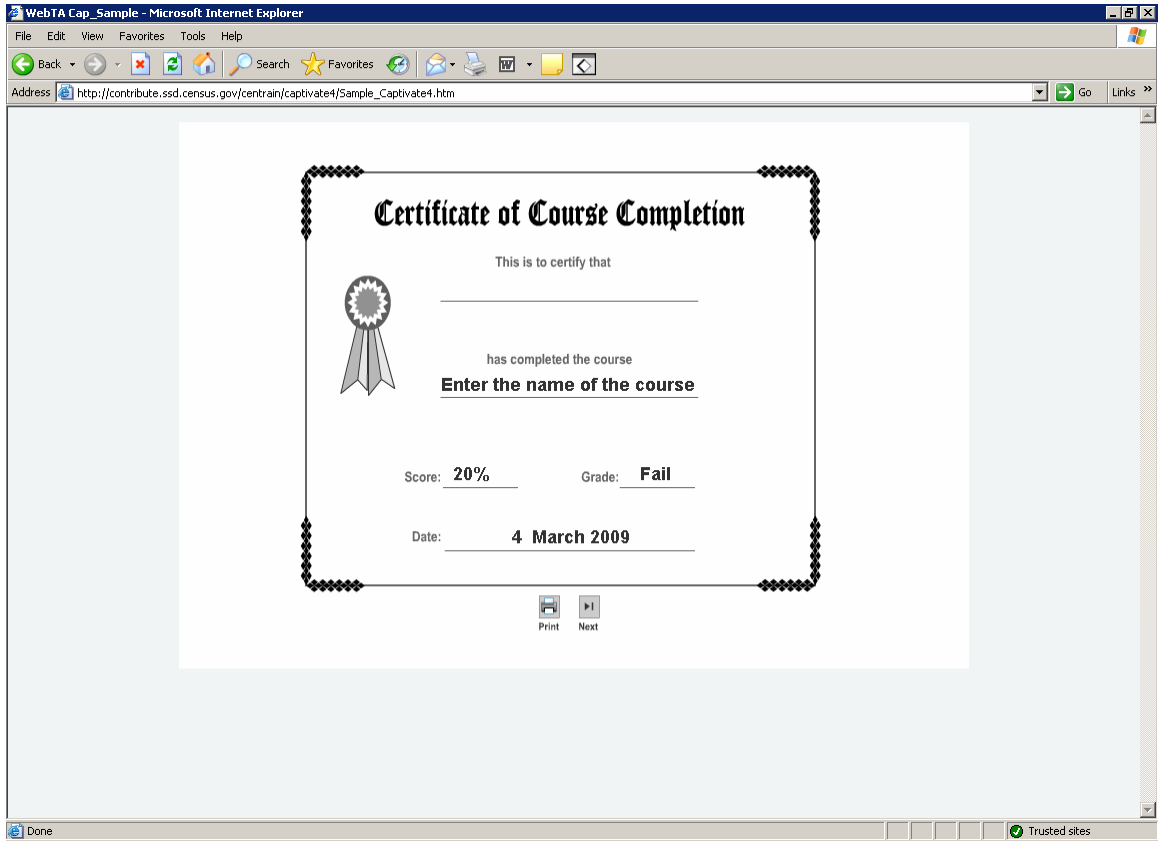


Figure 21. This screen is inaccessible.

The JAWS screen reader could not detect any text on this screen. We recommend replacing the image of the completion certificate with an accessible html document.

SUMMARY

Accessibility

The purpose of this accessibility evaluation was to assess the performance of the Articulate and Captivate E-learning software packages. The JAWS screen-reader had issues with announcing navigation labels implemented by both software packages. The Articulate quiz maker module created a reading order that alternated between the left navigation bar and the quiz responses. The only method to navigate between quiz screens was to click on the submit button. The Captivate package generated a tab order which alternated between navigation buttons and media player controls. When taking a quiz in Captivate, JAWS users could not navigate to the next quiz question because of an instruction to left-click their mouse anywhere on the screen. Screens on which Articulate and Captivate require a mouse click are rendered inaccessible because JAWS users do not use a mouse. All the issues listed are violations of Section 508 1194.21 paragraph L.

Usability

When the accessibility evaluation was being performed, some usability issues became apparent. Both the Articulate and Captivate packages used background images, making the screen text difficult to read. Visual contrast is poor on Articulate screens due to usage of colored text on a colored background. Visual contrast is minimal in Captivate because of the use of a small white font on a black background and black text on red buttons. These color combinations are likely to create eye strain in users who can see. Resizable black text in 10 point or larger font on a white background will maximize visual contrast. Some Captivate screens required JAWS users to navigate backwards to access text content.

A significant effort is needed to make the Articulate package accessible because its screen text is not accessible. A moderate level of effort is needed to make the Captivate package accessible. Research on the Internet revealed issues between JAWS and Captivate may be resolved if the newest versions of these packages are used³. We recommend the Captivate software package with the stipulation that accessibility and usability issues need to be resolved. If the recommendations cited in this report are implemented, a Census E-Learning application for WEBTA will be accessible and compliant with the Section 508 regulations.

³ <http://jimlechliter.blogspot.com/2009/03/508-compliance-adobe-captivate-and.html>