Automatic Speech Recognition and Text-to-Speech Tools to Foster L2 Speech Intelligibility

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Pronunciation checker website:
https://voicenotebook.com/prononce.php

Automatic speech recognition (ASR)
• Transcribes speech based on oral input (Moussalli & Cardoso, 2020).

Text-to-speech synthesizers (TTS)
• Automatically generates synthesized speech from units of written text displayed on a screen (Liakin et al., 2017).
Why make use of ASR tools in L2 classes?

As currently defended by some researchers (e.g., Dizon & Tang, 2020; Liakin, Cardoso, & Liakina, 2017), ASR systems can:

1. contribute to the development of L2 students' autonomy;
2. provide pronunciation feedback;
3. allow focusing on both isolated words and whole sentences, which facilitates the training of segmental and suprasegmental features.

Therefore, the tools can be very helpful, especially for students who have little access to other L2 speakers, as they offer the opportunity to practice their oral skills.
Why make use of TTS tools in L2 classes?

TTS systems have been adopted as a means to expose students to further spoken input and they offer opportunities for practicing all four skills in a more individualized and autonomous way. For example, learners can:

1. revise their written texts;
2. create and download audio versions from any text;
3. adjust the speed and pace of the audio in order to facilitate understanding of the content being read;
4. elaborate and practice dialogues with different English accents. (Moon, 2012).

Moreover, it can be a valuable tool for teaching L2 pronunciation, mainly in raising awareness of sound features (Liakin et al., 2017).
Research findings

- Overall, studies indicate positive effects after prolonged use of the tools, mainly to provide practice beyond classroom instruction (Cardoso, 2018; Liakin et al. 2017).

- Students also seem to be in favor of implementing these tools in their learning process (Bione et al., 2016; Liakin et al. 2017).
In conclusion, if a teacher well orients the use of TTS and ASR tools, they can help students develop speech *intelligibility*.

➔ Meaning, “the extent to which a speaker’s message is actually understood by a listener, but there is no universally accepted way of assessing it.” (Munro & Derwing, 1995, p. 289).
Activity Plan
Resources

- TTS and ASR applications for intelligibility enhancement.
  - https://voicenotebook.com/prononce.php

- Tongue twisters:
  - a playful challenge for students;
  - applicability to practice any sound;
  - a motivating and fun activity.

(Sitoresmi, 2016; Stanley, 2013)
Objectives

- Practice sounds and sound contrasts that are usually difficult for Brazilian learners of English as foreign language (EFL).
- Improve students’ pronunciation by helping them notice the gap between their oral productions and more intelligible ones.
- Develop learners’ autonomy through digital tools that can foster better performance in the L2 oral production and perception.
- Enhance students’ L2 speech fluency and accuracy.
Preparation

- Learn how to use the website.
- Elaborate clear guidelines for what students are expected to do.
- Check technical requirements.
- Find or create tongue twisters containing the target sounds.
  - I thought of thinking of thanking you.
  - Yes sir, sure sir! (say it 3 times).
Students Arrangement

- Small groups to understand how to use the website.
- As homework, they will use the website to practice the tongue twisters.

Technical Requirements

- Internet connection and personal devices.
- Google Chrome or cell phone application.
- A projector can be used to show the website to all the students at once.
Procedures

- Show learners the tongue twisters.
- Practice them out loud.
- Create a safe environment.
- Ask them to access the website.
- Show them how to use the text-to-speech and the automatic speech recognition features.
Procedures

Explore the different accents provided by the TTS application, including the Brazilian Portuguese speaker.
Procedures

- Group practice/rehearsal.
- Check the “alternatives box” and analyze their productions.
Procedures

- Ask students to use the “playback recording” feature.
- Compare their speech with the one provided by the TTS application.
Procedures

Use the “Compare to Text-to-speech field” feature to check the percentage of correctly recognized words.
Procedures

- Instruct students to continue practicing at home until they feel well prepared and comfortable to say the tongue twister to the entire group.

- They can also search for new ones, practice, and challenge other colleagues to say them.

- During the next classes, give students some time to share their development and motivate them to keep practicing.
Variation - Game

- Divide the students into groups.
- Randomly distribute the tongue twisters.
- A member says a tongue twister out loud each time.

- Award two points when the learner says it quickly and accurately;
- One point when the learner says it accurately but slowly;
- Half-point when the pronunciation is not so accurate.
- Judge student’s intelligibility using the ASR tool to avoid biased judgment.
Final Remark

The presented digital resource can be adapted throughout a course or school year.

Adaptation

- ASR: www.dictation.io
- TTS: Microsoft Edge
- Both:
  - Google Translator
  - Microsoft Word*

Other Languages
Long utterances
Student-centered
Autonomy

It’s free!
References


References


Thanks!

Does anyone have any questions?
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