

Using a Refreshable Braille Display with the iPad

Chapter 4: Modifying, Navigating & Answering Homework Questions

Objectives

- 4.1 Modifying Documents
 - Underscore Lines
 - Answer after a Colon
 - Paragraph Formatting
 - Automatic Numbering and Lettering
 - Word Banks
- 4.2 Navigating and Inserting Answers
 - Answering Fill in the Blank Questions
 - Answering Multiple Choice Questions

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Overview

Creating properly formatted digital documents is critical for students with visual impairments to successfully integrate using technology into the classroom. The iPad has wonderful built-in accessibility features that make navigating and interacting with documents easy; however, publishers and teachers need to create properly formatted materials in order to utilize these accessibility features. The digital revolution is rapidly evolving; publishers are scrambling to transition educational materials into on-line digital materials. Currently, HTML is the best option for creating accessible materials; HTML uses radio buttons and text boxes so students can insert answers while the main text cannot be accidentally edited. Creating HTML documents is easy for programmers; but challenging for most teachers. Below is an example of a multiple choice question created with radio buttons:

Figure 1: Computer Screenshot of radio button multiple choice question

1. How did Ivan learn about branding cattle?
- omit
 - He read about it in a book.
 - He did the branding with his uncle every year.
 - He helped his father with the branding.

Currently, teachers should be aware of common accessibility issues and ways to work around these issues when creating and modifying documents. All teachers—not just TVIs – need a way to create HTML-type digital materials; all students – not just students with visual impairments - need a way to input digital answers without accidentally changing the document. This issue of teachers being able to easily create accessible HTML documents will be resolved; however, until then, teachers can bridge the digital gap by modify documents that will utilize as many accessibility features as possible.

Presently, there are ways to modify digital assignments so that students with visual impairments can efficiently navigate the assignments using RBD commands. This chapter discusses common formatting issues and how these issues can be resolved so that VoiceOver and the RBD will interact corectly. This chapter includes how to create properly formatted documents and how to modify digital documents. Finally, this chapter will discuss how students with visual impairments should navigate properly formatted documents and how to place answers within teacher created digital documents.

There are a few websites available, such as Edmodo, that enable teachers to create accessible multiple choice, true/false, and fill in the blank assignments, quizzes and tests. However, the current systems are not designed specifically for students with visual impairments and are not always accessible. iBooks created with iBooks Author and the free SAS Flashcards app are also options. There will soon be better solutions. Until then, this chapter will discuss how teachers can make on-the-fly document modifications and how students can navigating these documents using the RBD.

Commonly used RBD Commands used When Editing Text

- Delete; 1 + 4 + 5 + space (D Chord) or 7 + space
- Toggle between Contracted/Uncontracted Braille; 1 + 2 + 4 + 5 + space (G Chord)
- Enter; 1 + 5 + space (E Chord) or 8 + space
- Undo; 1 + 3 + 5 + 6 + space (Z Chord)
- Redo; 2 + 3 + 4 + 6 + space
- Toggle show/hide on-screen keyboard; 1 + 4 + 6 + space
- Insertion point at start/end; (3 + 6 + space)
- Set Rotor to Characters, Words or Lines; 5 + 6 + space or 2 + 3 + space then
 - Move by Characters, Words or Lines; 6 + space or 3 + space
 - Delete by Characters, Words or Lines; 1 + 4 + 5 + space (D Chord) or 7 + space

4.1 Modifying Documents

Underscore Lines

Materials that were originally created as paper handouts may need to be modified slightly when used as digital handouts. With a pencil, students physically wrote short answers on top of the blank line. However, with digital materials, students are not able to write/type on top of blank lines. The blank lines are created by a numerous underscores (“_”); VoiceOver will read these long lines by stating the number of underscores. Example: “87 blank lines”.

For most students with visual impairments, removing the blank line works best. Students should be taught to answer the question after the question mark. However, some students need the subtle hint of having one blank line to indicate where they should place their answer.

Answer after a Colon

Students should be taught to look for common phrases followed by a colon. Students typically have to fill in “Name:” and “Date:” at the top of each homework assignment, quiz or test. Students should learn to navigate to the end of the word/colon in order to type in their name and the date after the colon.

Keep the documents simple. There should be one answer per line - Name and Date should be on separate lines. Place a blank line between questions. VoiceOver will say, “empty line” and the braille display will be blank.

Paragraph Formatting

Paragraphs of text should be left side aligned (justified) and right side not aligned (unjustified). Students using the braille display are more efficient when the text begins immediately on the left. However, if the right side is aligned, random spaces will appear on the braille display.

There should be space (blank line) between paragraphs. This enables students to navigate by paragraphs using the Bluetooth keyboard. The RBD will show a blank display between paragraphs enabling RBD users to easily identify the new paragraph.

Automatic Numbering and Lettering

Documents that are created on a PC can have formatting issues when converted to the iPad. Automatic numbering or lettering shows up in print on the screen, but VoiceOver does not read the numbers or letters. However, if you manually type in the numbers and letters, VoiceOver will read these numbers and letters. You can manually type in the numbers and letters from a computer or from the iPad.

To Correct the Formatting:

Select the question section of the document where the automatic numbers and/or letters are located; the text will now have darker background. When using a computer, turn the automatic numbering/lettering off by clicking the highlighted numbering/lettering icon in the Tool bar at the top of the screen. When using an iPad, tap on the Formatting icon in the Tool bar at the top of the screen – this is the paintbrush icon. Tap on List. Tap on None. Manually type in the numbers/letters, period, and two spaces. Occasionally automatic numbering/lettering will anticipate what you are doing and will turn back on; if that happens, select that section again and repeat turning off automatic numbering/lettering.

Word Banks

Place the words in a Word Bank directly above the questions that use the Word Bank. Each word should be left justified with one word per line.

Activity 4.1 Modifying Materials

“From Rattlesnakes 0” (the Original document) and “From Rattlesnakes Example” (partially modified document) that are located in our shared Dropbox folder. Open both of these documents in Pages; we will use “From Rattlesnakes Example” in this activity.

Instructor will turn on VoiceOver and demonstrate that VoiceOver will not read the numbers on questions 1 – 5.

As a group, we will modify questions 1 – 5 by stripping the current formatting and manually typing the numbers (“1. “). VoiceOver should be Off.

1. Separate questions by adding a blank line; press return after each question.
2. Strip original formatting for numbers 1 - 5;
 - Select text starting with “1. To . . .” through “5 . . . poison?”;
 - With one finger, touch and hold until magnifying glass appears.
 - Release finger.
 - Tap on Select.
 - Drag circles until the desired text is highlighted
 - Tap on Formatting icon in Tool bar (image of paintbrush); popup appears.
 - Tap on List (Style, List, Layout are the options across the top of the popup)
 - Tap on None. This will clear the original formatting.
 - Manually type in new number, period and two spaces for each question (1 – 5.)
2. Turn VoiceOver on; (Triple-Click Home button then tap on VoiceOver).
3. Drag finger to question 1 and listen; VoiceOver should say, “One”.
4. Drag finger down to question 6 and listen to the answer choices; VoiceOver should say, “A”, “B”, etc. as numbers 6 and 7 were manually typed in.
5. Drag finger down to the next section, “6. How do pit vipers look?” VoiceOver will not read these numbers or letters as they were created with automatic numbering/lettering. Correct questions 6 – 8 (last three questions on the page) independently.

6. Go back and proof read the original story. Make sure that there is a blank line separating each paragraph – you will need to modify several paragraphs that have run together. (This document was scanned causing some paragraphs to run together.)
7. Rename your document “From Rattlesnakes F” (F stands for “Formatted”).

4.2 Navigating and Inserting Answers

Answering Fill in the Blank Questions

Remember, you should eliminate underscores (“_”). Often the best way to navigate a question is line by line. When the braille display is blank (indicating the empty line between questions), the student should braille his answer. When he has completed his answer, he should add an empty line (E Chord).

Answering Multiple Choice Questions

With these digital documents, students cannot circle an answer or place an “X” on top of a letter choice. Instead, have the student type the same letter choice in front of the desired choice. Example: If the answer is: “A. they hunt for food”; the student will braille an “A ” in front of the original “A”. The answer will now be: “A A. they hunt for food”. If the answer choice is: “B. they move to caves”; the student will braille a “B” in front of the original “B”. The answer will now be: “B B. they move to caves”. Brailleing the letter of the answer choice is a fail-safe in case the student accidentally marks in the wrong location.

TEACHER HINT: REMEMBER, WHEN MOVING LINE BY LINE, THE I-BEAM AND BRAILLE DISPLAY WILL DISPLAY THE LINE BELOW WHAT VOICEOVER STATES.

To move the I-beam up and braille display up, use 3 + space. However, everytime you move line by line down, you will have to move the I-beam and braille display back up!

Activity 4.2 Answering Questions

Use your modified “From Rattlesnakes F” document in Pages. VoiceOver should be On; you will use a RBD to drive the iPad.

1. Open “From Rattlesnakes F”; (Drag finger and split tap).
2. If the cursor is not displayed, Open Textfield; (3 + 6 + space). The flashing I-beam and braille cursor will appear.
3. If the cursor is not at the beginning of the document, move the cursor to the beginning; (3 + 6 + space) moves cursor to the “Insertion Point at Start”.
4. Move by lines;
 - Set Rotor to Lines; (5 + 6 + space)
 - Move by lines; (6 + space)

TEACHER HINT: THE I-BEAM CURSOR AND BRAILLE DISPLAY WILL SHOW THE LINE BELOW WHAT VOICEOVER READS. PAN LEFT TO MOVE THE BRAILLE DISPLAY OR USE 3 + SPACE TO MOVE CURSOR TO THE SAME LINE.

5. Move cursor to the right of “Name:”; (press the router button below the colon and one router button to the right).
6. Change to Uncontracted Braille; (G Chord).
7. Braille your first name.
8. Read the story; (R Chord).
9. Stop on Question 1; (P Chord). Notice that the braille did not follow as VoiceOver spoke.
10. Move VoiceOver cursor to Question 1; (Scroll down pages 1 + 4 + 5 + 6 + space). VoiceOver should automatically begin reading the next page. (If VoiceOver does NOT begin reading, touch the screen anywhere near the top of the text to bring the VoiceOver focus back to the text.)
11. Stop on Page 2 of 9 and locate Question 1; Read line by line (6 + space) or drag finger down to Question 1.
 - Move line by line stopping at the end of Question 1; (6 + space).
 - The braille display will be empty; braille your answer in the empty line. Add an empty line after your answer (E Chord).
 - Move line by line stopping at the end of Question 2 – repeat for Questions 2- 5.
12. Move to Question 6; (6 + space).

13. Read all choices then move to your desired choice; (6 + space or 3 + space).
14. Braille answer in front of the original letter; (if desired answer is A, then Braille A in front of the A.)
15. Finish answering the remaining questions.

Refreshable Braille Device Commands

Navigation Commands:

Action	Command	Braille Dot Numbers
Go to Home screen	H-chord	1, 2, 5, space bar
Move right	Joystick flick right	4, space bar
Move left	Joystick flick left	1, space bar
Launch app or select	Push in joystick	3, 6, space bar
Read document from cursor	R-chord	1, 2, 3, 5, space bar
Pause/re-start reading	P-chord	1, 2, 3, 4, space bar
Read whole page	W-chord	2, 4, 5, 6, space bar
Go to top left of screen/1 st element	L-chord	1, 2, 3, space bar
Go to bottom right of screen/last element		4, 5, 6, space bar
App Switcher	H-chord twice quickly	1,2,5, space bar
Search screen	H-chord twice slowly	1,2,5, space bar
Enter	E-chord	1,5, space bar
Move to Status bar	S-chord	2,3,4 space bar
Activates Back button	B-chord	1,2, space bar
Speaks current page number	ST-chord	3,4, space bar
Activate Rotor clockwise		5,6, space bar
Activate Rotor counter clockwise		2,3, space bar
Move to next item (based on Rotor setting)		Joystick flick down or 6, space bar
Move to previous item (based on Rotor setting)		Joystick flick up or 3, space bar
Scroll right one page	O-chord	1,3,5, space bar

Scroll left one page		2,4,6, space bar
Scroll up one page	BLE-chord	3,4,5,6, space bar
Scroll down one page	TH-chord	1,4,5,6, space bar
Activates Item Chooser	I-chord	2,4, space bar

Operational Commands:

Action	Command	Braille Dot Numbers
Start RBD practice mode (exit with B-chord)	K-chord	1,2, space bar
Switch between Grade I/Grade II braille	G-chord	1,2,4,5 space bar
Switch between 6 and 8-dot braille *		2,3,6, space bar
Screen curtain on/off	FOR-chord	1,2,3,4,5,6, space bar
Mute on/off	M-chord	1,3,4, space bar
Volume up	GH-chord	3,4,5, space bar
Volume down	AR-chord	1,2,6, space bar
Announcement history on/off (Use dots 1 and 4 to browse)	N-chord	1,3,4,5, space bar
Pan braille to right		5, space bar (or right Advance Bar)
Pan braille to left		2, space bar (or left Advance Bar)
Label element (change the name of a selected item)		1,2,3,4,6, space bar

Typing/Editing Commands:

Action	Command	Braille Dot Numbers
Delete	D-chord	2,4,5, space bar
Enter (return)	E-chord	1,5, space bar
Tab	T-chord	2,3,4,5, space bar
Select (highlight) (Depends on Rotor setting – select highlighting by character, word or line)	Dropped D-chord	2,5,6, space bar Multiple times to highlight multiple characters/words/lines
Deselect	Dropped H-chord	2,3,5, space bar
Copy	C-chord	1,3, space bar
Paste	V-chord	1,2,3,6, space bar
Cut	X-chord	1,3,4,6, space bar
Select all (Rotor to Edit option; flick down)	Dropped G-chord	2,3,5,6, space bar
Undo	Z-chord	1,3,5,6, space bar
Redo		2,3,4,6, space bar
Show/hide on-screen keyboard	SH-chord	1,4,6, space bar
Move cursor to desired character		Tap routing button below and to right of desired spot
Edit word – must be Grade I Switch Grade I/Grade II	G-chord	1,2,4,5, space bar
Capitalization – when in Grade I, 8 dot braille cell*		Braille letter and dot 7
Period – when in Grade I, 8 dot braille*		4,6
Change only 1 contracted word to Grade I		Push routing key directly below contracted word