Examining the effectiveness of employing CAI tools in English/Arabic consecutive interpreting class

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ABSTRACT

This study examines the effectiveness of employing computer-assisted interpretation (CAI) tools in English/Arabic in consecutive interpreting classes using CAI online tools. The study adopts a quantitative approach to investigate the effectiveness of using CAI tools in educational contexts, specifically consecutive interpretation classes. Quantitative data were collected using a Likert questionnaire after employing the Interpreters' Help tool, which is used to help participants manage terminology by creating online glossaries or importing them to their computers. The participants were enrolled in Level 7, the fourth year of their academic study, and they study the consecutive interpreting course as part of their translation program. The results indicate a significant consensus among the participants (80.6%) that the inclusion of CAI technology in consecutive interpretation learning is essential. Furthermore, 51.6% of the participants expressed an intention to incorporate CAI tools into their future interpretation projects. This affirmative stance suggests a growing recognition of the potential benefits and relevance of CAI tools among translation students. Additionally, 45.2% of the participants advocate for the introduction of CAI technology into classroom teaching. The findings point to the potential favorable effects of CAI tool integration on interpreter output and the overall learning experience. The study recommends integrating CAI tools into interpreting curricula and instruction.

Contribution/Originality: The study contributes to the field of interpretation by filling the gap in the inadequacy of examining the effect of using *Interpreters' Help* as a CAI instrument on the output and transcription quality of consecutive interpreters. The study also provides insight into the use of CAI for consecutive interpretation training in educational contexts.

1. INTRODUCTION

Computer-assisted interpretation (CAI) was designed to complement the work of human interpreters, offering them digital resources and support to enhance the accuracy and efficiency of their work. CAI tools assist interpreters in terminology management to ensure the quality of their output, particularly in terms of lexical adequacy. Previously, interpreters used glossaries and a variety of online interpretation delivery platforms, which provide multilingual channels, document sharing, and participant management, designed for remote interpretation. CAI now enables interpreters to plan ahead of time, verify technical terminology in real time during live events, and streamline productivity to enhance overall efficiency. Previous studies assert that CAI technology has played a major role in the development of remote interpreting (Han, Wang, & Li, 2022). Thus, instructors within higher education institutions that provide programs in translation and interpreting need to examine both the benefits and drawbacks of teaching and learning interpretation remotely and examine the effectiveness of CAI. There is also a

need to assess how graduate students who have been educated in remote settings will be equipped to utilize CAI in their professional careers and how CAI can affect their efficiency.

However, research on the effect of CAI tools on the quality of interpreters' output is deemed to be restricted. As a result, a few studies have been done to assess the impact of CAI tools on interpreting in educational contexts. Fantinuoli (2017a); Fantinuoli (2018) and Xu (2018) emphasized that practically all studies undertaken on CAI tools in various forms of interpretation, such as consecutive or simultaneous interpretation, are of a general or theoretical nature, with a limited number of empirical studies. Other studies investigated training and the advantages of CAI and the challenges that interpreters encounter (Akçayır & Akçayır, 2017; Chan, 2023; Fantinuoli, 2017b; Han et al., 2022; Max, O'Reilly, & Ranft, 2018; Xu, 2022). These studies investigated the cost of training, interpreting pedagogy, integration difficulties, privacy and security, and language and cultural aspects that are crucial for accurate interpretation, especially in sensitive diplomatic conferences or specialized contexts. For example, Han et al. (2022) examined the effectiveness of teaching and learning interpreting online, highlighting the need for further investigation of pedagogical models for training and teaching interpreting using CAI, particularly because new technologies continuously emerge. In this context, Fantinuoli (2018) noted that, while new programs that assist interpreters at various stages have been developed as a result of technological advancements in CAI software and its incorporation in curricula across Europe, few studies have examined the effectiveness of these programs.

Although Arab interpreters have profited from computer-assisted translation (CAT) tools, many of the software packages have not yet been assessed to examine their appropriateness for interpreters. This is primarily because of time constraints, software complexity, and challenges in integrating them into interpretation workflows. However, CAI technologies continue to affect the way interpreters perform (Han et al., 2022). The question "Can interpreting students in Saudi Arabia benefit from CAI tools?" remains. The current study is expected to offer some insight into the impact of employing CAI tools in consecutive interpretation classes for undergraduate students while exploring the benefits and drawbacks of employing CAI tools during the process of consecutive interpretation.

This study tackles the problems that Saudi undergraduate students face when they use CAI. The Saudi 2030 Vision has contributed to the advancement of the country in multiple aspects, including its focus on boosting the translation and interpretation industry. Therefore, there is a need to provide society with well-trained interpreters who can use modern technologies such as CAI. The expanding number of worldwide communications, the increasing cooperation of multilingual partners, and the expansion of multinational corporations necessitate the provision of interpretation for numerous local and international events such as meetings and conferences. The use of technology in education has certainly expanded, and the importance of using digital tools in practicing and teaching interpretation cannot be overstated. Nowadays, there is a pressing need to improve interpreting technologies, with practitioners increasingly requesting tools that can be adapted to their specific demands and new interpreting work settings. The significance of university education and raising awareness about the need to train interpreting students to meet market demand has been overlooked, and the number of universities that include CAI in their curriculum is restricted. Fantinuoli (2018) noted that technological advancement in the profession is still restricted and slow. Wang and Wang (2019) advocate for the exploration of emerging developments in interpretation technologies, encompassing the platforms designed for remote conference interpretation. Similarly, Wang and Li (2022) added that there is an urgent need to examine the effect of interpreting technologies on students' competence and the necessity to set up a three-dimensional competence framework for interpreting technologies that includes curriculum design, instruction, and assessment. The current study, therefore, investigates the effect of employing CAI tools in consecutive interpretation classes as well as the possibilities of integrating CAI tools/software into the curriculum.

The significance of the study stems from its contribution to the field of interpretation and education, providing empirical evidence on the effectiveness of CAI in enhancing the quality of interpreters' work. Previous studies have not sufficiently examined the effect of employing *Interpreters' Help* as a CAI tool on the quality of interpreters' output and training in consecutive interpretation classes. The current study is expected to fill this gap and provide insights into the field of consecutive interpretation training settings.

The research provides answers to the following questions:

1. How do students perceive the use of CAI tools?

2. How does the use of CAI tools affect students' consecutive interpretation output?

3. How helpful are CAI tools for consecutive interpretation training?

The current study hypothesizes that using CAI tools in consecutive interpretation classes will improve interpreter output and reduce cognitive stress throughout the interpretation process.

2. LITERATURE REVIEW

2.1. CAI Tools for Interpreting Purposes

CAI software has evolved over several years based on concepts of machine translation that began in the mid-20th century when researchers started exploring automated translation of languages during the 1940s and 1950s. CAI software primarily serves as a glossary creation tool, allowing interpreters to acquire and create glossaries more efficiently and quickly, thereby accelerating and optimizing interpreters' preparation and performance. According to research (Corpas, 2021; Fantinuoli, 2017a; Ortiz & Cavallo, 2018), there are currently CAI tools and resources available for interpreters that can be utilized in interpreting practices and translator training. There is an expanding selection of CAI tools available on the market to interpreters and there has been a significant increase in the attention among scholars and practitioners to the use of CAI tools for terminological support, specifically in consecutive interpreting. Flashterm, Glossarmanager, Glossary Assistant, Interplex InterpretBank, *Interpreters' Help*, Intragloss, and Terminus are examples of such tools.

Several studies provides a comprehensive analysis of these tools together with a specific set of criteria for evaluation (Costa, Corpas Pastor, & Durán Muñoz, 2014a; Costa, Pastor, & Muñoz, 2014b; Rütten, 2017). According to Fantinuoli (2018), CAI tools can be classified into two categories: first-generation and second-generation. First-generation CAI tools primarily improve the organization of terminological resources compared to traditional glossaries. In contrast, second-generation CAI tools offer a wider range of capabilities by utilizing computational linguistics. These tools can automatically extract terminology from preparation documents, assist in memorizing specialized terminology, and provide access to terminological databases not only before and after interpretation but also during the interpretation process. Additional research by Prandi (2023); Jiang (2013); Fantinuoli (2017a) and Dillon and Fraser (2006) suggests that CAI technologies are not well integrated into the workflow of professional interpreters. Instead, interpreters tend to prefer simpler solutions that are not specifically designed for interpreters. This could be attributed to the fact that these tools are often unfamiliar to the majority of professional translators. In another study, Prandi (2018) emphasized the issue of cognitive load. She stated that the use of computer-assisted interpretation is expected to result in higher cognitive load during simultaneous interpreting compared to traditional interpreting. However, the cognitive load is anticipated to be lower when using CAI tools such as InterpretBank compared to traditional terminology management solutions such as Word and Excel glossaries. According to Donovan (2006) and Tripepi Winteringham (2010), certain practitioners consider them to be "unnatural" and perhaps causing distraction during simultaneous interpreting. From another perspective, Pöchhacker (2018) argues that CAI tools can be advantageous for both simultaneous and consecutive interpreting. Further, Fantinuoli (2018) contends that it is more appropriate to designate CAI tools as "terminology management software" or "corpus-based CAI tools designed specifically to aid interpreters in the preparatory stage" (p. 161). Likewise, Guo, Han, and Anacleto (2023) state that CAI tools refer to computer software, mobile

phone applications, and digital gadgets that can be utilized when interpreting to decrease cognitive strain and enhance interpreters' ability to process information, which is vital for the interpretation process. Additionally, they can positively impact the cognitive processes involved in the task of interpretation by alleviating working memory strain, mitigating production challenges, and more.

2.2. Interpreting Modes and Skills

Interpreting encompasses several forms, such as bilateral, consecutive, simultaneous, whispered, liaison, and escort. Furthermore, there are technology-driven methods available, such as telephone and remote video interpreting. Bilateral interpreting involves the interpreter translating spoken language from one language (known as the source language) into another (known as the target language) and vice versa. In consecutive interpreting, the interpreter waits for the speaker to finish a specific number of sentences before translating the statement into the target language using their memory and notes. This process relies largely on the use of symbols or ideograms. According to Russell (2005), consecutive interpretation is the act of interpreting after the speaker or signer has finished expressing one or more concepts in the source language and pauses, allowing the interpreter to convey that information. Unlike simultaneous interpretation, the interpreter has the opportunity to carefully analyze the spoken content before translating it into the target language. The interpreter may also use notetaking as additional assistance to remember the information during the translation process. The consecutive interpretation process, according to Meifang (2012), is divided into five stages: hearing and listening, analyzing and understanding, memorizing and taking notes, retrieving from memory and notes, and delivery. According to the length of time the interpreter is permitted to interfere and provide interpretation, De Groot and Christoffels (2006) divided consecutive interpretation into two categories: discontinuous and continuous.

To acquire interpreting skills, Gile (2009) proposed a model for training students and interpreters who need to develop their abilities. Gile's Effort Model of Consecutive Interpreting is "performed in two phases: the comprehension phase (or listening and note-taking phase), and the Speech Production (or Reformulation) phase." listening and analysis of the source text, note-taking, short-term memory operations, and coordination are all part of phase one (perception). During this step, the trainee interpreters hear the text and take notes in order to memorize and understand the source text. The second phase, Target-Speech Production, consists of remembering, note-reading, production, and coordination. This phase is more difficult than the first since trainee interpreters must retain knowledge from long-term memory and read their notes, which can be difficult for those who are unable to read their notes. The trainee interpreters should then translate the communication into target text and coordinate it. Gile (2017) asserted that simultaneous interpreting has developed tremendously over recent decades and requires training programs that help interpreters to become linguistically and intellectually highly professional bi- or multi-linguals capable of understanding complex speech and reformulating it in a linguistically impeccable form. In this regard, Pöchhacker (2023) highlighted prototypical interpreting models that combine theoretical knowledge, practical skills development, and experiential learning, asserting that training programs at universities should cover interpreting techniques, theory, ethics, and specialization in various areas, including conference interpreting.

2.3. Using CAI for Solving Interpreting Difficulties

Regarding the challenges of interpreting, Christoffels and De Groot (2004) asserted that an interpreter must normally comprehend, translate, and produce language simultaneously. Simultaneous comprehension and production, as well as input transformation, are two components that are likely to be significant sources of complexity in interpreting. Gile (1997) also examined the difficulty of interpretation. She compared simultaneous interpretation to consecutive interpretation and concluded that simultaneous interpretation is more challenging. She defended this result by stating that an interpreter's working memory is required to be of a high capacity due to

the simultaneous occurrence of multiple processes during the execution of the task. In this instance, unlike the processes of comprehension and translation, working memory, and specifically the control component (attention), exert additional effort as the task is performed without the assistance of a crucial component for comprehension. As with consecutive interpreting, capacity demands are not determined by the simultaneity of the production and comprehension processes, even though the delay in production increases the importance of both short- and long-term memory.

In facing the challenges of interpreting, CAI provides various tools to assist both consecutive and simultaneous interpreters. The challenges that interpreters encounter include lack of concentration, language complexity, especially in a multilingual environment, terminology problems, lag time, cultural sensitivity, lack of audience engagement, and equipment malfunction. To help interpreters face these challenges, Wang and Wang (2019) in their experimental study suggest the integration of machine translation, including CAI, into human interpreters' workflow to boost interpreting performance. Corpas (2018) examined challenges and tools for interpreters, affirming that CAI represents significant tools for the profession, as interpreters acquire new skills that enforce performance and quality output. Prandi (2018) explored CAI tools in simultaneous interpreting, asserting its effectiveness in helping interpreters deal with terminology problems and handling real-time data during conference interpreting. Qianqian (2022) provided insights into the features of the dominant remote simultaneous interpretation (RSI) platforms. These platforms, such as Kudo, Interprefy, VoiceBoxer, Interactio, SpeakUS, and Verspeak, offer fundamental services including video and audio streaming as well as interface services. Some of these platforms are tailored to accommodate the specialized needs of interpreting services, including features such as relay and handover functions, which are used in telecommunications and wireless communication systems, enabling the seamless transfer of an ongoing communication session, such as a phone call or data transmission (pp. 105-112). Prandi (2018) recommends CAI systems because they provide interpreters with access to specialized terminology databases and glossaries in real time. This helps interpreters quickly find and confirm the correct terminology, especially in technical or specialized fields. Thus, CAI technology provides numerous tools and resources that address interpreter training to help them deal with different complex challenges.

2.4. Integrating CAI Tools into the Curriculum

Interpreting is regarded as one of the most stressful occupations due to its cognitive demands and high tension levels. The development of CAI instruments facilitates terminological and knowledge management. However, since the emergence of CAI tools, they have not become industry standards, nor are they extensively implemented in academic curricula. An important step in enhancing learning outcomes with CAI is ensuring that students use the CAI tool. According to Carlsen (2013); Muralidharan, Singh, and Ganimian (2019) and Madkour (2015), the connection between providing students with relevant content and higher levels of engagement should be emphasized. In addition to enhancing learning outcomes, Lai, Luo, Zhang, Huang, and Rozelle (2015) discovered that the use of CAI was essential for increasing student interest in both the subject supported by the CAI intervention and other subjects. Using CAI can assist instructors in delivering appropriate content to students of various grade levels. Ensuring that students have access to the appropriate content can enhance student engagement, which in turn increases learning outcomes and ensures the quality of their output.

In Saudi Arabia, and interpreting literature in general, there is a dearth of research examining the impact of novice and advanced student interpreters' use of CAI tools in consecutive interpreting. CAI tools, according to Wan and Yuan (2022), have helped English/Chinese interpreters and trainers and should be implemented into interpretation training to better prepare trainees for the future market. Prandi (2015) found that the problematic components of her study can be addressed with specific didactic exercises that will benefit trainee interpreters not only in terms of CAI tool use but also in terms of attention skills and boothmate interaction. There are reasons to assume the tools will be valuable additions to the curriculum of trainee interpreters; however, more empirical

investigations are needed to assess and improve the way it can be incorporated with current interpreter training methodologies.

In a separate study, Prandi (2020) investigated the possibility of integrating CAI tools into the curriculum by asking some training institutions if CAI tools are included in the curriculum. Some institutions reported that curricula were developed prior to the ubiquitous availability of such tools. Other respondents indicated that training included computer-assisted translation (CAT) tools, but not CAI tools. Another institution stated they had never considered CAI tools. This appears to be the case for two additional responses, which cited a lack of financial and infrastructure resources and "technical issues" as justifications for excluding CAI tools. Although budgetary concerns are undoubtedly plausible, the only infrastructure required for working with CAI is a PC or laptop, an internet connection, and a technician for servicing, all of which are normally accessible at universities. Prandi's investigation of the integration of CAI tools in 25 European universities showed that only a few universities have incorporated CAI tools into their curricula and that InterpretBank is the tool most frequently introduced to students, followed by Interplex and *Interpreters' Help*.

In a study conducted in China, Wan and Yuan (2022) found that trainers frequently mistake general technologies for CAI tools, and vice versa. They assert that the dearth of lecturers qualified to teach CAI tools in the interpretation course is the reason why many universities do not incorporate CAI tools into their curricula.

3. METHODOLOGY

This study adopted a quantitative approach to investigate the effectiveness of using CAI tools in consecutive interpreting classes. Using a questionnaire, this study examined students' attitudes, perceptions, and satisfaction regarding the use of CAI tools in consecutive interpreting classes. It also employed the CAI *Interpreters' Help* tool, which is terminology and knowledge management software for interpreters, assisting them in producing high-quality output.

3.1. Research Questions and Hypothesis

Q1. How do students perceive the utilization of CAI tools?

Q2. What is the effect of using CAI tools on students' consecutive interpretation output?

Q3. How relevant are CAI tools to consecutive interpretation training?

The current study hypothesizes that the use of CAI tools in consecutive interpretation classes will have a positive effect on interpreters' output and reduce cognitive tension during the interpretation process.

3.2. Context and Participants

A total of 31 students, with an age range of 19–25 years, from the English Department of the College of Languages and Translation at Al-Imam Mohammed Ibn Saud Islamic University (IMSIU) in Riyadh, Saudi Arabia, took part in the study. The participants were Saudi female undergraduates enrolled in Interpretation 1 at Level 7 during the third semester of the 2023 academic year. This course is a prerequisite for the Interpretation 2 course, which focuses primarily on simultaneous interpretation. The researcher, who is an assistant professor in the field of translation, instructed the participants in Interpretation 1. This course focuses on teaching students the principles and strategies of consecutive interpreting so that they can identify and solve the problems they encounter in different conference contexts. The instructional approach depends on face-to-face traditional methods, with some interpreting resources that depend on blended learning. The assessment method uses formative and summative evaluation. While all participants did not use CAI tools before participating in this study, it was distinguished from the survey results that a substantial 90.3% of the respondents, equivalent to 28 individuals, confirmed their familiarity with computer-assisted translation tools, which helped them use the CAI *Interpreters' Help* tool.

3.3. Materials and Instruments

This quantitative study employed Interpreters' Help (2023) which is a technological tool for helping interpreters manage terminology by creating glossaries online or importing them to their computers. Research instruments include a Likert questionnaire, investigating four areas. The questionnaire contains 19 questions, beginning with demographic questions (Block I, one question). Block II looked into CAT tool literacy and status quo (two questions), Block III looked into CAI tool literacy (five questions), and Block IV looked into CAI tool user feedback (11 questions). The first area of investigation involves the participants' characteristics. The second area aims to collect data about the participants' literacy and status quo regarding the use of computer-assisted tools in translation. The third area is concerned with participants' literacy regarding the use of computer-assisted tools in interpreting. The fourth area gathers their feedback after using *Interpreters' Help* and its effectiveness in enhancing interpreters' quality outputs. The questionnaire was designed and administered using Google Documents and was distributed to three translation/interpretation experts in order to gather insights and feedback to ensure its validity.

3.4. Procedures

The researcher devoted eight hours to introducing the tool, *Interpreters' Help*, which helps interpreters manage terminology by creating online glossaries or importing existing ones, sharing glossaries with colleagues, and accessing glossaries from a computer, tablet, or smartphone. Participants met with their instructor twice per week for four hours for a total of 44 hours over 11 weeks. In the Level 7 Interpretation 1 course, different types of audio on the disciplines of politics, medicine, and finance were investigated and translated into English and Arabic, and vice versa. The researcher (instructor) spent two weeks at the beginning of the semester introducing the *Interpreters' Help* tool and instructing students on its features and functions. At the beginning of the course, the participants were asked to use *Interpreters' Help* and were required to register for the software and create a profile. Each student was tasked with creating a compendium for one of the following fields: politics, medicine, or finance. The participants were given three days to complete this assignment and were instructed to select the sharing option so that all participants could access various specialized glossaries by following one another in the software interface. The *Interpreters' Help* tool was to be used by the participants while interpreting each audio clip. They were given two audio clips in each class, one to interpret from English into Arabic and the other from Arabic into English. They interpreted a total of 36 clips. At the end of the semester, each student received the questionnaire, with a consent form, to respond to questions about their experience using CAI for interpreting and its impact on their quality of interpretation.

3.5. Data Processing

The data collected from the completed questionnaires was subjected to meticulous processing and analysis to draw meaningful insights and conclusions using SPSS version 28. The data processing approach encompassed several key steps to ensure accuracy and reliability. These steps include the following: (1) data cleaning – this step involved reviewing the responses to identify any inconsistencies, missing values, or errors, and any discrepancies were addressed through cross-referencing with the original questionnaire submissions; (2) categorization and coding – the responses to the closed-ended questions were categorized into relevant themes to facilitate quantitative analysis, and each response was coded to ensure consistency and uniformity during analysis; (3) data entry – the categorized and coded responses were entered into a structured database for further analysis, and careful attention was paid to accurately transcribe the data and minimize the risk of data entry error; (4) descriptive analysis – the data was subjected to descriptive statistical analysis to present a comprehensive overview of the participants' demographics, attitudes, and opinions. Frequency counts and percentages were calculated for each response category, enabling a clear understanding of the participants' viewpoints.

4. RESULTS

4.1. Quantitative Results

4.1.1. Participants' Demographic Data

Table 1 contains the demographic analysis concerning participants' ages. The majority of the participants were in the 21–23 age range, comprising 58.1%, or 18 individuals; 8 participants were aged 19–20; and 5 participants were in the 23–25 age range, or 16.1% of the total.

Table 1. Demographic analysis.

Response	Frequency	Percent
19–20	8	25.8
21–23	18	58.1
24–25	5	16.1
Total	31	100.0

4.1.2. Participants' Computer-Assisted Translation (CAT) Tools Literacy and Status Quo

Table 2 shows the context of the study's exploration into participants' familiarity with computer-assisted translation (CAT) tools. It was established that a substantial 90.3% of the respondents, equivalent to 28 individuals, confirmed their familiarity with CAT tools. In contrast, only two individuals (6.5%) expressed ambiguity. A mere 3.2% of the participants, represented by a single individual, demonstrated a lack of understanding. According to the data, the prevalence of CAT tool literacy among the cohort is pronounced, with a large majority indicating prior exposure or understanding of these tools.

Table 2. Participants' familiarity with CAT tools.

Response	Frequency	Percent
Maybe	2	6.5
No	1	3.2
Yes	28	90.3
Total	31	100.0

4.1.3. Participants' Computer-Assisted Interpreting (CAI) Tools Literacy and Status Quo

Table 3 presents the participants' familiarity with CAI tools and shows that 14 respondents (45.2%) confirmed their familiarity. Conversely, nine individuals (29%) acknowledged their lack of awareness, and eight individuals (25.8%) remained ambivalent. Overall, the data suggests a mixed level of familiarity with CAI tools among the study's participants, with a moderate majority indicating prior understanding or exposure, while a combined majority expressed either uncertainty or complete unfamiliarity.

Table 3. Participants' familiarity with CAI tools.

Response	Frequency	Percent
Maybe	8	25.8
No	9	29.0
Yes	14	45.2
Total	31	100.0

4.1.4. Students' Exposure to CAI Tools in Postgraduate Programs

Table 4 shows the percent frequency of the participants' exposure to CAI tools through postgraduate programs in their institution. A significant 74.2% of the participants (23 individuals) stated that they had not taken any course related to CAI, and 25.8% (8 respondents) stated that they had pursued a CAI-related course during their postgraduate studies.

Table 4. Participants' exposure to CAI tools in postgraduate programs.

Response	Frequency	Percent
No	23	74.2
Yes	8	25.8
Total	31	100.0

4.1.5. University Provision of CAI Training

Table 5 exhibits the frequency percent of the provision of CAI training sessions by the participants' institution. A total of 16 respondents (51.6%) stated that their school did not provide such training. On the other hand, nine individuals (29%) confirmed that their institution did provide CAI training sessions. Additionally, six participants (19.4%) remained unsure about their school's CAI offering.

Table 5. Participants' academic institution provision of CAI training.

Response	Frequency	Percent
Maybe	6	19.4
No	16	51.6
Yes	9	29.0
Total	31	100.0

4.1.6. Self-Initiated Learning of CAI Tools

Figure 1 illustrates the participants' self-initiated learning of CAI tools, with a significant majority (80.6%, or 25 respondents) indicating that they had not pursued CAI education independently, and 19.4% (6 individuals) affirmed that they had taken the initiative to acquire CAI knowledge on their own.
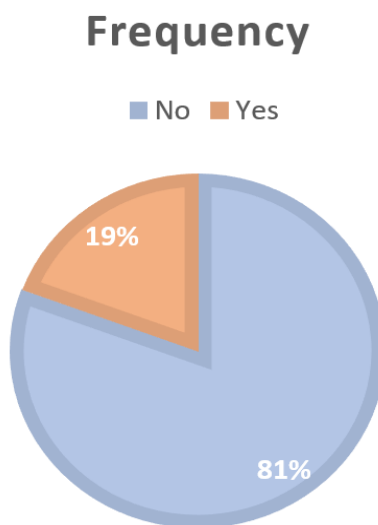

Figure 1. Self-initiated learning of CAI tools.

4.1.7. Software Used For Consecutive Interpretation

Table 6 shows that the participants preferred software for consecutive interpretation, with 29 respondents (93.5%) identifying *Interpreters' Help* as their tool of choice. In contrast, both InterpretBank and other software were chosen by a minority, with each category being represented by a single individual (3.2%). Thus, from the collected data, it is evident that *Interpreters' Help* dominates as the primary software used by participants in their consecutive interpretation tasks, with other tools being used only sporadically.

Table 6. Software used for consecutive interpretation.

Response	Frequency	Percent
InterpretBank	1	3.2
Interpreters' Help	29	93.5
Other	1	3.2
Total	31	100.0

4.2. CAI Tool User Feedback

4.2.1. Effectiveness of Software Used in Consecutive Interpretation Class

Table 7 shows the effectiveness of the software in providing accurate interpretation during consecutive interpretation classes. A total of 16 respondents (51.6%) affirmed its positive impact. Conversely, three participants (9.7%) did not find the software helpful. A substantial portion, amounting to 38.7%, or 12 individuals, remained ambivalent about the software's effectiveness.

Table 7. Effectiveness of the software used during consecutive interpretation class.

Response	Frequency	Percent
Maybe	12	38.7
No	3	9.7
Yes	16	51.6
Total	31	100.0

4.2.2. Students' Experience with Interpreters' Help

Based on the participants' experience with *Interpreters' Help* software, when asked about which aspect the software provides the most assistance, Table 8 shows that a significant 64.5% (20 respondents) believed that the software excels in aiding the recognition of technical terms. Following this, 5 individuals (16.1%) highlighted its efficacy in the translation of acronyms. Meanwhile, both recognition of pronunciation and translation of abbreviations received similar feedback, each chosen by three participants (9.7%) Thus, the prevailing consensus among the participants is that *Interpreters' Help* is most valuable for recognizing technical terms.

Table 8. Participants' experience with Interpreters' Help software.

Response	Frequency	Percent
Recognition of pronunciation	3	9.7
Recognition of technical terms	20	64.5
Translation of abbreviations	3	9.7
Translation of acronyms	5	16.1
Total	31	100.0

4.2.3. Students' Feedback on Using CAI Tools in Consecutive Interpretation

Table 9 presents the participants' opinions about the potential drawbacks of using CAI in consecutive interpretation, with 45.2% feeling that it might distract from notetaking, while 29.0% believed that it could divert focus from active listening and analysis.

Another 16.1% expressed concern about increased stress levels for interpreters due to CAI. A minority (6.5%) perceived it as a potential hindrance to comprehension. Interestingly, a single participant (3.2%) selected all of the challenges listed, suggesting a comprehensive skepticism toward integrating CAI in consecutive interpretation.

Table 9. Participants' feedback on using CAI tools in consecutive interpretation.

Response	Frequency	Percent
Distraction from comprehension	2	6.5
Distraction from notetaking	14	45.2
Distraction from focusing on active listening and analysis	9	29.0
Places more stress on the interpreter	5	16.1
All of the above	1	3.2
Total	31	100.0

4.2.4. Students' Reasons Behind Not Using CAI Tools in Interpretation

Table 10 shows the reasons why participants might be hesitant to use CAI technology. A significant 35.5%, or 11 respondents, expressed skepticism, believing that CAI fails to recognize vital para-linguistic information, which underscores the intricacies of human language often not captured by tech interfaces. This concern is contrasted with another prominent viewpoint, with 12 participants (38.7%) expressing that they didn't want to try CAI but without providing a specific rationale. This hints at a potential technological reluctance or an inherent preference for traditional methods. Meanwhile, only four participants (12.9%) did not anticipate the necessity of integrating CAI, believing that their current methods are sufficient. Some feedback seemed contradictory, as two participants (6.5%) asserted that they were willing to employ CAI despite the question's explanation. Additionally, one participant expressed concerns about CAI being distracting and time-consuming and one believed that it would add undue stress during the interpretation process.

Table 10. Participants' reasons behind not using CAI tools in interpretation.

Response	Frequency	Percent
I believe that CAI fails to recognize para-linguistic information	11	35.5
I believe that there's no need to use CAI	4	12.9
I want to use it	2	6.5
It takes time from the interpretation process which might stress the interpreter	1	3.2
It's too distracting and time consuming for me	1	3.2
No reason, I just don't want to try it	12	38.7
Total	31	100.0

4.2.5. Tools Used During Consecutive Interpretation

Table 11 displays the frequency percentage of tools used for consecutive interpretation, and a combination of both traditional and digital methods was observed.

Table 11. Tools used during consecutive interpretation.

Response	Frequency	Percent
Interpreters' Help	5	16.1
Online dictionary	3	9.7
Online dictionary, hard copy dictionary	1	3.2
Online dictionary, hard copy dictionary, Interpreters' Help	2	6.5
Online dictionary, hard copy dictionary, search engine electronic database, Interpreters' Help	2	6.5
Online dictionary, Interpreters' Help	9	29.0
Online dictionary, search engine electronic database	2	6.5
Online dictionary, search engine electronic database, Interpreters' Help	3	9.7
Search engine electronic database	1	3.2
Search engine electronic database, Interpreters' Help	2	6.5
None of the above tools	1	3.2
Total	31	100.0

About 16.1% of the participants relied solely on *Interpreters' Help*, indicating its prominence in this field. Notably, 29% combined online dictionaries with *Interpreters' Help*, reflecting a trend of integrating generic with specialized tools. In a subset, 6.5% of the respondents employed a combination of online dictionaries, hard copy

dictionaries, and search engine electronic databases, with or without *Interpreters' Help*. Meanwhile, 9.7% favored only online dictionaries. A minimal segment, representing 3.2%, opted for simpler choices such as "None of the above tools" or just one other tool combined with *Interpreters' Help*. The data reflects the versatility of modern interpreters, demonstrating a variety of reliance on both digital and traditional tools to optimize their work.

4.2.6. Accuracy of Using Interpreters' Help in Consecutive Interpretation

Table 12 illustrates the software's effectiveness in facilitating speedy and accurate interpretation, although responses varied. Specifically, 16.1% of the participants disagreed and 16.1% strongly disagreed that the software was beneficial. Conversely, 9.7% strongly agreed with the software's effectiveness. The majority (35.5%) remained neutral, indicating a lack of a definitive opinion on the software's impact.

Table 12. The accuracy of using Interpreters' Help in consecutive interpretation.

Response	Frequency	Percent
Disagree	5	16.1
Neutral	11	35.5
Strongly agree	3	9.7
Strongly disagree	5	16.1
Total	31	100.0

4.2.7. Willingness to Use CAI Tools During Interpretation

Table 13 shows the participants' likelihood of employing CAI tools in future interpretation projects. The participants' outlook appeared optimistic. A notable 51.6% affirmed their intention to utilize CAI tools; however, 41.9% remained uncertain, indicating they might consider its use. A minimal 6.5% expressed no interest in incorporating CAI tools in their future endeavors.

Table 13. Willingness to use CAI tools during interpretation.

Response	Frequency	Percent
Maybe	13	41.9
No	2	6.5
Yes	16	51.6
Total	31	100.0

4.2.8. Willingness to Seek Knowledge on Recent and New CAI Tools

In terms of staying current with modern interpretation tools for consecutive interpretation, Figure 2 illustrates that 74.2% of participants affirmed their intention to stay up to date with the development of new software. A smaller segment (19.4%) expressed uncertainty about this commitment, while a mere 6.5% indicated that they would not engage with new tools.
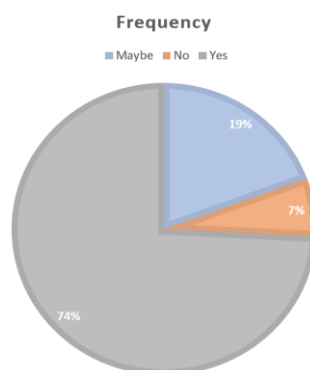

Figure 2. Willingness to seek knowledge on recent and new CAI tools.

4.2.9. Incorporating CAI Technology into Consecutive Interpretation Education

Figure 3 displays that the respondents' viewpoints were notably positive regarding the incorporation of CAI technology into consecutive interpretation education. A significant 80.6% expressed agreement with the idea, recognizing the value of integrating such technology into their educational curriculum. A smaller percentage (16.1%) remained uncertain about its inclusion, while a mere 3.2% expressed disagreement.
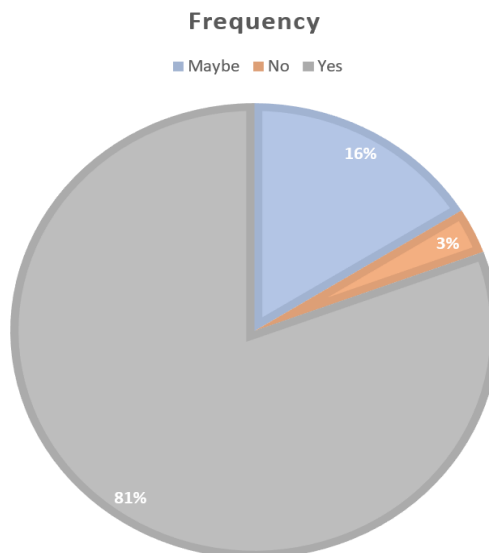

Figure 3. Incorporating CAI technology into consecutive interpretation education.

4.2.10. Changes to be Made in the Teaching of Consecutive Interpretation

Table 14 shows the responses to the question regarding potential enhancements to the teaching of consecutive interpretation at the College of Languages and Translation. A small subset constituting 3.2% advocated for the provision of specific instruments to simplify the learning process. A significant 45.2% emphasized the importance of introducing CAI technology into classroom instruction and post-class practice. This viewpoint underscores the growing relevance of technological tools in modern interpretation training. Meanwhile, 12.9% stated a preference for maintaining traditional teaching methods, reflecting an acknowledgment of the enduring efficacy of established pedagogical approaches. Conversely, 32.3% called for the inclusion of dedicated courses on CAI technology, emphasizing the value of specialized education in this domain. One participant recommended initiating CAI technology education from the foundational years of the curriculum and integrating it across semesters to ensure comprehensive mastery. Additionally, another person proposed a shift toward greater technological utilization, transitioning from paper dictionaries to digital resources. These diverse responses underscore the participants' understanding of the evolving landscape of interpretation education, highlighting a balance between established methods and the integration of modern technological tools.

Table 14. Changes to be made in the teaching of consecutive interpretation.

Response	Frequency	Percent
Certain instruments to be available to make everything easier	1	3.2
Introduction of CAI technology into classroom teaching and after class practice	14	45.2
Maintain traditional teaching methods	4	12.9
Offer a course on CAI technology	10	32.3
Start the course from the beginning of the first year/level and also practice this course many times in every semester because it will be important in our future	1	3.2
Use more technology rather than paper dictionaries	1	3.2
Total	31	100.0

5. DISCUSSION AND IMPLICATIONS

The present study aimed to investigate the integration of CAI tools within consecutive interpretation education at the College of Languages and Translation. Considering the responses garnered from the participants, it is evident that a significant portion (80.6%) agrees that teaching CAI technology should be included in consecutive interpretation education. Furthermore, 51.6% expressed an intention to incorporate CAI tools into their future interpretation projects. This affirmative stance suggests a growing recognition of CAI tools' potential benefits and relevance among students. Additionally, 45.2% of the participants advocated for the introduction of CAI technology into classroom teaching, highlighting their awareness of the need for this integration. This is consistent with Wan and Yuan (2022), who found that interpreter education and training must incorporate CAI tools. Similarly, Fantinuoli (2018) demonstrated that technology and CAI tools can have a significant impact on interpreter training and education in certain areas of the profession.

The participants' feedback concerning the efficiency and accuracy facilitated by the software in interpretation indicates a diverse spectrum of opinions. While 9.7% strongly agreed that the software aids in interpreting quickly and accurately, 16.1% disagreed and another 16.1% strongly disagreed. The majority, constituting 35.5%, maintained a neutral stance. This varied response underscores the necessity for a more comprehensive investigation into the tangible effects of CAI tools on the quality and swiftness of interpretation output. Clearly, a lack of information regarding the role of CAI tools in facilitating an interpreter's job can lead to confusion and ambiguity among students and trainees. Prandi (2020) found that many universities around the world do not offer a course on CAI tools. Wan and Yuan (2022) indicated, however, that student interpreters should realize that CAI tools are supplementary to solid interpreting skills and expertise. Wang and Wang (2019) indicated that the extent to which the use of machine translation (MT) as a CAI tool improves interpreting quality is also dependent on the language proficiency and professional interpreting experience of the users, such that those who are more proficient in languages and have more interpreting experience will be able to benefit from the CAI tool.

The participants' insights revealed a substantial recognition of the relevance of CAI tools within consecutive interpretation training.

A significant 74.2% expressed a commitment to keeping up to date with new programs or software to enhance their accuracy in interpretation. Additionally, 32.3% recommended offering dedicated courses on CAI technology, reinforcing its pertinence in education. The sentiment of 6.5% of the participants who stated their intention to use CAI tools in their future interpretation projects further substantiates the perceived relevance of these tools to their training. Wan and Yuan argued that CAI tools aid in improving terminological output and efficacy; nonetheless, human interpreters will not be replaced by AI, rather they will be replaced by humans capable of using AI. As a result, universities, training institutions, and institutes should address the rising use of CAI tools in developing educational curricula for teaching and training consecutive interpretation.

The responses gathered from the participants emphasize the importance of examining how CAI tools align with students' perceptions, their impact on interpretation output, and their significance within consecutive interpretation training. These insights form the basis for the subsequent hypothesis that asserts the potential positive effects of CAI tool integration on interpreter output and the overall learning experience.

In a recent study, Prandi (2020) examined the role of CAI in interpreter training, highlighting that the most relevant technologies in interpreter training are setting-oriented solutions, such as technologies for remote interpreting, videoconferencing, remote simultaneous interpreting (RSI), and computer-assisted interpreter training (CAIT). Similar results were found by Lu (2020) and Lu (2022), who highlighted the importance of training to corroborate the feasibility and effectiveness of online delivery. However, these studies also point to some deficiencies of the new teaching paradigm regarding challenges to the application of distance mode and video conferencing technology, suggesting the implementation of fully online or blended learning.

6. CONCLUSION

This study investigated the effectiveness of employing CAI tools in English/Arabic in consecutive interpreting classes using CAI online tools. The findings assert the impacts of CAI on students' performance and quality output. CAI tools and digital resources support students in enhancing the accuracy and efficiency of their work by helping them to improve terminology management to ensure the quality of their output, particularly in terms of lexical adequacy. This research contributes to the fields of education and interpretation, as in previous research, the effect of using *Interpreters' Help* as a CAI instrument on the output and transcription quality of consecutive interpreters has not been adequately examined. It is also anticipated that the current study sheds light on the field of consecutive interpretation training contexts. The findings served the research hypothesis, confirming the potential favorable effects of CAI integration on interpreter output and the overall learning experience. CAI tools enable interpreters to plan and verify technical terms during live events and increase productivity. Since CAI tools help to boost efficiency and productivity, the study recommends using CAI for training graduate students to become proficient interpreters. The study also recommends integrating CAI tools in the interpreting curriculum and instruction at the College of Languages and Translation, IMSIU.

REFERENCES

Akçayır, M., & Akçayır, G. (2017). Advantages and challenges associated with augmented reality for education: A systematic review of the literature. *Educational Research Review, 20,* 1-11. https://doi.org/10.1016/j.edurev.2016.11.002

Carlsen, W. S. (2013). Language and science learning, In handbook of research on science education. In (pp. 57-74). New York: Routledge. https://doi.org/10.4324/9780203824696.

Chan, V. (2023). Investigating the impact of a virtual reality mobile application on learners' interpreting competence. *Journal of Computer Assisted Learning, 39*(4), 1242-1258. http://dx.doi.org/10.1111/jcal.12796

Christoffels, I. K., & De Groot, A. M. (2004). Components of simultaneous interpreting: Comparing interpreting with shadowing and paraphrasing. *Bilingualism: Language and Cognition, 7*(3), 227-240. https://doi.org/10.1017/s1366728904001609

Corpas, P. G. (2018). Tools for interpreters: The challenges that lie ahead. *Current Trends in Translation Teaching and Learning, E*(5), 157 − 182.

Corpas, P. G. (2021). Technology solutions for interpreters: The VIP system. *Hermeneus Translation and Interpretation Magazine; On One*(23), 91-123. https://doi.org/10.24197/her.23.2021.91-123

Costa, H., Corpas Pastor, G., & Durán Muñoz, I. (2014a). Technology-assisted interpreting. *Multilingual, 25*(3), 27-32.

Costa, H., Pastor, G. C., & Muñoz, I. D. (2014b). *A comparative user evaluation of terminology management tools for interpreters.* Paper presented at the Proceedings of the 4th International Workshop on Computational Terminology (Computerm).

De Groot, A. M., & Christoffels, I. K. (2006). Language control in bilinguals: Monolingual tasks and simultaneous interpreting. *Bilingualism: Language and Cognition, 9*(2), 189-201. https://doi.org/10.1017/S1366728906002537

Dillon, S., & Fraser, J. (2006). Translators and TM: An investigation of translators' perceptions of translation memory adoption. *Machine Translation, 20,* 67-79. https://doi.org/10.1007/s10590-006-9004-8

Donovan, C. (2006). *Where is interpreting heading and how can training courses keep up?* Paper presented at the EMCI Conference: The Future of Conference Interpreting: Training, Technology and Research.

Fantinuoli, C. (2017a). Computer-assisted preparation in conference interpreting. *Translation & Interpreting: The International Journal of Translation and Interpreting Research*, 9(2), 24-37. https://doi.org/10.12807/ti.109202.2017.a02

Fantinuoli, C. (2017b). Computer-assisted interpreting: Challenges and future perspectives. *Trends in E-Tools and Resources for Translators and Interpreters*, 153-174. https://doi.org/10.1163/9789004351790_009

Fantinuoli, C. (2018). Interpreting and technology: The upcoming technological turn. Interpreting and technology. In (pp. 1-12). Berlin: Language Science Press.

Gile, D. (1997). Conference Interpreting as a cognitive management problem. In Danks, Joseph E., Gregory M Shreve, Stephen B. Fountain, Michael K. McBeath (eds). Cognitive processes in translation and interpreting. In (pp. 196-214). Thousand Oaks, London and New York: Sage Publications.

Gile, D. (2009). Basic concepts and models for interpreter and translator training. *Basic Concepts and Models for Interpreter and Translator Training*, 1-299. https://doi.org/10.1075/btl.8(1st)

Gile, D. (2017). Traditions and innovation in interpreting studies: A personal analysis for 2016. *Language Domains*, 11(5), 1424-1439. https://doi.org/10.14393/dl32v11n5a2017-2

Guo, M., Han, L., & Anacleto, M. T. (2023). Computer-assisted interpreting tools: Status quo and future trends. *Theory and Practice in Language Studies*, 13(1), 89-99. https://doi.org/10.17507/tpls.1301.11

Han, L., Wang, Y., & Li, Y. (2022). Student perceptions of online interpreting teaching and learning via the Zoom platform. *The Electronic Journal for English as a Second Language*, 26(1), 1–19. https://doi.org/10.55593/ej.25101int

Interpreters' Help. (2023). *Computer-assisted interpreting tool.* Retrieved from https://interpretershelp.com/

Jiang, H. (2013). The interpreter's glossary in simultaneous interpreting: A survey. *Interpreting*, 15(1), 74-93. https://doi.org/10.1075/intp.15.1.04jia

Lai, F., Luo, R., Zhang, L., Huang, X., & Rozelle, S. (2015). Does computer-assisted learning improve learning outcomes? Evidence from a randomized experiment in migrant schools in Beijing. *Economics of Education Review*, 47, 34-48. https://doi.org/10.1016/j.econedurev.2015.03.005

Lu, X. C. (2020). Distance teaching of interpreting: Delivering simultaneous interpreting courses via video conferencing at GSTI, BFSU. *Chinese Translators Journal*, 41(4), 76-84.

Lu, X. C. (2022). Review on 40 years of simultaneous interpreting research in China (1980-2020): Based on the analysis of CSSCI journal papers. *Shanghai Journal of Translators*, 37(2), 31-38.

Madkour, M. (2015). Spiral techniques for teaching interpretation at higher education: Quantitative research. *Higher Education of Social Science*, 9(2), 1-12. https://doi.org/10.1080/13562517.2015.1072152

Max, N., O'Reilly, J., & Ranft, F. (2018). *Work in the digital age: Challenges of the fourth industrial revolution.* Retrieved from https://www.researchgate.net/publication/324091786_Work_in_the_digital_age_challenges_of_the_fourth_industrial_revolution_Identifying_the_challenges_for_work_in_the_digital_age

Meifang, Z. (2012). *The study of note-taking and memory in consecutive interpretation.* Paper presented at the International Conference on Education Technology and Management Engineering Lecture Notes in Information Technology.

Muralidharan, K., Singh, A., & Ganimian, A. J. (2019). Disrupting education? Experimental evidence on technology-aided instruction in India. *American Economic Review*, 109(4), 1426-1460. https://doi.org/10.48152/ssrp-5brc-h851

Ortiz, L. E. S., & Cavallo, P. (2018). Computer-assisted interpreting tools (CAI) and options for automation with automatic speech recognition. *TradTerm*, 32, 9-31.

Pöchhacker, F. (2018). Moving boundaries in interpreting. *Moving Boundaries in Translation Studies*, 45-63. https://doi.org/10.4324/9781315121871-4

Pöchhacker, F. (2023). Re-interpreting interpreting. *Translation Studies*, 16(2), 277-296. https://doi.org/10.1080/14781700.2023.2207567

Prandi, B. (2015). *Use of CAI tools in interpreters' training: A pilot study. In Proceedings of Translating and the Computer 37.* Retrieved from https://www.researchgate.net/publication/346539766

Prandi, B. (2018). An exploratory study on CAI tools in simultaneous interpreting: Theoretical framework and stimulus validation, In interpreting and technology, Claudio Fantinuoli (ed.). In (pp. 28–59). Berlin: Language Science Press.

Prandi, B. (2020). The use of CAI tools in interpreter training: Where are we now and where do we go from here? *inTRAlineaSpecial issue: Technology in Interpreter Education and Practice.* Retrieved from https://www.intralinea.org/specials/article/the_use_of_cai_tools_in_interpreter_training.

Prandi, B. (2023). *Computer-assisted simultaneous interpreting: A cognitive-experimental study on terminology.* Berlin: Language Science Press.

Qianqian, X. (2022). A review on research on technology-assisted simultaneous interpreting. *Sino-US English Teaching, 19*(11), 405-412. https://doi.org/10.17265/1539-8072/2022.11.004

Russell, D. (2005). *Consecutive and simultaneous interpreting. Topics in signed language Interpreting: theory and practice.* Amsterdam: John Benjamins.

Rütten, A. (2017). *Terminology management tools for conference interpreters–current tools and how they address the specific needs of interpreters.* Paper presented at the Proceedings of the 39th Conference Translating and the Computer.

Tripepi Winteringham, S. (2010). *The usefulness of ICTs in interpreting practice.* Retrieved from https://www.researchgate.net/publication/268061028_The_usefulness_of_ICTs_in_interpreting_practice

Wan, H., & Yuan, X. (2022). *Perceptions of CAI tools in English/Chinese Interpreting Practice, perspectives of professional interpreters and trainers.* Retrieved from https://journals.uco.es/tl/article/view/13656/13500

Wang, H., & Li, Z. (2022). Constructing a competence framework for interpreting technologies, and related educational insights: An empirical study. *The Interpreter and Translator Trainer, 16*(3), 367-390. https://doi.org/10.1080/1750399x.2022.2101850

Wang, X., & Wang, C. (2019). Can computer-assisted interpreting tools assist interpreting? *Transletters. International Journal of Translation and Interpreting, 3*, 109-139.

Xu, Q. (2022). A review on research on technology-assisted simultaneous interpreting. *Sino-US English Teaching, 19*(11), 405-412.

Xu, R. (2018). Corpus-based terminological preparation for simultaneous interpreting. *Interpreting, 20*(1), 29-58.