Using Text-to-Speech, Speech-to-Text and Word Prediction Tools to Facilitate Reading and Writing

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Define Text to Speech (TTS):

Research Review:

- Work of Gandhi et al., (2017) shows read-aloud accommodations benefit struggling readers when question stems and answer options, as well as the full text, are read by the computer
- Work of Gruner, Ostberg & Hedenius (2017) shows TTS improves reading rate and comprehension
- Students with reading disabilities feel less fatigue, have increased independence, and find it easier to finish assignments on time with the use of TTS (Bone & Bouck, 2016)
- According to Wood, Moxley, Tighe & Wagner, 2018, consider the following:
    - Rate
    - Type of Voice (Charlie Brown Effect)
    - Document tagging
    - Ability to highlight
    - Access to tech support
    - As a testing accommodation (Buzick & Stone, 2014)

Rules for the Road:

- Provide ample time to practice
- Do not try and learn to use TTS with a looming deadline
- Model, model, model
- Change the voice and rate as needed: Charlie Brown effect
- Teach metacognitive skills: what voice is best for history vs. science
- Rate for a cold read vs. re-reading review

TTS on a Phone:
https://www.understood.org/en/school-learning/assistive-technology/assistive-technologies-basics/text-to-speech-on-phone

TTS in One Note:
https://support.microsoft.com/en-us/office/use-the-speak-text-to-speech-feature-to-read-text-aloud-459e7704-a76d-4fe2-ab48-189d6b83333c

TTS in Read & Write:
https://www.texthelp.com/en-us/products/read-write/

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TTS on a Mac:
https://youtu.be/6-uYMY5VjSU
https://drive.google.com/file/d/1uxXLY4Mp0MUV28Az04zJMK_7uyjY7nuT/view

TTS on a PC:
https://youtu.be/U25vhhE50kI

TTS as an extension:

- When in the Google Chrome browser, click on the Apps icon in the upper left-hand corner
- Click on the Web Store, which can be in different locations on your screen. It depends on the computer
- Type In the search box type in Text to Speech and click on Extensions
- https://drive.google.com/file/d/1DdzmYT56du2erf5jEE6vgDs5Q_U2qzMe/view

TTS in Word:
https://youtu.be/N_JhQBJpgVw

TTS in Google docs:
https://www.loom.com/share/d6de2ba2a0df4eee9e9f30fac2a67e92

TTS Apps:
https://otter.ai/
https://www.imore.com/best-apps-transcribing-voice-text
https://www.makeuseof.com/tag/best-android-dictation-apps/
https://www.techradar.com/news/best-speech-to-text-app
https://www.microsoft.com/en-us/ai/seeing-ai

Outside vendors:
https://www.bookshare.org
https://learningally.org
https://www.gutenberg.org
https://meet.soraapp.com/
https://www.overdrive.com/apps/libby/

Handheld Tool:
https://cpen.com
https://cpen.com/news/
https://scanmarker.com/
https://scanmarker.com/assistive-technology/

Seeing AI:
https://www.microsoft.com/en-us/ai/seeing-ai
https://baixarapk.gratis/en/app/999062298/seeing-ai

Links for further information:

bit.ly/AR-First-Aid
bit.ly/macOS-AT
bit.ly/OCR-AT
bit.ly/iPad-AT
bit.ly/Chrome-AT

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bit.ly/Windows-AT

http://blog.bookshare.org/2019/05/reframing-text-to-speech-vs-human-audio-debate/
https://apps.apple.com/us/app/libby-by-overdrive-labs/id1076402606
https://help.overdrive.com/en-us/1307.html
https://www.getspeechify.com/
https://www.techradar.com/news/the-best-free-text-to-speech-software
https://www.apple.com/accessibility/cognitive/

Define Speech to Text (STT):

Research Review: Shadiev, Hwang, Chen, & Huang Study (2014)

- Low recognition rate of homophones is one big limitation, although the technology has improved since the date of this study
- Harder to use when there is more than 1 speaker
- Importance of training: should be at least 1 week before a real assignment is given

Benefits:

- Found STT is "enabling students to better understand content of academic activities, to confirm missed parts of speech, to take notes, to complete HW, and to prepare for exams" p.75
- Specifically, students with cognitive or physical disabilities: "…served as an effective tool to write and record their speech. In some cases, the application of STT has enhanced student's basic reading, spelling and writing skills" p.71

Turning on STT on a Mac:
https://drive.google.com/file/d/1nycW08-X2E8AkIzBDFsNYNGhJs2W-ngL/view
https://www.youtube.com/watch?v=16SaD4iEgMo&feature=youtu.be

Turning on STT on a PC video:
https://www.loom.com/share/3eaeda48c78c4456bbbe75333f6c15be
https://support.microsoft.com/en-us/help/4042244/windows-10-use-dictation

Turning on STT in Word:
https://youtu.be/spYsvXYPwh0

Turning on STT in Google Docs:
https://www.loom.com/share/64a41743cb2646148749194f22a82a71

Turning on SST on your iPhone or iPad:
https://www.lifewire.com/use-ipad-voice-dictation-4103815

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Turning on SST on an Android device:
https://www.android.com/accessibility/live-transcribe/

Define Word Prediction (WP):

Research Review:

Silvio & Barbetta Study (2010)

- Students with SLD tend to get lost in the weeds and tend to avoid or ignore the writing process: they will over focus on spelling or other writing skills
- They struggle to balance the organization of thoughts and generating coherent written work
- "word prediction alone and in combination with TTS had a positive impact on the participant's writing. With variation, with word prediction alone and with text to speech, participants in both cohorts wrote longer, more syntactically mature compositions that were better organized and had fewer spelling errors. " p.25
- Importance of direct instruction on how to use it well

Evmenova, Graff, Jerome, & Behrmann (2010)

- Importance of good keyboarding instruction prior to using WP
- "relative effectiveness of word prediction on various aspects of the writing process for some students with writing difficulties as compared to word processing alone. Word prediction regardless of the software was effective in improving written spelling accuracy as measured by the proportion of words spelled correctly for all of the participants." p.180
- **General:**

https://www.understood.org/en/school-learning/assistive-technology/assistive-technologies-basics/word-prediction-technology-what-it-is-and-how-it-works

Word prediction on a PC:
https://support.microsoft.com/en-us/office/using-word-prediction-for-inclusive-classrooms-8ca3ea32-66b1-4d9d-abf1-1d0ead34f2a2

Word prediction on a Mac:
https://drive.google.com/file/d/1bnbZ0pttibLrjImvkG0COfWHCg-sWVy8/view

https://youtu.be/aoVcXJSOkr4

Word prediction on an iPhone or iPad:
https://support.apple.com/guide/ipad/use-predictive-text-ipad736a3ca8/ipados

Word prediction on Android devices:

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Samsung: https://support.sprint.com/support/tutorial/Turn-predictive-text-on-or-off-Samsung-Galaxy-Sreg-II-As-You-Go/WScenario_542_48288_771_en_625-dvc7260007prd

Other Android Options:
https://ostoday.org/android/how-to-turn-on-predictive-text-on-android.html
https://www.android.com/accessibility/live-transcribe/

Word prediction in Google Docs:
https://www.theverge.com/2020/2/19/21144066/google-docs-smart-compose-ai-microsoft-word-email

https://www.helperbird.com/features/word-prediction/

Commercial products:

Co-Writer by Don Johnston
https://learningtools.donjohnston.com/product/cowriter/

Read & Write
https://www.texthelp.com/en-us/products/read-write/read-write-for-education/

Immersive Reader
https://www.youtube.com/watch?v=wHJJCLV-DNg

Ghotit
https://www.ghotit.com/dyslexia-word-prediction
https://www.ghotit.com/dyslexia-software-real-writer-for-chrome-extension
https://www.ghotit.com/ghotit-video-tutorials

Additional Resources:

https://www.texthelp.com/en-us/products/read-write/read-write-for-education/
http://bookbuilder.cast.org/

Assessment

https://learningtools.donjohnston.com/product/upar/
https://learningtools.donjohnston.com/product/decoste-writing-protocol/

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