

Getting Started: Reading with Audiobooks and Text-to-Speech

*Assistive and Instructional Technology
Supporting Learners with Disabilities*



Introduction

Listening to books and other material read aloud can help individuals to better focus and comprehend the content.

To understand reading materials, an individual must first be able to perceive (recognize or identify) the content through one of the senses such as sight (e.g., reading text with the eyes), hearing (e.g., audiobook or text-to-speech), or touch (e.g., braille). For some individuals, hearing may be the only meaningful way to receive information. In this case, listening to content may be helpful.

Technology offers options that can lead to greater independence by helping individuals with disabilities to perceive, focus on, and understand the content of reading materials. For example, audiobooks (typically audio files narrated by a person) and text-to-speech or TTS (a computerized voice that reads digital text aloud) are two helpful options for many people.

First Steps: Trying Audiobooks and Text-to-Speech (TTS)

Step 1: Find a free audio book or TTS program

- To decide what kinds of options could be helpful for you, borrow audiobooks from the library and try free versions of TTS programs (e.g., Natural Reader, Read & Write for Google Chrome extension, Voice Dream Reader) to read digital text on websites or other digital text files.

Step 2: Identify the settings that work for you

- Try the various voices offered and choose one that helps you hear the content best.
- Try different reading speeds to find what fits best for you and the content. You may prefer different speeds for different content at different times.
- Consider whether it is important to see the text while listening to the content. Most TTS programs will display the digital text while the digital voice reads aloud. Some TTS programs also provide synchronized highlighting for visual tracking. Most audiobooks do not provide text and audio pairing, but you can follow along in a print book or digital text.



Technology offers options that can lead to greater independence by helping individuals with disabilities understand the content of reading materials.



Step 3: Read without distractions to help focus

- Use these tools in a quiet, distraction-free environment to reduce competition for your attention.
- Use the tools you need to help with focus and attention while you are listening.

Step 4: Use comprehension strategies to actively listen and engage with the content

- As you listen, pause the reading periodically to use active listening skills and engage with the content: reflect, reread, interpret, and analyze.
- Take notes as you actively listen and engage with the content.
- If you encounter a word you don't know, pause the reading to look up the definition and take notes. Then rewind a little before you resume reading so that you hear the new word again in context.
- If parts of the reading don't make sense, or if you were distracted for a moment, stop the reading and rewind to listen again. If you still don't understand the content, ask questions or look up more information on the topic.
- Use a timer to remind yourself to pause and use these strategies and techniques.
- Ask yourself: Does listening to the content and using these strategies help improve your comprehension?



If parts of the reading don't make sense, or if you were distracted for a moment, stop the reading and rewind to listen again.

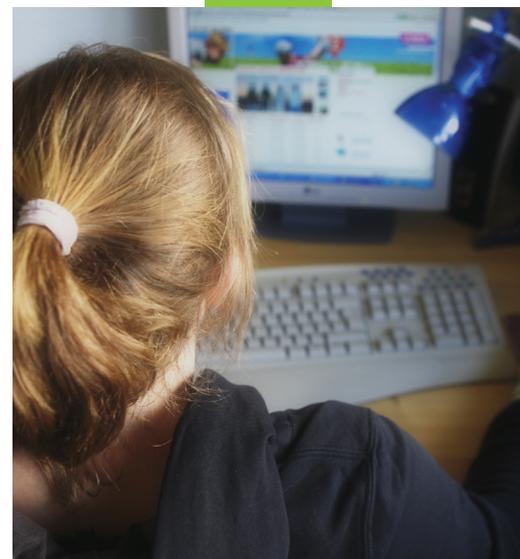
Next Steps: Acquiring Reading Materials and Tools

Step 5: Acquire the needed audiobooks or digital text

- If listening is helpful and effective, you will need to find the books and other reading materials in an audio or digital text format.

Options to find free content

- If the book is a classic, out of copyright, or not protected by copyright, you might be able to find it from a free source such as Project Gutenberg or Librivox (online resources).



- Check with the library to see if audiobooks and digital books are available for loan. Many libraries have current books available.

Options to buy content

- Many different stores and websites sell audiobooks and digital books. When you buy a digital book you are often committed to read that book using the sellers' provided program or app (e.g., Kindle or Nook devices or apps). Review the features of a specific device, program, or app to determine if text-to-speech is provided.

Options for individuals with a print-related disability

- If you have a disability that affects your ability to read traditional print materials, talk with a professional who provides disability services at your school. The school may be able to provide you with free access to Bookshare.org or Learning Ally (online resources).

Step 6: Create digital text when necessary

- Some content looks like text but is actually an image that TTS programs aren't able to read. If you encounter this issue, you may want to use a program such as Read & Write Gold by Texthelp or Snap & Read by Don Johnston that applies optical character recognition (OCR) to screen shots of the text.
- If audio or digital text cannot be found for a particular item, it can be created using a scan-and-read software or technology that utilizes optical character recognition (OCR) to create digital text. Note: Some material may be subject to copyright law.

Step 7: Learn more about audiobooks and digital text

- The Center on Technology and Disability (CTD) provides a variety of resources on Accessible Educational Materials (AEM), including information on audiobooks and digital text. Learn more at ctdinstitute.org.
- PACER Center offers many helpful resources. Learn more at PACER.org/STC.
- Visit The National Center on Accessible Educational Materials (AEM) at aem.cast.org where you'll find two helpful articles on this topic: "Acquisition of AEM" and "Higher Education and AEM."



Check with the library to see if audiobooks and digital books are available for loan. Many libraries have current books available.



Step 8: Explore and select your TTS tools

- To learn more about the different TTS tools, talk with school professionals, disability services staff, an assistive technology center, or a state assistive technology program.

Example

Emma is a bright, cheerful 9th grader who loves animals. She really enjoys math and science, but not reading. Emma doesn't like reading because it takes her a long time, is exhausting, and after making the effort to read the material she still has a hard time understanding the content. Emma has a reading disability. She can understand the content of her reading materials faster and better when someone else reads it aloud and she follows along in the text.

Emma joined Bookshare so she can access textbooks and other reading material in a digital text format. With digital books from Bookshare, she is able to see the text and hear it read aloud at the same time with a text-to-speech program. Emma uses an app on her iPad called Voice Dream Reader by Voice Dream, which she purchased from the iTunes app store. She can download reading material directly into the app and use the text-to-speech features to hear the materials read aloud along with synchronized highlighting, which highlights words as they are read by the program. This helps her follow along and be more focused. She also uses a fidget (a handheld object such as a stress ball or wad of silly putty), and sits on a balance ball in a distraction-free area. After Emma selected a "voice" she liked from the various options, she tried different listening speeds and chose one that works well for her. She also changed the visual settings for background color, font color, font type, font size, and margins in order to see the text more clearly.

In addition to listening and following along in the text, Emma uses many comprehension strategies to help her better understand what she is reading. Here are some examples:

- Emma stops when she encounters a word she doesn't know and **looks up the definition**. She then **rereads the sentence** to understand what the word and sentence mean.
- To help her remember and understand what she is reading, Emma **uses the highlighter tool** provided in the app to highlight and save information to review later.



To learn more about the different text-to-speech tools, talk with school professionals, disability services staff, or an assistive technology center.



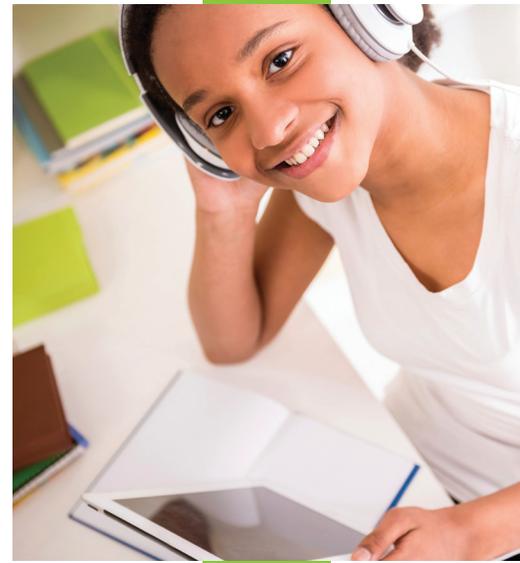
- For complex topics, Emma pauses after every paragraph or section to **review what she learned** and **find answers** to her questions. If she doesn't understand something, or missed some information, she **replays** those sections.
- Using the note taking feature in the app, Emma frequently **writes summaries** and her interpretation of what she is reading. She **relates that to her personal experiences**, opinions, knowledge, and information about the topic.
- Emma occasionally **sets a timer to remind herself** to use these strategies while reading.

Emma likes to learn about animals, and she will often look up information online and read journals and magazines about the subject by using text-to-speech tools, such as Read & Write for Google and Snap & Read which allow her to read with her ears.

Sometimes she encounters words that look like text but she is not able to select the words and use her reading tools. When this happens, Emma uses the snapshot tool in Snap & Read to convert the image to digital text that the program can read aloud.

Some material is only available in printed form. In this case, Emma uses a scan-and-read program, or an app such as Prizmo, which uses optical character recognition (OCR) to convert a picture of the print copy into digital text. The text can then be sent to Voice Dream Reader to read aloud and use the study tools.

Thanks to innovative technology and the comprehension techniques and tools she now uses, reading is much easier. Emma can read faster, read more, read independently, and better understand the content. Most importantly, Emma can now enjoy reading!



Use comprehension strategies, such as rereading, taking notes, using a highlighter tool, and writing summaries, to help better understand the content.



Resources

- Bookshare — bookshare.org
- Center on Technology and Disability — ctdinstitute.org
- Learning Ally — learningally.org
- Librivox — librivox.org
- National Center on Accessible Education Materials — AEM.cast.org
- Natural Reader — naturalreaders.com
- PACER Center — PACER.org
- Prizmo — creaceed.com/iprizmo
- Project Gutenberg — gutenberg.org
- Read & Write for Google — texthelp.com
- Read & Write Gold — texthelp.com
- Association of Assistive Technology Act Programs — <http://www.ataporg.org>
- Snap & Read — donjohnston.com/snap-read
- TechMatrix — <http://techmatrix.org/>
- Voice Dream Reader — voicedream.com



Check out these resources for free ebooks, text-to-speech apps, and more!

Evidence

- National Center on AIM at CAST, Inc. “Supported Reading for Students who are Blind or Visually Impaired.” Paper prepared for the National Center on Accessible Instructional Materials. By Richard M. Jackson, Ed.D. (Boston College and CAST) With support from Ike Presley, M.Ed. (AFB). 1/16/12
 - o http://aem.cast.org/binaries/content/assets/aem/navigating-aem/asr/audio_supported_reading3.8.12_0.pdf
 - o PDF link available at http://aem.cast.org/navigating/audio-supported-reading.html#.VcuFo_nD5MQ



- Journal of Special Education Technology, 21(3), Summer 2006. “Assistive Software Tools for Secondary-level Students with Literacy Difficulties.” By Alissa A. Lange, Martin McPhillips, Gerry Mulhern and Judith Wylie. Queen’s University, Belfast, UK. Pages 13-22.
 - o <http://www.texthelp.com/media/39423/US%20Journal%20of%20Spec%20Ed%20Tech%20Queen%20University%20Study%202006.pdf>
 - o PDF link available at <http://www.texthelp.com/north-america/our-products/readwrite/educator-resources/research-and-reviews/>
- Disseldorp, B. and Chambers, D. (2002). Independent access: Which students might benefit from a talking computer? In S. McNamara and E. Stacey (Eds), *Untangling the Web: Establishing Learning Links*. Proceedings ASET Conference 2002. Melbourne, 7-10 July. <http://www.aset.org.au/confs/2002/disseldorp.html>
 - o <http://www.texthelp.com/media/39393/USWhichStudentBenefitFromTTS.PDF>
 - o PDF link available at <http://www.texthelp.com/north-america/our-products/readwrite/educator-resources/research-and-reviews/>
- NCAC. “Text Transformations: Curriculum Enhancement.” Report was written with support from the National Center on Accessing the General Curriculum (NCAC), a cooperative agreement between CAST and the U.S. Department of Education, Office of Special Education Programs (OSEP).
 - o http://donjohnston.com/wp-content/downloads/understanding/cast_report_text_transformations.pdf
 - o PDF link available at <http://donjohnston.com/cast-text-transformations/#.VcuKnPnD5MQ> → <http://donjohnston.com/case-studies/#.VcuKPfnD5MQ>



Thanks to innovative technology and the comprehension techniques and tools, reading can be much easier.

