

# Scanning and Editing



## When you MUST scan: Scanning Decisions

- Why and when scan?
  - Digital Text Organization; file and resource management
- What is scanned?
  - Materials not already available electronically
- Which scanner?
  - Hewlett Packard, Epson, Canon, Fujitsu, etc.
  - Sheet Feeders, Networked Copy Machines
- Where is scanning done?
  - Think *centrally*
- Who scans?
  - Be Creative: Clerical personnel, teaching assistants, vocational programs, parent volunteers, Scanning Service Businesses

Consider the following questions as you decide how to implement scanning at your site.

### **Why/When Scan?**

- Scanning provides students with independent access to printed material for reading as well as access to writing and studying tools.

### **What is Scanned?**

- You need to decide what needs to be scanned vs. what is nice to have scanned.

### **Which Scanner?**

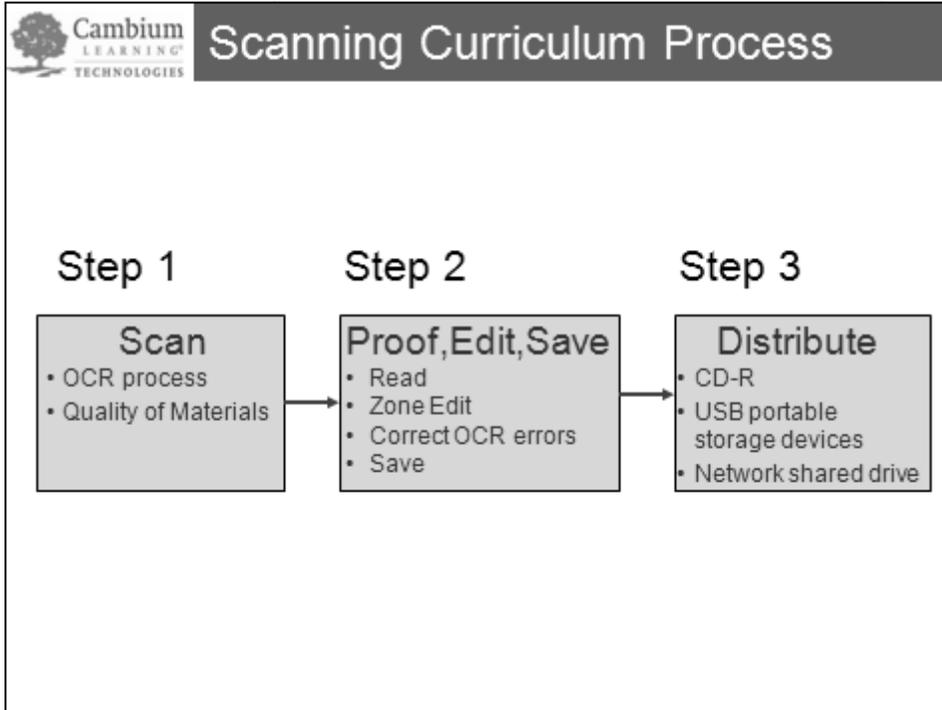
- There are low or high-speed scanners on the market with different features such as flat bed versus sheet feeder.
- Low speed flatbed scanners are inexpensive and can be placed in classrooms.
- Kurzweil maintains a listing of compatible scanners on its web site. Check the list if you are considering purchase of a new scanner. (HP, Canon, Epson, Fujitsu, etc.)
- Check to see if your copy machine is networked and if it scans to PDF or Tiff. If it does, you may be able to use your copier to scan files and send to a computer and convert to .kes using the professional version of Kurzweil 3000.

### **Where is Scanning Done?**

- Resource room, library, teacher office, computer lab, or IT office are options. The location of the scanner and computer affects who can scan materials.

### **Who Scans?**

- A teacher does not necessarily have to do the scanning. Other options include: volunteers, teaching assistants, volunteer and paid student workers, National Honor Society members, Computer Club members, and the students using Kurzweil 3000.
- There are companies that will offer scanning as a fee-based service. Please contact us for more information.



### Step 1: Scan

Each time you scan a page; Kurzweil 3000 recognizes or interprets the data from the scanner. This complex recognition process is called optical character recognition (OCR). The OCR process first generates an image or picture of the page and then creates underlying text that is read by Kurzweil 3000.

The format and/or condition of the print materials determines how well Kurzweil 3000 can interpret and read the scanned image. Original documents with simple fonts produce the best results.

### Step 2: Proof, Edit and Save

Once a document is scanned, the next step is to proof it for reading order and recognition errors. Adjust the reading order if needed, fix any recognition errors, and save the changed document.

### Step 3: Distribution

Distribute the file using removable media such as CD-R, USB keychain drives, or Zip disks, or copy the file to a shared folder on your network.

**Kurzweil 3000 files are just FILES. They can be saved, deleted, moved around like any other file.**

**NOTE:** Instructor will demonstrate the basics of:

1. Scanning
2. Zone Editing
3. Optical Character Recognition

**The Hands-On scanning activities on the following pages can be used for self-study at home, unless specifically requested for in-class instruction.**

**Cambium LEARNING TECHNOLOGIES** Scan Print Materials



↑  
Scan Tool

- Requires Kurzweil 3000 Professional.
- Scanner software installed and scanner connected.
- Place document page face down on scanner.
- Click Scan button to initiate scan.

Scanning requires Kurzweil 3000 PROFESSIONAL. Kurzweil 3000 LearnStation will not have the Scan menu or the Scan button on the main toolbar.

**Cambium LEARNING TECHNOLOGIES** Step 1: Scan Menu



**Scan Menu:**

- Rescan, Insert, and Delete Pages
- Color or Black and White
- Double Sided
- Two Page Mode
- Scan Repeatedly
- Scanner Setup
- Zone Editor
- Header/Footer Editor

## Tools/Options/Scanning

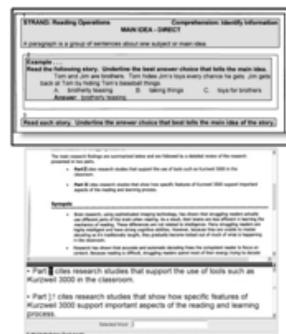


- Find Columns
- Despeckle
- Brightness
- Repeated Scan Delay
- Page Orientation
- OCR Engines
- OCR Languages

## Document Preparation Toolbar



1. **Zone Edit** to change the reading order
2. **Save** Changes
3. **Read**
4. Make **OCR corrections**
  - a. **Spell Check** entire document
  - b. **Edit Underlying Text** word by word
5. **Save** Changes



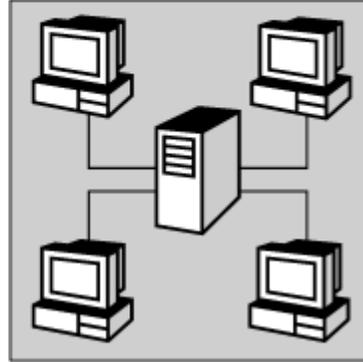
## Step 3: Distribute Files

1. Copy to removable media such as USB flash drives and writeable CD's



2. Email file

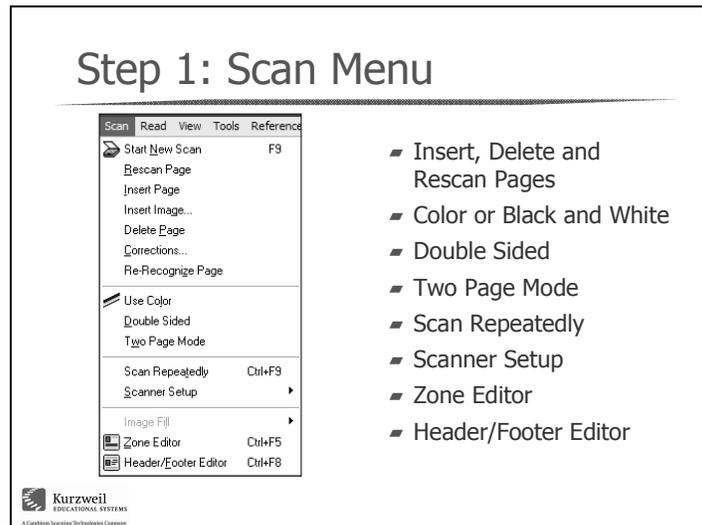
3. Copy to Shared Drive on Network



## Recommended Steps for Scanning and Editing with Win Version 12

Step	What	How	Why
1	Prepare textbook/novel – chop binding.	<ul style="list-style-type: none"> <li>• Have binding chopped off at Staples/Office Supply copier store...</li> <li>• After scanning: 3 hole punch or spiral bind</li> </ul>	<ul style="list-style-type: none"> <li>• Saves time – allows you to use Automatic Document Feeder (ADF) scanner</li> <li>• So pages are straight on flat bed scanner.</li> </ul>
2	Set up and test scanning options and recognition results for 3-5 sample/test pages.	Scan Menu and Tools, Options, Scanning <ul style="list-style-type: none"> <li>• Select scanner and set page size</li> <li>• Decide on B/W or color</li> <li>• Scan using default settings and check results with Ranked Spelling</li> <li>• Adjust brightness, dynamic threshold, etc</li> <li>• Use Thumbnail view to see pages</li> </ul>	<ul style="list-style-type: none"> <li>• Saves scanning time (page size)</li> <li>• Check results before scanning many pages</li> <li>• Improves recognition and saves editing time</li> </ul>
3	Scan and save one chapter at a time	<ul style="list-style-type: none"> <li>• Save each chapter separately</li> <li>• Use consistent file name convention that matches print textbook</li> </ul>	<ul style="list-style-type: none"> <li>• Easier access by chapter</li> <li>• Makes it clear which file and chapter to open</li> </ul>
4	Zone edit and edit headers and footers	<ul style="list-style-type: none"> <li>• Scan menu - Zone Editor</li> <li>• Scan menu - Header/Footer Editor</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust reading order to help focus on important text vs. secondary text</li> <li>• Eliminate reading of unimportant information...headers /footers</li> <li>• Improves reading flow for novels</li> </ul>
5	Correct recognition errors	<ul style="list-style-type: none"> <li>• Tools Menu - Ranked Spelling</li> <li>• Tools Menu - Spell Checking</li> <li>• Edit Menu - Correct Recognition, Edit Underlying Text</li> </ul>	<ul style="list-style-type: none"> <li>• Words are read aloud correctly</li> </ul>
6	Set Page Numbers and Page View	For the file - View Menu – Page, Set Number For each page - View Menu <ol style="list-style-type: none"> <li>1. Fit to ...select option</li> <li>2. Page View, Remember</li> <li>3. Save file</li> </ol>	<ul style="list-style-type: none"> <li>• File page numbers match book page numbers</li> <li>• Consistent view/zoom percentage for each page in file.</li> </ul>
7	Save Changes and make backup copy	Place in shared network folder – permissions: <ul style="list-style-type: none"> <li>• teachers to read and write</li> <li>• students to read</li> </ul>	
8	Merging or dividing files	File – Join will join two files File – Save Page Range will let you save a subset to another file	<ul style="list-style-type: none"> <li>• Allows you to adjust files that might not be aligned to chapters, section breaks</li> </ul>

## Step 1: Scan Menu



Use the **Scan** menu to:

- **Insert, delete** or **rescan** a page in the current scanned document.
- Select **color** scanning versus the default of black and white. You can change between color or black and white for each page in the document. Color scanning involves more processing so it takes longer and generates a larger file.

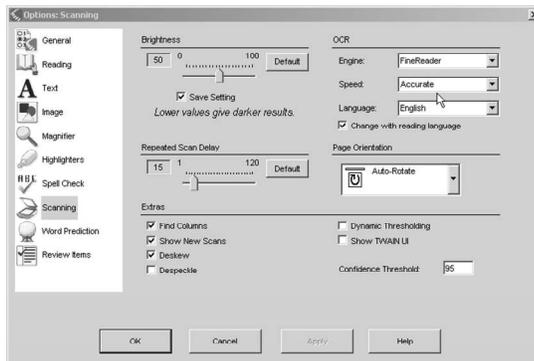
**Note:** *Color scanning is only available in Kurzweil 3000 Professional Color edition.*

- **Double Sided** handles scanning in double-sided originals using a non-duplex scanner with automatic document feeder or a duplex scanner with an automatic document feeder.
- **Two Page Mode** lets you scan two small facing pages at one time and then display them as two separate pages. If you are scanning in small-size books, this feature speeds up the scanning process.

**Note:** *Two-page mode is enabled for Black and White scanning and not for color scanning.*

- **Scan Repeatedly** lets you place pages on the scanner in timed intervals. You set the time interval in the **Tools, Options, Scan** section.
- **Scanner Setup** allows you to specify which scanner you will use if you have a system with multiple scanners. It also provides a Scanner Optimization feature that establishes the recommended settings for a document based on a sample page.
- **Zone editing** allows you to specify how Kurzweil 3000 handles blocks of text, or zones, in an image document. If you are a teacher, you can use zone editing to change the order in which portions of text are read, or to eliminate some portions.
- **Heading/Footer Editor** allows you to mark an area of the document and apply the marked area to all pages so the content is not read.

## Step 1: Scanning Options



- Find Columns
- Despeckle
- Brightness
- Repeated Scan Delay
- Page Orientation
- OCR Engines
- OCR Languages

The Scanning Options section provides features to improve the recognition quality for different types of materials such as newspapers, or pages with white type on black or dark backgrounds or foreign language text.

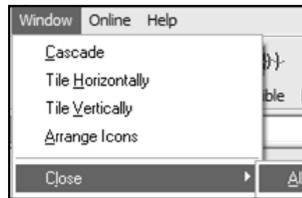
- **Find Columns** is used for pages that have more than one column of text such as newspapers and magazines.
- **Despeckle** helps Kurzweil 3000 recognize text on pages with small, colored dots or speckled paper (such as newspapers).
- The **Brightness** setting lets you adjust the brightness of your scanner. A lower value results in darker scanned images and a higher value results in lighter scanned images. Try adjusting brightness if you are finding numerous OCR errors.
- **Repeated Scan Delay** is where you set the delay time between scans in the repeated scan mode.
- **Page orientation** lets you specify how pages are placed on the scanner glass. Kurzweil 3000 can automatically detect the page orientation or you can make recognition faster by specifying the page orientation.
- Kurzweil 3000 comes with three **OCR engines**. Each engine provides a different level of recognition accuracy and speed. Each engine also provides a different group of recognition languages.
- You would change the **OCR Language** when you are scanning in foreign language documents.

## Hands-On Practice - Scanning

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Follow these steps to scan, delete and insert pages using the sample scanning pages on 127-131.

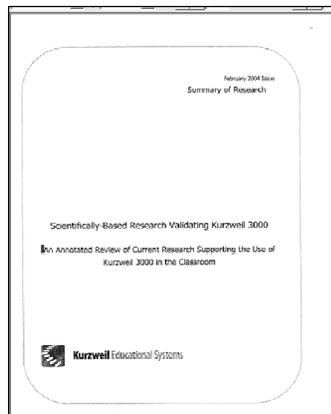
1. Before starting to scan in printed materials, use the **Windows, Close, All Windows** menu option to close all open document windows.



2. Check that the **Scan** button displays on the Main toolbar.
3. Place the **Summary of Research Front page** (Page 128) face down on the scanner.
4. Click the **Scan** button and notice the processing messages displayed in the status bar during the scanning process.
5. When the scan is complete, click the **zoom %** arrow and select **height** to view the page content.



Your results should look similar to the following screen:

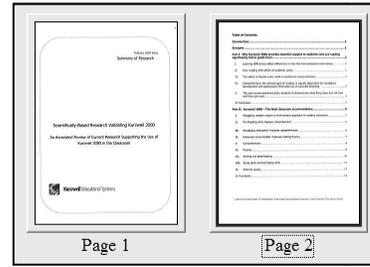


6. Next place the **Summary of Research Table of Contents** page (Page 129 in Appendices section) face down on the scanner and click the **Scan** button.
7. **Note:** *Kurzweil 3000 automatically adds the newly scanned page to the end of your current document.*

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## Hands-On Practice - Scanning, Continued

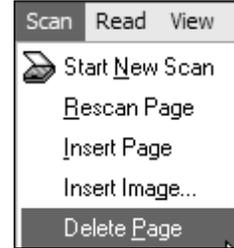
8. Click the **Document Thumbnail** icon on the Reading toolbar to display thumbnails of both pages to view the order of scanned pages.



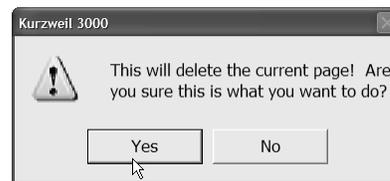
9. Click on the Table of Contents page (Page 2) to close Document Thumbnail view and display full page view of the Table of Contents page.

10. Then select the **Scan, Delete Page** menu option.

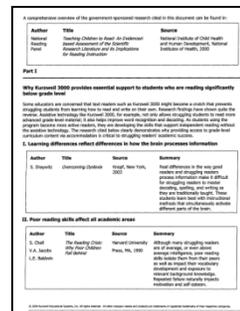
11. Click **Yes** in the popup window to delete the current page.



*Result:* The Summary of Research Front page remains in the document area.



12. Next, **scan** in the sample scanning pages on pages 130-131, the Summary of Research report.



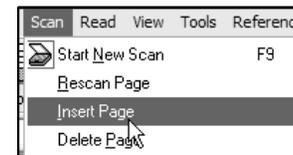
*Follow these steps to insert a page before the current page.*

13. As you learned in Step 6, scanning additional pages are automatically appended after the current page. If you want to insert a page before the current page, you use the **Scan, Insert Page** menu option.

- a. Turn to **Page 130** which is titled "Introduction" and place it face down on the scanner.

14. Make sure you have the page you scanned displayed.

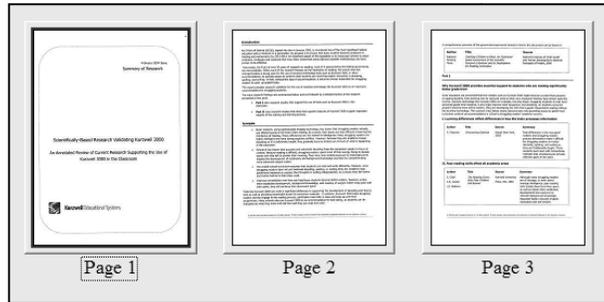
15. Click the **Scan, Insert Page** menu option to scan and insert the "Introduction page" before the previously scanned final appendix page.



## Hands-On Practice - Scanning, Continued

### 16. Click the **Document Thumbnail**

button  to view the three pages and review the page order.



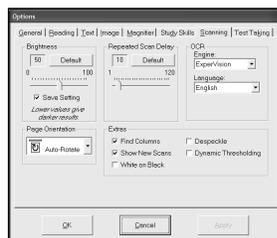
**Note:** *If your page order doesn't match the thumbnail view above, identify the page number that needs to be moved. Next, click on the page that you'd like the reordered page to appear. The Thumbnail view closes and you return to full page view. Then open the **Edit** menu and choose **Move Existing Page**, enter the number of the page to place at your current location and click **Enter**. The page appears before your current page, and is removed from its original location. Pages are renumbered to reflect the reordering.*

Follow these steps to save the scanned pages as a .kes image file.

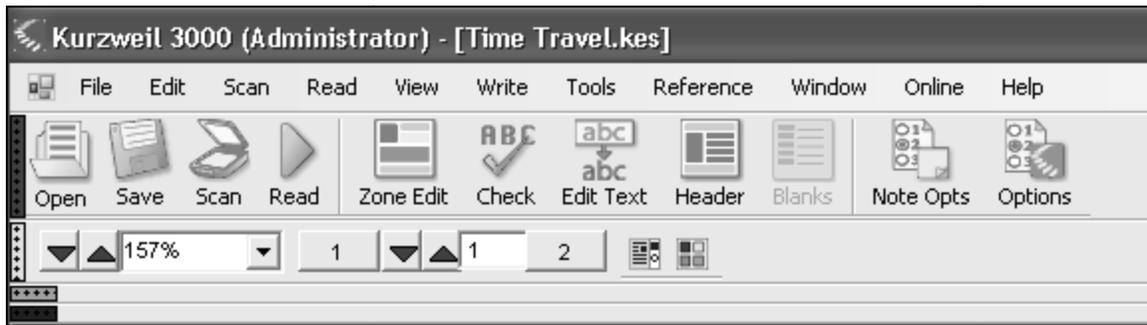
17. The final step in this practice exercise is to save this three-page document as a .kes image file. You will use the saved file in the next practice exercise.
  - a) Click on one of the pages to return to page view.
18. Select the **File, Save As** menu option and name the file **xxxScanPractice**. Replace **xxx** with your initials. Notice the file type is automatically assigned .kes.

Review the Scanning Options that can be modified to optimize the recognition quality of a scanned file.

19. Click the **Tools, Options, Scanning** tab to access other scanning options:



20. Click on **Help**  and then **Scanning Basics** to learn more about the scanning option.



## Document Preparation Toolbar Set

This custom toolbar set provides easy access to proof and editing tools. These tools can also be accessed through menus and right mouse menu. Display the custom toolbar set by selecting **Tools, Customize, Apply Toolbar Set, Document Preparation**.

## Zone Editing

Blocks of text on a page (e.g. heading, footers, subtitles, captions, paragraphs) are identified as reading zones and assigned a zone number. Zone editing allows you to specify how Kurzweil 3000 will handle the text. You can change the reading order of blocks of text, change the amount of text read in a block, eliminate reading for blocks of text, and add new zones to read text that was not read previously.

## Correcting OCR errors

OCR errors include misspellings and disconnected words such as hyphenated words. Correcting OCR errors can be accomplished using the **Spell Check** feature and/or the **Edit, Correct OCR** menu options.

**Spell Check** detects spelling errors throughout a multiple page document and allows you to skip and/or make corrections in the Spell Check dialog.

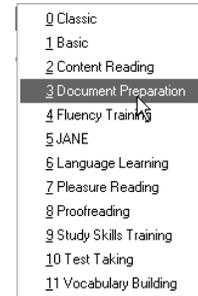
Alternatively, you can correct errors for specific words for one page at a time using the **Edit, Correct OCR** menu.

# Hands-On Practice – Using the Zone Editor

Follow these steps to use the Zone Editor to change reading order in a scanned file. Use the file created in the previous practice named xxxScanpractice.kes (where xxx corresponds to your initials).

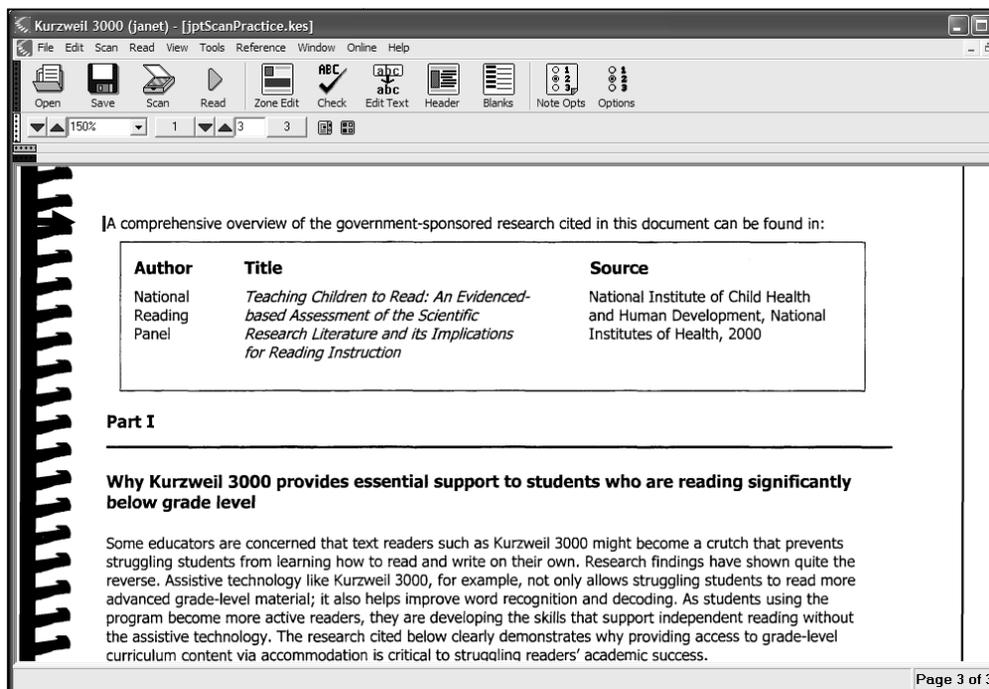
1. If not already opened, open the file named **xxxScanPractice.kes** and make sure page 3 is displayed.
2. **Note:** If you didn't complete the previous exercise, you can open the **ScanPracticeV10.kes** in the Kurzweil V10 Training Files folder. If you don't have a Kurzweil V10 training files folder on your computer, you can download the ScanPracticeV10.kes from the download page on the Kurzweil web site at: [www.kurzweiledu.com/downloads\\_k3000win.asp](http://www.kurzweiledu.com/downloads_k3000win.asp).

3. Let's use the Document Preparation toolbar for easy access to the features used in this practice.
  - a. Click on Tools, Customize, Apply Toolbar Set to display the list.
  - b. Click on **Document Preparation** to select it.



4. Now that you have the Document Preparation toolbar displayed, place the cursor at the top of Page 3 and click the **Read** button.

Place your cursor here



5. Does Kurzweil 3000 begin reading the first line? Most likely it does and then it reads the next line of text on the page and so forth which is what you would expect. Sometimes though you want to change the reading order of a page and this is accomplished using the Zone Editor. In fact, the quickest way to check the order of information that will be read on a page is to use the Zone Editor right away.

# Hands-On Practice - Using the Zone Editor, Continued

Follow these steps to activate the zone editor, review the reading order and delete a zone.

6. Click **Zone Editor** button in the toolbar to activate the zone editor.

**Note:** You can also activate the Zone Editor by selecting it in the Tools menu.

7. **Result:** Page 3 displays with numbered yellow blocks around text. The numbers indicate the reading order.

Numbers above the yellow blocks indicate the reading order.

The screenshot shows the Kurzweil 3000 software interface. The title bar reads "Kurzweil 3000 (janet) - [ScanPracticeV10.kes (Zone Editor is Active)]". The menu bar includes File, Edit, Scan, Read, View, Tools, Reference, Window, Online, and Help. The toolbar contains icons for Open, Save, Scan, Read, Zone Edit, Check, Edit Text, Header, and Blanks. The status bar shows a zoom level of 60%, page numbers 1, 3, and 3, and a page icon.

The document content is displayed with numbered yellow blocks indicating the reading order. The blocks are numbered 1 through 12. The text within the blocks is as follows:

1. A comprehensive overview of the government-sponsored research cited in this document can be found in:

Author	Title	Source
National Reading Panel	Teaching Children to Read: An Evidence-based Assessment of the Scientific Research Literature and its Implications for Reading Instruction	National Institute of Child Health and Human Development, National Institutes of Health, 2000

3. **Part I**

4. **Why Kurzweil 3000 provides essential support to students who are reading significantly below grade level**

Some educators are concerned that text readers such as Kurzweil 3000 might become a crutch that prevents struggling students from learning how to read and write on their own. Research findings have shown quite the reverse. Assistive technology like Kurzweil 3000, for example, not only allows struggling students to read more advanced grade-level material; it also helps improve word recognition and decoding. As students using the program become more active readers, they are developing the skills that support independent reading without the assistive technology. The research cited below clearly demonstrates why providing access to grade-level curriculum content via accommodation is critical to struggling readers' academic success.

**I. Learning differences reflect differences in how the brain processes information**

Author	Title	Source	Summary
S. Shaywitz	Overcoming Dyslexia	Knopf, New York, 2003	Real differences in the way good readers and struggling readers process information make it difficult for struggling readers to master decoding, spelling, and writing as they are traditionally taught. These students learn best with instructional methods that simultaneously activate different parts of the brain.

8. **II. Poor reading skills affect all academic areas**

Author	Title	Source	Summary
S. Chall	The Reading Crisis: Why Poor Children Fall Behind	Harvard University Press, MA, 1990	Although many struggling readers are of average, or even above average intelligence, poor reading skills isolate them from their peers as well as impact their vocabulary development and exposure to relevant background knowledge. Repeated failure naturally impacts motivation and self esteem.

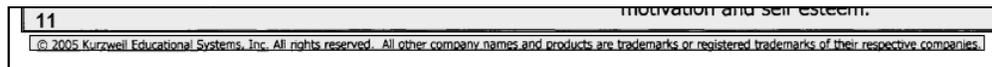
12. © 2004 Kurzweil Educational Systems, Inc.      13. Foundations Workbook for Windows, Version 9 - Page 579

## Hands-On Practice- Using the Zone Editor, Continued

Follow these steps to activate the zone editor, review the reading order and delete a reading zone.

8. The reading order looks okay but the information in zone 11 isn't important so you decide to delete the zone.

Delete zone  
11

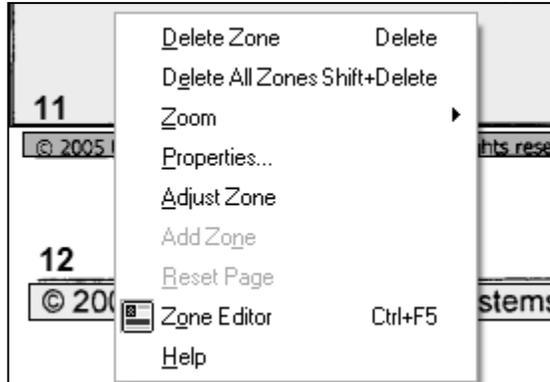


9.

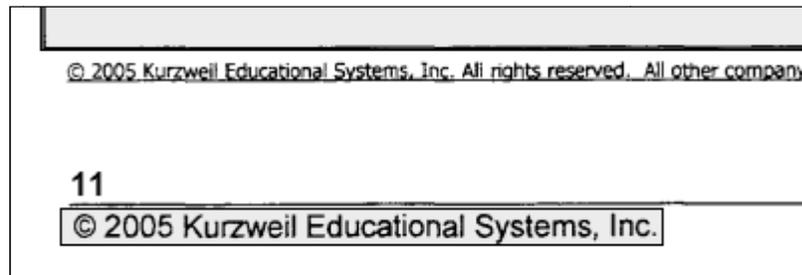
10. To delete one zone

- Click on the **zone 11** and the yellow text box turns a darker yellow.
- Click the **right mouse button** to display the zone editor menu.
- Click **Delete Zone**.

12.



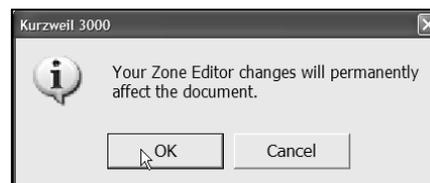
11. *Result:* The zone box disappears and the subsequent zones on the page are renumbered.



13.

14. Let's test this change by reading. In order you need to deactivate the Zone Editor.

- Click on the **Zone Editor button** to off.
- Click **OK** in the message box to the change.



to read,  
turn it  
make

15. Then place your cursor in the middle of the page and click **Read**. The text in the zone you just deleted will be skipped over.

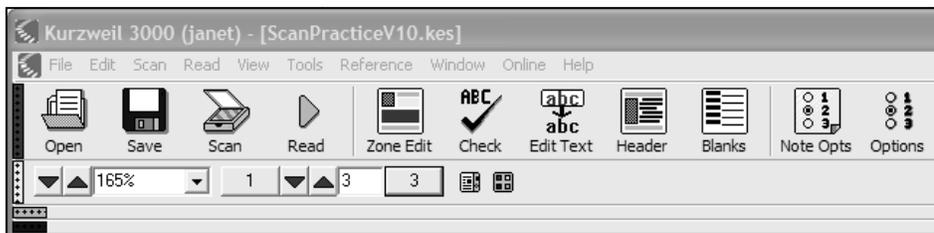
## Hands-On Practice – Spell Check the Scanned File

Follow these steps to Spell Check a scanned document to identify and fix recognition errors.

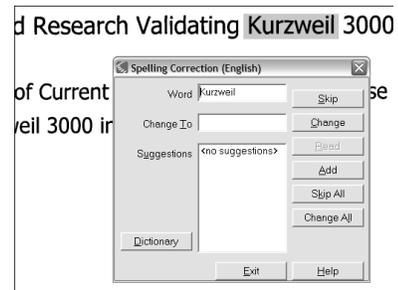
1. The Spell Check feature is a useful tool to quickly identify and correct spelling or unknown word errors in the underlying text of every page in a scanned document. You use Spell Check after zone editing a scanned document.

Using Spell Check, you can skip the word, add it to your personal dictionary, select a replacement word from a list of suggestions or type in new text. The changes will update the underlying text of the scanned document

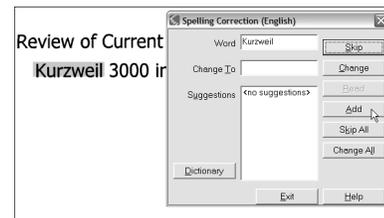
2. Let's try Spell Check next with ScanPracticeV11.kes file.
  - a. Make sure you have **page 1** displayed and the cursor is at top of page since Spell Check begins spell checking at the cursor.
3. Click the **Spell Check icon** on the toolbar to initiate spell checking.
4. **Note:** You can also activate it through the Tools, Spell Check menu option.



5. Once a misspelled word or a word not in the spell check dictionary is detected, the word is highlighted and the Spell Check dialog displays.
  - a. The first word found is **Kurzweil** since it is a proper noun and not in the dictionary.
  - b. Click in the Word box to hear it **Kurzweil** spoken aloud.
  - c. Click the **Skip** button to skip this instance and spell check more of the file.



6. The next word found is Kurzweil again. Let's add it to the dictionary at this point:
  - a. Click **Add**
7. **Note:** You might need to move the Spelling Correction dialog to see the location of the misspelled word

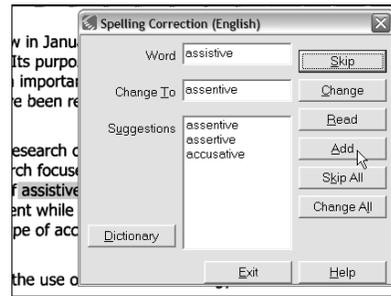


## Hands-On Practice – Spell Check the Scanned File, Continued

Follow these steps to Spell Check a scanned document to identify and fix OCR recognition errors.

8. Once Page 1 is checked, Spell Check moves to Page 2 and detects **NCLB**, another term not in the dictionary.

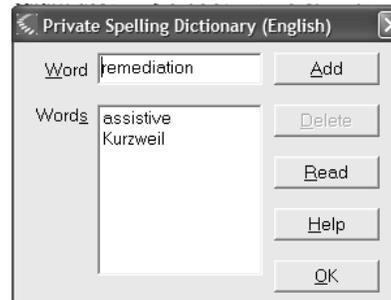
- a. Click **Skip** or **Add** to move to the next word.
- b. Next **Assistive** is highlighted and the Spell Check dialog provides several suggestions.
- c. Click on each suggestion to hear the word spoken aloud.
- d. Then click the **Add** button to add **Assistive** to the dictionary.



9. To review what words were added to your private dictionary, click the **Dictionary** button.

10. You can delete the entries by selecting the word and clicking the Delete button.

- a. Click **OK** to close the private dictionary.



11. On Page 3 additional proper nouns and misspellings are identified. You can add the proper nouns or skip them. Make any other changes that you think are appropriate and then save the changes by saving the file.

# Hands-On Practice – Edit Underlying Text

Follow these steps to correct a recognition or pronunciation error using the Edit Underlying Text feature.

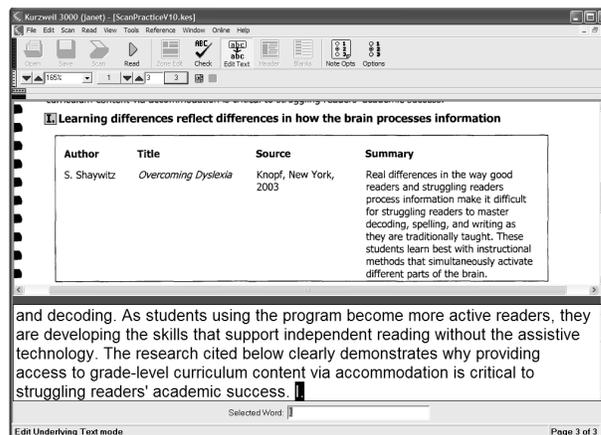
1. As you just learned spell check catches misspelled words and words not in the dictionary, but Spell Check doesn't detect word or characters such as roman numerals that might be pronounced different from what you expect even when the word image appears correct.

Some common examples found in the ScanpracticeV11 file on Page 3 include:

- a. I pronounced as I rather than One.
  - b. II pronounced as II rather than Two.
2. Let's look at how you would make changes to the underlying text so that the information reads correctly
    - a. Move to the middle of page 3 of the ScanPracticeV10.kes file
    - b. Read the sentence that begins with I.

**I. Learning differences reflect differences in how the brain processes information**

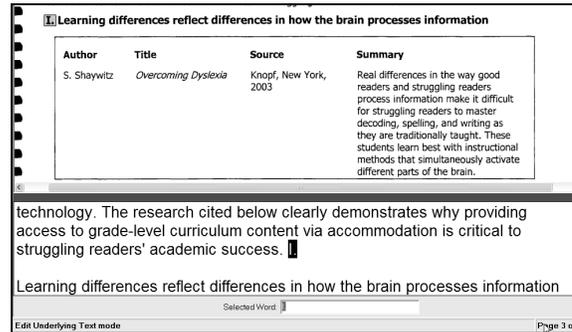
3. Do you hear I read as the letter I rather than the Roman numeral One?
4. Let's change the underlying text so that Kurzweil 3000 reads the I as One. To view or change the underlying text:
  - a. **Select** the line by clicking and dragging your mouse over the phrase.
  - b. Click the **Edit Text** button in the toolbar to display the Edit Underlying Text dialog.
  - c. **Note:** You can also access *Edit Underlying Text* with the right mouse menu or through the Edit menu.



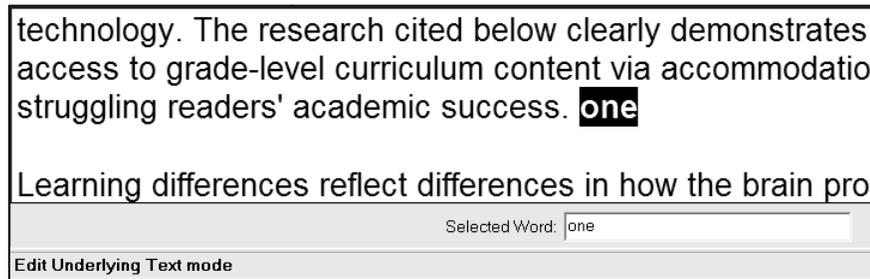
## Hands-On Practice – Edit Underlying Text, Continued

Follow these steps to correct a recognition or pronunciation error using the Edit Underlying Text feature.

5. Make the changes so that Part I reads aloud as Part One.

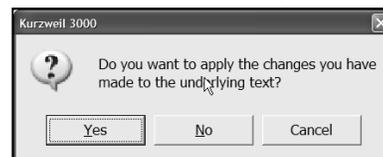


- a. Click on **I** to select it.
- b. In the Selected Word box, replace **I** with **one** and then click the **Read** button.



6. Close the edit underlying text window by:
  - a. Pressing CTRL + F10 keys together or
  - b. Click the Edit Underlying Text icon

7. Click OK to save the change to underlying text.



8. Remember to save your changes to the file by clicking the **Save** button.
9. The final step in this section is to replace the Document Preparation toolbar set with the Classic toolbar set.
  - a. Select Tools, Customize, Apply Toolbar Set, Classic

*Result:* The classic toolbar set displays.

## Sample Scanning Pages Next

February 2004 Issue

## Summary of Research

### Scientifically-Based Research Validating Kurzweil 3000

An Annotated Review of Current Research Supporting the Use of  
Kurzweil 3000 in the Classroom



**Kurzweil** Educational Systems

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No Child Left Behind (NCLB), signed into law in January 2002, is considered one of the most significant federal education policy initiatives in a generation. Its purpose is to ensure that every student becomes proficient in reading and mathematics by 2013-2014. An important aspect of this legislation is to encourage schools to adopt programs, strategies and materials that have been researched using rigorous scientific methodology and have proven to be effective.

Fortunately, the fruits of over 30 years of research on reading, most of it sponsored by the federal government, are now available. While much of the research focuses on the mechanics of reading, the picture that has emerged makes a strong case for the use of assistive technology tools such as Kurzweil 3000, or other accommodations, to provide access to content while students are receiving explicit instruction in decoding, spelling, and writing. In fact, without this type of accommodation, it becomes almost impossible for struggling readers to catch up academically.

This report provides research validation for the use of assistive technology like Kurzweil 3000 as an important accommodation for struggling students.

The main research findings are summarized below and are followed by a detailed review of the research presented in two parts.

- **Part I** cites research studies that support the use of tools such as Kurzweil 3000 in the classroom.
- **Part II** cites research studies that show how specific features of Kurzweil 3000 support important aspects of the reading and learning process.

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## Synopsis

- Brain research, using sophisticated imaging technology, has shown that struggling readers actually use different parts of the brain when reading. As a result, their brains are less efficient in learning the mechanics of reading. These differences are not related to intelligence. Many struggling readers are highly intelligent and have strong cognitive abilities. However, because they are unable to master decoding as it's traditionally taught, they gradually become locked out of much of what is happening in the classroom.
- Research has shown that accurate and automatic decoding frees the competent reader to focus on content. Because reading is difficult, struggling readers spend most of their energy trying to decode words with little left to ponder their meaning. Over time, their limited exposure to meaningful print impacts the development of vocabulary and background knowledge essential for comprehending more advanced subject matter.
- The middle school curriculum assumes that students can read and write efficiently. However, since struggling readers have not yet mastered decoding, spelling, or writing, they are unable to read grade-level materials or express their thoughts in writing independently. As a result, they fall further and further behind in their class work.
- Intensive remediation over time can help these students become better readers, however, unless their vocabulary development, background knowledge, and mastery of subject matter keep pace with their peers, they will continue their downward spiral.

Tools like Kurzweil 3000 can make a significant difference in supporting the development of decoding and fluency skills as well as providing meaningful access to curriculum materials. In addition, Kurzweil 3000 helps struggling readers actively engage in the reading process, participate more fully in class and keep up with their assignments. Many schools also use Kurzweil 3000 as an accommodation for test taking, so students can be evaluated on what they know and not how well they can read and write.

A comprehensive overview of the government-sponsored research cited in this document can be found in:

<b>Author</b>	<b>Title</b>	<b>Source</b>
National Reading Panel	<i>Teaching Children to Read: An Evidenced-based Assessment of the Scientific Research Literature and its Implications Instruction</i>	National Institute of Child Health and Human Development, National Institutes of Health, 2000

for Reading

## Part I

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### Why Kurzweil 3000 provides essential support to students who are reading significantly below grade level

Some educators are concerned that text readers such as Kurzweil 3000 might become a crutch that prevents struggling students from learning how to read and write on their own. Research findings have shown quite the reverse. Assistive technology like Kurzweil 3000, for example, not only allows struggling students to read more advanced grade-level material; it also helps improve word recognition and decoding. As students using the program become more active readers, they are developing the skills that support independent reading without the assistive technology. The research cited below clearly demonstrates why providing access to grade-level curriculum content via accommodation is critical to struggling readers' academic success.

#### I. Learning differences reflect differences in how the brain processes information

<b>Author</b>	<b>Title</b>	<b>Source</b>	<b>Summary</b>
S. Shaywitz	<i>Overcoming Dyslexia</i>	Knopf, New York, 2003	Real differences in the way good readers and struggling readers process information make it difficult for struggling readers to master decoding, spelling, and writing as they are traditionally taught. These students learn best with instructional methods that simultaneously activate different parts of the brain.

#### II. Poor reading skills affect all academic areas

<b>Author</b>	<b>Title</b>	<b>Source</b>	<b>Summary</b>
S. Chall	<i>The Reading Crisis: Why Poor Children Fall Behind</i>	Harvard University Press, MA, 1990	Although many struggling readers are of average, or even above average intelligence, poor reading skills isolate them from their peers as well as impact their vocabulary development and exposure to relevant background knowledge. Repeated failure naturally impacts motivation and self esteem.
V.A. Jacobs			
L.E. Baldwin			