

## Perceptions of CAI tools in English/Chinese Interpreting Practice, perspectives of professional interpreters and trainers

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### *Abstract*

This article analyses the perceptions of computer-assisted interpreting tools in interpreting practice and training based on the findings of a survey distributed to English/Chinese interpreters and trainers. Results analysis show that most respondents are positive about the application of CAI tools albeit without much application experience yet. Professional interpreters and trainers are optimistic about the existing CAI tools but mainly used them in preparation and post-interpreting stages. Secondly, user feedback shows CAI assists mainly in the science & technology domain. Thirdly, CAI tools are welcomed in interpreter training but trainers insist on the acquisition of skills before integration of technologies.

### *Key Words*

Computer-assisted interpreting, CAI application, user feedback, interpreting skills, interpreting training.



### *1. Introduction*

When the International Association of Conference Interpreters (AIIC) published the “Code for the Use of New Technologies in Conference Interpretation” on its website in 2000, “new technologies” as instruments of multilingual communication mainly referred to the “setting-oriented technologies” (Fantinuoli, 2018: 155) that “should not lead to a reduction in the quality of interpreting or a worsening of interpreters' working conditions”

(AIIC, 2000). Information and communication technologies (ICTs) including e-learning platforms and online resources have played and continue to play an important role in providing new contents or products for translation and interpretation. Interpreters used to work with an interpreter console, glossaries and a series of interpretation delivery platforms. Nowadays CAI allows interpreters to prepare ahead of time, check technical terms during live events and optimize workflows. Berber-Irabien (2010: 162-163) has identified and described the ICTs used then by professional conference interpreters and by conference interpreter trainers, and recorded their perception on the impact of ICTs on their work. What is the scenario in the interpreting market in China? More than a decade has passed since the market conditions and the interpreting profession in China (Pan et al., 2009; STTACAS & TRANSN, 2007; Wang, 2005) has been informatively described. Professional conference interpreting practice in China has been profiled (Han, 2016). But little has been down on their perceptions of computer-assisted interpreting tools (CAI) so far.

Following up on the appeal of previous literature (Corpas Pastor, 2016; Fantinuoli, 2018) to replicate or further the investigation of CAI tools in practice, this report, which is framed in a series of related studies presents an analysis of the perceptions of CAI tools in practice and in interpreter education based on findings from an online survey carried out by the authors. It is hoped that the findings of this study will serve to raise awareness within the interpreting community including trainee interpreters, professional interpreters and interpreter trainers on the potential of CAI tools and the prospect of integrating CAI in interpreter education.

## *2. Literature Review*

Computer-assisted interpreting (CAI) tools are software solutions specifically developed to facilitate terminology and knowledge management (Prandi, 2015: 48; Costa et al., 2014a: 69; Rütten, 2017: 99). There have been attempts to establish some criteria for CAI tools evaluation (Costa et al., 2014b; Will, 2015). Fantinuoli (2018:155) classified CAI tools into process-oriented tools (comprising technology management systems, knowledge extraction software, corpus analysis tools and the like) and setting-oriented tools (comprising booth consoles, remote interpreting devices, training platforms etc.). By 2010, there were only 15 works related to conference interpreting and ICTs in the CIRIN

bulletin<sup>1</sup>, a semestral listing of all the sub-field of conference interpreting research compiled by Gile. However, in the year 2021 (Gile, 2021), 13 items out of 121 were dedicated to some technological aspect of interpreting. Mixed perceptions on CAI tools may be found in the western literature, including empirical studies on the improvement of interpreting quality and efficiency (Prandi, 2018; Fantinuoli, 2017, 2018; Xu, 2018) as well as reticence from professional interpreters to adopt new technologies (Ortiz, 2018).

Specifically, on the positive sides regarding CAI tools, Hamidi and Pöschhacker (2007: 276) contend that CAI tools increase the accuracy of delivery and decrease information redundancy in the phase of production.

Biagini (2015) presented a quantitative analysis of the terminological quality of the interpreted text comparing the use of a paper glossary and the InterpretBank CAI tool. Fantinuoli has referred to several tools with empirical studies showing an improvement of the interpreting workflow (2017a, 2017b, 2018). Xu (2018) found that using a corpus-based terminological preparation procedure, managed through both a term extraction tool and a concordance tool can improve conference preparation and increase terminological accuracy.

However, it was also noted that “interpreters’ work still mainly relies upon traditional or manual methods, and the technological advances in interpreting have been extremely slow” (Corpas Pastor, 2018: 140). Many interpreters have shown some degree of reluctance towards the use of ICT (cf. Tripepi Winteringham, 2010; Berber-Irabian, 2008; Valentini, 2002; Roderick, 2014). Paster and Fern (2016) showed that among the 133 professionals they surveyed less than five used speech recognition tools and no more than twenty-five checked glossaries or other forms of terminological databases during interpreting. Their survey also found that all the interpreters reported struggling with the time used for processing when using CAI tools during the course of their interpreting. Prandi (2017, 2018) expanded such analysis by exploring the positive effects of CAI tools on the terminological quality of an interpreter’s rendition, but also on the effects of adding to the cognitive load during SI with CAI, an aspect which has not yet been addressed in CAI research.

What’s the situation in the interpreting community working with Chinese and English? Apart from some general introduction of CAI tools (Feng, 2018) and surveys about professional interpreters’ in specific areas (Wang, 2004; Pan et

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<sup>1</sup> CIRIN abbreviated for Conference Interpreting Research Information Network.

al., 2009), there are few reports on the real application of CAI tools in interpreting practice or in interpreter training. STTACAS and TRANSN (2007) only slightly touched upon the technology use. Han (2016) probed into before-interpreting preparation. Several master theses showed interests in CAI, among which Liu (2018) surveyed a small group of people including 5 trainers, 27 professional interpreters and 35 students for assessing their attitudes towards AI Interpreting. Furthermore, the existing scholarly discussion on this subject primarily emphasizes on CAI tools prior to interpreting and in consecutive interpreting. Our hypothesis is that CAI tools are already of significant benefit to the interpreting community at large, and therefore, should be ready for their integration in interpreter education.

As of the time this article is written, there are a handful of popular big-name technology companies investing heavily on computer-assisted interpreting technologies, such as Tencent, Youdao, iFlyTek. The study does not intend to test or measure the use of CAI tools in the profession or in pedagogy in any way, but rather to provide statistical information on how CAI tools are perceived among Chinese-English interpreters with the hope of better aligning teaching objectives with the demand for future interpreters.

Guided by this aim, our research questions were the following:

- 1) How are CAI tools perceived by professional interpreters and trainers in China presently?
- 2) How relevant are CAI tools to the interpreters' work?
- 3) What is the prospect of CAI in interpreting market and interpreting training?

### *3. Method*

The title of the survey was Computer-assisted Interpreting Training in the Digital Era. The very first time respondents accessed the Tencent survey link (<https://wj.qq.com/s2/8653115/4559/>), an anonymity message appeared reassuring them their anonymous responses were required uniquely for academic purpose.

This anonymous questionnaire is designed only for academic research and it intends to obtain your feedback on computer-assisted interpreting tools and

CAI training in your study/ work place. Analysis of the result will be shared with you via email if you are interested. Thank you for your support!

Our survey included 29 questions (Q) starting with gathering individual respondents' demographic information (Block I: Q1-Q4). Block II looked into CAI tools literacy and status quo (Q5-Q14) and Block III: CAI tool user feedback (Q15-23) and IV collected general impression about future prospects (Q24-Q27); and suggestions to R&D people (Q28-29).

Tencent Survey is free, web-based, practical and intuitive, with options for different questions and various question types. For instance, for questions Q7-Q9 about CAI tools used before, during and after interpreting, there is an option to include multiple responses given that some people tend to use several CAI tools at the same time. The short answer function format makes it possible for respondent to type their own response. The array type questions (five-point Likert scales questions) such as Q19 (willingness to use CAI) and Q26 (degree of anxiety toward the future) asked respondents to rate from 1 to 5, with 5 being the highest score.

Once the survey is created, Tencent Survey automatically generates a link to facilitate access to the survey. Data on the platform can be extracted in Excel and Word formats as well as in various forms including pie charts, graphs, etc. that ease the analysis of results.

Participants who took part in the study were trainee interpreters, professional interpreters and/or trainers. A multi-pronged approach was taken to boost sample size. First, the survey link was posted on WeChat moment and QQ Space where eligible trainees and interpreters would self-select to participate. Secondly, specific WeChat and QQ groups of trainers and students were selected to further forward the survey link, snow-balling to eligible participants who fit the study requirement. What's more, the survey link was directly distributed to interpreters and trainers within the author's professional network. Recruitment was thus based on non-probability sampling.

It took approximately 7 and a half minutes on average to finish the questionnaire. Qualitative data (e.g., verbal comments) was processed using Microsoft Excel while correlation analysis and reliability test were processed using SPSS 26.

#### 4. Results

##### 4.1. Demographic data

Partially completed questionnaires were not taken into account in the analysis. After 6 days of work, we have retrieved altogether 209 valid responses. Table 1 shows respondents' demographic data organized under the following headings: gender, location, identity. Respondents with language pair other than English-Chinese are excluded for a more focused discussion. Women made up almost two thirds of the sample. A total number of 209 respondents were distributed mainly over four geographical areas in Chinese Mainland with only 10 from beyond. Respondents from Chinese Mainland mainly come from Eastern China (especially in Shanghai and Jiangsu Province) correlated with bigger interpreting markets.

Regarding the identity of the respondents, more than half of them are MA or MTI students with first-year postgraduates who made up two thirds of the total, showing the greatest interest in CAI tools and its education. As the implications for interpreter education has been addressed in Wan and Yuan (2022), the present study looks into the perspectives of professional interpreters and trainers, which accounted for 17.3% and 16.8% of the total respondents respectively. As some interpreters also work as part-time or full time trainer and trainers are also practicing interpreters, their responses are analysed as those of a single group unless otherwise indicated.

Demographic variables	Gender		Location		Identity		
	Male	Female	Greater China	Overseas	Interpreter	Trainer	Trainee
Number of people	51	151	192	10	34	35	133
Percentage	25.2%	74.8%	95%	5%	16.83%	17.33%	65.84%

Table 1 Question Block I: Demographic data

4.2. Question Block II: CAI tools literacy and status quo

Questions 7-9 (Q7-Q9) collected information about the tools respondents have used before, during and after interpretation practice/assignment.

Figure 1 summarizes the answers to Q7 about the tools respondents have used when preparing for the assignment. The most frequently used was Online/electronic dictionary followed by search engine electronic database. Machine interpreting systems and terminology management software were the least used tools.

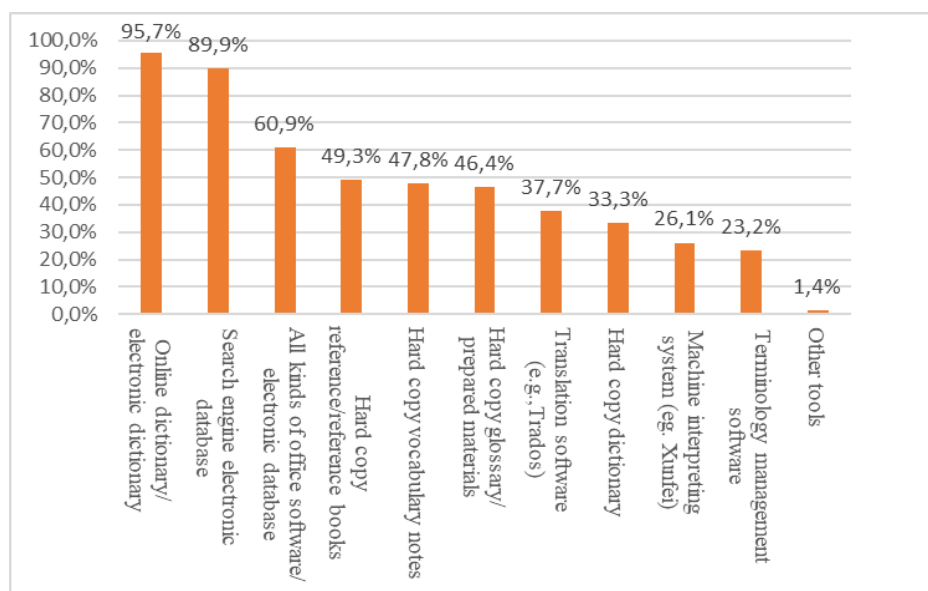


Figure 1. Pre-interpreting tools

Due to the immediacy of interpreting, the tools interpreters and trainers have used during interpreting (Q8) are search engine electronic/online dictionary (65.2%) followed by hard copy note pad and pen (58.0%) (if time permitted) as shown in Figure 2. 53.6 percent of the respondents chose electronic terminology database/data bank, whereas quite a handful of the respondents (17.4%) still used the traditional hard copy dictionary during interpreting.

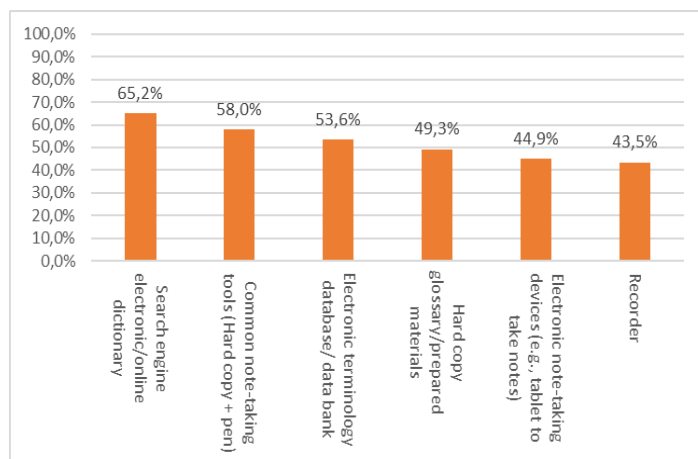


Figure 2. Tools used during interpreting

Figure 3 shows that comparatively fewer CAI tools are used in post-interpreting review (Q9) with a percentage as high as about a half of respondents still using hard copy notes instead of terminology management tools. Interestingly enough, 21 trainers (60.0%) claimed to use voice recognition software in interpreting follow-up activities albeit possibly for pedagogical or academic purpose, e.g., using voice recognition software to transcribe students' and/or professionals' interpretation and build an interpreting corpus for providing students with feedback about their strengths and weaknesses.

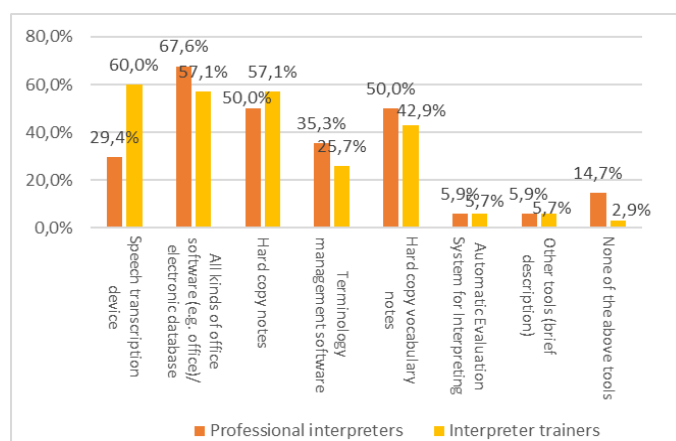


Figure 3. Post-interpreting tool use



Questions (10-14) disclose the reasons behind the low frequency of CAI tool usage. Answers to Q11 shown in Figure 4 indicate that 28 professional interpreters and 18 interpreter trainers (66.7%) have no proper relevant modules or training on CAI tools while barely 10.1 % of all respondents (1 professional interpreters and 6 interpreter trainers) make reference to some lecture or workshops but somehow missed. 5 professional interpreters and 11 interpreter trainers (23.2%) in total reported attending some formal modules of CAI tools provided at the university or in the organization.

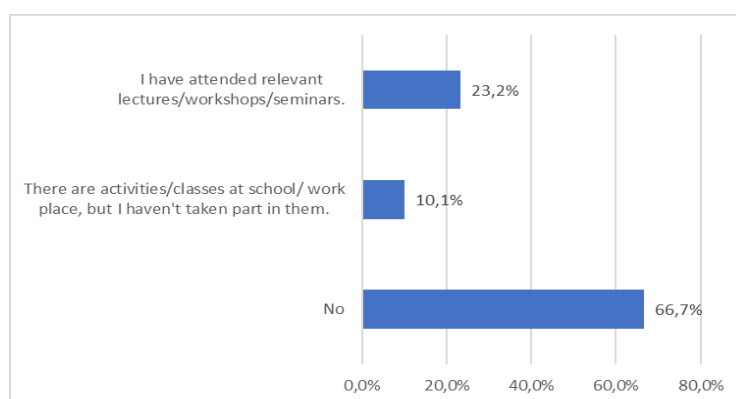


Figure 4. CAI training/course offered by school or workplace

With regard to the self-learning of CAI tools, Figure 5 shows that only 2.9% of interpreters and trainers claimed to have adequate knowledge of CAI tools. 30 professional interpreters and trainers (43.5%) have never learned CAI tools by themselves.

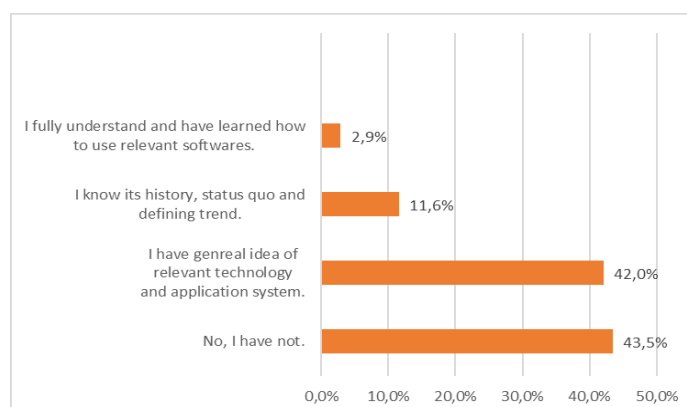


Figure 5. Self-taught CAI tools (Q12)

Echoing the question about CAI tools literacy (Q5), Q13 specifically asked about the prior use of CAI tools. As is seen from Figure 6, 8.7% of the professional interpreters and trainers have never used or heard of CAI tools. 50.7% of them reportedly have heard of CAI tools but have never used CAI before, during and after interpreting practice or assignment, which will be further discussed in Section 5. Most of the respondents have tried CAI tools for no more than 10 minutes, if any.

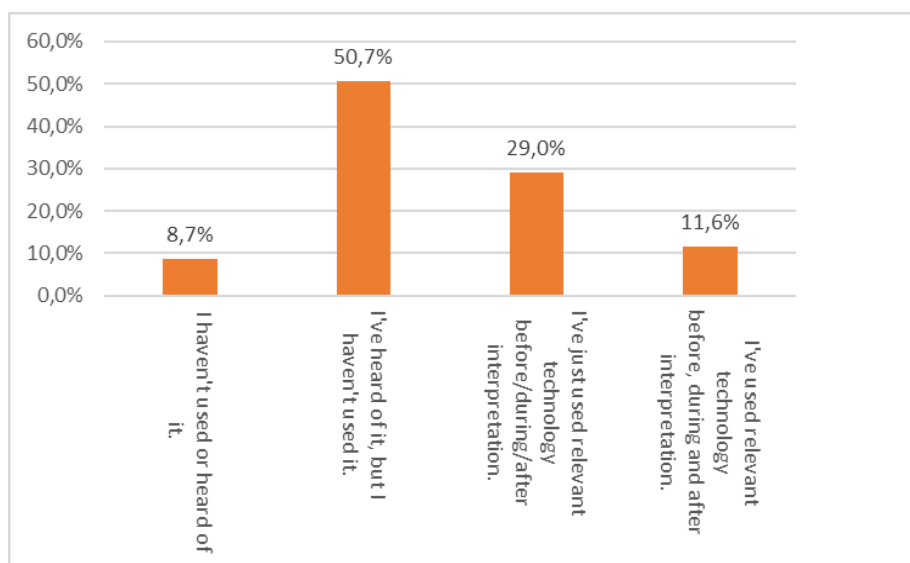


Figure 6. Prior experience of CAI tools

#### 4.3. Question Block III User Feedback (Q15-23) Results

Questions in Block III depict user feedback on the application of CAI in practice. Regarding the assistance of CAI in practice, Figure 7 shows a complete array of help CAI tools could provide (Q15). It is perceived that CAI tools could best help with technical terms, followed by help with figures shared by professional interpreters and trainers.

Perceptions of CAI tools in English/Chinese interpreting practice

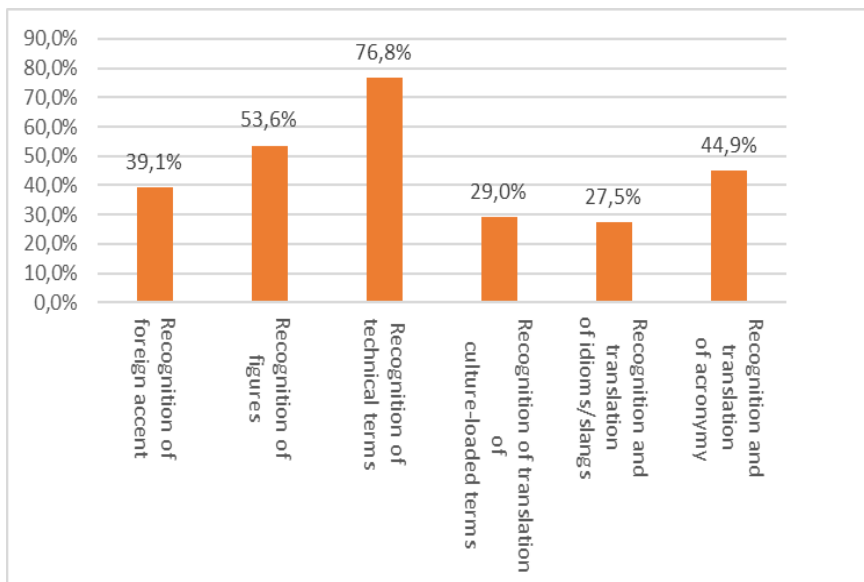


Figure 7. Perceived Help from CAI Tools (Q15)

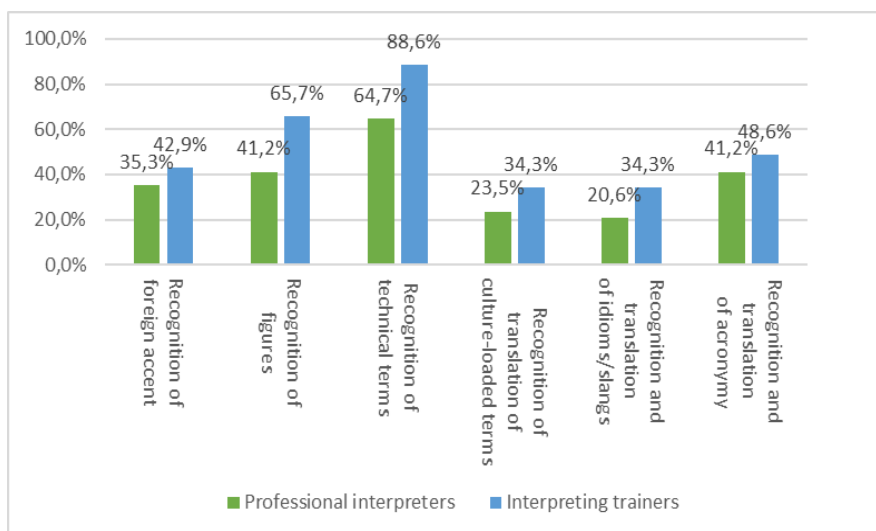


Figure 8. Perceived Help from CAI Tools

But if we break out the respondents into the group of interpreters and the group of trainers, we can see slight differences (Figure 8). Though CAI tools

for the time being cannot do much with foreign accent nor cultural-loaded terms, still quite a few respondents claim that CAI could help with foreign accent (12 professional interpreters (35.3%) and 15 interpreter trainers (42.9%)) and cultural-loaded terms (8 professional interpreters (23.5%) and 12 interpreter trainers (34.3%)). This also shows that CAI tools are still not very well known among interpreting community.

Responses to Q 16 (Figure 9) show the perceived help from CAI tools with regard to the directionality.

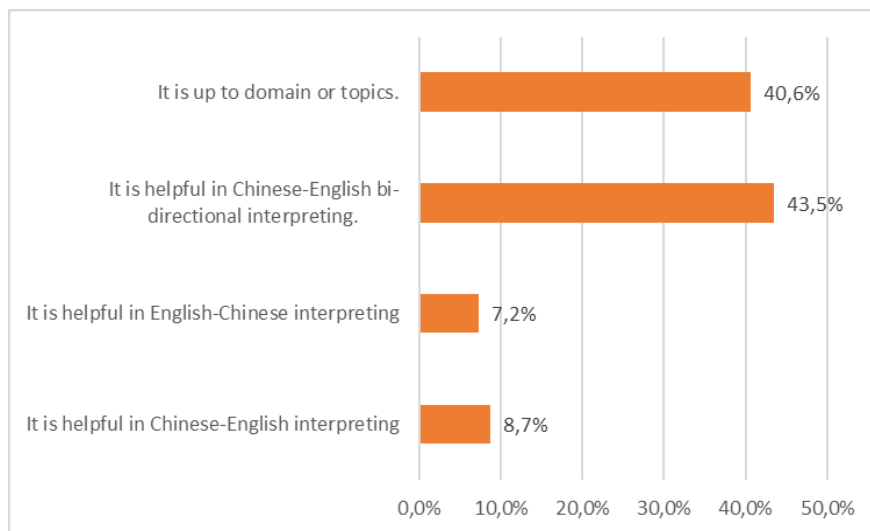


Figure 9. Perceived help from CAI tools in terms of Directionality

Figure 9 indicates that 40.6% of professional interpreters and trainers surveyed claimed that the extent to which CAI provides assistance is up to interpreting domains. 43.5% of the respondents agree that CAI helps with both directions.

Perceptions of CAI tools in English/Chinese interpreting practice

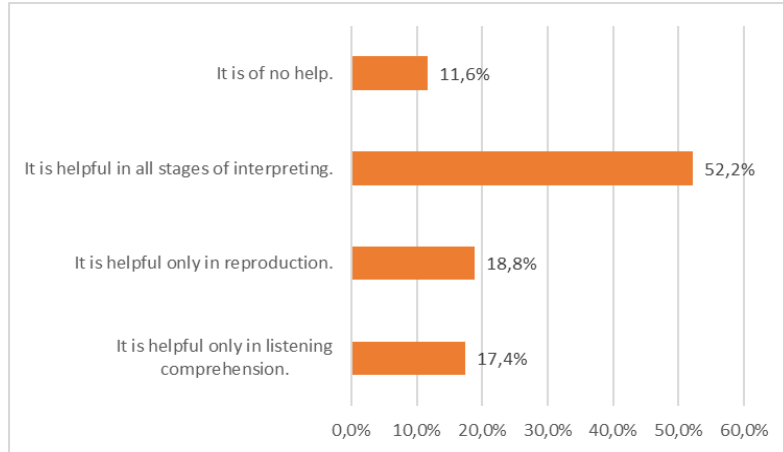


Figure 10. Perceived help from CAI in terms of process

Figure 10 gathers the opinions of respondents on CAI tool help at different stages of interpreting (Q 17). While 68.4% of respondents think CAI tools help throughout the interpreting process. Trainers seem to hold a more favorable attitude towards CAI tools as there are more trainers (68.6%) than interpreters (35.3%) think that CAI is helpful in all stages of interpreting.

Q 18 goes a little deeper to learn the perception of assistance provided by CAI tools among 8 different topics as is shown in Figure 11.

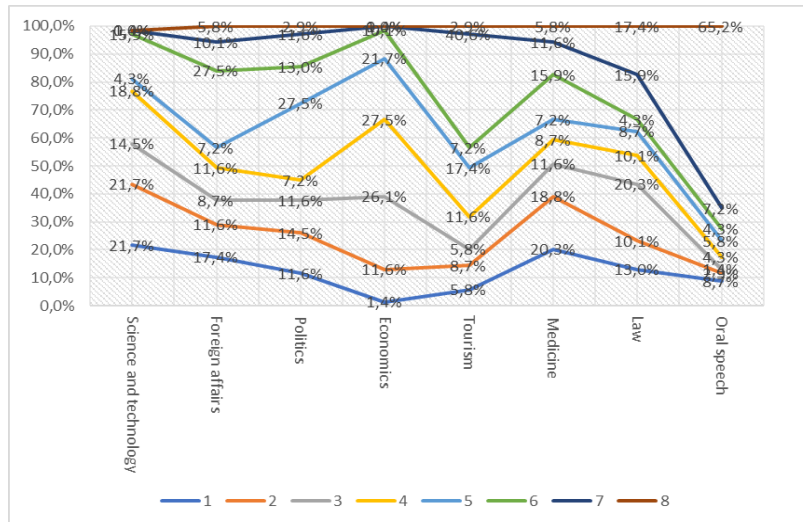


Figure 11. Ranking of the CAI's help among 8 Topics

Figure 11 indicates the perceived usefulness of CAI tools among 8 topics. The category Science and Technology with great difficulties in terminologies and specific knowledge background ranks the top whereas the category of Oral speech with natural redundancy and informal logic ranks last.

In Q 19 respondents were asked their comment on the statement “I am willing to use CAI tools in practice” (See Figure 12). A total of 20 professional interpreters (58.8%) and 27 of interpreter trainers (67.1%) were willing or very willing to use CAI while the rest were doubtful. And 4 professional interpreters (11.8%) were determined not to try it at all. Another finding was that, the Mean score of willingness of professional interpreters is lower than that of trainers, indicating that professional interpreters are less willing to use CAI during interpretation ( $M_p=3.68 < M_T=4.00^2$ ).

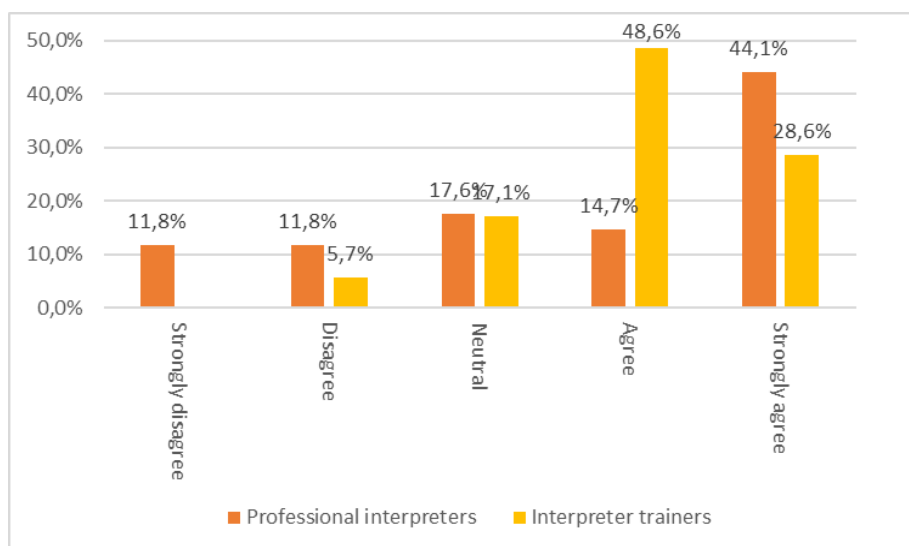


Figure 12. Willingness to use CAI tools during interpretation

Regarding what might drive or has driven them to try CAI (Q 20), Figure 13 shows that 52.2% of the two groups think CAI is the trend. A slightly smaller number of them hoped to see the real benefits of CAI, 53.6% of them confirmed CAI practicality, while 43.5% may try just out of curiosity.

<sup>2</sup> P refers to professional interpreters, S refers to student interpreters, and T refers to interpreter trainers.

However, the trendy nature of CAI was the most-frequently mentioned reason why interpreter trainers tried CAI. For professional interpreters, they were more interested in the practicality and convenience of CAI tools if not just out of curiosity.

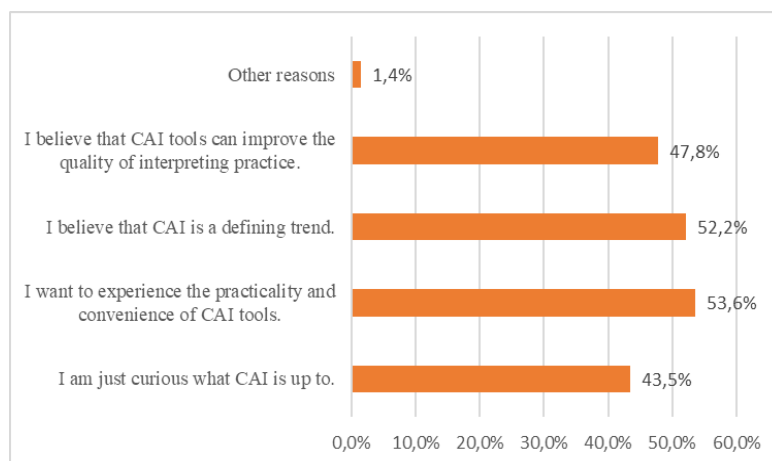


Figure 13. Reasons for using CAI tools

Specifically, the reasons for not using CAI tools (Q22) are displayed in Figure 14. Most respondents claimed that “CAI hinders interpreting performance (50.7%)” while over one third (37.7%) believed “there is no need to use CAI”. 11.6% of the respondents were determined not to use CAI tools without any specific reason.

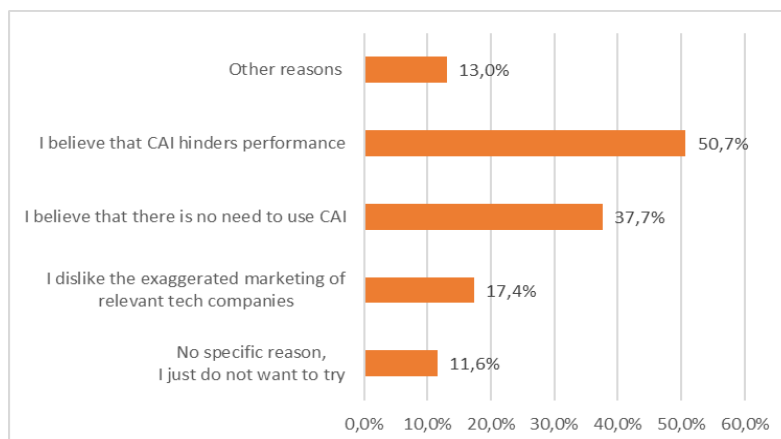


Figure 14. Reasons for not using CAI tools

Q 23 (Figure 15) goes deeper to investigate specific interference in using CAI. Most respondents complained about “recognition errors interfering with comprehension”(69.6%) and CAI “interfering with production”(53.6%).

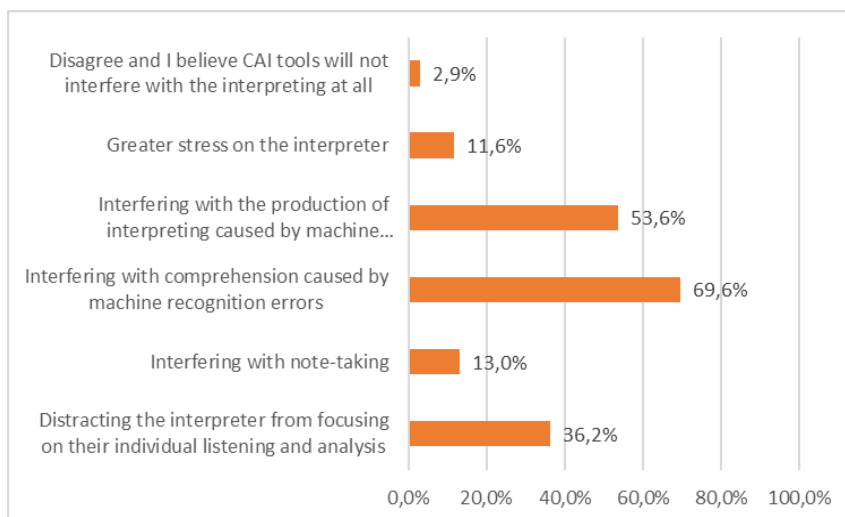


Figure 15. Interference resulting from CAI

*4.5. Question Block V: General impression Future prospect (24-27) and suggestions to R&D personnel (Q28-29) Results*

Regarding the future prospect of CAI in interpreting and interpreter education, Figure 16 presents answers to Q 24, the kinds of CAI training to be desired. The specific application of CAI tools is the most hankered item, followed by “operating mechanisms of CAI” and “the future development momentum of CAP”. As professional interpreters are in the fore front of the CAI application, their optimism toward CAI forebodes a bright future of the CAI tools.



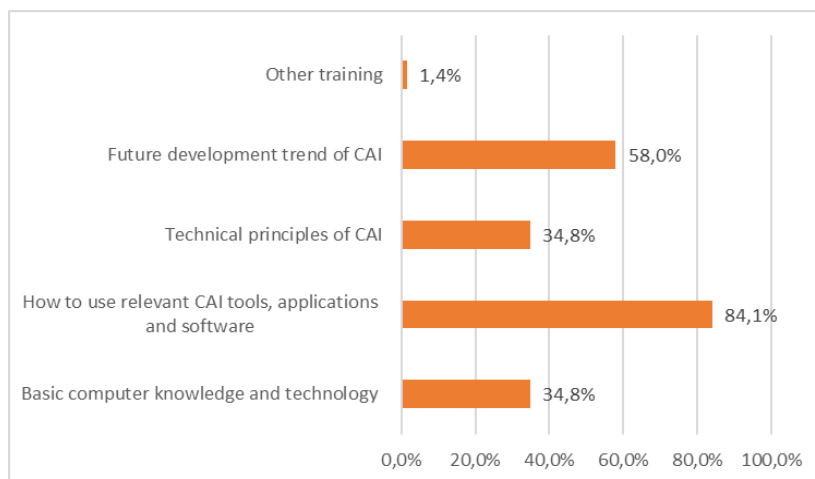


Figure 16. CAI tools training to be Desired

Q 26 is a Likert-type question which shows the respondent's agreement with the statement "I am anxious about the future of interpreting industry".

Although no significant difference was found between the two groups ( $p > 0.05$ ), interpreter trainers seem to show a more negative attitude towards the future of interpreting industry with 5 of them (14.3%) choosing "Agree" or "Strongly Agree" compared only 2 professional interpreters (5.9%) held the same attitude.

Regarding the future prospect of CAI tools. In total, 35.3% of professional interpreters (12) and 20.0% of interpreter trainers (7) are not anxious about interpreting jobs being taken by CAI and 2.9% of professional interpreters (1) and 5.7% of interpreter trainers (2) are very worried. 26.3% of professional interpreters (9) and 17.1% of interpreter trainers (13) claimed to be concerned as indicated by "Neutral". Figure 17 (Q 26) shows interpreter trainers tend to become more anxious about the future compared with professional interpreters.

Despite certain level of anxiety, most respondents would still choose the interpreting major if given a second chance (based on the Mean score of respondents' willingness to learn interpretation again ( $M_w^3 = 3.77$ )) given that

<sup>3</sup> W refers to willingness to take interpretation major if given a second choice.

CAI enhances the interpreting workflow rather than become a threat for human interpreters.

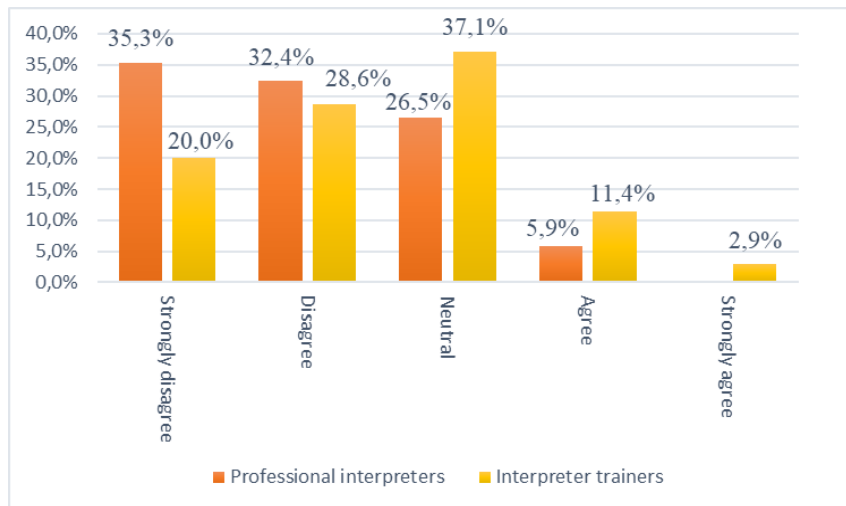


Figure 17. Anxiety about the future of interpreting

The question Q28 was a short-answer question soliciting respondents to further their impression of CAI tools while Q29 provided advice to R&D teams regarding CAI tools. Coding and categorizing these responses to open-ended questions was an opportunity to gain much deeper learning.

The raw data were cleaned and anonymized, then imported to Microsoft Excel for qualitative content analyses. The data was then inductively coded into four themes: *No opinion*; *Positive*; *Neutral*; *Negative*. To improve the credibility of coding, a prolonged engagement and member checking method was adopted. Three weeks after the initial coding, Coder A (the second author) re-coded thereby obtaining an intra-coder reliability of 100.0%—a suggestion that the coding decisions were identical over time. Meantime, Coder B (the first author) joined the coding process to double check and verify the coding of Coder A. The inter-coder reliability was 98%, indicating that over 95% of the coding decisions were identical between the coders.

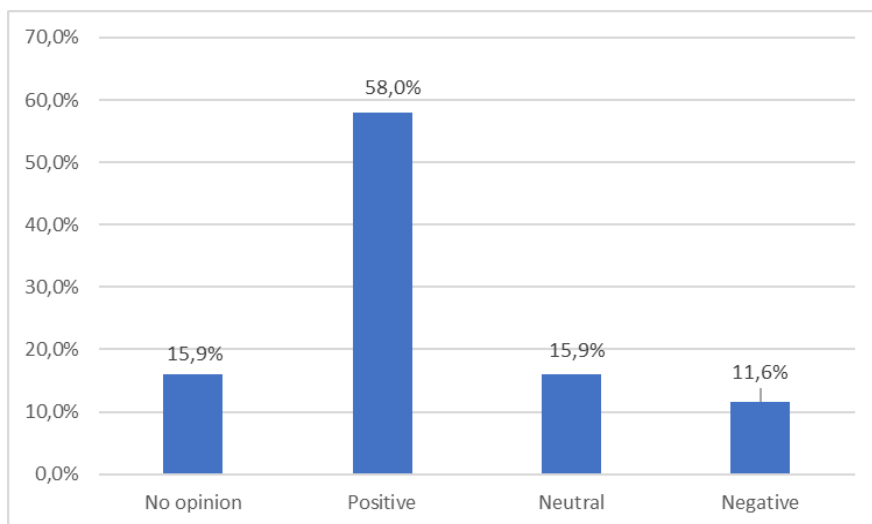


Figure 18. General perceptions of CAI Tools

Figure 18 shows a categorization of the opinion of the interpreting community regarding the development of CAI. First, most respondents pointed to the positive side of CAI essentially claiming that “CAI is a defining trend...CAI is quite promising and deserves introducing into real-life interpreting didactics.”<sup>4</sup> Their responses were annotated to Q15 thereby highlighting the benefits of improving interpretation quality by relieving the pressure of interpreters in memorizing terms, numbers and other de-contextualized items, improving target language quality, and fluency of delivery.

Second, some respondents expressed “No opinion” regarding CAI tool use (6 professional interpreters and 5 interpreter trainers) due to their unfamiliarity with the tools as shown in their responses to Q 5. They mostly “Disagree” to the statement that “I am familiar with CAI tools”.

Third, among the group that claimed “neutral” to CAI tool use, professional interpreters and trainers clearly indicated:

CAI is useful in collecting materials (i.e., preparation), but it interferes with the process of interpreting. Besides, I believe that CAI can only do well in term-

<sup>4</sup> Translated from “机辅口译是未来大势所趋”;“很有发展前景, 应该大力推广, 应该纳入课堂”.

packed technical domains like medical, chemical and legal subjects. However, CAI is lousy in non-technical fields<sup>5</sup>.

Fourth, interestingly, professional interpreters were more likely to contend that “CAI can only provide assistance and can never be as qualified as professional human interpreters in any field.”<sup>6</sup> Based on their experience of working with CAI tools, they pointed out that “CAI interferes with their listening and analysis” or that “CAI provides very limited help in the workflow given its low accuracy in speech recognition and the fact that more cognitive effort is demanded from interpreters”<sup>7</sup>. Only 1 interpreter trainer pointed to CAI’s assistance limited to certain domains. However, students in the group with a Negative Opinion sounded very general or even vague, pointing to the lack of accuracy in speech recognition or just asking for improvement.

As for suggestions to Research and Development professionals, respondents mainly mentioned two aspects. First, CAI tool companies should invest more on bigger corpora, terminology standardization in all fields, and higher accuracy of speech recognition.<sup>8</sup> Second, they should improve CAI tool publicity by cooperating with universities or offering affordable services<sup>9</sup>.

## 5. Discussion

### 5.1 Demographic information

The survey intended to reach more people within and beyond China with the language pairs of English and Chinese. 209 valid responses were retrieved including 10 respondents working abroad. Almost three fourths of

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<sup>5</sup> Translated from “机器口译在资料收集整理方面很好用。但是在口译过程中使用的话，会有干扰...机器口译只能处理固定模式的术语，适合医疗化工法律类的任务。但是语言灵活的时候就拖后腿了”。

<sup>6</sup> Translated from “机器只能是参考，关键是人”。

<sup>7</sup> Translated from“更多的是干扰听辨；机器辅助口译在译中目前只在转写阶段可以有用，且听辨速度和准确率较低，而且只能用于 Windows 系统，反而增加译员的压力”。

<sup>8</sup> Translated from“各领域的专业术语都需要分别统一规范，语料库就要大容量又要保证准确度”；“多丰富语料库；增大对语音识别的投入”。

<sup>9</sup> Translated from “收费便宜点，内测免费”，“在高校进行投放试点；真实宣传”。

respondents were female (73.7%); the great majority were students of MTI or were following a Translation Studies program (54.6%) from Mainland China especially in the more economically dynamic regions (i.e., cities of Yangtze River Delta in East China, 61.2%). This article focuses on responses from 34 professional interpreters who are directly linked with the market, accounting for 16.83% and 35 who chose to identify themselves as interpreter trainers with academic expertise (17.33%). Since the survey was based on non-probability sampling, the respondents may not represent the population adequately.

As the survey addresses the CAI tools literacy and demand among three different groups, demographic information as such doesn't show an equally distributed sampling, which understandably reflects the uniqueness of the community, lack of motivation and inaccessibility to a larger cohort of target population. The survey was not distributed through official channel due to the immediacy of the project deadline but through personal Wechat moment and personal professional network. However, despite these difficulties, this survey has got a holistic view of CAI tools among English-Chinese interpreters and trainers, which serves to echo the appeals from previous researchers of replicating and comparing with the European scenario. The non-probability sampling used here therefore requires that the survey results be looked at cautiously and placed in an appropriate perspective.

### *5.2 CAI Literacy and the demand for CAI in Training*

With the rapid development of machine interpreting technologies including voice recognition and neural machine translation, there has been a lot of fanfare about human interpreters being replaced by machines undermining the status of the profession. However, how and when that would happen remains unknown to most respondents who are also unsure of how they would coexist with machine solutions in the near future. In the survey of professional interpreters in 2007, only 21% of the respondents considered CAT very helpful, 36% thought it had very limited help, and 43% believed it was either not useful or were unsure about its usefulness (STTACAS & TRANSN, 2007). In the current survey, only 2.9% of the respondents claimed "knowing CAI tools very well." We have exemplified that the CAI tools discussed here are process-oriented CAI tools classified by Fantinuoli (2018) such as online/electronic dictionaries; search engine electronic databases; machine

interpreting systems; translation software (e.g. Trados, CAT, iFlyTek etc.); all kinds of office software/electronic databases; terminology management software.

Block II of the current survey also corroborates the result of the STTACAS and TRANSN (2007) indicating that the most frequently used tools before and during interpreting are still online dictionaries. The only tools used in specific circumstances during an assignment are bilingual dictionaries, glossaries and, in some cases, web-based resources. Simultaneous interpreters agree that in the booth there is “limited time for technology use”. Interestingly, terminology management tools such as Intragloss and InterpretBank (Prandi, 2020: 4), that are frequent subjects of discussion with regard to pre-interpreting preparation, have become unpopular in the Chinese-English interpreting community, partly due to the fact that these tools are not free-to-use nor platform-independent, which can be difficult for synchronisation when working with two operating systems” and has usability challenge (Liu, 2022: 5).

Instead, popular online search engines and translating software are Baidu, Youdao, Google and iFlyTek (Xunfei). This means the perceptions of CAI tools have unique geographical features so the present study is well justified. Though English-Chinese interpreters’ work still mainly relies upon traditional or manual methods, and the advances in information and communication technology have had “a marginal impact on interpreting” (Fantinuoli, 2018b: 154), there is no doubt that the evolution of this technology will have an impact in some areas of the profession and, more importantly, on the public perception of the activity performed by professional interpreters (Fantinuoli, 2018a: 7).

In an era of ever-accelerating technological advancement, the use of computers or other kinds of CAI tools inside and outside the booth has become part of the workflow of experienced interpreters to prepare ahead of time, check technical terms during live event and optimize workflows. There is, therefore, no doubt professional interpreters and trainers are in the forefront of the application of CAI tools and have the right say in commenting on the merits and demerit of the tools. Secondly interpreter trainers as the most important bridge between the interpreting market and the trainees, should better prepare students to meet the requirements of future jobs. They are obliged to know more about CAI tools and adjust themselves to suit the needs of the market.

With such a low CAI tools literacy, 69.6% of the respondents “agree” or “strongly agree” that CAI tools should be included in interpreter education. As

Fantinuoli (2018: 169) points out, if CAI tools consistently show overall positive effects on the interpreting products of both interpreting students and professionals, “there is no reason why advantages and shortcomings of their use should not be properly addressed in the training of future interpreters”.

### *5.3 User comment and CAI in interpreting training*

The first CAI tool prototype was created by Christoph Stoll in 1993 (Stoll, 2002), and the first publications on terminology management systems for interpreters can be dated back to the early 2000s. Most of the CAI tools focus on terminology management and knowledge extraction and have generated positive results despite the fact that “the success of these systems has been quite modest so far as they fail to achieve the goal of quality and usability even for the most basic real scenarios in which interpreting is needed” (Fantinuoli, 2018a: 6).

Technology may not be able to replace human interpreters in the future for reasons like “nuances, linguistic variation, non-verbal communication, accents, linguistic subtleties, emotion, understanding of the ‘between the lines’, flexibility of the human adaptation, decision-taking, reliability, culture, metaphors, intonation, irony, ambiguities, unpredictability, capability of judgment”(Ortiz & Cavallo, 2018: 24) . That is why in the English/Chinese scenario, most of the respondents pointed to the CAI assistance mainly in the science and technology domain. However, technology has always facilitated and, if harnessed well, will continue to facilitate human output. Respondents are right in calling for dedicated modules of CAI tools in interpreting curriculum, particularly in facilitating human-AI collaboration in specific interpreting tasks.

Regarding the training of CAI tools, among those 25 European universities Prandi (2020) surveyed, only some universities have integrated CAI tools in their curriculum and that “InterpretBank is the tool students are most often introduced to, followed by Interplex and Interpreter’s Help”. Here in the English-Chinese interpreting community, InterpretBank is seldom used due to usability issue and local versions of search engines and translation software are in use. Overall, despite the growing interest in this emerging field, there is still confusion and lack of information among trainers mistaking general technologies as computer-assisted interpreting tools or vice versa. The lack of

lecturers capable of teaching remains an important factor for those universities that have not integrated CAI tools in their curriculum. Unlike Prandi (2020), we did not survey China's 295 MTI programs as their official curriculum could be searched online if they had dedicated courses on CAI tools included in their curriculum. We wanted to investigate the use of CAI tools in specific training and practice even though not many universities worldwide offer a course specifically dedicated to CAI tools.

The status quo of CAI in interpreting training in China is not very optimistic. Only 2.9% of respondents claimed an adequate knowledge of CAI tools. In contrast, 50.7% of the respondents have never used CAI tools, albeit hearing of them. A meaningful 11.6% of respondents reported having used relevant technology before, during and after interpretation.

What does the figure mean to English-Chinese interpreter education? Comparatively speaking, student interpreters are showing the highest enthusiasm towards all aspects of CAI tools. Just as Prandi (2015) also highlights the potential risk for students of relying too heavily on such tools, one interpreter trainer in the current survey noted in particular that CAI tools should better be ushered in after the acquisition of interpreting skills.

Despite the growing interest, didactics of CAI tools in universities are influenced by the usability and effect of the tools on the professional market. Prandi (2020) noted trainers' expertise was a decisive factor for the integration of CAI in training. With curricula shaped before such tools were widespread, no wonder not many schools would integrate CAI in the teaching. For those students who claim adequate knowledge of CAI, the inclusion of CAI in training is largely left to the trainer's personal initiative, sometimes out of research purpose.

Professional interpreters are advised to embrace CAI to improve terminological output and efficiency. Human interpreters would not be replaced by AI; rather, they would be replaced by humans capable of working with AI. Interpreter trainers would be required to keep abreast of the new development and equip young professionals with the necessary CAI tools. Student interpreters are advised to stay clear-minded that CAI tools only serve as auxiliary to solid skills of interpreting and expertise.



### *6. Conclusions*

Our study was based on the hypothesis that CAI tools may have benefited English/Chinese interpreters and trainers and should also be integrated in interpreter training in order to better prepare trainees for the future market. The analysis of the survey shows that, there are mixed perception of CAI tools. Generally speaking, respondents are positive about CAI tools for their strength in interpreting preparation rather than during interpreting or thereafter. Compared with translators, English/Chinese interpreters and trainers are underserved by the existing CAI tools mainly due to the immediacy of interpreting jobs. Primarily, CAI tools help interpretation quality by facilitating the rapid retrieval of accurate terminology, reducing translation errors, optimizing workflows, and increasing productivity. However, interpreting communities working with Chinese and English appear not to have benefited from CAI tools as much as their European counterparts, the reasons of which are discussed in the analysis of the second question. However, the current survey shows an increased awareness of CAI tools in the interpreting community that is willing to try CAI tools during interpretation as long as the tools improve the workflow.

Secondly, CAI tools are relevant to the interpreters and trainers, but only in very limited spheres, for example, technical subjects including Science and technology, Economics, and Foreign affairs but not good enough in other fields. As Costa, Corpas and Durán (2014: 32) state: “There is an urgent need to develop technologies that automate the process, increase the productivity and ease the labour-intensive activities of an interpreter.” Efforts should be taken to address the needs of interpreters working in different modes (Pastor & Fern, 2016: 37) and continuously develop and perfect interpreting products including booth-friendly products in order to improve interpreters’ experience and output.

Thirdly, technological advanced may undermine the status of the interpreting profession as a whole, but we don’t need to worry too much about it. It is important that interpreters and trainers embrace technology and improve capacity building before the time machine interpreting will represent a potential threat to human interpreters. Trainers will look forward to developments in interpreter training that are “technology-based, rather than technology-driven” (Sandrelli & de Manuel Jerez, 2007: 292). Basic interpreting skills training including language enhancement should be prioritized at all times.

The following limitations should be considered when interpreting the findings as presented in this research. First, the CAI tools under discussion are process-oriented tools for the reason that differences about the setting-oriented CAI tools such as interpreting training software and systems will be evening out across the globe soon. Secondly, the study's coverage of Chinese-English Interpreting Community is not exhaustive as there are only 10 respondents from outside China's Mainland. More efforts should be taken to reach more people in the next project.

By the time the project was done, a new platform integrating several translation software has been initiated and tested for the benefits of improved recognition of the original discourse and better translation version in comparison all at the same time. More collaborated empirical studies are required to help generate enough data to help further develop booth-friendly CAL tools to achieve augmented simultaneous interpreting.

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