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| RESEARCH ARTICLE

Text-to-Speech Software as a Resource for Independent Interpreting Practice by Undergraduate Interpreting Students

Reima Al-Jarf
Full Professor of English and Translation Studies, Riyadh, Saudi Arabia
Corresponding Author: Reima Al-Jarf, **E-mail**: reima.al.jarf@gmail.com

| ABSTRACT
This article proposes a model for integrating text-to-speech software (TTS) in students' interpreting training and practice. It shows the aims of the model, the definition of TTS, the advantages of using TTS, how to search for TTS, instructional stages with TTS, and the interpreting instructor's role. The students can use TTS software online; download it to their laptop, use a Google Chrome extension to listen to webpages, online ebooks, Google Docs, webpages, and emails; or use a TTS mobile app. Practicing interpreting with TTS starts with introducing students to the TTS, how to copy and paste a text in the text area block, choosing a male or female reader, American or British accent, and reading speed. The students practice interpreting with TTS on their own, out of class. They listen and interpret without looking at the screen. They practice different interpreting modes (simultaneous, consecutive, liaison and sight interpreting). They can take notes only in consecutive and simultaneous interpreting. In sight interpreting, they interpret while reading the text from the screen silently without listening to the text being read. They practice individually, in pairs or small groups where they can listen to each other's interpreting and provide feedback ad comments on the quality and errors. The instructor serves as a facilitator. She can help the students find and download TTS that meet their needs and may select texts and exercises for the students to practice. She follows the students up to make sure they are making the best use of the TTS software. The article concludes with some recommendations for interpreting practice with TTS and other forms of technologies that can be utilized in student-interpreters' training and self-study.

| KEYWORDS

Text-to-speech, TTS software, interpreting tools, interpreting practice, independent practice, self-study, student interpreters, student-interpreter training.

| ARTICLE INFORMATION

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1. Introduction

Although computer-assisted translation (CAT) and human-assisted machine translation (HAMT) have been used in the field of translation for decades, interpreting technologies are relatively new. Computer-assisted interpreting (CAI) tools have entered the profession only in recent years and represent a significant new trend in the profession (Fantinuoli, 2017; Corpas Pastor, 2018). CAI can be classified into: (i) machine translation, (ii) automatic speech recognition and (iii) speech-to-speech translation systems (Carl & Braun, 2017). Nowadays there are some tools and resources that are already available for interpreters. Computers have made their way into translation and interpreting practice as well as interpreters and translators' training (Lim, 2014). Several CAI tools and resources for interpreters have been developed, although they are rather modest in terms of the support they provide (Corpas Pastor, 2021).

Regarding the role that machines (computers) play in interpreting practice, Lim (2014) asserted that computers play two major roles in interpreting practice and interpreting training: (i) the role of a tutor for achieving automatic interpreting and for building intelligent machine trainers of interpreters, and (ii) the role of a tool related to machine-aided translation and interpreting and to

the use of digital resources in interpreting and interpreter training. Lim concluded that in the future, computers would play a major role as a tool rather than a tutor. She added that speech recognition and machine translation have not reached a point close to building an intelligent machine tutor for interpreters, whereas a machine's role as a tool opens many dimensions, such as lexical resources and tools, interpreting database, and distance interpreting practice and training. Jiang and Lu (2021) confirmed that even if future speech translation technology is highly sophisticated, it still cannot completely replace human interpreters and that future trends in interpretating will be mainly human-led and machine-aided.

With the advent of new technology, interpreters can work remotely, deliver interpreting in different modes (simultaneous, consecutive, liaison) and contexts (conferences, hospitals, courts, etc.), on many devices (phones, laptops, tablets), and even manage bookings and invoice clients with ease.

A review of the interpreting technology literature has shown various types of technology-supported interpreting such as computer-assisted interpreter and translator training, automatic interpreting, web-based terminology tools for translation and interpreting. For example, in settings where interpreters are physically separated from some or all of their clients, interpreters can use communication technologies, distance interpreting modalities (technology-mediated interpreting) such as tele- and videoconferencing to deliver their services (Braun, 2019). Video-mediated interpreting (videoconferencing and remote interpreting) is utilized in immigration settings, criminal justice, virtual courts, court-prison links, court custody links and legal proceedings (Braun & Taylor, 2011). Tele-, video, web conferencing or remote/distance simultaneous interpreting has been used during distance/remote interpreting training for consecutive interpreters as well (Fantinuoli, 2018). Carl & Braun (2017) emphasized that remote interpreting via telephone, teleconferences and videoconferences have been utilized.

In another study, interviews with six practitioners about the software, tools, and technologies that interpreters are currently utilizing in their work, practicing interpreters reported that tablet interpreting was effectively used in various consecutive interpreting settings. They feel that tablets meet their needs and surpass the functionalities offered by pen and paper in most contexts (Goldsmith, 2018).

Other machine interpreting tools are speech-to-text and speech-to-speech translation adopted by the community of interpreters and their clients (Braun, 2019).

In student training, Mayor and Ivars (2007) suggested the use of a digital interpreting laboratory, new digitalized sources for interpreting practice, the convenient storage and retrieval of student exercises in a digital format and the development of interpreting training materials suitable for this new learning environment. This online interpreting platform allows the provision of interpreting training materials and the storage of students' practice files, providing links to all sorts of resources the trainees might need in order to accomplish practice work. These materials aim to develop student-interpreters' interpreting subskills, such as comprehension or public speaking skills and the whole training task.

Moreover, Le and Tran (2022) used a shadowing technique with the aid of spoken text features by Google Text-to-Speech for removing learner's flat tone as well as achieving a basic English intonation in the spoken text. After ten weeks of intensive training, the posttest, which used a Speech Analyzer, indicated that the students benefited from the training in terms of intonation in the interpreting output. There was a significant difference in the treatment group scores compared to the control group.

In Bernstein and Rosenfeld's (2012) study, *Jibbigo*, an automatic speech-to-speech interpreter was implemented as a three component processes: (i) speech recognition, (ii) machine translation, and (iii) speech synthesis in context in one direction for Chinese-to-English and Spanish-to English. Results for the Spanish and Chinese as L1 (source language) going into English as L2 (target language) suggested that conventional accuracy is surprisingly high at about 70-90% correct, and that a more appropriate functional measure like communication in context had nearly halves the error rate.

At the Research Institute of Multilingual Language Technologies (IUITLM), University of Malaga, Spain, the VIP (Voice-text integrated system for interpreters) project was applied in interpreting. The VIP platform provides access to a wide range of tools and resources to assist interpreters in the preparation phase, during a given interpreting task and after the assignment (for training, follow-up purposes and life-long learning). The VIP project integrates corpora building and processing, terminology tools, automatic glossary building, quality assessment applications, automatic speech recognition and others. VIP is freely accessible to researchers and practitioners (Corpas Pastor, 2021; Corpas Pastor, 2020).

At Monash University in Australia, Orlando (2013) used the digital pen (Smartpen) technology in interpreter training to facilitate the task of the interpreter and to, improve consecutive interpretations and develop note-taking skills in interpreter training.

An experiment by Ko & Chen (2011) taught online interpreting in a synchronous cyber classroom to create a teaching and learning space that is comparable to face-to-face instruction, allowing the instructor to teach interpreting and the students to practise interpreting individually in pairs or groups under the teacher's supervision. The instructor and students can hear and see each other during teaching, learning and practice. Although there were some constraints inherent in computer technology, Verbal and visual interaction in teaching interpreting could be accommodated using the of synchronous cyber classroom technology.

For self-study by student interpreters, there is a dearth of studies that focused the use of technology-assisted interpreting in self-study. At the Copenhagen Business School, new pedagogical tools, and equipment such as innovative software packages, ultra-modern labs are being used to support the teaching of consecutive interpreting. These new tools have been found to alleviate interpreting students' anxiety. The different types of materials facilitate self-paced and self-monitored practice and encourage independent practice among interpreting students whose motivation in the conventional setting had been far more limited (Hansen & Shlesinger, 2007).

Despite the importance of text-to-speech (TTS) software in learning and the plethora of studies that focuses on the utilization of TTS in developing students' listening, reading, writing, vocabulary and orthography skills, the interpreting literature review revealed lack of studies that focus on the use of TTS and speech-to-speech (SST) software in interpreter training and interpreting practice (Al-Jarf, 2022g).

2. Need for Study

Recent years have witnessed a tremendous interest in digital resources and language technologies for interpreters. There is an urgent need, nowadays, to develop interpreting technologies, with practitioners increasingly calling for tools tailored to their needs and their new interpreting work environments. However, the growth of technology in the profession is still limited and slow-paced, despite some evidence that the interpreting profession is heading towards a technological change (Fantinuoli, 2018). While language technologies have already had a profound transformative effect in translation, they have not yet led to a paradigm shift in the interpreters' "digital workplace" (Pastor, 2020; Corpas Pastor, 2021).

In addition, undergraduate interpreting students at the College of Languages, King Saud University, Riyadh, Saudi Arabia feel that classroom and lab interpreting practice are insufficient for improving their interpreting skills, and they always ask how they can do extra interpreting practice on their own outside the classroom and language lab. Therefore, this study proposes a model for integrating TTS software in students' interpreting training and practice. It will show interpreting instructors and students the following: (i) What is TTS; (ii) advantages of using TTS; (iii) how to search for TTS; (iv) instructional stages with TTS; and (v) the interpreting instructor's role.

Furthermore, interpreting is an important skill that students majoring in translation and interpreting need to acquire at an advanced level, as understanding and production of spoken discourse in a variety of subject fields is a pre-requisite for transferring the meaning of specialized texts orally from the source to the target language (English to Arabic and vice versa) in the different types of interpreting courses that the students take during the translation program and after they graduate.

3. Students Targeted by The Independent Practice Model

The model proposed in the current study is designed for beginner and advanced student-interpreters at Saudi universities enrolled in simultaneous, consecutive, liaison and sight interpreting courses.

4. Context

The College of Languages and Translation (COLT), King Saudi University, Riyadh, Saudi Arabia prepares translators and interpreters. In the first 4 semesters of the B.A. translation and interpreting program, the students take 4 Listening, 4 Speaking, 4 Reading, 4 Writing, 3 Grammar and 2 Vocabulary Building courses (a total of 20 hours per week per semester). In semesters 5 to 9, they take 2 courses of Computer Applications in Translation, 6 Linguistics courses, a Problems in Translation course, 18 translation courses in 18 subject areas: Natural Sciences, Humanities, Islamic, Medical, Media, Administrative, Engineering, Military, Sociology, Politics, Educational, Security, Computer Science, Petroleum, Legal, Agricultural, and Literary translation. They take 2 Simultaneous Interpreting courses, 2 Consecutive Interpreting courses, 2 Liaison Interpreting course, a Sight Interpreting course, in addition to 20 hours of Arabic morphology, syntax and rhetoric courses (Al-Jarf, 2021a).

Numerous prior studies revealed that students majoring in interpreting and translation at COLT have pronunciation problems of proper nouns in media discourse (Al-Jarf, 2022g and Al-Jarf, 2022f; Al-Jarf, 2018). Accurate pronunciation is important for student-translators as faulty pronunciation can affect understanding and communication. Other problems that student-interpreters have are lack of world knowledge of current global events, and listening comprehension problems (Al-Jarf, 2022f, Al-Jarf, 2022g; Al-Jarf,

2018); difficulties with translating polysemous words and English neologisms (Al-Jarf, 2022a; Al-Jarf, 2010). They also have phoneme identification problems, listening comprehension problems, meaning transfer problems (Al-Jarf, 2015).

5. Materials, Tasks, and Instructional Strategy

5.1 What are TTS Software

Text-to-speech (TTS)[1] or "read aloud" technology is an assistive technology that reads a digital text out loud. It converts printed words on a computer or any other digital device such as smart phones, Tablets and iPads into speech or voice. The students can hear the audio recitation of the printed text instantly whether it is a single character or long paragraph.

5.2 WHY USE Text-To-Speech Software

Student-interpreters can use TTS software for independent practice on their own outside the classroom. They can register in the TTS and use it for free. TTS software is flexible and easy to use. Students can choose to hear the text to be interpreted in a female or male voice, in a British or American accent, on the laptop/desktop, online or using a TTS mobile App. TTD can be installed on the laptop or desktop and launched from there. Some TTS can be installed as a Google Chrome Extension in which case the students can listen to online ebooks, Google Docs, webpages, and emails. They can be installed as an Android or iOS smart mobile App so that the students can continue listening and interpreting wherever they go. TTS can be used anywhere, anytime and as many times as the student needs. They are helpful for students with different listening and interpreting proficiency levels. They facilitate self-paced and self-monitored practice and encourage independent practice among students whose motivation in the conventional setting had been far more limited. Most importantly, they alleviate interpreting students' anxiety as they can practice on their own without being watched by the instructor or classmates. Moreover, research findings showed that use of TTS reduces mind wandering in students with dyslexia (Bonifacci, Colombini, Marzocchi, Tobia and Desideri, 2022). This means that TTS can help student-interpreters focus better on the text they are listening to, on understanding and interpreting.

5.3 Searching For TTS Software

The instructor may search Google, Google Play and/or Apple App Stores for the best TTS software to use. They can search for the '*best TTS*". Numerous TTS software are available for use online for free, for download to the desktop or laptop or on the mobile. Some of the best free text-to-speech software in 2022[2] are:

- *Balabolka:* a Powerful software with customizable voices
- *Natural Reader* with its own web browser
- Panopreter Basic with WAV and MP3 output
- *WordTalk* An extension that adds text-to-speech to your word processor
- *Zabaware* Text-to-Speech Reader for converting text from websites to speech

5.4 Instructional Stages with TTS software

Practice/self-study with the TTS software goes through 3 phases. In the *Pre-Task Phase***,** the instructor tells interpreting students, whether beginners or advanced, which TTS software they need to locate, download, and use. She posts a sample of TTS on a Learning Management System (LMS) such as Blackboard, Zoom, Microsoft Teams, Google classroom, a blog, an online discussion forum, on Twitter, Facebook, Telegram, or WhatsApp for the students to choose from. TTS that supports the Arabic language should be used. They can download the TTS on their laptop, as a Chrome Extension or as an App on their mobile. She shows the students the TTS tools and options, the text area block at the top of the page where they can paste the text to be interpreted, how to choose the readers' speed level (make reading faster or slower), how to set the gender and voice of the reader, how to select the English dialect (British or American), and *Play, Pause, Stop* (See Image 1).

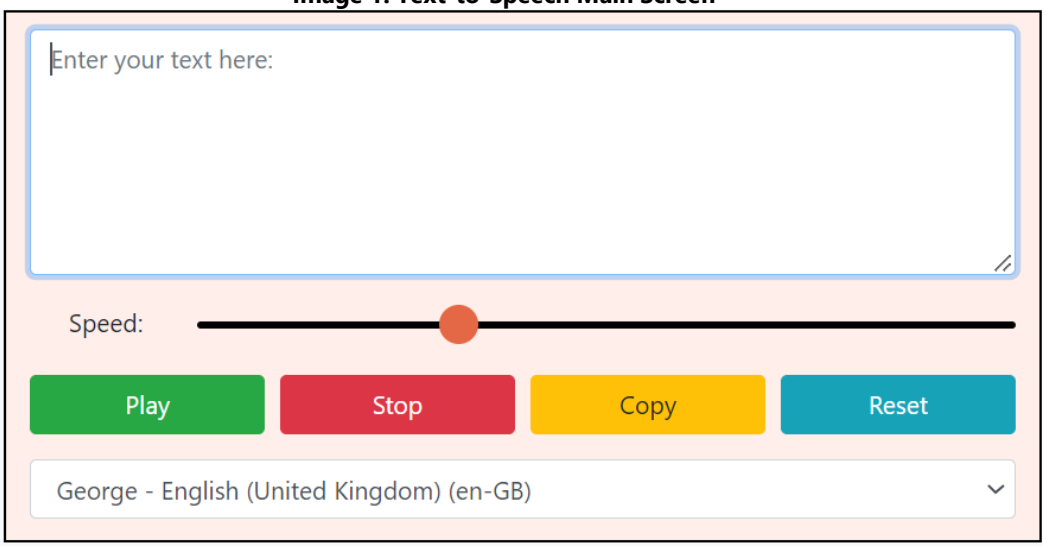
The instructor states the objective of using the TSS, i.e., tells the students what they are going to do or practice and how they are going to use the TTS software. She gives clear, specific, and detailed instructions on how a particular simultaneous, consecutive, liaison or sight interpreting task with TTS should be performed. She tells the students what is expected of them, how many texts they need to interpret and practice and sets a deadline for practicing the assigned texts with TTS software.

In the *Task Phase*, the students practice interpreting with the TTS on their smart phones, tablet, or laptop at home or anywhere they like. They can practice interpreting with TTS individually, in pairs or small groups. After copying and pasting a text or a dialog in the text area block, they should only listen to the text being read without looking at the screen, i.e., without reading the text while listening. They interpret out loud. In simultaneous interpreting, the students interpret at the same time as the TTS reader without taking notes. In consecutive interpreting, they can listen to the text in interval, i.e., few sentences then interpret. They can

[1] https://www.techradar.com/best/best-text-to-speech-software
[2] https://www.techradar.com/news/the-best-free-text-to-speech-software

take notes while listening. In liaison interpreting, they can listen to a speaker in a dialog, interpret, then listen to the second speaker and interpret and so on. In sight interpreting, the students read a text from the TTS screen and interpret without listening to the TTS reader. The students practice interpreting texts with the TTS in both directions: English-Arabic and Arabic-English (Al-Jarf, 2022b).

Image 1: Text-to-Speech Main Screen[3]



The student may post queries, comments, difficulties, and evaluations of the TTS software they are using on a social media network or on an LMS and each other's interpretations. The instructor answers students' questions, provides guidance, and help with difficulties.

In the *Post Task Phase,* the interpreting instructor gives feedback and comments on the students' TTS interpreting performance in sample interpretations. She encourages the students to use the TTS software for practicing interpreting and gives credit for that proportionate to the number of texts they have practiced. The students give feedback on their classmates' interpreting, may correct their classmates' errors, and make comments on each other's interpreting performance. They keep a log of the texts they have practiced with the same or different TTS with their evaluation of and comments on each.

Every week the students copy and paste texts and dialogs from a variety of subject areas such as current global events, media, sports, medicine, tourism, education and others. They can listen to the text or dialog as many times as they need in the multimedia language lab, at home, or on campus.

5.5 The Interpreting Instructor's Role

The instructor serves as a facilitator. She responds to individual students' needs, and requests. Every now and then, she checks on the students to see if they are having any problems with the TTS software. She helps the students' select texts and dialogs to be used for practice. At the beginning of the semester, she can prepare a series of exercises that the students can practice on their own such as speech shadowing exercises, sentence paraphrasing, summarizing sentences, memory training exercises for students to practice with the TTS software (Al-Jarf, 2021f; Al-Jarf, 2007; Al-Jarf, 2006; Al-Jarf, 2000). She helps the students select topics for interpreting practice such as current global events, tourism, art, political, sports, medical, educational texts and others (Al-Jarf, 2022d; Al-Jarf, 2021f; Al-Jarf, 2006). She encourages the students to continue to practice with TTS and gives extra credit for that.

6. Recommendations

Student-interpreters can utilize a variety of e-resources, e-tools and technologies in interpreting practice such as:

- Video-based interpreting whether from YouTube or any other source can be used for practicing all interpreting modes: simultaneous, consecutive, and liaison (Al-Jarf, 2022h; Al-Jarf, 2012b).
- Listening to and interpreting TED Talks on a variety of topics (Al-Jarf, 2021g; Al-Jarf, 2020b).
- The department multimedia language lab can serve as an online interpreting platform. Several TTS software can be installed for students' easy access, and to enable them to try and select the TTS softwate that they find convenient. Students' practice

[3] Taken from https://text-speech.net

files can be stored and retrieved in a digital format. Interpreting training materials suitable for this new learning environment that aims to develop student-interpreters comprehension or public speaking skills and the whole interpreting training task can be developed. Links to all sort of resources the trainees might need can be provided (Ko & Chen, 2011; Mayor & Ivars, 2007; Al-Jarf, 2021c)

- Tele-, video/web-conferencing, and remote/distance simultaneous interpreting via telephone, teleconferences and videoconferences can be practiced (Fantinuoli, 2018; Carl & Braun, 2017; Braun & Taylor, 2011; Mayor & Ivars, 2007; Al-Jarf, 2014a; Al-Jarf, 2013).
- Tablet interpreting (Goldsmith, 2018).
- Mobile audiobooks and mobile listening apps can be used for interpreting practice (Al-Jarf, 2021e; Al-Jarf, 2020c; Al-Jarf, 2012b)
- Listening to podcasts on a variety of topics and practicing simultaneous, consecutive, and liaison interpreting (Al-Jarf, 2022c; Al-Jarf, 2021b; Al-Jarf, 2021d).
- Digital pen technology to develop students' note-taking skills (Orlando, 2013).

During interpreting practice,, students are advised to listen for the sense of what they hear and focus less on the exact words; practice storing units of meaning from the spoken text rather than discrete words in the text. They learn to make predictions while listening. They infer the topic of the dialogue or spoken text from the first sentence, keep the topic in mind while listening, ignore redundancies and repetitions, pay attention to what is being said about the main topic. They practice visualizing (form a mental picture) events and places and use their prior knowledge (knowledge of the world) to connect the ideas that they have heard in source text with what they already know. They learn to cope with grammatical and lexical difficulties in the source text by giving the gist of what they have heard and paraphrasing the words they are having difficulty with (Al-Jarf, 2021f; Al-Jarf, 2007; Al-Jarf, 2006; Al-Jarf, 2000).

After the practice session, the students may check online or mobile specialized dictionaries for meanings of words they encountered in the texts they listened to (Al-Jarf, 2022e; Al-Jarf, 2020a, Al-Jarf, 2014b).

Finally, comparison of a variety of TTS and technologies used in interpreting practice by Saudi student-interpreters at Saudi translation and interpreting departments is still open for further investigation by future researchers.

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ORCID ID: https://orcid.org/0000-0002-6255-1305

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