

accent or Polish accent cannot achieve this with the existing TTS tools.

Apart from that, it was also argued by researchers (Kılıçkaya, 2011) that language teachers and learners can create their own dialogues that can be used for language learning purposes (e.g. to practice writing, listening, reading). However, in respect to the form of communication, the current TTS tools appear to be more suited for monologic speech in comparison to dialogic and polyadic interactions. The fundamental reason for this is that users can convert texts into speech using a single voice only even if the text is made up of a dialog or a group talk. That is, a dialog between two speakers (e.g. an Inner circle speaker and an Outer circle speaker) can be created in the voiceover of a particular variety (e.g. AmE, BrE, Indian English). Thus, in their current state, TTS tools fail to reflect the pluricentricity in English and the true nature of real-life communication in which each individual has their own voice characteristics (e.g. accent, pitch, stress, L1 influence, and regional influence). Another issue with TTS tools is the continuing limitations of TTS tools in the areas of intonation and suprasegmental features. However, counter evidence against this issue was submitted by Kataoka (2009), Hirai and O'ki (2011) in Japan and Jones et al. (2007) in Australia. These researchers uncovered that EFL students listening to sentences and dialogs generated via TTS tools reported that the voices sounded natural and comprehensible. However, their studies included NES voices only; therefore, voices of NNEs can result in a perception gap on the part of listeners between actual human voices and the TTS speech sounds in English education.

CONCLUSIONS

In this investigation, the purpose was to explore the freely available online TTS engines and software from a WE perspective. Part of the purpose was to account for the English voices and varieties offered by the TTS tools and their distribution according to the concentric circle model of WE speakers. By virtue of doing so, this paper has discussed whether the TTS tools in their current forms can be suitably used as an educational material in the teaching of English in accordance with the main characteristics of the WE paradigm. The study has identified that overall, the TTS tools are skewed towards the Inner circle varieties and their speakers, predominantly AmE and BrE speakers because they offer a large number of Inner circle voices to their users. Nevertheless, once it comes to the representation of the Outer circle varieties and speakers, they offer only Indian English and South African English voices. As for the Expanding circle varieties and speakers, there is not even a single voice offered to the users. These findings have led to the conclusion that the TTS tools cannot be effectively used to expose students to the global use of English at present to a large and satisfactory extent. They might be partially made part of the teaching courses in order to make students/learners familiar with different Inner circle varieties and divergences (e.g. regional accents) within a single native English variety and a couple of Outer circle varieties. However, it is very probable that NNEs learners will use English more with NNEs than

NESs, particularly in non-English speaking environments, yet the current TTS tools are unable to create platforms in which users can gain an awareness of the diversity of English speakers and the diverse ways of using English, which is an essential part of the WE communication.

These findings, when taken together, have some pedagogical implications which can be born in mind by language teachers, information technology experts, and TTS tool designers. For example, the findings suggest that the TTS tools have a great potential to be used as a language teaching/learning material by language teachers. Particularly, they may play a significant role as a source of exposure to various uses and users of English. However, language teachers should exercise some degree of caution before introducing the TTS tools to language classrooms owing to the fact that several major and specific amendments need to be made to the TTS tools currently in use. As mentioned above, although the TTS tools were not originally released for the purpose of language teaching, they are being used in the language classrooms by teachers for various purposes. However, they are, as the results indicate, presently far from being a relatively effective learning/teaching resource for WE-friendly instruction. In other words, they are not quite fit for purpose at present. Still, language experts and information technology experts can, by collaborating together, bring TTS tools in conformity with the main characteristics of the WE language teaching (e.g. by adding diverse speakers into the voice collections of the tools from all circles; by improving the tools to be appropriate for dialogic and polyadic interactions). With the fast advancing information technology, fine-tuning these tools for the purpose of language education will not be so difficult for the designers, especially when informed by linguists aware of the WE field

It should also be noted that this study has its limitations relative to the investigation of the online TTS engines, and TTS software which can be downloaded and installed to be used offline. First, the analysis has remained limited to 50 TTS tools, most of which are online TTS engines. Although an exhaustive search of the Internet was done to identify the freely available TTS tools and software, there may be some tools missed out from the analysis, which might, however, have offered English voices different from the ones included in this paper. Another limitation of this study is that while accounting for the representation of the English varieties and the number of speakers for each variety, little attention was paid to the representation of social variables, like gender and age group, although such variables have characterized speakers in several TTS tools. Gender equity is not only an important focus of sociolinguistics and the WE paradigm (Yılmaz-Öztürk, 2016) but also, as a variable, gender adds variation to the voice selections of the TTS tools. Some TTS users, for instance, may prefer to generate speeches in female voices or vice versa. The representation of the speakers from different age groups is rather vital, as well. It is because different speakers, ranging from children, adults, to the elderly, realize the global uses of English. Lastly, the investigation in this paper remains restricted to the English voices only.

- Kılıçkaya, F. (2006). Text-To-Speech Technology: What Does It Offer To Foreign Language Learners?. *CALL-EJ Online*, 7(2). [Online]
- Kılıçkaya, F. (2008). Improving pronunciation via accent reduction and text-to-speech software. In T. Koyama, J. Noguchi, Y. Yoshinari & A. Iwasaki (eds.), *Proceedings of the WorldCALL 2008 Conference*, Japan, 1, 135–137.
- Kılıçkaya, F. (2011). Improving pronunciation via accent reduction and text-to-speech software. In M. Levy, F. Blin, C. B. Siskin & O. Takeuchi (eds.), *WorldCALL: International perspectives on computer-assisted language learning*, (pp. 85-96). New York, NY: Routledge.
- Lee, H. (2012). An investigation of Taiwanese university students' attitudes towards ELF. (Unpublished doctoral dissertation). Southampton University, Southampton, UK.
- Lippi-Green, R. (2012). *English with an Accent: Language, Ideology, and Discrimination* (2nd ed.) London: Routledge.
- Matsuda, A. & Friedrich, P. (2012). Selecting an Instructional Variety for an EIL 56 Curriculum. In A. Matsuda. (ed.), *Principles and practices of teaching English as an international language*, (pp. 17-26). Bristol: Multilingual Matters.
- Matsuda, A. (2002a). "International understanding" through teaching world Englishes. *World Englishes*, 21(3), 436–440. <http://doi.org/10.1111/1467-971X.00262>
- Matsuda, A. (2002b). Representation of users and uses of English in beginning Japanese EFL textbooks. *JALT Journal*, 24(2), 49-62.
- McArthur T. (1993). The English language or the English languages? In W. F. Bolton & D. Crystal (eds.), *The English Language* (pp. 323– 341). London: Penguin Books.
- Mckay, L. M. (2012b). Principles of teaching English as an international language. In L. Alsagoff, G. Hu, S. L. McKay & W. A. Renandya (eds.), *Principles and Practices for Teaching English as an International Language*, (pp. 28–46). New York, NY: Routledge.
- McKay, S. L. (2012a). Teaching materials for English as an international language. In A. Matsuda (ed.), *Principles and practices of teaching English as an international language*, (pp. 70–83). Bristol: Multilingual Matters.
- Moon, D. (2012). Web-Based Text-to-Speech Technologies in Foreign Language Learning: Opportunities and Challenges. In T. Kim, J. Ma & W. Fang (eds), *Computer Applications for Database, Education, and Ubiquitous Computing*, (pp. 120-125). Springer Berlin Heidelberg.
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage.
- Parr, M. (2013). Text-to-speech technology as inclusive reading practice: Changing perspectives, overcoming barriers. *LEARNing spaces*, 6(2), 303-322.
- Pim, C. (2013). Emerging technologies, emerging minds: digital innovations within the primary sector. In G. Motteram (ed), *Innovations in learning technologies for English language teaching*, (pp. 17-42). UK: Spring Gardens
- Rogerson-Revell, P. (2007). Using English for international business: A European case study. *English for specific purposes*, 26(1), 103-120.
- Sha, G. (2009). Using TTS voices to develop audio materials for listening comprehension: A digital approach. *British Journal of Educational Technology*, 41(4), 632-641.
- Suviniitty, J. (2009, July). What you have to understand is. – Interactional features in lectures. Paper presented at *the SEFI the Société Européenne pour la Formation des Ingénieurs* – European Society for Engineering Education. Rotterdam.
- Syrbe, M. & Rose, H. (2016). An evaluation of the global orientation of English textbooks in Germany. *Innovation in Language Learning and Teaching*, 1-12.
- Tollefson, J. W. (2000). Policy and ideology in the spread of English. In J. K. Hall & W. Egginton (eds), *The socio-politics of English language teaching*, (pp. 7-21). Buffalo: Multilingual Matters Ltd.
- Vettorel, P & Lopriore, L. (2013). Is there ELF in ELT coursebooks?. *Studies in Second Language Learning and Teaching*, 3(4), 483-504.
- Vettorel, P. & Bayyurt, Y. (2016). *ELF-aware teaching materials: the case of Turkey and Italy*. The 9th International Conference of English as a Lingua Franca, Book of abstracts, 68.
- Yılmaz-Öztürk, S. (2016). *Gender representation in EFL textbooks used at secondary schools in Turkey*. The 9th International Conference of English as a Lingua Franca, Book of abstracts, 70.

Appendix: List of the TTS tools analysed

Type of the TTS tool	Name	Available from
1. Online	Text to Speech	http://www.fromtexttospeech.com/
2. Online	Read Speaker	http://www.readspeaker.com/voice-demo/
3. Online	Acapela box	https://acapela-box.com/AcaBox/index.php
4. Online	Oddcast	http://www.oddcast.com/home/demos/tts/tts_example.php?sitepal
5. Online	TTS Reader	http://ttsreader.com/
6. Online	Natural reader	http://www.naturalreaders.com/index.html
7. Online	Text2Speech	http://www.text2speech.org/
8. Online	Ivona	https://www.ivona.com/
9. Online	Readthewords	http://www.readthewords.com/Try.aspx
10. Online	Spoken Text	http://www.spokentext.net/
11. Online	Text-to-speech	http://text-to-speech.imtranslator.net/
12. Online	TTS by iSpeech	http://www.ispeech.org/text.to.speech
13. Online	Yakitome	https://www.yakitome.com/tts/text_to_speech/Audrey?b=536966
14. Online	Cepstral	http://www.cepstral.com/en/demos
15. Online	Code Welt	http://codewelt.com/proj/speak
16. Online	vozMe	http://vozme.com/index.php?lang=en
17. Online	TTS Online	http://tts.softgateon.net/
18. Online	Responsive voice	http://responsivevoice.org/
19. Online	Neo Speech	http://neospeech.com/
20. Online	Voice Forge	http://www.voiceforge.com/demo
21. Online	Text2speech	http://text2speech.us/
22. Online	Linguatec	http://www.linguatec.net/products/tts/voice_reader/vrs15demo
23. Online	Wizzard	http://wizzardsoftware.com/text-to-speech-sdk.php
24. Online	Lumenvox	http://www.lumenvox.com/products/tts/#chooseLanguage
25. Online	Sitepal	http://www.sitepal.com/text-to-speech/
26. Online	Spoken Text	https://www.spokentext.net/
27. Online	Vocalizer 6	http://www.nuance.com/landing-pages/playground/Vocalizer_Demo2/vocalizer_modal.html?demo=true
28. Software	Balabolka	http://www.cross-plus-a.com/balabolka.htm
29. Software	TTS Maker	http://downloads.tomsguide.com/Text-Speech-Maker,0301-5741.html
30. Software	Zabaware	https://www.zabaware.com/reader/
31. Software	AnalogX Sayit	http://www.freewarefiles.com/AnalogX-Sayit-V_program_583.html
32. Software	DSpeech	http://www.freewarefiles.com/DSpeech_program_19529.html
33. Software	SayPad	http://www.freewarefiles.com/SayPad_program_70044.html
34. Software	Read This	http://www.freewarefiles.com/Read-This_program_67731.html
35. Software	ClipSpeak	http://www.freewarefiles.com/ClipSpeak_program_42972.html
36. Software	Language Reader	http://www.freewarefiles.com/Language-Reader_program_19573.html
37. Software	TTSREader	http://www.freewarefiles.com/TTSReader_program_42660.html
38. Software	Text2Speech	http://www.freewarefiles.com/TextSpeech_program_41173.html
39. Software	HearPC	http://www.freewarefiles.com/HearPC_program_35946.html
40. Software	SmartRead	http://www.freewarefiles.com/SmartRead-Build_program_13754.html
41. Software	Speak Text	http://www.freewarefiles.com/Speak-Text_program_20353.html
42. Software	Speak Clipboard	http://downloads.fyxm.net/Speak-Clipboard-11908.html
43. Software	Word Talk	http://www.wordtalk.org.uk/home/
44. Software	Cool Speech	http://download.cnet.com/CoolSpeech/3000-33660_4-75439901.html

(Contd...)

Appendix: (Continued)

Type of the TTS tool	Name	Available from
45. Software	Panopreter	http://download.cnet.com/Panopreter-Basic/3000-33660_4-10758886.html
46. Software	MWS Reader	http://download.cnet.com/MWS-Reader/3000-33660_4-75998615.html
47. Software	ToVoice	http://download.cnet.com/ToVoice/3000-33660_4-75901587.html
48. Software	TTSUU	http://download.cnet.com/TTSUU/3000-33660_4-75563194.html
49. Software	TextAloud	http://nextup.com/download.html
50. Software	Nextup Talker	http://nextup.com/download.html
