

Remote interpreting in public service settings: technology, perceptions and practice

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Abstract

Remote interpretation technology is developing extremely fast, enabling affordable and instant access to interpreting services worldwide. This paper focuses on the subjective perceptions of public service interpreters about the psychological and physical impact of using remote interpreting, and the effects on their own performance. To this end, a survey study has been conducted by means of an on-line questionnaire. Both structured and unstructured questions have been used to tap into interpreters' view on technology, elicit information about perceived effects, and identify pitfalls and prospects.

Keywords: public service interpreters, remote interpreting, technology, subjective perception, stress, survey.

1. Introduction

With the advent of new technology, interpreters can work remotely, deliver interpreting in different modes (consecutive, simultaneous, liaison, etc.) and contexts (conferences, courts, hospitals, etc.), on many devices (phones, tablets, laptops, etc.), and even manage bookings and invoice clients with ease. But, unlike translation, interpreting as a human activity has resisted complete automation for various reasons, such as fear, unawareness, communication complexities, lack of tools tailored to interpreters' needs, etc. This is particularly so within public services settings, where interaction, non-verbal communication and language paralinguistic information (emotion, emphasis, prominence and prosody) are of paramount importance, and ethics and confidentiality issues are at stake. While fully automated interpretation does not seem to be an option for public services, there is still some room for computer-mediated interpreting and human language technology applied to assisting interpreting at all phases.

Following Braun (2015: 352), remote interpreting (RI) “refers to the use of communication technologies to gain access to an interpreter in another room, building, town, city or country”. RI services can be delivered over the phone, by videoconference or through cloud-based systems (Amato 2017; Corpas Pastor 2018). Telephone interpreting is defined as a liaison interpreting mode carried out over the telephone (Andres and Falk 2009). Braun and Taylor (2012a) define videoconference interpreting as an interpreting mode used when the service provided is carried out between two places (e.g. court and prison) connected by videoconference, with the interpreter at one of the two locations. Currently, a wide range of technological solutions have been developed to satisfy the increasing demand for RI. Corpas Pastor (2018) presents a concise typology of such solutions that ranges from applications that can be installed on smartphones, PDAs, laptops to other types of cloud-based devices or platforms that can be easily accessed online. Boostlingo, Interprefy, KUDO, Olyusei,

WebSwitcher, Interactio, Webex, and ZipDx are some of the most used technological platforms in the market. These platforms have been designed to meet the needs of remote simultaneous interpreting (RSI), i.e. remote interpreting for conferences, seminars, workshops and other similar events.

RI is also closely associated with access to public services through community interpreters or public service interpreters, i.e., professional interpreters that specialise in the public sector (legal, health, education, government, and social services). This type of interpreting facilitates communication between people who cannot speak the official language(s) of a country (e.g. tourists, immigrants, refugees, asylum seekers, expatriates, etc.) and providers of public services in a variety of contexts in order to guarantee full and equal access to such services. In the words of Hale (2011: 343), public service interpreting (PSI) “is the type of interpreting that takes place between residents of a community. It is carried out in the context of the public services, where service users do not speak the majority language of the country”.

Since the beginning of the 20th century, technology has increasingly gained a foothold in various settings of (PSI): healthcare, courts, police stations, refugee and asylum seeker centres, education institutions, etc. (cfr. Hornberger 1996; Braun 2006; Masland et al. 2010; Amato 2017; Valero 2018). New technologies introduced to facilitate remote interpreting have assisted in the elimination of language barriers between community service providers and minority language speakers whilst reducing costs and increasing the interpreters’ availability (Mouzourakis 2006; Braun 2006; Andres and Falk 2009; Roziner and Shlesinger 2010). These new trends have contributed to meeting the increasing demand for public service interpreting and improving the cost-effectiveness of traditional on-site interpreting, whilst democratising access to such services that are often considered a legal and constitutional right. And yet, a pattern of rejection, fear and distrust can be seen among interpreters over a possible shift to remote interpretation (Donovan 2006).

This paper delves into the use of remote interpreting among public service interpreters and their views on how and to what extent this technology is impacting their daily work. To this end, a survey study has been conducted by means of an on-line questionnaire distributed to professional interpreters working in the public sector. The questions cover negative and positive aspects (e.g., stress, discomfort, productivity, motivation, etc.), as well as interpreters’ general view on technology, identification of pitfalls and prospects. The remainder of the paper is organised as follows: Section 2 reviews previous surveys and market’s studies that have dealt specifically with the remote modality. Sections 3-4 describe an observational, exploratory study that we have conducted with the aim of collecting information from professional interpreters who have worked at public services using remote interpreting. Section 4 includes the main findings of the survey and a discussion of our results. Finally, Section 5 concludes with a summary and a set of recommendations. To the best of our knowledge, this is one of the first studies remote public service interpreting that takes into account different possible impacts, settings and modalities with a primary focus on tapping into interpreters’ perceptions and optimising remote interpreting.

2. Previous surveys on remote interpreting practice

RI technology, and its psychological and physical effects on interpreters, has been the subject of reflection and academic debate. In what follows we will provide a brief overview of previous surveys conducted about interpreters' practice on remote settings. Related studies are clustered according to their focus or/and settings. First, general surveys on RI will be reviewed. Then, specific surveys on RI in the public sector will follow. When appropriate, interpreters' views will be dealt with separately from other interest groups, namely language service providers (mainly owners of interpreting companies) and clients/users.

The first studies about RI feasibility focused on conference interpreting carried out in high-level institutions. RI technology was initially limited to conference interpreting and it was essentially characterised by the isolation of the interpreters from the other communication parties: "In remote interpreting the conference participants are all in one location, while the team of interpreters is in another and watches and interprets the proceedings via video conferencing" (Andres and Falk 2009: 10).

More than four decades have passed since the first attempts were conducted to assess the feasibility of RI at UN institutional headquarters. In 1976, UNESCO led the first experiment during the Nairobi-Paris intergovernmental conference *Symphonie Satellite*, followed by the Buenos Aires-New York conference two years later. Since then, several RI assessment projects have been carried out: the Beaulieu Studio by the European Commission in 1995, the ISDN pilot study by the European Telecommunications Standards Institute in 1993, and other European Parliament studies carried out in 2000, 2001 and 2005. Moser-Mercer (2003) presents the results of the ITU study, a joint project between the International Telecommunication Union and the Faculty of Translation and Interpreting at the University of Geneva. The objectives of the ITU Project were to assess the feasibility and usage cost of RI during the International Telecommunication Union meetings as well as examine the impact of this interpreting modality on the quality of the service provided and how it would affect the interpreter. Participants were divided into two groups: a group of six interpreters rotating between on-site interpreting and RI and a reference group of six interpreters working on site only. The findings of the study show that RI produces more fatigue in the interpreter, negatively affecting the interpreting quality. Therefore, the study recommends guidelines to maintain a good quality interpreting in the remote mode: shorter interpreting shifts, analysis of the interpreters' visual needs during their work, and improvement of the technical assistance provided to the interpreters, etc.

Similar negative impact and views are reported by Mouzourakis (2006) in his review of several experiments on RI carried out at the United Nations and European Union institutions. The author concludes that the studies on remote simultaneous interpreting, conducted under various technical conditions, show a negative impact on both the physiological and psychological levels; interpreters who participated in such studies complained of physical problems when working remotely (eye irritation, neck and back pain, headaches, nausea), alongside other psychological or cognitive problems, such as loss of concentration, lack of motivation and feelings of alienation, among others.

Roziner and Shlesinger (2010) address the results of a large-scale empirical research carried out in 2004 by a multidisciplinary team recruited by the European Parliament's Directorate-General for Interpreting. The research focused on what the authors called "one-way simultaneous interpreting" at conferences or similar settings. The main objective behind the research was to assess the feasibility and implications of the use of RSI within the

European Parliament. This experiment involved 36 participants, all of whom were working as interpreters to the Parliament, either as in-house or freelance interpreters. Unlike the previous studies, the results obtained by Roziner and Schlesinger revealed little negative impacts of RSI on the interpreting quality and the professional performance of interpreters. These results also did not show significant alterations in the stress levels of the interpreters participating in the study. However, a significant psychological impact was recorded, as the interpreters reported a remarkable feeling of isolation and alienation when performing the interpretation remotely. Hence, the conclusions of the study advised, among other things, to rely on more technological support in order to minimise the negative effects of the use of RI and provide solutions tailored to interpreters' needs, individually computerised workstations and a user-friendly working environment.

Negative views on RI are also reported in a study by Baigorri-Jalón and Travieso Rodríguez (2017). The authors discuss results of a survey sent to three different United Nations duty stations (New York, Geneva, Vienna) at the end of 2010 and the beginning of 2011. A semi-structured questionnaire was designed to enquire into how external variables have altered UN interpreters' working conditions in recent years and how they have had an impact on the quality of their performance. A total of 32 full responses were received (out of over 200 potential respondents). The survey included some questions about RI, even though the use of RI at UN had been very limited so far. While interpreters show a negative view on RI, most negative perceptions are in fact related to on-site interpreting: "The dominant opinion among interpreters regarding remote is mostly negative. The default position is that remote poses all sorts of problems, which in situ does not, though most of the negative perceptions expressed by interpreters obviously refer to the latter." (Baigorri-Jalón and Travieso Rodríguez, 2017: 64-65).

In a different communication setting (in terms of speech duration, language regime, relay practice, etc.), Seeber et al. (2019) conducted a study that aimed at analysing the expectations and attitude of interpreters toward video remote conference interpreting during the 2014 FIFA World Cup. The methodology included the use of two questionnaires (before and after the event) plus a series of interviews during the event. 22 interpreters took part in the first survey, 21 of them were interviewed during the event and only 19 filled in the second questionnaire after the world cup. The findings of this study led to different results. The authors conclude that, although interpreters were initially apprehensive about using RI technology, and had rather negative views, after the experience they seemed to be generally satisfied with their own performance, so much so that they reported high psychological well-being. Moreover, they no longer perceived RI to be more stressful or to negatively affect their performance in comparison with on-site interpreting.

Although the technological development for RI was initially channelled towards simultaneous conference interpreting, these days the use of RI has broadened to include more remote modalities, such as simultaneous, consecutive or liaison, which is essentially the most commonly requested in public service settings. A number of survey-based studies has been conducted about the psychological and physical impacts of RI in public service interpreting. A relevant study is Saint-Louis et al (2003) on community interpreting in a healthcare setting. The authors focus on the evaluation of the most used interpreting modalities in healthcare settings. The project, funded by The Cambridge Health Alliance, USA, aimed to identify the advantages and disadvantages of four interpreting modalities (traditional/on-site, telephone, videoconference and remote simultaneous interpreting) that were being performed at Cambridge Hospital. The data were gathered through various collection methods (surveys,

interviews, electronic communications, etc.) from five groups involved in healthcare communication, with a total number of 44 participants (four managers, four doctors, three nurses, 28 patients and five interpreters). As regards remote services, the findings suggest that each mode of RI requires its own practice and specific knowledge. Although the traditional mode of on-site interpreting is still the preferred option, interpreters state that RI offers effective solutions in a healthcare setting. However, they point out that the use of remote interpreting via telephone or videoconference makes it difficult to understand and convey cultural aspects and non-verbal communication.

Other studies on PSI in judiciary institutions provided interesting data. According to Braun and Taylor (2012a, 2012b), RI has become a common practice in legal-judiciary settings, where the remote delivery of interpreting services (especially via videoconference) is conceived as a functional and practical technological solution to reduce costs and connect clients quickly and easily with qualified court interpreters, improving individuals' access to justice services. However, the authors also point out the controversy regarding some studies that dealt with the use of RI in such settings. They draw particular attention to a recurrent outcome – the discrepancy often observed between objective measures (such as interpreters' performance and reactions, stress levels, etc.) and individual perceptions of interpreters (i.e., the human factor). The authors state that such dysfunctions are also common in migration and similar settings. Against this background, Braun and Taylor (2012b) report the results of a survey of 166 legal interpreters, of whom 150 had done RI. In general, interpreters report greater levels of stress and fatigue in RI as opposed to on-site interpreting, but they provided a relatively positive assessment of their own performance.

The same ambivalence can be found in other survey-based studies. Devaux (2016) presents a survey which targeted three interpreters with work experience in PSI via videoconference. The respondents showed mixed feelings regarding remote interpreting via videoconference: on the one hand, the interpreters are aware of the RI advantages (such as cost reduction, more availability, etc.), but on the other hand, they admit that they may reject an assignment in the Administration of Justice precisely because of the difficulties (objective and subjective) that the remote mode entails.

In a similar vein, Albl-Mikasa and Eingrieber (2018) describe the initiative of Germany, Austria and Switzerland which aimed to facilitate PSI via videoconference in the wake of the refugee crisis. The authors present the findings of a survey conducted after the training courses given to interpreters as part of this initiative: 14 participants of a training course run in Germany, and 27 participants of three courses in Switzerland (41 total participants). The feedback provided by the surveyed interpreters showed both advantages and disadvantages about the use of RI. Some of the positive aspects relate to the advantages of working from home, saving time and money by not having to travel to the meeting venue. They cited technical and technological issues related to Internet connection, sound quality, service interruptions, etc., as the negative aspects. By and large, interpreters showed negative views on RI. However, the authors argue that good preparation, along with the training course the interpreters received on video-mediated interpreting (VMI) (or videoconference interpreting, VCI, in their terminology) had a very positive effect on the interpreters' perceptions regarding this kind of interpreting mode, whilst positively contributing to an increase in the degree of acceptance of VCI by both the interpreters and the users of the service.

The studies presented above represent interpreters' subjective perceptions of the impact of RI in their daily work. While the picture tends to be relatively negative, interpreters

also identify some benefits of delivering interpreting services remotely. But interpreters are not the only key players. Other stakeholders are client/users and language service providers (understood here as owners or managers of interpreting companies). One of the first market studies surveying RI was carried out by Veasyt (2018) across United Kingdom, Spain and Italy within the framework of the Shift Project¹. This survey focused on the identification of the RI users' needs. It involved 270 clients/users and 262 interpreters and language service providers. In general, clients prefer RI for various reasons: immediate response, short interpreting services, confidentiality and safety issues, cost-effectiveness and greater availability of interpreters (especially in the case of languages of lesser diffusion). Over 50% of clients come from the public sector. As to the interpreters working in remote mode, 95% are freelancers and work for commercial business, health and social services, and, more rarely, in conference. 55% of the respondents prefer traditional on-site interpreting mode rather than phone-mediated (25%) or video-mediated interpreting (15%), the latter shows a higher growth potential than the other modes.

In a very recent study, Pielmeier and O'Mara (2020) report results from a large-scale survey of over 7,000 experienced translators and interpreters from all corners of the world that either work as freelancers or in-house at language service providers (LSPs) or buy-side companies. The authors do not indicate the exact number of interpreters participating in the survey. Out of the pool of interpreters who responded, 12% work in-person only and 1% work remotely only (telephone interpreting, videoconference interpreting and remote simultaneous interpreting, in descending order). A clear conclusion from this study is that most respondents prefer to interpret in person: 79% of them prefer in-person interpreting over remote modalities. An overwhelming percentage (74%) misses in-person interactions, among other reasons. However, remote interpreting has the advantage of increasing availability and productivity (64% claim that they can handle more assignments when they interpret remotely), and it is perceived as positively challenging.

Finally, the studies reviewed in this section show commonalities among interest groups. For instance, users/clients and interpreters both complain about the quality of the technical equipment and the discomfort experienced in this mode. Thus, the poor sound quality and technical problems of the equipment have been highlighted as a negative aspect. Moreover, having to use telephone or videoconference equipment was deemed rather an inconvenience, comparing to traditional on-site interpreting. Regarding the advantages of RI, the three groups highlighted the cost effectiveness and ease of access to such service. The interpreters appreciate the fact that they would not need to travel to the venue where the meeting will be taking place, which would then be reflected in time and expense savings, more availability and higher productivity. Interpreting service providers considered the great value obtained by RI technology which allowed them to offer a faster and more affordable service to their clients, i.e. fewer costs and more profits. Clients/users also mentioned the immediacy of this interpreting mode, together with the feeling of increased privacy and confidentiality when compared to on-site interpreting.

3. Survey design and data collection

Related work reviewed in Section 2 report various impacts of RI technology over interpreters. This set of prospective, recurrently identified effects, plus the alleged benefits or shortcomings already identified in the literature, have shaped the structure and aims of our study on the impact of RI technology on public service interpreters' perceptions and practice. The starting point of this research is a user survey on remote interpreting distributed among professional interpreters working in the public sector. This method of identification of user needs was chosen for two main reasons. First, our task consisted in covering a broad range of settings, interpreters' profiles and remote modalities. Secondly, the survey method allowed us to obtain and analyse both quantitative and qualitative data, which can contribute to validating or revisiting findings of other studies, answer previously formulated claims and research questions, as well as bring in new ideas from the participant's replies. In this respect, this paper is an observational study, mostly heuristic, since the survey we launched, although based on hypothesis derived from previous research (see Section 2), generates new opinions originating directly from the users.

The survey² was designed using LimeSurvey, an online questionnaire based on an e-building tool³. It contained 25 questions, of both structured (closed-ended) and unstructured (open-ended) types. Open-ended questions were kept to a minimum and used mostly as sub-questions driven by critical responses to a given structured question. The survey was composed of separate sections, where the first section concerns the user profile, the second section includes questions on RI professional practice, and the rest of the sections are focused on specific aspects related to RI, such as psychological and physical impact of using remote technology to deliver the interpretation service, types of technologies used by public service interpreters, and a last open-ended question designed to collect comments and suggestions with an exploratory aim. As an essential step in the questionnaire design process, a pilot test was conducted, and the preliminary results were reported in Gaber and Corpas Pastor (2019).

The link to the online questionnaire was distributed through interpreting companies, accredited interpreters and freelancers, mailing lists and social media groups for interpreters, interpretation blogs and interpreter's associations. The distribution list included more than 30 target groups, apart from individual contacts. For lack of space, we will mention just a few, such as AIIC, Asetrad, AUSIT, NRPSI, CTTIC, APTIJ, CIOL, ATIO, among others. One of the challenges during this stage was to attract enough participants in order to obtain representative results. Most studies surveying interpreters specifically tend to receive very few responses, as seen in the studies presented in Section 2. Out of the 82 responses received, 42 were incomplete. With a total number of 56 questionnaires completed and returned by respondents, our study is the second largest, after Braun and Taylor's (2012b), with 150 remote interpreters. Compare the number of participants of other surveys discussed in Section 2: 41 (Albl-Mikasa and Eingrieger 2018), 36 (Rozinger and Schlesinger 2010), 32 (Baigorri-Jalón and Traviño-Rodríguez 2017), 22 (Seeber et al. 2019), 5 (Saint-Louis 2003)⁴, and 3 (Devaux 2006).

The data collection method also involves gathering the demographic profile of respondents (age, years of experience, working languages, geographical provenance, education, sex). These aspects are covered in the first part of the survey. A large proportion of respondents (50%) are experienced interpreters: 28 out of 56 have more than 10 years of experience, followed by interpreters with 1-5 years of experience (28.578%), 5-10 years (16.07%) and less than one year (5.36%). Responses by age situate respondents mainly

within the ranges of 45-54 (28.57%), 35-44 (25%) and 25-34 (23.21%), followed by interpreters aged 55 or more (14.29%). Only 4 respondents within 18 and 24 years old filled in the questionnaire (7.14%), while one respondent chose not to answer this question. Responses by gender show an (in)balanced ratio of 69.64%-30.36%, which shows a predominance of female interpreters in public services (39-17).

All respondents have received some training in translation and interpreting, and the number of those who have completed bachelor, master and doctoral degrees in the field is high (82.13%: 20, 20 and 6, respectively). Regarding specific training on remote interpreting, most respondents have enrolled in some courses, mostly on telephone interpreting (46%), video-mediated interpreting (12%) and remote simultaneous interpreting (10%), although 32% of respondents declare not having received any specific training on remote interpreting.

As regards their geographical provenance, responses were received from nine countries and four continents: Spain (34), UK (7), Canada (3), Germany (3), China (2), Greece (2), USA (2), Switzerland (2), Italy (2), and United Arab Emirates (1). The higher rate of responses from Spain was expected, as this study has been conducted by researchers of a Spanish University and distributed to all interpreters' associations in Spain.

Responses by active languages (interpreter to and from by PSI) provide over 16 languages, listed here in alphabetical order and followed by their corresponding percentage: Arabic (8.93%), Bulgarian (3.57%), Chinese (8.93%), Dutch (5.36%), English (83.93%), French (28.57%), German (7.14%), Greek (35.71%), Italian (16.07%), Lithuanian (1.79%), Polish (5.36%), Portuguese (1.79%), Romanian (10.71%), Russian (5.36%), Spanish (16.07%), Ukrainian (7.14%), other (19.64%). The number of passive languages (only interpreted from) also cover over 14 languages: Arabic (7.14%), Bulgarian (5.36%), Chinese (1.79%), Dutch (3.57%), English (48.21%), French (28.57%), Greek (28.57%), Italian (3.57%), Lithuanian (1.79%), Polish (1.79%), Portuguese (5.36%), Spanish (14.29%), Russian (14.29%), Ukrainian (7.14%), and other (14.29%). English, Greek, Spanish and Russian are the most frequent interpreted languages, although the high percentages for other languages is indicative of a larger number of active and passive languages interpreted in the public service sector.⁵

4. Survey results and discussion

This section summarises the main findings of our study, plus an explanation and our interpretation of the survey results. We will cover remote interpretation modes and public service settings (second part of the survey), as well interpreters' perceptions of the impact of the remote modality (third part of the survey) and their views on technologies in remote interpreting (fourth part of the survey).

When it comes to the remote modalities practiced by public sector interpreters, most respondents do telephone-mediated interpreting (TMI: 91.07%), followed at a distance by video-mediated interpreting (VMI: 35.71%) and remote simultaneous interpreting (RSI: 21.43%). See Figure 1.

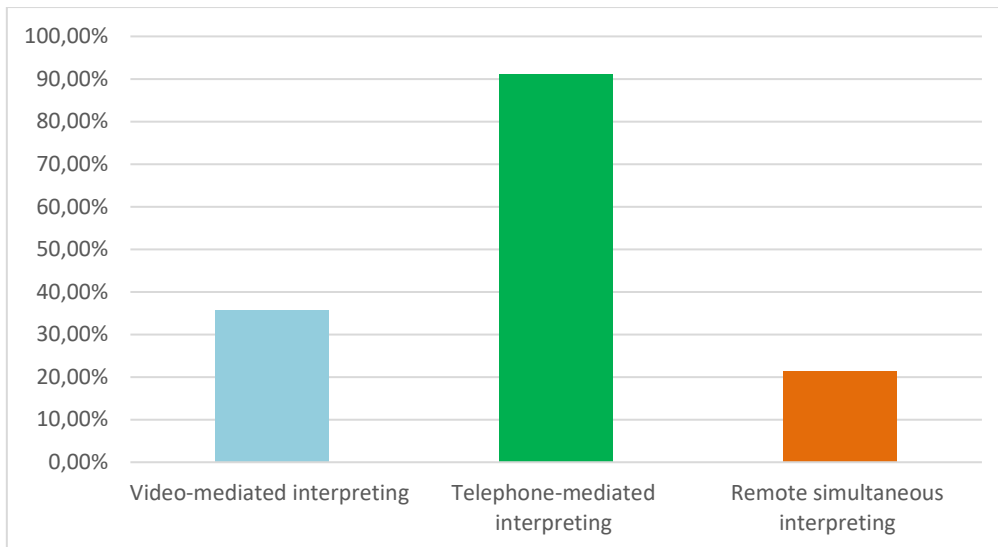


Figure 1 Remote interpretation modes practiced by public service interpreters.

The results in Figure 1 are corroborated by data on the frequency of use of the three modalities, as seen in Table 1. While TMI appears in top positions and VMI lies somewhat in the middle, 67.86% of interpreters admit they have never used RSI.

Frequency of use	TMI	VMI	RSI
1 Never used	8.93%	50.00%	67.86%
2	16.07%	28.57%	12.50%
3	12.50%	14.29%	8.93%
4	21.43%	3.57%	7.14%
5 Very frequently	41.07%	3.57%	3.57%

Table 1 Frequency of use of RI modalities

Concerning the settings in which remote interpretation is performed, the percentages, in descending order, are as follows (see Figure 2): healthcare (71.43%); social and administrative (64.29%); legal and judiciary (58.93%); police stations (53.57%); educational centres (37.50%); and others (21.43%). Multiple answers were allowed for this question.

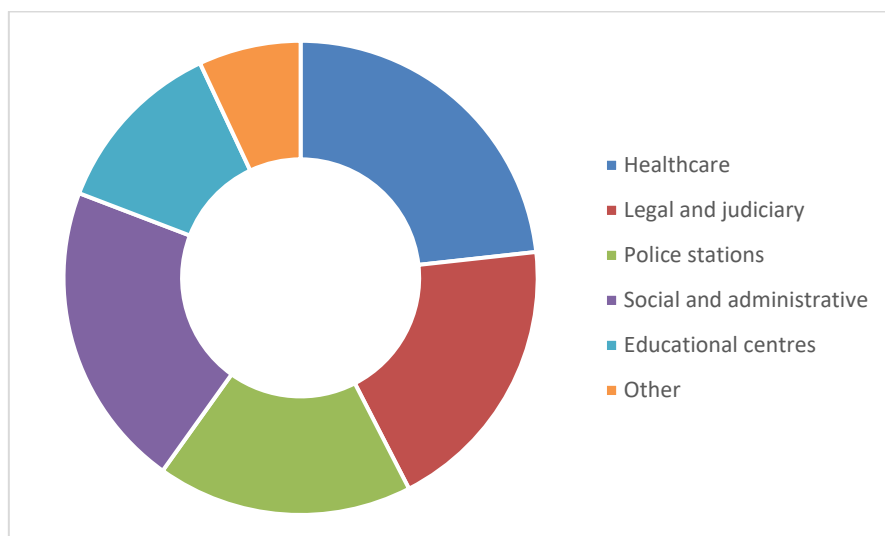


Figure 2 Public service settings within remote interpreting

The third part of the survey was devoted to ascertaining the interpreters' perceptions on the impact of the remote modality in their daily work, their views of technology used when delivering interpretations remotely, and ideas and suggestions for improvement. Questions were designed to dig in the perceived impact of using remote technology to deliver the interpretation service. Respondents were asked to complete the following statement: "The use of remote interpreting technology causes..." by means of a multiple-choice structured question, in which multiple answers were allowed. The list of items covered aspects of productivity and work conditions, emotional and physical states identified in the literature (both positive and negative), as well as the option to choose not having felt any impact or effect.

As Figure 3 shows, all positive options have a higher percentage than negative aspects, except for stress (37.84%). In general, public service interpreters seem to have a favourable attitude. The use of remote technology is perceived as a convenient means to increase interpreters' availability (51.85%), to make the delivery experience more comfortable (37.84%), and to boost their motivation (27.03%) and productivity (21.62%). On a negative note, stress singles out as the main disadvantage perceived by interpreters (37.84%), followed closely by discomfort (23.21%) and fatigue (21.43%). Other negative effects are mentioned, although the percentages are relatively low in comparison with the perceived benefits: feelings of isolation and alienation (16.07%), exhaustion (14.29%), poor concentration (10.71%), eye strain (7.14%) and nausea (1.79%). Only 3.57% of respondents did not feel any difference in delivering the interpretation remotely as compared to on-site.

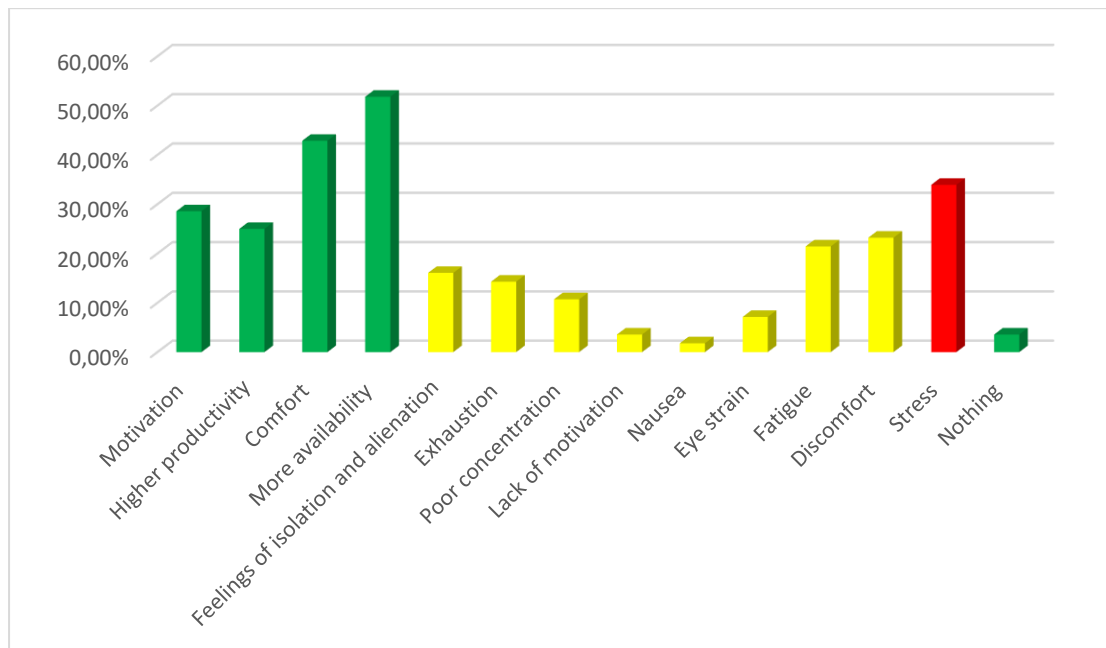


Figure 3 Public service interpreters' perceptions of the impact of remote technology

The effects listed above were identified from previous studies on the impact of RI technologies, as explained at the beginning of this section. The resulting list was by no means exhaustive. For this reason, another open-ended question was included in the questionnaire. We asked respondents to specify whether the use of remote interpreting technology had any other impact on them (psychological or physical, positive or negative).

Interestingly enough, most answers mentioned negative effects already listed before (stress, exhaustion, discomfort, eye strain, isolation), or new effects, related to a certain extent to the initial list: headache, discouragement, profit loss, insecurity, impotence, frustration, communication impairment due to distraction, displacement, lack of paralinguistic information, lack of a suitable partner, and technical or connection problems. Some positive effects were also mentioned, such as saving time and avoiding fatigue, experiencing a more comfortable work environment or boosting one's self-esteem. Costs reduction was also mentioned, but mainly in relation to companies and big organisations, not to interpreters themselves. In fact, it was mentioned that interpreters could get paid less if interpreting remotely and there were some concerns about pricing of remote platforms. Finally, one respondent insisted in not having experienced any kind of effect, and another one mentioned having perceived both a positive and a negative impact. Below is a selection of the feedback received, where Pn is the respondent's ID generated automatically by LimeSurvey:

P15: *A kind of insecurity in cases where body language is not visible (telephone interpreting).* (Translated by the authors).

P16: *Rather negative. [I] prefer to be in the same space with the clients.*

P41: *Sometimes discouragement, because they pay less for the service if it is over-the-phone (Canada).*

P44: *Feeling of time difference (a kind of jet lag). Lack of suitable team work (partner is not around). Headache (very low frequency). Eye strained (for looking at the screen all the time).*

P44: *Remote SI tires more the interpreters. The only benefits are for the public institutions on big savings. The low frequency humming damages the brain. Risk of system crash (no matter how great your equipment can be, the internet connection can crash due to weather). Personally, this RSI is very bad for the interpreters.*

P46: *In general, negative. I find it stressful and uncomfortable to hear badly (almost always), to have to ask again and again for what has already been said, to have to repeatedly ask the client to speak slowly and clearly, etc. When it comes to community services or similar, the headset is passed over (or not) without me being able to know exactly when that happens, when they stop talking, etc. And even worse, they are often stressful situations (drunk people, medicated patients who don't understand or don't answer clearly, destitute people who don't understand or show that they don't understand the questions asked) so, in general, my feeling, is it's like offering an interpreting service that is worse than mediocre. That feeling usually lasts for hours.* (Translated by the authors).

P51: *Impotence (in certain situations).*

P57: *Stress about the fact that my own home/office/environment is on show, because at times there might be noises at my end that I cannot do anything about (fire alarms, neighbours).*

P57: *Boosts my self-esteem to be able to provide services in the comfort of my own hours and home.*

P58: *In particular a video-mediated technology, creates additional communication barrier (the use of interpreting being a language barrier already), and therefore additional strain on the interpreter in producing a high level of service. Personally (especially having previous bad experiences in that area) I would only want to use this media for interpreting if the technical quality of both sound and vision are of a very high standard, i.e. causing minimal disturbance to the communication process. As widely known, from family Skype conversations and similar, the video call is most of the time a more difficult means of communication, when involving more than one person, compared for instance with the*

telephone call. Surprisingly, the presence of visual aid/screen poses additional distraction to the communication process and "dilutes" the focus of the meaningful conversation.

P59: It is a useful tool providing everyone knows how to manage it and the technical resources are adequate so that the interpreter can focus on the interpreting task itself.

Regarding the level of stress generated by each mode (see Table 1), responses indicate that the highest stress level felt by interpreters is particularly noticeable during VMI, more than TMI and RSI. However, the number of interpreters that declare not having experienced any stress when interpreting remotely is higher for TMI and VMI than for RSI.

Stress level perceived	TMI	VMI	RSI
1 No stress	32.14%	19.64%	14.29%
2	14.29%	8.93%	7.14%
3	14.29%	17.86%	14.29%
4	23.21%	10.71%	10.71%
5 Very high level of stress	8.93%	14.29%	8.93%

Table 2 Stress level perceived when using each RI modality

Figure 4 below shows a more detailed comparison of the average level of stress experienced in each modality:

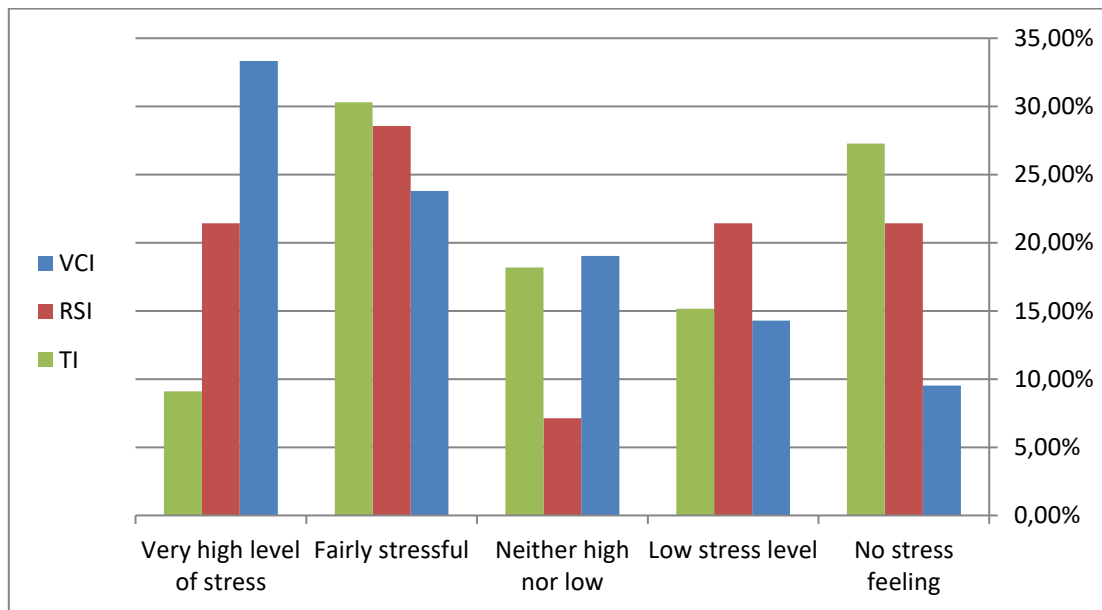


Figure 4 Perceived stress levels per remote modality

A Likert scale was used to tap into interpreters' opinions about the suitability of prior training on the modality of RI and the technologies used in order to avoid negative impacts. A majority of respondents deemed training as a valuable tool to overcome any negative side effects of using remote interpreting. The results percentages are as follows: strongly agree (37.50%); agree (19.22%); neither agree nor disagree (25%); disagree (10.71%); strongly disagree (7.14%). This can be expected since 68% of public service interpreters (68%) has had some formal training in the field (See Section 2).

The last part of the survey was directed at researching how public service interpreters relate to technology when working remotely, and their suggestions for improving the experience and/or optimising the technology. An unstructured question inquired into the type

of technological tools and resources used in remote interpreting at all phases (before, during and after a job assignment). Only two respondents provided comments differentiated by phases:

P15: *Before interpreting: I make use of online resources for documentation and preparation. During interpreting: I use a notepad and glossaries.* (Translated by the authors)

P82: *Before interpreting: I use the usual preparation tools. During interpreting: The client platform, terminology resources and some others. After interpreting: A computer to handle my bills.* (Translated by the authors).

Respondents tend to be equipped with a laptop or a desktop computer, notepads, tablets for note-taking, phone and headsets for telephone-mediated interpreting, mobile or smart phones, even recorders, and they usually have Internet connection. One respondent mentioned using the client's digital platform. As to their tools and resources, their choice was rather modest. One of the interpreters indicated time pressure as one possible reason:

P77: *"Most of assignments come with short notice, so there's no time for preparation. You have to solve everything out as you go along"*.

Some interpreters still use pen and paper, and their own printed dictionaries. But the majority prefers online dictionaries and glossaries, online documentation resources, Word processors to check glossaries, online communication tools (e.g. Skype), and a browser window to check possible doubts they may have while delivering the service. Only one respondent admitted to using machine translation (Google Translate), and another one said to use mainly terminology management tools.

When asked specifically what platform, application or software they use for interpreting, many respondents did not provide information. There are several possible reasons for this: (i) unstructured questions do not include a convenient list of items to simply choose from, therefore, they could get less replies; (ii) respondents are unaware or do not tend to use specific software for remote interpreting other than phones, notepads, tables or laptops; (iii) there was a previous question on tools and resources, and respondents may have found this particular question on platforms, applications and software rather redundant. In any case, from the responses obtained, mobile phones (11) were the most frequently used, followed by Skype (4), Zoom (2) and Google Hangouts (2). Others were mentioned just once: Cisco Jabber, Wechat, Interprefy, Byvox, VoiceBoxer, Teams, Jitsi Meet and TeamViewer (which is not software for RI, but Remote Desktop- and Screen-Sharing Software). Of all of them, only Interprefy and SAVD are cloud-based platforms for RI (mainly SRI, but also VMI and TMI); ByVox is an online platform for VMI and TMI and VoiceBoxer is a multilingual web platform for presentations, videoconferences and webinars. Recently, the Zoom cloud platform has been optimised to include RI features. The rest are simply multi-purpose videotelephone and online chat services (via Internet or through a cloud-based software platform) that are used for teleconferencing, telecommuting, distance education and social relations, among other possible uses.

A second question about RI platforms, applications and software was intended to tap into respondent's opinions about these technology solutions. Multi-purpose videotelephone and online chat services were well evaluated as regards quality and usefulness, although respondents said they felt "distanced" from the client, unable to establish eye contact nor read speaker's body language, and complained about connectivity disruptions or computer requirements. Mobile phones are highly viewed by respondents as very suitable, safe and comfortable, although they also point out some shortcomings regarding connection, coverage and sound quality. Among the RI platforms, Interprefy is considered to be "quite effective

and state of the art” (P88), SAVD also is said to work very effectively, although “problems come up if the customers don’t use it the right way” (P12), VoiceBoxer is said to present connections problems and high equipment requirements, while Byvox does not receive very flattering comments: “It's not always the appropriate medium. It doesn't always provide a good sound. There's still a lot to improve” (P77). One of the interpreters commented on the positive technical developments of RI platforms tailored to interpreters’ specific needs:

P71: *At the beginning, platforms did not offer any degree of comfort for interpreters because they have been designed by technicians without taking linguists’ opinions on board; but then we were consulted, we participated and our opinions were used to improve the tools.* (Translated by the authors).

The last question of the survey was intended to gather respondents’ suggestions and ideas to improve the use of RI technology in public services. Replies can be grouped around a number of key topics that could be seen to contribute to a less stressful and more comfortable experience: improving sound quality, creating better tools, ensuring good connectivity and coverage, incorporating image (cameras, video) for better communication (but also removing image in order to avoid communication impairment due to distraction), improving communication among interpreters’ mates/partners while delivering the service, and training of both interpreters and clients (the latter should be instructed in using the technology and providing enough contextual information). Another interesting finding is the fact that respondents also see room for improvement in raising awareness about public service interpreters or using more professional interpreters for the public sector. No wonder that training, along with improving sound quality, are perhaps the most frequent suggestions to reduce stress and enhance the remote interpreting experience. A selection of relevant answers follows:

P41: *To introduce it [remote interpreting technology] as a module in training courses.*

P46: *Improvement is highly needed for the aspects I mentioned as stressful [like the sound of technical equipment, the coordination of turns between speakers, informing the user of how to use the service].*

P59: *It would help if all users knew how to operate when video remote interpreting is being used, e.g. in a courtroom. Often it is awkward as other parties are not aware of interpreter's needs and leave no time to interpret everything, or the sound quality is poor and it makes it really hard to understand (this also apply to telephone interpreting, where absence of visual clues is also a compounding factor to the challenge).*

P60: *Clients need to introduce the setting. When I am accepting a call I have no idea where from that call originates: police custody or police officers responding to a report, hospital, surgery, council office - there is an element of uncertainty and surprise which could be avoided.*

P82: *Perhaps providing training to the non-interpreters that are going to use these technologies: make them aware of the challenges that interpreters face, so that they would be able to adapt themselves.* (Translated by the author).

P85: *The use of individual headsets with the client, if they use "hands-free" we're basically in trouble, especially if there are other people talking in the background.*

P87: *know-how related to technology - appropriate financing and training for officials - more awareness about professional interpretation.*

P96: *I think using reliable technology is key. As an interpreter I must be able to hear what the speakers say, to not have the line cut. Even better would be to use a video calling technology so that I can establish eye contact and read the speakers’ body language.*

However, if such platforms or softwares work poorly, instead of helping with my interpreting tasks, they turn the interpreting session into a nightmare.

P98: *Remote interpreting should be taught within a "technology for interpreters" module in all universities teaching interpretation. Unfortunately, most interpreters are technology illiterates, having trouble or being reluctant to use even simple tools as Whatsapp for communication (it has happened, indeed).*

The findings of our survey corroborate results of previous studies, contradict others and provide new insights into the field. Public service interpreters working remotely report similar shortcomings as other professional interpreters using RI: (a) physical and psychological discomfort (cf. Andres and Falk 2009; Mouzourakis 2006), mainly the latter in the case of PSI; (b) cognitive overload due to fatigue and lack of non-verbal communication (cf. Mouzourakis 2006); (c) greater complexity of multiparty communication (cf. Saint-Louis et al. 2003; Braun 2015); and (d) noise and other technical issues (cf. Saint-Louis et al. 2003). Public service interpreters' demands of more context, as revealed in our survey, correspond to the complaints of LSP about needing to spend more time in briefing interpreters to provide them with more context (Saint-Louis et al. 2003). The same applies to the generalised complaint among clients about the lower service quality of RI due to technical problems (Saint-Louis et al. 2003) and the lack of non-verbal communication (Saint-Louis et al. 2003; Andres and Falk 2009; Masland et al. 2010; Braun 2006; Veasyt 2018).

The advantages reported in our study are mainly economic and business-like in nature. Our findings are also in line with previous studies in which interpreters (and LSP) stress the fact that interpreting remotely results in more availability of interpreters and interpreting services (Saint-Louis et al. 2003; Braun 2006; Mouzourakis 2006; Andres and Falk 2009; Veasyt 2018), as well as a means to reducing time and costs (Hornberger et al. 1996; Saint-Louis et al. 2003, Mouzourakis 2006; Masland et al. 2010; Tripepi Winteringham 2010; Braun and Taylor 2012; Veasyt, 2018). Cost reduction has always been important in business. Interpreters consider increased productivity a benefit of using RI (Mouzourakis 2006; Andres and Falk 2009). LSPs also list related aspects, like immediacy the requested language service (Saint-Louis et al. 2003; Andres and Falk 2009), higher coverage for minority languages (Andres and Falk 2009; Braun and Taylor 2012), and increased speed and security in public service procedures (Braun and Taylor 2012). On their part, clients/users value the higher level of confidentiality and privacy provided by remote interpreting, besides easier and agile service access (Saint-Louis et al. 2003; Andres and Falk 2009; Masland et al. 2010).

Other results compatible with previous work are demographic data and remote modalities. The findings in our study indicate the predominance of female interpreters in the public sector. Our ratio (69.64%-30.36%) indicate an even higher gender (im)balance than the 60%-40% ratio reported by Baigorri-Jalón and Traviño-Rodríguez (2017) on UN conference interpreters working remotely. Responses by gender in our survey (39 women and 17 men) also confirm the feminisation trend within the profession in general (cf. Amato and Mead 2002), which seems to continue steady and strong. In addition, our findings corroborate the main remote modalities practiced by public service interpreters: mostly TMI, followed by VMI and SRI (cf. Veasyt 2018). Our data also coincide with Veasyt's (2018) market study in having the healthcare sector at the top. However, our studies differ as regards the other sectors. Veasyt (2018) only includes the social and administrative sector (second position after health), while our findings show the social and administrative sector in the fourth

position, after legal and judiciary and police stations, followed by educational centres and others.

A novel contribution of this study is the comparative approach to the perceived effects of remote modality by public service interpreters. Previous studies have focused on some effects only and/or they have not ranked identified effects in anyway. Our survey has included the effects mentioned in the literature and results have been ranked by frequency. Besides, our findings seem to suggest a different picture, as remote interpreting is viewed quite positively by public service interpreters in general. In descending order, the most valued benefits brought about by RI are more availability of interpreters to manage more jobs, in a more comfortable and productive working environment, which increases interpreters' motivation. Another factor to consider here is a plausible positive view of remote cultural mediation as a valuable strategy proving the quality of care of social services in a country. In any case, positive items outnumber any negative item, except for stress.

The central role of stress in almost all complaints about remote interpreting is a second contribution of our study. Perceived negative effects are mainly psychological in nature (stress, feelings of alienation, mental exhaustion, poor concentration and lack of motivation), but also physical, although most of them could also be considered somatic manifestations of anxiety and stress: e.g., discomfort, fatigue, eye strain, nausea. Our expanded list of perceived impacts and effects also include some more emotional- and stress-related negative symptoms (headache, discouragement, insecurity, impotence, frustration, distraction or displacement), as well as other issues more specifically related to how interpreters relate to technology, which can equally be considered stressors. Some common complaints are poor sound quality, connectivity failure, technical problems, on the one hand; and lack of context, lack of paralinguistic information, lack of suitable communication with partner interpreters and client's defective use of remote technology, on the other.

However, not all interpreters find RI modalities stressful in the same degree. For instance, a good number of respondents declared not feeling any stress when interpreting over the phone, followed in descending order by VMI and SRI. Related to this, another contribution of our study is the distinction of perceived stressed by remote modality, which situates VMI as the most stressful modality. This is a valid point when choosing what RI modality to use in the public sector. In light of the studies summarised in Section 2, TMI appears to be the most criticised interpreting mode. However, it could be a more optimal and effective solution than VMI, especially in the case of prompt consultations and short communications, as it normally involves lower levels of stress and enables interpreters to avoid all the technical adjustment issues: camera focusing, image quality, recording environment, and so on. Additionally, telephone interpreting provides utmost confidentiality and privacy (cf. Saint-Louis et al. 2003). As for RSI, which is perceived by public service interpreters as the most generalised stress-causing modality, its use seems less recommendable in the case of public services, where the interpreting settings differ from those of conference interpreting: in the latter the management of turn-taking follows an established and organised order and the communication is monologic, while in the former, the communication is dialogic, typically bidirectional and, as a rule, it is carried out in consecutive mode in both on-site and remote situations (cf. Wadensjö 1998).

A fourth contribution of this study is the involvement of public service interpreters in possible ways to optimise the technologies used for remote interpreting and how to improve the interpreting experience. Again, the solutions proposed have to do with (i) overcoming technical problems or failures that can disrupt communication and cause stress on

interpreters; or else (ii) with the training of interpreters so that they relate better with technology, which is in line with Albl-Mikasa and Eingrieber's (2018) and Kerreman et al. (2019). Finally, it should be noted in passing that public service interpreters working remotely also show a very low degree of tech-saviness (cf. Corpas Pastor 2018; Kerreman et al 2019).

5. Conclusion

In this paper we delve into the challenges posed by RI for public service interpreters. The survey findings helped us arrive at conclusions, from which we reformulated a set of recommendations. To the best of our knowledge, this is one of the first studies conducted on public service interpreters that takes different remote settings and modalities into account, with a primary focus on ascertaining their needs and perceptions in order to optimise remote interpreting technologies.

Among the most relevant findings of our study is the public service interpreters' positive attitude about the remote modality. Each and every one of the positive aspects reaches a higher percentage than any of the negative aspects, except for stress. Higher degrees of comfort, interpreters' availability and increased productivity are among the most frequent consequences mentioned. Interpreters are aware of the advantages provided by usage of RI technology, but they are still concerned about some aspects that either affect the quality of interpreting or increase the stress on the interpreter. Many of the negative psychological or physical impacts identified by interpreters in our survey are related to stress or could be considered stressors. Interpreters' suggestions as to how improve remote interpreting seem to gravitate around possible ways to manage or control stress levels while interpreting remotely. Beside solving technical issues that may impair communication, public service interpreters request specific training on language technologies applied to interpretation (both onsite and remote). Training is envisaged mainly for interpreters in the public sector, but also to other participants in the communication (clients and even LSPs). In this respect, an interesting topic for further research would be to study whether interpreters' subjective perceptions (e.g., stress) are associated with objective indicators (e.g., heart rate variability, MRI scans, measurements through sensors, etc.).

As to the different RI modes, it should be considered the technical requirements of each interpreting mode and setting and the different degrees of stress perceived by interpreters. TMI appears to be the most used mode in public services, even though it is the most questioned. While more public service interpreters feel relaxed and stress-free over the phone, TMI can turn into the most stressful one due to the lack of visual information and, consequently, the total absence of non-verbal language, among other reasons. And yet, TMI could be considered a more optimal and effective solution than VMI, especially in the case of prompt consultations and short communications. By contrast, TMI does not appear to be well suited for longer services or for meetings involving several people, complex or sensitive situations, as the lack of visual context in these situations may affect the communication flow, increase stress levels and compromise interpreters' performance. In this dialogic scenario, VMI could be a better option in the public sector, even though it is perceived as the remote modality that causes higher stress levels (possibly because of technical issues and

image control). RSI is less frequently used in public services, as evidenced by the number of practitioners (scarcely over 20%) and the limited choice of RSI platforms mentioned by respondents in the survey.

RI has become a reality that requires the adaptation of all the parties and tools involved: interpreters, users, service providers and technological equipment used. It would be necessary to go deeper into the preferences and perspectives of each of them, separately, and in relation to the different modalities, scenarios and settings. This would be especially timely in today's situation and in a future post-pandemic world, where displaced and remote multilingual communication will probably be in place.

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Notes:

¹ <http://www.shiftinorality.eu>.

² The questionnaire was distributed online via the following link: <http://lexytrad.es/limesurvey/index.php/714764?lang=en>. A Spanish version was also available for better coverage and distribution (<http://lexytrad.es/limesurvey/index.php/714764?lang=es>).

³ <https://www.limesurvey.org/>.

⁴ In this survey, only 5 out of 44 responses received came from interpreters. The rest were completed by other users' groups (doctors, patients, managers, etc.).

⁵ Data for passive languages should be taken with caution, as some respondents may not have understood that this was a different question. For instance, the percentages for Lithuanian and Ukrainian, whether active or passive languages, are the same.

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