

Speech Technologies and Their Applications in Mobile Learning



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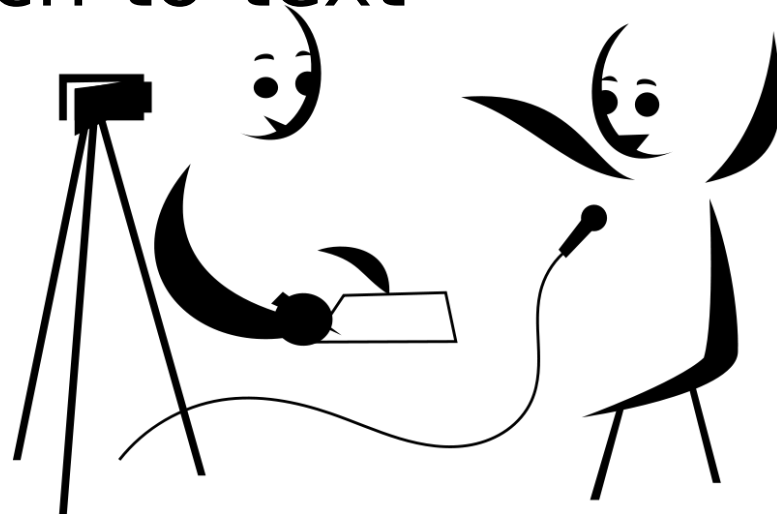
Speech Technologies and Their Applications in Mobile Learning

Outcome:

To identify how selected speech technologies can be utilized to enhance teaching and learning using mobile devices.

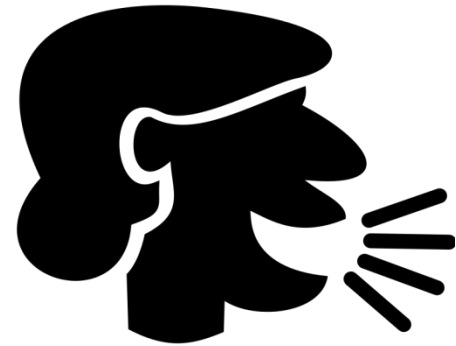
Speech Technologies

1. Text-to-speech (TTS)
2. Automatic speech recognition (ASR) - speech-to-text



Speech Recognition

- Mobile audio search engine
- Voice command and control
- Dictation
- Note-taking
- Transcription of voicemails
- Voice typing
- Voice translation
- Accessibility and inclusivity



Text-to-Speech

- Reading back emails, messages, posts, notes
- Books read to the user (Kindle)
- Voice command and control
- Audio dictionaries
- Accessibility and inclusivity
- MALL and literacy (Roux et al, 2010)

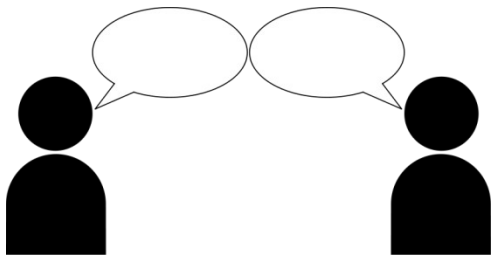


Mobile-Assisted Language Learning

- Mobile-Assisted Language Learning
 - reading and speaking
 - dictation
 - communication, facilitation and feedback
 - pronunciation practice (speech verification)
 - speech analysis and language learning software (Godwin-Jones, 2009)
 - vocabulary practice (Kumar et al, 2012)
- Phonetics and phonology (Linguistics)
 - speech signal processing (DSP)
 - patterns recognition (AI)

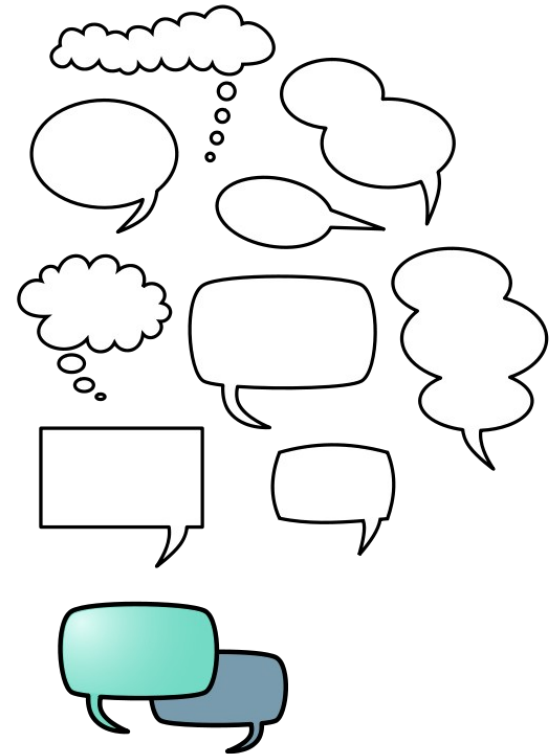
Other Advantages

- Voice-based tools - assistive technology
- Individualized attention
- Enforced feedback
- Learner-centered: own pace, preferences, autonomy
- Repetition and rehearsal



Voice Recognition Mobile Apps Examples

- ChaCha Answers
- Google Mobile Apps
- Vlingo
- DriveSafe.ly Pro
- Dragon Downloadable Apps
- Jibbiggo Voice Translation



Limitations

- Limited success with spontaneous, natural foreign accented speech
- Type of mobile device
- Usability: tools
- Usability: context
- Usability: data consumption



Thank you!

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References:

- Godwin-Jones, R. (2009). Emerging technologies: Speech tools and technologies. *Language Learning & Technology*, 13(3), 4-11.
- Kumar, A., Reddy, P., Tewari, A., Agrawal, R., & Kam, M. (2012, May). Improving literacy in developing countries using speech recognition-supported games on mobile devices. In *Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems* (pp. 1149-1158). ACM.
- Roux, J., Scholtz, P., Klop, D., Povlsen, C., Jongejan, B., & Magnusdottir, A. (2010, May). Incorporating Speech Synthesis in the Development of a Mobile Platform for e-learning. In *LREC*.