STATE OF NEW JERSEY, Plaintiff-Respondent, v. **OSCAR R. JURACAN-JURACAN,** Defendant-Appellant.	**Supreme Court of New Jersey** **Docket No.: 087849** CRIMINAL ACTION On Appeal from an Order of the Superior Court of New Jersey, Appellate Division Sat Below: Hon. Mary Gibbons Whipple, J.AD., and Hon Joseph L. Marczyk, J.A.D.

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Farrin R. Anello (267082019)
Alexander Shalom (021162004)
Jeanne LoCicero (024052000)
American Civil Liberties Union
of New Jersey Foundation
P.O. Box 32159
570 Broad Street, 11th Floor
Newark, New Jersey 07102
(973) 854-1713
fanello@aclu-nj.org

Counsel for amici curiae

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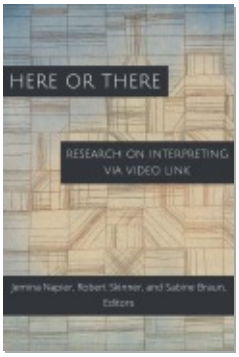

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Interpreting via Video Link:

Mapping of the Field

Robert Skinner, Jemina Napier, and Sabine Braun

This special volume, *Here or There: Research on Interpreting via Video Link*, aims to bring together a collection of international research on remote interpreting mediated by an audio-video link, covering both spoken language and sign language interpreting experiences. Much remains to be learned in the way we define and describe the needs of all stakeholders when interpreting for deaf people and how best to use available technology to enable interpreting services to function as intended. Like other areas of study, we already see a number of discrepancies when it comes to interpreting by video link, and we have yet to reach clear and conclusive answers. This chapter aims to give an overview of the emerging field of remote interpreting by video link and review the empirical research that has come from this sector.

HISTORICAL OVERVIEW

To map the field of remote interpreting, it is worth reviewing how far we have come in terms of telecommunication and how technology has impacted spoken and signed language communities in different ways.[1] Technology has a history of not only connecting, but also dividing communities and contributing to both cultural communication advances and differences.

For more than 100 years, the telephone networks have enabled people who can hear to conduct a live spoken conversation from a distance. Although the telephone and its derivatives were once credited with promoting real-time distance communication, initially the telephone, as

1. The International Telecommunication Union (ITU) defines *telecommunication* as "the transmission of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems" (ITU, 2004).

audio devices designed to facilitate spoken interaction, were not accessible to deaf people. For this reason, the telephone has been recognized as a tool that has created a disadvantage for deaf people who are not able to use it independently.

In more recent years, businesses and services have become reliant on telephone networks as a means to speak with clients, especially through call centers or information help lines. The telephone has also been used to deliver interpreting services in medical, legal, and business settings (Azarmina & Wallace, 2005; Gracia-García, 2002; Locatis et al., 2010; Mikkelson, 2003; Ozolins, 2012; Rosenberg, 2007). The ability to make contact via the telephone in each of these examples has clearly been designed for, and concentrated on, those who can hear.

Deaf people who wish to communicate in a signed language have had to develop their own individual solutions when attempting to make use of the telephone, typically relying on family, friends, or sign language interpreters to facilitate telephone interaction. The response from Deaf communities, particularly in North America, Australia, and some parts of Europe, has been to lobby for legislation that removes the inequalities and barriers by enabling greater opportunities to access the telephone networks, such as text-relay call centers or video-relay interpreting services (see Turner, Napier, Skinner, & Wheatley, 2017). This social inequality has given rise to the term *functional equivalence*, which denotes a legal term used in the United States (U.S.; see Haualand, 2011, for an overview of functional equivalence). The U.S. Federal Communications Commission (FCC) defines *functional equivalence* as a measure to make telephone services responsible for ensuring that "an individual with a hearing or speech disability to engage in communication by wire or radio with a hearing individual in a manner functionally equivalent to someone without such a disability" (FCC, 2016). The technology in widespread use today is easily adaptable to provide a range of relay services that can enable deaf people to independently make contact with (or be approached by) hearing people (including businesses and services).

Although legislation has been used to create equal opportunities to access the telephone networks, each country has developed its own solution to meet the demands from the Deaf community (Haualand, 2011; Haualand, 2012; Haualand, 2014). Deaf people in several countries around the world can now choose to access publicly funded text-relay services, and more recently video interpreting services, to facilitate communication with public or private services and make use of point-to-point

text or video calls, to interact with each other (Vogler et al., 2011). For Deaf communities, there is a clear incentive toward greater use of audio-video technologies.

The rationale for including this historical background in a volume on interpreters working with audio-video technology is that it provides some insight into some of the social demands for establishing interpreting services via a video link, especially in the realm of sign language interpreting. For deaf people, this is more than about accessing public services in their own language. Interpreting services via a video link are now regarded as essential to facilitate communication with family and friends, private and public services (tax offices, schools, medical centers, banks, utility companies, travel companies, shops, restaurants, etc.) and assisting communication in the workplace (builders, taxi drivers, architects, accountants, hair salons, etc.).

In the realm of spoken language interpreting, the development of telephone interpreting was originally closely associated with access to public services, especially in healthcare settings (Ozolins, 2012); however, interpreting via video link has come to be seen as a more effective way of providing spoken language interpreting services than telephone interpreting, primarily for two reasons: (1) It is widely accepted that spoken language interaction includes important nonverbal elements of communication (e.g., eye gaze, gestures, etc.), and (2) the evolution of technology means it has become much easier to interact via video.

The earliest documented experiments with spoken language interpreting via video link go as far back as the 1970s. The experiments were initially driven by the interest of supranational institutions in this method of delivering interpreting services, to meet linguistic demand and to mitigate the logistical difficulties associated with displacing large teams of interpreters (Mouzourakis, 1996). Physical building constraints (i.e., insufficient space for interpreting booths in major international meeting venues) were another driver for piloting interpreting via video link, especially after the enlargement of the European Union (EU) in the 2000s, which had led to a shortfall of interpreting booths in EU institutions (Mouzourakis, 2003, 2006). The use of telephone links was not seen as a viable option in these settings. Telephone links that were established in the 1970s and 1980s to access interpreters in medical and legal settings, respectively, were gradually replaced by video links from the 1990s onwards, triggering research comparing the two modalities, especially in the framework of healthcare management (Azarmina & Wallace, 2005;

Jones, Gill, Harrison, Meakin, & Wallace, 2003; Locatis et al., 2010; Price, Pérez-Stable, Nickleach, López, & Karliner, 2012). For an overview of this development, see Braun (2015).

THE SHIFT TOWARD INTERPRETING SERVICES VIA VIDEO LINK

Common drivers for the use of interpreting via an audio-video link are responses to shortfalls in demand versus supply, lack of appropriate facilities, financial demands, expectations of compliance with legislation, and improved access to a qualified interpreter (Alley, 2012; Andres & Falk, 2009; Braun, 2015; Braun & Taylor, 2012c; Cassiopeia, June 2013; Simon, Hollrah, Lightfoot, Laurion, & Johnson, 2010).

Greater migration and global interaction means higher demand for interpreting services. In many countries, government services have a legal obligation to meet the cost of interpreting services, such as in healthcare settings, legal settings, or public service settings. With increasing demand, the presence of a qualified spoken or signed language interpreter with the required language combination is not always straightforward or possible to arrange (Bontempo & Napier, 2007; Braun & Taylor, 2012c; Gracia-García, 2002; Ko, 2006). Even in countries where state funding is available for interpreting services, the demand versus supply can be a concern, as the increasing number of requests per day for a qualified interpreter often exceeds the number of qualified interpreters available. In other countries where there is little to no state support, there tend to be fewer qualified interpreters to meet national demands. The majority of deaf people live their daily lives without access to an interpreter, as without government or private support most cannot afford to pay for services. Furthermore, not all European countries have established training routes or work opportunities for interpreters. Insufficient training opportunities coupled with lack of opportunities for work result in a lack of desire for individuals to develop a career in interpreting. This demand-versus-supply imbalance leaves many users with a difficult choice: accept an uncertified interpreter or settle for no access. The promise of using video technology is to create a third choice: access to a qualified interpreter via video link. This is possibly the strongest rationale for moving toward audio-video technology solutions.

In the legal sphere, the European Directive 2010/64/EU on the right to interpretation and translation services in criminal proceedings makes

explicit reference to the use of communication technologies, such as videoconferencing, to gain access to a qualified legal interpreter for both spoken and signed languages. This directive, which had to be transposed into national legislation, has increased awareness for technology-supported interpreting as an option in several European countries. A similar development can be seen in the U.S., where changing language access legislation has boosted the exploration of videoconferencing technologies, to provide interpreting services especially in legal settings.

These developments are placing interpreters in novel situations and are challenging interpreters to deal with encounters for which they may not have been prepared and/or lack sufficient training. Understanding how technology is being used to deploy interpreting services will enable practitioners and educators to become better prepared for the variety of necessary services. This is particularly important when considering that research has revealed not only mixed feelings among interpreters and users of interpreting services about future uses of video technology, but also a range of problems with remote interpreting (Andres & Falk, 2009; Balogh & Salaets, this volume; Braun, 2004, 2007, 2013, 2014, 2016, 2017; Braun, Davitti, & Dicerto, this volume; Braun & Taylor, 2012c; Brunson, 2011; Fowler, this volume; Napier, 2012a, 2012b, 2013; Napier & Leneham, 2011; Roziner & Shlesinger, 2010). Some interpreters, for example, experience extreme levels of stress and burnout when working in video remote interpreting call centers (Bower, 2015; Wessling & Shaw, 2014).

Research on face-to-face interpreting has increasingly revealed that inserting an interpreter into a bilingual or multilingual interaction does not guarantee that communication is successful. The use of technology to communicate and deliver interpreting services adds a further layer of complexity and therefore requires careful consideration (Braun, 2006; Braun & Taylor, 2012b; Napier, 2012a; Napier & Leneham, 2011; Roziner & Shlesinger, 2010). This is compounded by the fact that interpreting and videoconferencing technology come together in several different configurations, which share many characteristics but lead to specific challenges.

CONFIGURATIONS OF INTERPRETING VIA VIDEO LINK

Thus far, we have highlighted a number of initiatives to experiment with ways of using technology to maximize the efficiency of a finite pool of spoken or signed language interpreters. This has led to a number of

different models of service delivery, and often the differences are motivated by political ideals, funding frameworks, domain-specific needs, consumer needs, and legislation (Braun & Taylor, 2012c; Haualand, 2011, 2012; Napier, 2012a). Key to understanding the differences are the location of the interpreter to those using the service and the technology used.

Regarding the location of the interpreter, Braun (2015) distinguishes between *remote interpreting*, which refers to the use of technologies to gain access to an interpreter who is physically separated from the primary participants, and *teleconference interpreting*, which denotes a setting whereby the primary participants are connected through technology and the interpreter is co-located with one or some of the main participants. A further setting is a *three-way connection*, in which the primary participants and the interpreter are in different locations.

Telephone and videoconferencing technologies are employed in all three settings; however, as Braun (2015) notes, the terminology that is used to refer to the different configurations is not consistent. The following sections constitute a brief attempt at systematizing the key terms and configurations.

Configurations in Spoken Language Interpreting

In the realm of spoken language interpreting, remote interpreting by telephone is often called *telephone interpreting*, *telephonic interpreting*, or *over-the-phone interpreting* (Gracia-García, 2002; Locatis et al., 2010; Mikkelson, 2003; Ozolins, 2012; Price et al., 2012; Wadensjö, 1999), whereas remote interpreting by videoconference is often called *remote interpreting*, *video remote interpreting*, and *videoconference-based remote interpreting (VRI)* (Braun, 2013; Braun & Taylor, 2012c; Locatis et al., 2010; Moser-Mercer, 2003; Mouzourakis, 1996; Price et al., 2012). Remote interpreting by telephone is normally delivered in consecutive mode; (however, see Hornberger et al. (1996) for an experiment using the simultaneous mode), whereas remote interpreting by video link has been delivered using the consecutive mode in legal and medical settings, and using the simultaneous mode in conference settings.

In the teleconference interpreting setting, the terminology is even less well established, especially in relation to telephone settings. With reference to teleconference interpreting by video link, Braun and Taylor (2012c) and Mouzourakis (2006) use the term *videoconference interpreting (VCI)*. Braun and Taylor (2012c) provide further subdefinitions

to pinpoint where the interpreter is positioned during legal proceedings (i.e., co-located with the legal authority, e.g., in the courtroom or a prosecutor's office [VCI-A], or co-located with the other-language speaker, i.e., the defendant, victim, or other witness [VCI-B]). As briefly pointed out above, each configuration is known to bring particular challenges for the interpreter, as what is in the visual and audio sphere locally or remotely is understood and processed differently (Braun, 2016, 2017; Braun & Taylor, 2012c; Fowler, this volume). VCI is currently most common in legal settings and normally provided in consecutive mode, although whispered interpreting is used when the interpreter is co-located with the other-language speaker (VCI-B).

Three-way links have been discussed by Oviatt and Cohen (1992) and Rosenberg (2007) for telephone settings and by Braun (2004, 2007) for video links, and referred to as *telephone interpreting* and *videoconference interpreting*, respectively, without specific reference to the three-way connection.

Configurations in Signed Language Interpreting

In the sign language interpreting field, the terms *video-relay service (VRS)* and *video remote interpreting (VRI)* are commonly used. *VRI* is used differently when referring to the North American concept or European concept (Haualand, 2011, 2012, 2014).

VRS is a concept widely used in North America, Australia, and several European countries and is based on a call center model (Napier, 2012a; Turner et al., 2016). In a VRS call, each of the three participants (the deaf person, the hearing person, and the interpreter) are positioned in separate physical spaces. The VRS provider uses web-video technology to connect all three via a video link and a telephone link. This service essentially is about making telephone networks accessible and available to deaf sign language users. The deaf person uses a video link to reach the interpreter, and a standard telephone or mobile line is used between the interpreter and the hearing person. In other words, VRS calls are hybrid-media calls, whereby videoconferencing technology is used between the deaf client and interpreter, although the hearing client has no access to visual information and is expected to treat the call like any other telephone conversation.

By contrast, VRI in the North American sign language interpreting context is akin to the VRI definition for *spoken language interpreting*

provided above. It involves a situation where the interpreter is stationed in a call center. The deaf and hearing participants are co-located in the same space and use audio-video technologies to connect to a remote sign language interpreter (Simon et al., 2010).

However, the U.S. is the only country that strictly distinguishes calls as VRS or VRI (Brunson, 2011; NCIEC, 2008; Simon et al., 2010). This is solely because of the legal basis for how telecommunications relay services (TRS) for deaf people, hard of hearing people, and people with speech impediments are reimbursed by the state. As outlined above, the primary objective set by the U.S. government is to make telephone networks "functionally equivalent" to Deaf/HoH people, deaf-blind people, or people with speech difficulties (FCC, 2016). The U.S. government will, however, only reimburse providers when a deaf person, hard of hearing person, or person with speech impediments accesses the telephone networks in the same way as a hearing person (functional equivalence). If the person they are wishing to engage with is in the same room, that is, if it is a VRI setting, then the responsibility to fund the interpreting service exists somewhere else. Interpreters who work in U.S. VRS call centers must monitor and ensure they do not facilitate VRI calls.

In a European sign language interpreting context, *VRI* generally refers to all situations where a sign language interpreter is required to work with audio-video technology to deliver their service. In European countries, VRS and VRI are thus rarely classified as two types of services; they are seen as one form of interpreting (Haualand, 2011, 2012; Warnicke, this volume).

With respect to interpreting via video link for legal proceedings, sign language interpreters essentially work with deaf people in all three configurations, as noted by Braun and Taylor (2012c): VCI-A, VCI-B, and VRI, as tested in an Australian research study (Napier & Leneham, 2011; Napier, 2012a, 2012b, 2013).

Future Development of the Configurations

Given the rapid evolution of communication technologies, the above-described configurations are likely to establish themselves further, and to become more widespread and diverse. The integration of interpreters in three-way or multipoint video links is especially likely to become more frequent, as the justice sector, for example, is turning to "distributed courtrooms," in which all participants are present virtually. Similarly, the

move toward tele-healthcare, whereby doctor-patient consultations take place by video link, could see spoken language interpreters being connected to such consultations from their own work environment or a call center, akin to the already-common VRS-type calls in the field of sign language interpreting.

Although the (emerging) configurations of interpreting by video link share many elements, each configuration also comes with its own specific challenges. For research purposes, there is therefore also an urgent need to distinguish, and make use of, the terms introduced above. Each term provides a clear understanding of a particular configuration (the location of participants and technology used). Each configuration is known to present particular variables that impact on the communication process, the interpreting and interaction strategies, and the training needed (Braun & Taylor, 2012c; Napier, 2012a; Napier, Skinner, & Turner, 2017).

As a way to provide a global definition and benchmark to relay services for deaf people, deafened people, hard of hearing people, and people with hearing impairments and speech difficulties, the International Telecommunications Union (ITU) introduced the concept of Total Conversation (TC) in 2000 (Turner et al., 2016).[2] This concept refers to an internet-based platform that can permit a combination of audio and video channels to be made or received from the call center mediating the call. TC is a concept that recognizes the different language preference and communication modes that exist across Deaf communities. For example, with a VRS call, a deaf person may choose to use his or her own voice to communicate with the hearing person and only require a sign language interpreter to relay an utterance from a spoken language into a signed language.[3] TC platforms have the potential to provide VRS-type calls (including the possibility of multiple audio-video links between all participants), VCI-type calls, or VRI-type calls.

In the field of spoken language interpreting, one question that needs to be addressed more systematically, in view of the increasing demand for interpreting by video link and the evolution of technological solutions, is the use of the simultaneous interpreting (SI) via video links. SI via video links has the potential to mitigate some common problems

2. The ITU is a specialized UN information and communications technology agency.

3. When a deaf person is using their own speech to communicate during the call, he or she is using a voice carry over (VCO) function.

in legal settings, especially the lengthiness of video links in situations where (whispered) SI for a defendant is currently replaced by consecutive interpreting (CI), because the interpreter is separated from the defendant (VRI, VCI-B). However, the use of SI in this and similar configurations will also raise new questions that have to be dealt with first (Braun, Davitti, & Dicerto, this volume).

COGNITIVE PRESSURES, PERFORMANCE, AND STRATEGIES IN INTERPRETING BY VIDEO LINK

Interpreting is a highly complex cognitive task (Gile, 2009; Moser-Mercer, 2000), and therefore, any modifications to interpreters' working environments are likely to impact their performance and how they process information. When examining interpreters' experiences of working from remote locations, the following concerns, among others, feature in the research findings and will be explored, in turn, below: lack of presence, cognitive overload and strategies, the knowledge and skills required of the interpreter in remote interpreting, and interpreter authority.

Presence is an obvious factor when utilizing audio-video technologies to roll out the delivery of interpreting services. *Presence* refers to the degree of salience of the other participants (Short et al., 1976). It is a subjective experience. An interpreter who is co-present with the primary participants can utilize and process contextual information, such as physical characteristics, posture and gaze, and facial expressions to aid his or her cognitive processing toward understanding intent and tone, as reflected in the source message (Setton, 1999). When interpreters are physically co-located with those for whom they are mediating the communication, they can therefore normally deduce much about the nature of the interaction and the interpersonal relationship between the interlocutors by drawing on contextualization cues (Dickinson, 2014). By contrast, being located at a distance has the potential to disrupt the perception of presence and to place the interpreter at a disadvantage (Moser-Mercer, 2005).

When the interpreter is separated from some or all of the primary participants, some of the clues that s/he can typically use become invisible or less effective. For sign language interpreters working in a VRS call center, for example, there is only a sight line with the deaf interlocutor via the video connection; the hearing interlocutor is connected via a telephone line, which can be frustrating for the hearing call receiver (Napier et al.,

this volume). Even when the interpreter has access to the images from all remote participants, the video images give the interpreter only a partial insight into the remote participants' respective environments (Braun 2004, 2007; Napier, 2012a, 2012b, 2013). This has been observed to lead to a reduction in the interpreter's ability to engage, on equal footing, with what the co-located participants can see and hear onsite (Braun, 2004, 2007, 2013, 2014, 2017; Braun et al., this volume; Moser-Mercer, 2003; Mouzourakis, 2006; Napier, 2012a; Napier et al., this volume; Roziner & Shlesinger, 2010; Warnicke, this volume).

The exact impact that a lack of presence or a perceived reduced presence has on the interpreter's ability is still open to debate, and results are mixed, with much to learn from the contrast between subjective ratings of performance and actual interpreting problems (as reflected in error rates, for example) weighed against the benefits of practice and experience. However, the observation made in relation to onsite interpreting, that a lack of relevant contextual information forces the interpreter to resort to guesswork and to exert more energy in cognitive processing and self-monitoring (Chernov, 2004), has been shown to apply to remote interpreting as well (Braun, 2004, 2007). It has also been suggested that a high cognitive load in remote interpreting is responsible for the earlier onset of fatigue that was manifest in some of the studies (Braun, 2013; Moser-Mercer, 2003, 2005), and that the fatigue, in turn, may increase the risk of errors, particularly in legal settings. This is particularly noteworthy, given that the outcome of legal communication can be profound on an individual's future (Braun & Taylor, 2012a). Moser-Mercer (2003, 2005) furthermore asserts that interpreters experience more psychological stress under remote interpreting conditions, and that these human factors prevent the switch to exclusive remote interpreting provision. In contrast to these findings, the lack of presence has been described as a benefit of remote interpreting in some studies. According to some medical interpreters, for example, being detached from the hospital environment has removed the distractions or pressures normally experienced when in this environment and has enabled the interpreters to focus on their interpreting task (Gracia-García, 2002). The same is noted by sign language interpreters who often have close links to their local Deaf community and value the opportunity to work with unfamiliar clients through VRS (Brunson, this volume). Further research is needed to establish whether the positive perceptions by the interpreters tally with other factors, especially the quality of the interpreting performance and of the communication as a whole.

In the realm of conference interpreting, research along these lines has been conducted and has revealed interesting insights. A large-scale study was conducted in the European Parliament to investigate the experiences and performance of conference interpreters when working in VRI conditions compared to onsite SI for the Parliament. The study, which was reported in detail in Roziner and Shlesinger (2010), covered the quality of the interpreting performance, audience feedback, visibility of speaker and audience, and ergonomic factors (including thermal comfort, ventilation, illumination, and acoustics). The participants in the study were 36 volunteer interpreters, including 17 staff and 12 freelance interpreters, with a 50/50 gender split and mean age of 45.7. The research team included a pool of specialists: a statistician, an interpreter, two ergonomists, one physiologist, two experts in the study of physical environment, one occupational physician, one ophthalmologist, and several research assistants.

The study was conducted in two stages and allowed for a settling-in period to the videoconferencing facilities. Steps were taken to provide matching and comparable ergonomics between the two working conditions and to control for a range of variables. Each participant was recorded working onsite and in the VRI condition. In addition, the research team conducted a questionnaire survey that enabled them to identify 19 possible somatic problems arising from environmental conditions; administered a salibette sampling device (saliva analysis to test for the stress hormone cortisol); assessed eye strain and sleep patterns; and asked participants to perform a subjective stress rating (experienced stress; need for recovery; burnout) to evaluate stressor perception on a five-point rating scale.

Particular features in the ergonomics, such as lighting and glare in the videoconference setting, resulted in a significant difference between the discomfort ratings for the onsite and VRI conditions. The interpreters also experienced difficulties with being able to relax during moments "off mike" and felt they constantly needed to observe proceedings and keep track. This, in turn, was suspected to have accounted for the significantly higher rate of somatic complaints and feelings of stress reported in the remote location. Roziner and Shlesinger (2010) note that more interpreters expressed problems with concentration when in the remote setting (27%) compared to onsite (9%). However, these differences were not borne out by the tests for biological evidence of stress (i.e., cortisol analysis of saliva samples that were collected each day. Although the cortisol levels were slightly higher in the VRI condition, the difference was not significant.

The second stage of the European Parliament study was to assess interpreting performance quality for each of the modalities. In a previous study of remote simultaneous conference interpreting, interpreters rated their own performance as inferior for VRI compared to onsite interpreting (Moser-Mercer, 2003). To investigate possible differences in the performance further, the team conducting the European Parliament study collected 20 three-minute interpreting excerpts for analysis. The final corpus of data included 570 clips of interpreting, which were distributed to 45 judges (expert interpreters), who rated the excerpts (on a 5-point scale) in terms of errors, word choices, and general performance evaluation. The performance ratings were lower for VRI but not significantly so.

In summary, the European Parliament study shows that the interpreters perceived the VRI condition to be significantly more stressful than onsite interpreting and that they rated their VRI performance as inferior compared to onsite interpreting. It is not unusual for interpreters to rate their work lower for VRI settings (Braun & Taylor, 2012b; Kurz, 2000). The subjective ratings suggest that the experience of being based remotely in an environment that appears to limit one's view of the conference setting, along with the glare from watching the communicative event unfold on a screen, may bring particular challenges to the interpreting process. The ensuing sense of isolation may ultimately impact an interpreter's motivation and concentration. However, as Roziner and Shlesinger (2010) point out, the objective performance ratings by independent judges indicated almost no difference between onsite interpreting and VRI.

This latter finding is in stark contrast to the studies of interpreting by video link in legal settings, using CI, that were conducted by Braun and her colleagues in the European Assessment of Video-Mediated Interpreting in the Criminal Justice System (AVIDICUS) 1 and 2 projects (Braun, 2013, 2017; Braun & Taylor, 2012c). Based on the outcomes of a survey of 200 legal interpreters and 30 justice sector institutions in Europe, designed to identify the most pressing problems and the most likely configurations of interpreting via video link in legal settings (Braun & Taylor, 2012b), the AVIDICUS 1 partnership conducted a series of experimental studies to compare the interpreting quality in onsite interpreting and different relevant configurations of video link interpreting. The studies involved 15 interpreters in three countries who worked onsite and in different configurations of video link interpreting, using a range of simulated legal proceedings. A frequency analysis of interpreting problems in all of the three AVIDICUS 1 data sets revealed a tendency of the videoconference

condition to magnify known interpreting problems in many categories that are particularly relevant for legal interpreting (e.g., accuracy and completeness of the rendition; (Balogh & Hertog, 2012; Braun & Taylor, 2012a; Miler-Cassino & Rybińska, 2012).

A further statistical analysis of Braun and Taylor's study, which involved 8 of the 15 interpreters, revealed that the frequency of interpreting problems in VRI was significantly higher than that in onsite interpreting (Braun 2013). This was further corroborated by qualitative analyses, which highlight, for example, lexical activation problems in the videoconference setting (Braun, 2013) and a tendency on the part of the interpreters to overelaborate their renditions as a way of coping with interpreting problems (Braun, 2017). The qualitative analyses also reveal that many of the problems arising are related. For example, overlapping speech is often followed by omissions (Braun, 2013).

A follow-up series of experiments in the AVIDICUS 2 project was designed to explore the impact of training and different types of equipment on the interpreting performance (Braun 2014; Braun, Taylor et al., 2014). It involved the same interpreters as the original studies but provided them with short-term training in interpreting via video link before they participated again. Moreover, better equipment was used. The findings of these follow-up studies create a complex picture. Although there is some improvement, and although several strategies aimed at mitigating or resolving problem resulting from the video condition can be observed in the data (see also Braun, 2017), many differences between onsite interpreting and interpreting in the different video conditions remained, making it impossible to say without reservation that training, familiarization, and higher-quality equipment resulted in a clear performance improvement (Braun et al., 2014).

The level of quantitative analysis conducted by the aforementioned studies has yet to be carried out with sign language interpreters in a call center. There is a pressing need to increase our understanding of the cognitive pressure and strategies used by sign language interpreters, because of rapid growth in use across a growing range of settings (e.g., employment, medical, education, and social). Countries who have implemented legal frameworks, such as ratifying the United Nations Convention on the Rights of a Person with Disabilities (UNRCPD), now have a duty to promote equal and appropriate linguistic access for deaf people across public services. Many of the public authorities already rely on telephone networks to engage and communicate with the public. Video interpreting services become a natural fit to delivering equal access.

In 2015, the European Commission commissioned a 12-month project called *Insign*, which was a proof-of-concept trial, investigating the feasibility of providing a pan-European TC service that would potentially increase interaction and political participation among deaf citizens and improve social justice for deaf people (Hay & Pabsch, 2014). The project included a mixed-methods approach to examine the experiences and training needs of interpreters (Napier, Turner & Skinner, 2014), the types of use and level of satisfaction among users (Turner et al., 2016), and the actual interactions, using the TC platform (Napier et al., this volume). The project captured a corpus of video link interpreted calls across six signed languages and five spoken languages and was able to explore the different strategies and approaches used by a team of experienced video interpreters in delivering meaningful access.[4,5] Although the project found real potential in using TC platforms to deliver equal access to public authorities, like the European Commission (see Napier et al., this volume), interpreters also found the rapid expansion of video interpreting services placed them in a number of specialist fields or in situations not suited to remote interpreting (Napier et al., 2017). These demands often left interpreters feeling unprepared and undersupported. Although this underlying demand, to make video interpreting services work for a wider range of interactions, has seen interpreters report feeling burned out (Wessling & Shaw, 2014; NCIEC, 2008), these comments are again mostly subjective. It is not clear what is causing the suspected "burnout": whether it is as a result of poor call center ergonomics, company policies, lack of preparation, lack of presence, or other factors (Alley, 2014; Bower, 2015). Therefore, it is currently difficult to say whether the experience with performance deterioration can be protected by improving the ergonomics in a call center: Sign language interpreters need to pay attention to a single video screen and have little room to look away or physically relax their appearance (as part of the customer service interpreters' need to appear attentive onscreen). One of the areas where research in remote sign language interpreting has generated more conclusive findings is in the area of linguistic challenges that interpreting via videolink creates. This will be further explored in the next section.

4. British Sign Language (BSL), Dutch Sign Language (NGT), French Sign Language (LSF), Hungarian Sign language (MJNY), Spanish Sign Language (LSE), and International Sign (IS).

5. English, French, Dutch, Hungarian, and Spanish.

INTERPRETER'S KNOWLEDGE, SKILLS, AND AUTONOMY

Interpreters working remotely and in call centers are exposed to a variety of calls from a range of callers throughout the day, and they have to switch between different registers of language, depending on call topics and the sociolinguistic profile of the caller (Brunson, 2011; Gracia-García, 2002; Napier et al., 2017), and thus have to employ different sociolinguistic strategies to manage the calls and the technology (Marks, 2015). To enable the interpreter to manage a variety of calls and deal with a variety of callers, interpreters have expressed the need for the following prerequisites (NCIEC, 2008; Taylor, 2009):

- strong interpreting skills
- extensive interpreting experience
- a good level of general knowledge
- a broad vocabulary in both spoken and signed languages
- an awareness of cultures and variations that exist within the minority language community

However, what and who makes a good call center interpreter was not tested among the interpreters who reported these requirements, so there is much to be garnered about the strategies employed and which interpreters are considered most effective at providing a quality service.

Several studies have interviewed consumers and interpreters about what they perceive to be a good VRS/VRI interpreter. Many of the qualities listed above come from surveys conducted in the U.S. with sign language interpreters. The experience of an interpreter handling a wide variety of calls is not helped by American VRS call center policies (Alley, 2014). In the U.S., VRS call centers enforce stringent procedures that afford interpreters very little time to prepare and engage with callers to ensure the call is effective (see Brunson, 2011). The FCC do provide guidelines, so customers know what to expect, but many company policies go beyond these guidelines and demand that the interpreters do not check the nature of the call before proceeding, clarify the relationship between callers, or discuss the outcome of the call and determine if it was successful (Brunson, 2011). Interpreters in the U.S. model are expected to adopt a strict conduit model of interpreting (Alley, 2014; Bower, 2015).

Therefore, a typical VRS sign language interpreter's experience in the U.S. is highly demanding: They are expected to handle calls from a range of callers nationwide, without predetermining the topic and nature of

the call, establishing particular terminology, or taking time to adjust to differences in dialect. This concern may not be the same with call centers in Europe, such as those in France, Sweden, Holland, or the United Kingdom, which do not impose such regulations: Interpreters are given the opportunity to engage for as long as needed to conduct a successful call (Napier et al., 2017).

Braun and Taylor's (2012b) large-scale survey of 166 legal interpreters from all over the globe who had varying degrees of experience working in remote interpreting via video link in legal settings shows that interpreters generally prefer onsite interpreting to video link interpreting. However, those who were older and had more interpreting experience tended to give a more positive assessment of their ability to cope in video link conditions. It would seem that age could be a contributing factor in the making of an ideal interpreter, a feature not covered in the U.S. surveys. Greater life experience and interpreting experience could go some way to supplying the resilience required to cope with a range of communicative situations and topics, with a series of interlocutors from a variety of backgrounds.

Another contributing factor in coping with call variation is the authority to accept or decline a call. Current practices seem to suggest interpreters in a sign language call center have little control whether or not to proceed with an incoming call (Brunson, 2011; Napier et al., 2017; NCIEC, 2008; Simon et al., 2010; Taylor, 2009; Wessling & Shaw, 2014). If two interpreters are in a call center and one is more suited to a call (e.g., because of relevant prior knowledge of the subject matter), there is no system to inform the client about the possibility of waiting and being redirected to the most suitable interpreter (when they become available); plus there is no system for the interpreter to decline a call for which they feel unsuited (Napier et al., 2017; Tyer, this volume). Braun and Taylor (2012b) found that 85.8% of their respondents had never been consulted on the appropriateness of video interpreting in a legal setting (with the remaining 14.2% saying that they had always been consulted). Moreover, 34.2% of the respondents said it had never explained to them why the assignment for which they had been booked needed to involve video interpreting, whereas 26.2% and 39.6% said this had sometimes or always been explained, respectively. This may be an area where lack of consumer awareness of the issue inhibits optimal service delivery.

Working in a call center environment has been known to impair the professional autonomy of a sign language interpreter (Alley, 2014;

Brunson, 2011), and interpreters state that coping with the on-demand expectations and the job's emotional stresses impacts the quality of their interpreting (Wessling & Shaw, 2014). Conflict between managing the needs of an interpreter with call center policies and regulations have also been reported to happen, more so as interpreters are required to operate within a corporate model (Alley, 2014; Brunson, 2011; Haualand, 2012).

Thus, although an individual interpreter based in a call center has the potential to facilitate a high volume of calls within a single day (Brunson, 2011), research shows that working remotely within a call center environment presents particular challenges for the interpreter as s/he must consider the issues raised in, and manage the expectations attached to, working in a call center environment; these include functioning at the same level as an onsite interpreter with less preparation, less control over which assignments (calls) to accept, greater diversity of callers, greater diversity of topics/genres to be interpreted, and in some cases, less professional autonomy due to company policies stipulating how interpreters must approach their assignments.

Many of these interpreting call centers are established within a specific framework for delivery, including performance indicators. These terms are set to protect users of the interpreting services, and in order to ensure that funds are properly distributed, different levels of regulations are outlined. For sign language interpreting providers, the national regulator for telecommunications will often prescribe their minimum standards for VRS providers. In turn, these companies, who have a contractual obligation to meet these standards, will further define their own policies, so as to not only meet these terms, but also to produce profits. Several writers have argued that these conditions and rules set by the regulator, or by the company, go against the best practices advocated by professional interpreting bodies (Alley, 2014; Brunson, 2011; Haualand, 2011).

A crucial feature of call center services is the on-demand, or ad-hoc, opportunities to access an interpreter. Each caller brings different expectations about the service, and each caller will have idiosyncratic styles of managing conversations via an interpreter. Some callers are conscious of the interpreter's needs, aware that the interpreter may have been on successive calls earlier in the day, proactively gauging the interpreter's ability, and considering the interpreter's needs. Callers like this will most likely

provide background information about the call and constantly monitor the interaction to identify where and when gaps in prior knowledge may exist. However, although this description emulates the ideal caller, not all callers know what information needs to be shared, if too much or too little information is being given, and/or have realistic expectations about what an interpreter should or should not do (Brunson, 2011; NCIEC, 2008; Simon et al., 2010; Taylor, 2009; Wessling & Shaw, 2014). Some callers expect interpreters to function like a machine and simply repeat what is expressed, whereas other callers are highly dependent on the interpreter to lead the conversation (Braun, 2013; Brunson, 2011; NCIEC, 2008; Taylor, 2009; Wessling & Shaw, 2014). Due to this wide variation of callers, topics, and needs, call center interpreters have found it difficult to ensure standards of interpreting are protected and boundaries are maintained.

CONCLUSION

This chapter has aimed to give an overview of the growing practice of remote interpreting via video link and the emerging associated research in this field. Interpreting service delivery involving video link is expanding across the globe and across different modalities and settings, mostly with the aim of increasing access to a qualified interpreter, reducing costs, or both. One of the primary insights is that although there is a growing body of research in remote interpreting via video link, relating to both spoken and signed languages, much more research is needed to better understand the discrepancies emerging from the empirical work conducted to date; to obtain more conclusive answers on a number of specific points, such as presence, fatigue, or the reported phenomenon of burnout; and ultimately to identify the factors that impact the viability of video link interpreting.

The present volume aims to make a contribution to this line of research. By bringing together research on spoken language and sign language interpreting via video link, this volume not only highlights commonalities, but also pinpoints aspects that are specific to either modality or how the remote interpreting is packaged (e.g., VRS or VRI, on-demand or pre-booked, for generic or specialist subjects, short versus long interactions).

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CHAPTER 2

"You are just a disembodied voice really"

Perceptions of video remote interpreting by legal interpreters and police officers

Sabine Braun
University of Surrey

This contribution is devoted to the voices of users of video remote interpreting (VRI) in a particular setting, namely legal interpreters and police officers. Focusing on an aspect that has received little attention to date, viz. the interpreters' and legal stakeholders' perceptions of VRI as a novel configuration in the legal setting, we use the Social Construction of Technology (SCOT) as a theoretical framework to analyse a set of interviews that were conducted with interpreters and police officers after they had completed a simulated VRI session. As a first step, the participants were prompted to compare this simulated experience to their real-life experience to check the degree of reality of the simulated encounters. Next, they were asked to talk about attitudes towards VRI and to reflect on their experience with VRI during the simulation. Among the key outcomes of this investigation is that the two social groups – police officers and interpreters – have different views, but also that there is a considerable degree of variation among the interpreters, indicating a low degree of stabilisation of VRI as a concept and practice among the interpreters.

1. Introduction

This chapter focuses on interpreting and the use of video remote interpreting, i.e. on situations in which videoconferencing technology is used to deliver interpreting services at a distance. The spread of videoconferencing technology has created opportunities for distance communication in all sectors of society and has led to a new modality of interpreting, i.e. video-mediated interpreting (VMI). As we have discussed in more detail elsewhere (Braun 2015, Braun & Taylor 2012a), VMI has different configurations regarding the distribution of the primary participants (co-present or in different locations) and the distribution of the interpreter(s) in relation to the primary participants. On the one hand, the use of videoconferencing

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has generated a demand for interpreting services in situations where participants in different locations interact through audiovisual channels. Examples include virtual meetings, video links between courts and prisons for pre-trial hearings, and interactions between doctors and patients in tele-healthcare. Interpreters working in these situations are normally co-located with one of the primary participant sites, although they may be in a third location (Braun 2007). We have termed this configuration 'videoconference interpreting' (VCI). On the other hand, videoconferencing technologies have also fostered the rise of 'video remote interpreting' (VRI), i.e. the configuration whereby the interpreter(s) is (are) physically separated from all of the primary participants.

Research has begun to address specific aspects of VMI in selected configurations and in different settings of interpreting. In simultaneous conference interpreting, research has focused on VRI as opposed to VCI and has compared the quality of the interpreting performance in onsite interpreting and VRI, the interpreters' self-perceptions of their performance and a range of physiological and psychological factors such as stress and fatigue (Moser-Mercer 2003, Roziner & Shlesinger 2010). Apart from a significantly earlier decline in the VRI performance in Moser-Mercer's study, which was attributed to an earlier onset of fatigue in VRI, this research has found little difference between onsite and remote interpreting in terms of performance quality. However, the interpreters reported a sense of discomfort in VRI, found VRI more stressful and rated their VRI performance as inferior. For some of these measures, the difference reached significance. Overall, these studies indicate therefore a notable discrepancy between the objective and subjective assessment of VRI.

In relation to VMI in healthcare such comparisons are not yet available. While research in this setting has also focused on VRI as the currently most common configuration of VMI in healthcare contexts, this research has mainly investigated subjective measures of satisfaction with, and attitudes toward, VRI. Surveys of medical interpreters, physicians and patients in the US show that interpreters and physicians generally prefer onsite interpreting, and that among the technology-mediated modalities, video is preferred to telephone (Azarmina & Wallace 2005; Locatis et al. 2010; Price et al. 2012). As a notable point, however, the interpreters surveyed by Price et al. (2012), while finding all three modalities satisfactory for conveying information, rated the technology-mediated modalities as less satisfactory for interpersonal aspects of communication, due to greater difficulties in establishing a rapport with the remote participants. By contrast, a recent survey of healthcare interpreters in Austria (Koller & Pöchhacker 2018) shows that some interpreters see benefits in working remotely and believe they can adapt to VRI.

In legal settings, the main reason for the evolution of VMI was initially the spread of videoconferencing technology in the justice sector, especially to create

video links between courts and remote parties, which started in the 1990s and created a demand for VCI. In contrast to this, VRI has been introduced more recently by courts in the US and police in England to improve access to interpreters and to reduce interpreter travel time and cost (Braun & Taylor 2012b; Braun et al. 2018). Research into VMI in legal settings has covered both configurations and, like the research in the conference setting, has revealed a number of discrepancies between subjective and objective measures. For instance, in a survey of 150 legal interpreters conducted by Braun and Taylor (2012c), the respondents associated both configurations of VMI with greater levels of stress and fatigue than onsite interpreting, but gave relatively positive assessments of their own performance in VMI. By contrast, a series of experimental studies conducted in the European AVIDICUS projects to compare performance quality in onsite interpreting and different configurations of VMI revealed a clear tendency of VMI to magnify interpreting problems (Balogh & Hertog 2012, Braun & Taylor 2012d, Miler-Cassino & Rybinska 2012), which could only be partially mitigated through training and the use of improved technology (Braun et al. 2013). A comparison specifically between onsite interpreting and VRI in the legal context, i.e. the configuration in which the interpreter is separated from all primary participants, showed a significantly higher number of problems in the remote modality (Braun 2013, 2014). These findings are corroborated by qualitative analyses of the VRI data, which highlight, for example, lexical activation problems (Braun 2013) and over-elaboration tendencies on the part of the interpreter as a way of coping with problems (Braun 2017). Furthermore, the faster increase in paralinguistic problems in the VRI condition found by Braun (2013) also suggests an earlier onset of fatigue, corroborating Moser-Mercer's (2003) findings from remote conference interpreting. Research on VCI as the other important configuration in legal settings has focused on differences in the dynamics of the communication (Licoppe & Verdier 2014) and the implications of the interpreter's location, i.e. in court vs. with the remote defendant or witness (Licoppe et al. 2018). The latter also emerges as an important theme in studies of interpreters' perceptions of VCI in legal settings (Braun et al. 2018, Devaux 2017, Ellis 2004, Fowler 2013).

In the growing body of research on VMI there are thus several emerging lines of enquiry, which are in part specific to one of the configurations, but there are also many aspects of VMI that have received little or no attention to date. The present chapter aims to address one of these aspects, i.e. interpreters' and legal stakeholders' perceptions of VRI as a novel configuration in the legal setting. In contrast to VCI, where the perception studies mentioned above have mostly focused on the location of the interpreter in relation to the separated primary participants, one of the main questions for VRI concerns the impact of the interpreter's separation from all primary participants. A better understanding of this is important because

VRI in particular has a significant potential to make interpreting more efficient and sustainable by reducing interpreter travel costs whilst improving access to language support, but VRI is also the configuration that has created the most debate and controversy in the interpreting community. Insights into the perceptions of VRI by different stakeholder groups will contribute to resolving this controversy and the discrepancies between objective and subjective measures arising in previous VRI studies.

Stakeholder perceptions also play a key part in informing and shaping VRI as a novel practice. While the underlying technological basis for videoconferencing has evolved over time and is arguably more conducive to interpreting now than it was a decade ago, VRI encompasses more than the technological dimension. VRI is a socially constructed practice rather than simply a result of technological evolution.

In line with this, the study of VRI and especially the study of user perceptions of this practice requires a theoretical and analytical framework that takes the social dimension into account. The present study will draw on the Social Construction of Technology (SCOT; Pinch & Bijker 1984) and more recent work in Human-Computer Interaction (Preece et al. 1994), Computer-Supported Cooperative Work and Computer-Mediated Communication (Heath & Luff 2000, Luff et al. 2003, Nardi & Whittacker 2002), which builds on SCOT, as a framework answering this call. Section 2 gives an overview of this work and shows how it helps to conceptualise VRI in the legal context as a socio-technological practice in which different 'relevant social groups' interact and compete to establish an understanding of VRI. Section 3 outlines the methodological approach adopted for the present, interview-based study. The findings from this study are reported in Section 4, while Section 5 concludes this chapter with a brief discussion of the implications for the further development of VRI in legal and other settings.

2. The social construction of VRI in the legal context

In a seminal work in the field of 'technology studies', Trevor Pinch and Wiebe Bijker (1984) introduced the Social Construction of Technology (SCOT) as a theoretical framework that treats technology as a social rather than a technical concept, contending that the reasons for the acceptance or rejection of a technological artefact are to be found in the social world. SCOT is based on the observation that one and the same technology means different things to different people and that the success of a technology arises less from how 'advanced' it is from a technical point of view than from the social values that people attach to it (e.g. the smart two-seater coupé is of little use as a 'family car'). Pinch and Bijker (1984) derive from this one of the main principles of SCOT, namely the need to include all *relevant social*

groups in the study of technology, i.e. users, producers, sellers and political or other decision-makers, and they point out that users with different needs must be distinguished. Differences in values, interests and needs, the authors argue, led each group to construct a specific *technological frame* (Bijker 1997), i.e. a mental representation of a technology. This brings about different ways of designing technologies. *Design flexibility* is therefore another main principle of SCOT, as is the insight that decisions about design cannot be resolved technologically. The *stabilisation* of technological artefacts over time is primarily a social process leading to *closure* when different interpretations of a technology largely cease to exist (Pinch & Bijker 1987). In this process, one social group and its design preferences may prevail over others, or compromises may be negotiated between different groups (Bijker 2010). This process is characterised by *micro-political power strategies* such as the strategy of enrolment, whereby one social group tries to achieve 'buy-in' for a technology from another group by framing a problem in such a way that the application of the technology at hand becomes the natural solution for it (Bijker 1997).

If the design, implementation and use of technology is shaped by human action and by the cultural and social structures in which these actions are embedded, as the proponents of SCOT have argued, then the introduction of technology in the legal setting with its multiple stakeholders – who each represent different interests, needs and levels of decision-making power – is a good example of SCOT in practice. The SCOT framework thus provides a useful lens through which the introduction of videoconferencing in the justice sector and its use in combination with interpreter-mediated proceedings can be analysed.

Furthermore, with its fundamental response to technological determinism and by putting the focus on the actions of relevant social groups, SCOT also encouraged the study of technology from a range of social perspectives. One of these is the perspective taken in the field of Human-Computer Interaction (HCI), which is broadly concerned with how people design, implement and use artefacts of technology (Preece et al. 1994). In particular, HCI has identified a comprehensive set of factors that should be considered when designing and analysing technologies. The widely quoted taxonomy developed by Preece et al. (1994: 31) includes many factors that strike a chord with the use of video links in institutional settings such as the justice sector, e.g. factors related to the organisation implementing the technology at hand (workflow organisation, roles, skills, etc.), environmental factors (noise, lighting, room layout, etc.), comfort/ergonomic factors (seating, positioning, etc.), task-related factors (complexity, novelty, etc.), productivity factors (increase of output, increase of quality, reduction of costs, etc.), the user interface of the technology, and finally the individual users themselves, i.e. their cognitive processes and capabilities as well as their experience, motivation to use the technology, and their satisfaction.

More recent work on human interaction with and through technology has turned its attention to the practical accomplishment of this interaction, especially in the field of Computer-supported Cooperative Work (CSCW) (Heath & Luff 2000). CSCW has engaged in investigations of computer-mediated *communication* (CMC), which have focused on the affordances and constraints of different communication media, and their impact on the communication and interaction (Whittaker 2003). A central concern of this line of enquiry is the capability of a technical communication medium to create and maintain a 'sense of presence' among the participants (Short et al. 1976). There is consensus that the fragmentation of the communicative environment, which is characteristic of technology-mediated distance communication, affects the ability to produce and perceive interpersonal verbal and embodied cues and that this contributes to reducing the sense of presence (Braun 2004; Nardi & Whittaker 2002; Luff et al. 2003). The variables that contribute to or impede the sense of presence in technology-mediated communication are therefore another crucial element for designing, implementing and using communication technologies.

The research reported on in this chapter draws on the approaches outlined above, i.e. the importance of different types of user groups with potentially different needs and interests, as purported by SCOT; the need to develop and include a comprehensive range of factors in the design and analysis of technology, which emerged specifically from work in HCI; and the notion of social presence and its implications in VRI. SCOT has originally focused on the historical evolution of technologies, which makes it particularly useful for tracing user perceptions of technology to their likely origins.

The next section outlines the context of the study presented in this chapter and describes the methodological approach that was adopted for this study in more detail.

3. Methodological approach

The specific aim of the present study is to analyse interpreters' and legal stakeholders' perceptions of VRI in a legal context. The data used in this study was collected in the European AVIDICUS projects, i.e. as part of a larger programme of research concerned with investigating different aspects of VMI in legal settings. As outlined in Section 1 above, one strand of the AVIDICUS research was an experimental study that specifically compared onsite interpreting with VRI. This study drew on role-play simulations of police-suspect interviews (Braun 2013, Braun & Taylor 2012d) and was complemented by reflective interviews with the participating

interpreters and police officers. The reflective interviews form the basis for the present study.

The experiment and the subsequent interviews were conducted with eight French/English interpreters who had a minimum of five years' experience in police interpreting and limited experience with VCI but no experience with VRI; three police officers from the Metropolitan Police (MPS) in London who had experience in working with an interpreter; and two French-speakers for the role of the suspect. The interpreters were invited to interpret two similar suspect interviews, one in onsite modality and the other in remote modality. As was outlined in Section 1 above, the analysis showed significant differences between the two modalities in terms of interpreting quality. The details of the design and results of the experimental study are outlined in Braun (2013).

The reflective sessions took the form of semi-structured interviews and were based on an interview protocol which included the aspects to be addressed in the interview, the main prompter questions, and strategies for asking the participants these questions in a non-leading and non-intrusive way. All interview participants were first prompted to compare the interpreting situation with their real-life experience to ascertain the level of authenticity of the role plays. Subsequently they were asked to talk about attitudes towards VRI, i.e. their views on the feasibility and appropriateness of this modality of interpreting, and to reflect on their experience with VRI during the simulation, including the quality of the equipment as well as different aspects of communication management and the interpreting performance.

The interviews with the interpreters were conducted immediately after they had completed their respective simulation sessions and in the videoconferencing room where they had worked during the VRI session. The police officers were interviewed after they had completed the two or three simulation sessions for which they had been recruited. The interviews with the officers took place in the room where the officers had been placed during the VRI sessions, i.e. the simulated police interview room.

This type of *in-situ* interview, which is common in design studies and ethnographic research, supported a refined understanding of how especially the interpreters perceived the videoconferencing environment and facilitated a joint examination of the environment with the interviewees. The physical proximity to the VRI environment and the temporal proximity to the simulation activity enabled the interpreters to demonstrate, for example, how they had positioned themselves in relation to the videoconferencing equipment during the simulation, and helped them recall, and refer to, what they had seen on the screen, etc.

The interviews were recorded and transcribed, and then subjected to a thematic analysis, which involved coding the interview material. During the coding

process, and building on the factors that have been identified as being relevant in human-computer interaction (see Section 2 above), four themes were derived. The themes were also aligned, as far as possible, with the themes used in our analysis of perceptions of VCI in legal settings (Braun et al. 2018), with the aim of a later comparison of the findings from the two studies.

Theme one captures the participants' *overall perceptions of VRI*. It focuses on the changes that the adoption of VRI would bring, which is an organisational factor, and the use of VRI in different situations or stages of legal proceeding, which is a task-related factor. Theme two focuses on the *technological basis*. It encapsulates the participants' perceptions of the equipment, especially the audio and video feed. Another dimension of this theme is the operation of the equipment. This theme is linked to the user interface and to environmental factors, but also to the comfort/ergonomic factors identified in HCI. Theme three is about the *communication management in VRI*. The key elements are the delivery of the interpreter's output, turn-taking, the use of paralanguage and body language, and the rapport between the participants. Communication management can be understood as a user-related factor. It is closely linked to the communicative dynamics of the event in question and the normative expectations of how the event unfolds. This theme explores the extent to which the communication management is affected by the technological mediation. Finally, theme four covers the groups' perceptions of the *interpreting performance*. This theme relates to the productivity factor identified in HCI and will be explored against the background of the findings of the experimental study. The themes are summarised in Table 1 below.

Table 1. Themes derived for a thematic analysis of the reflective interviews

Main theme	Sub-theme	Relevant HCI factors
1. Overall perception of VRI	Adoption of VRI	Institutional factors
	Usage situations	Task-related factors
2. Technological basis	Audio and video feed	User interface factors
	VRI environment	Environmental factors
	Operation of equipment	Comfort/ergonomic factors
3. Communication management	Delivery of interpretation	User-related factors
	Turn-taking	
	Non-verbal cues, paralanguage	
	Rapport	
4. Interpreting performance		Productivity factors

The reporting of the findings in the next section is divided into four parts, following the four main themes outlined above.

4. Findings

4.1 Overall perceptions of VRI

The main overall perceptions of VRI relate to its adoption in practice and to the situations in which it would/could be used. Whilst the discussion of the adoption of VRI was closely linked to the notion of dependence on technology, the views on usage situations is linked to appropriateness.

4.1.1 *Adopting VRI: Dependence*

The beginning of many of the interviews focused on the participants' initial reactions to the simulations and, as part of that, on their overall opinions on adopting VRI in the legal setting. As the interviews coincided with preparations to introduce VRI at the MPS in London, the interpreters were highly alerted to this topic and had formed views on VRI in discussion with other interpreter colleagues and, indeed, with the MPS. All interpreters in our sample were of the view that the use of VRI would require a degree of adaptation. Interestingly, however, some expressed this negatively – I3 said that there would be "a lot of technical hitches at first" and that VRI would "take an awful lot of getting used to" – while others couched it in more positive terms, highlighting that VRI would in principle be "very useful" (I5, I6) and that familiarisation with VRI (I5) and the continuous evolution of the underlying technology (I6) would aid its adoption. I8 was more cautious in her assessment, highlighting her view that VRI would require training for both the interpreters and the police officers.

Some of these views were echoed by one of the participating police officers (PO3), who pointed out that the introduction of VRI would constitute a considerable cultural change for those involved, which would happen alongside other cultural changes, e.g. in interpreter deployment, which was centralised within the MPS shortly before VRI was introduced. PO3 therefore expected that there would be opposition from the interpreters to the implementation of VRI, as they would not understand the rationale behind it and were likely to see it "as another step of taking their money away" whilst the police saw VRI as "a more rational way of using a very expensive resource". However, those interpreters in our sample who were sceptical about VRI were mostly concerned with the impact of VRI in pursuit of their good practice. I2 explained their reservations with reference to the roles that the interpreter often assumes in police settings:

> If you have a difficult detainee, as soon as the interpreter is there, it makes things easier for the officer. Because the interpreter is not just the interpreter. And I know our role is not to be that, but we are a reassuring presence there. And we can explain the system. And it makes life easier. (I2)

Several points emerge from this: Firstly, it is evident that VRI has reached different degrees of stabilisation within the different stakeholder groups. The interpreters in our sample do not have a uniform view of VRI, suggesting that they have construed a range of partially different technological frames of VRI. In addition, their emphasis of the need for adjustment and training, and the (indirect) references to cultural change are indications that the use of VRI in this setting is far from having reached stabilisation for the interpreters. The police officers, by contrast, while acknowledging the cultural change that the adoption of VRI would bring, have a more stabilised technological frame and a more uniform semiotic structure around VRI, probably through continuous interaction with the MPS's official conceptualisation of it (making better use of an expensive resource). PO3 appears to have moved on from the decision-making stage. This is perhaps most clearly traceable in his discussion of 'remedial' strategies for VRI, which included "a very good communication strategy, a training strategy and maybe even accreditation that [the interpreters] can work with audio-visual equipment." It seems that for PO3 the question is no longer whether VRI should be introduced but how it can be introduced and how the cultural change that comes with it can be managed.

Secondly, a power differential between the different stakeholder groups is apparent. Whilst the institutional stakeholders with whom we talked, including PO3, appear to base their thinking at least to some extent on the rather dismissive assumption that the introduction of VRI would be met with opposition by the interpreters due to financial issues, the picture is in fact more complex. Although interpreters have expressed scepticism towards VRI, as outlined above, and have linked this, among other aspects, to the fear of loss of pay (Braun & Taylor 2012c: 96), their concerns seem to stem primarily from an anticipated deterioration of their working conditions or their ability to do their job. These concerns are also reflected in the interpreters' thinking about the next sub-theme, i.e. the usage situations of VRI, which is closely linked with the concept of appropriateness of VRI. However, the interpreters' specific concerns do not appear to form part of the thinking of the dominant stakeholder groups.

4.1.2 *Usage situations for VRI: Appropriateness*

As explained above, the experience of the simulations also led the interpreters to reflect upon the legal settings in which VRI would be viable. Most of the interpreters in our sample believed that VRI would work for shorter interactions such as informing a detained person of their rights (I7), first hearings (I1) or bail hearings (I2), whilst being more sceptical about the viability of VRI in police interviews. Like the interpreters in Price et al.'s (2012) study of VRI in healthcare contexts, the interpreters in our sample thus linked the question of appropriateness to the genre of communication.

The positive expectations regarding VRI in short pre-trial hearings may have their roots in the interpreters' experience with VCI in the English criminal justice system where video links between courts and prisons (mainly for bail hearings) have been used since the 1990s and where links between courts and police stations for first hearings have been piloted with interpreters since 2010 (Braun & Taylor 2012b).

The scepticism towards the appropriateness of VRI in police interviews may have to do with the novelty of VRI, but several specific reasons were also given by the interpreters. One was the perceived loss of rapport in VRI (see also Section 4.3.4). For example, I2 believed that "you've got to be very careful which [interview] you do on video link because you lose that sort of human touch aspect of it". Another reason was the variable length of police interviews. I7 believed that VRI would be difficult in long interviews. Similarly, I8 referred to her experience of (onsite) interpreting in long court trials, saying that this "would be much more difficult" than interpreting in any short video link, although she was open to testing it.

I6 and I8 also considered the importance of the participants' disposition. I6 pointed out that "some people are maybe not used to uh technology" and that this would make VRI problematic. I8 wondered about the willingness of some speakers of other cultures to accept a VRI situation:

> There will be some cultural issues uh in the sense of-[1] there will be some people I know, for example, they uh would not mind uh like coming [to the police station] as a witness uh but I don't think they would like this really, no. (I8)

In addition, I8 raised concerns about whether VRI would give an accused person a fair chance to follow the proceedings:

> I would be very concerned about whether the accused is uh is really understanding everything, uh uh whether he's put off by all this equipment business, whether he would dare interrupt proceedings to say, 'Hey, you're going too fast. I haven't understood what you are saying,' and so on, and so forth. I would be very concerned about that. And that is why also uh I have my reservations concerning what the Met is trying to do. I understand they are trying to save money, but I feel that uh for some people- because it depends on people, you know. (I8)

This comment is linked to the point made above in that I8's concerns about VRI are motivated by her understanding of the communication problems that speakers with limited English proficiency may face in situations of distance communication. Her comment thus highlights once again that the attribution of the interpreters' opposition to VRI to financial issues is, at best, not comprehensive enough. It misses out on the communication problems that VRI may create, and on the interpreters' awareness of these problems.

1. - marks an interrupted utterance

Only two of the interpreters in our sample, I4 and I5, had a positive attitude towards the use of VRI in a range of settings including investigative interviews. Their attitude seemed to be motivated by their own safety and by practical issues. I4 said that she would like to use VRI "all the time", because of her experience of having been physically attacked by a suspect during a police interview in which she interpreted. I5 felt that VRI would work anywhere because, as she put it, "you can interact, you can see the other people and they can see you," and thought that it would be particularly useful for prison settings as it would spare the interpreter the "rigmarole of going through the prison system."

Although focused on appropriateness, the interpreters' comments on the use of VRI illustrate that their individual conceptualisations of VRI, despite having a common core, are shaped by their respective personal experiences of onsite and video-mediated interpreting in legal contexts and, more broadly, by their role understanding and their values, for example in relation to the importance of the 'human touch' in interpreting. Devaux (2017) comes to similar conclusions for VCI in legal settings. However, while different experiences and values will always lead to individual differences in attitudes towards VRI or any other practice, the rather wide range of views about the appropriateness of VRI that can be detected in our sample is indicative of a low degree of stabilisation of VRI as a technological artefact or practice among the interpreters to date. The debate about VRI, i.e. the social process of constructing a common understanding of VRI, its uses and limitations, is ongoing in the interpreter profession. The next section will explore how the perceptions of appropriateness are also shaped by perceptions of different technological parameters in VRI.

4.2 Perceptions of the technological basis

To contextualise the interpreters' comments about the technological basis of videoconferencing, it is necessary to give a brief outline of the technical set-ups in the simulations and at the MPS, where most of the interpreters who participated in our study would work. From our interaction with the MPS we knew that the plan for the VRI implementation was to equip the interview rooms with one screen to display the interpreter, and one camera and one microphone to capture the video and audio feed from the interview room. Screen and camera would be wall-mounted and positioned perpendicular to the table at which police officer(s) and the suspect are seated. The interpreter would thus see an overview image showing the participants in the interview room from the side. Our simulations used the same set-up for the positioning of the screen, but deployed multiple cameras in the interview room to show close-ups of the police officer and the suspect as well as an overview image. The set-up used in our simulations is shown in Figure 1.

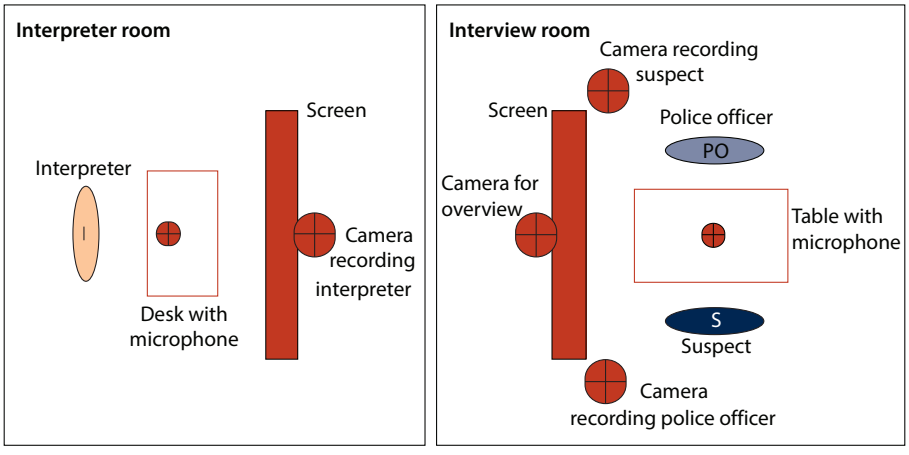

Figure 1. Set-up used in the VRI simulations

The participants' perceptions of the technical set-up were analysed under three themes, i.e. audio feed, video feed and operation of the equipment, for which quality, presentation and control emerged as core concepts.

4.2.1 *Audio feed: Quality*

The interpreters' assessment of the sound quality of the video links was that this was generally acceptable. I8 even found that the quality of our equipment "was probably the best in terms of sound". Referring to other experiences with video links, she contended that "sometimes the sound is not very clear. It, it, it gets lost a little bit. It gets distant and it comes back, you know. So, it, it's a b-, it's more uh strenuous." This is in line with her concerns that an accused person may not be fully able to follow the proceedings or interview when a video link is involved (see above).

I3 felt that "the sound has been quite good" but added two caveats, i.e. "well, first of all one has to get used to it, and uh secondly I do feel more apprehensive about not getting it right." This is indicative of a not always explicitly articulated but discernible feeling of uncertainty or unease on the part of several interpreters about the sound quality they might encounter in a video link. I2, for example, described her concerns before participating in the VRI session:

> I was afraid that I would not hear, for a start. I was afraid that I would not understand what was being said when people are speaking at the same time. (I2)

Similarly, I6 drew on her previous experience with video-mediated communication pointing out that "you've got to really make sure that you hear the person, because the sounds can interfere, as opposed to uh where you sit face-to-face". I7 was particularly concerned about using VRI with speakers who have a very strong accent,

while I3 considered possible consequences of VRI for dealing with proper names, contending that

> [VRI] might be a bit tricky when it comes to the names. They say 'My name is …' and there are sometimes very long foreign names, and then they mention a lot of other long foreign names, so I suppose the end result would be uh uh less- uh poor quality I would imagine. I don't know. (I3)

I6's comment above points to a coping strategy, i.e. an increased focus on listening comprehension, which corroborates experimental work finding increased levels of inferencing among interpreters in VMI (Braun 2004, 2007). However, the comments in relation to the sound quality also have a hint of helplessness, suggesting that the interpreters feel exposed to, and dependant on, the technology, fearing that it may affect the quality of their work. Although PO3 showed awareness of the potential difficulties in VRI, contending that with "things like place names, you cannot assume they know where it is" and that it would be "crucial to get the briefing right" in VRI, the interpreters in our sample seemed to have little confidence that their clients would develop a sufficient understanding of the challenges of VRI and that they would attribute technology-induced lapses in the interpreting performance to these challenges.

The views regarding sound quality suggest that there was insufficient interaction between the stakeholder groups at this point. Although initial meetings had taken place between the MPS and their certified interpreters, these meetings were not sufficient to bridge divides and differences in the way the groups framed VRI. While the MPS and the officers in our sample generally framed VRI as a technological solution to a problem and in accordance with this were more willing to believe that the problems emerging in the VRI simulations could be overcome through briefing and some training, the interpreters' frames of VRI were more complex and their concerns were more profound. The nuanced comments about the potential risks arising from audio quality problems in VRI were complemented by comments about the video feed that the interpreters saw, although, as will be shown in the next section, the interpreters' views on the video feed were more heterogeneous, indicating that details in the technological design of the videoconferencing system have a great impact on how the system is perceived.

4.2.2 *Video feed: Presentation*

As outlined in the introduction to Section 4.2, our simulations used a videoconferencing system with multiple cameras displaying four video feeds to the interpreter on one screen, i.e. a wide shot of the interview room with the police officer and the suspect facing each other, close-ups of the officer and the suspect, and a self-view image of the interpreter. The design was inspired by videoconferencing

systems used in courts. However, most interpreters in our sample expressed a preference for only one video feed showing everyone on the other side. While I4 simply reported that she mostly looked at the image showing both participants, I2 made her preference more explicit, saying "if we had just one big screen on which you can see everybody at the same time that is much better", whereas I3 noted "all I would have needed would've been to see the, the two heads. I would prefer one big image."

Not all interpreters shared the same opinions, however. I6 found the multiple images "very useful" although she gave no further explanation. By contrast, I7 said she would prefer one image per participant because this enabled her to have close-ups of each. She explained that many of her clients have a strong accent in French and that to facilitate comprehension in these cases, "it would be nice uh to have, you know, like a, a portrait … but I suppose to be able to see the hands as well," indicating a desire to have a video feed which optimised the reception of different types of embodied cues.

I5 was more concerned with the size of the video image. In her view, a bigger, full-screen image "might actually be too distracting". Whilst she highlighted the importance of being able to see the remote participants ("you need the vision"), she felt the relatively small video image on our screen was more appropriate as it allowed her to "concentrate on what is being said rather than really what, what they look like in detail".

Despite the differences in their opinions about the actual implementation of the video feeds, all interpreters felt that the video feed provides useful information. By contrast, PO3, who commented on the planned positioning of the video screens in the police custody suites, did not share the interpreters' view:

> PO3: It's our vision that the audio-visual link will be probably on a wall at either side. The other way of doing it is actually to put it on the wall behind us, so the detainee can actually see [the interpreter]. And, and it really doesn't matter to me 'cos I think doing an interview, particularly when it gets a bit pressured, most people are nose-down and writing notes anyway.
> Interviewer: So it maybe doesn't matter to the interviewing officer?
> PO3: No, providing you can uh hear what the interpreter is saying, providing the interpreter can hear what we're saying.

The perspective that PO3 presents in this brief exchange is perhaps debatable from a communicative point of view. At least, further research would be required to establish the actual gaze patterns of officers during interpreter-mediated suspect interviews. The exchange thus highlights not only the different preferences by the two groups but also the need for system designers to take account different user perspectives as well as to question or challenge them where they may seem debatable.

A further outcome concerns the self-view image, i.e. the video image that is transmitted to the remote side. The interpreters were divided over whether they would like to see this image. In the simulations, it was switched on by default. The interpreters were given the choice of turning it off, and two interpreters, I4 and I6, took this option. They felt that the self-view image would distract them. By contrast, I5 explicitly stated that the self-view image "didn't disturb [her] at all." The other interpreters were indifferent towards the self-view image. I7 conceded that she was aware of it but was undecided over whether it was useful. I8 was clearer, stating that "it didn't bother me one way or the other. So uh the uh technician left it on." There are different possible explanations for the relative indifference to the self-image. It could be the result of different preferences just as it could be indicative of a low awareness of the potentially important role of the self-view image for monitoring purposes. Alternatively, the additional visual input may have been distracting. The interpreters' opinions on the self-view image clearly require further investigations before its place in the interpreters' frame of VRI can be ascertained. The next section turns to the interpreters' perceptions of control over the equipment, which points in similar directions.

4.2.3 *Operating the equipment: Control*

In the discussion of the technological basis for our simulations, one of the points raised was how much control over the equipment the interpreters would like to have. Although some interpreters pointed out that they would have found it useful to have a different view of the participants, especially a slightly closer and/or more frontal view, they were generally not keen on the idea of operating (panning, zooming) the camera while they are interpreting, mainly for fear of being distracted. For example, I1 commented that she was "quite happy somebody was doing it," i.e. that a technician was available to set up the remote cameras before the VRI session, adding that she would find it "annoying if you are all the time playing with the buttons". Similarly, I8 contended, "once it's set up, I don't want to be messing around, fiddling around, because it will distract me from what's happening." This is once again different to the view of one of the police officers (PO3), who thought that "the easiest solution is to have everybody have control of their particular end." The only feature that was popular among all participating interpreters was volume control because, as I5 put it, "people have uh different hearing".

Apart from the fear of being distracted by operating the equipment, there were also other considerations, especially a perception that adjusting the camera was either not helpful or not necessary. I3, for example, had problems with understanding the suspect, as he mostly looked down while he was speaking but she felt that this required a different solution than adjusting the camera:

> The person who's got his head down, you can't do much about that … I mean obviously you want them to look at you when they're speaking, and uh so they'd have to be given guidance as to which way to face when they're speaking, which might be uh a bit challenging for them, I suppose. (I3)

By contrast, I6, who did not have the problem that the suspect looked down, felt that guidance or adjustment of the videoconferencing equipment would not be necessary:

> Well, I think uh the police officer has got to face the [detainee], so that's fine. For me, that's fine. Because generally we don't really look at the detainee. Jus- you know, it's like very short eye contact with the detainee, because the uh- I think the most important thing is, he is talking to uh to the police officer, because that's what they want. They want eye contact, and generally the solicitor and myself, we just look aside. (I6)

I6's expectations of how the non-verbal interaction between the interpreter and the participants work is clearly very different to that of I3, and the contrasting views of I3 and I6 are another example of how much the interpreters' own conceptualisations of their task shape the way they frame VRI. However, other interpreters to whom we spoke (during training sessions), especially interpreters working with tonal languages such as Mandarin Chinese, expressed a preference for having a frontal view of the face of the other-language speaker to facilitate the recognition of lip movement. This highlights the desirability of optimising all available embodied cues, as also illustrated by I6's preference for seeing not only the participants' heads but also their hands (see Section 4.2.1 above).

The primary conclusion is perhaps that the interpreters' reluctance to operate any of the equipment during the interpreting task, which mainly results from the fear of being distracted, should not be taken as a rejection of control over the equipment. The interpreters' comments rather point to a feeling of helplessness again, i.e. a loss of control in the face of the dependence on the technology. The fear of a loss of control and the perception that a greater degree of control would not improve the task of VRI, which were expressed by the interpreters, give interesting further insights into their conceptual frame of VRI. Control or the loss of it also plays an important role in the communication management, which is the next sub-theme that will be discussed here.

4.3 Perceptions of communication management in VRI

Communication management was addressed on several dimensions including the delivery of the interpretation, especially the control of one's own voice; the management of turn-taking and the interaction between the participants; the management

of paralinguistic and embodied resources; and the management of the rapport with the other participants. Each of these dimensions will be discussed in turn below. As with the previous themes, the interviews revealed core concepts in relation to each of the sub-themes, here especially effort, intervention, fragmentation and involvement.

4.3.1 *Delivery of the interpretation: Effort*

The interpreters' comments on how they delivered their renditions in the VRI simulation reveal a general belief that the effectiveness of technical channels of communication is constrained and that the output production therefore requires more effort. As I5 put it,

> you feel, maybe, you, you, you're more aware of- you have to speak clearly because it's transmitted through- uh in a, in a, in a normal situation, in a stuffy little room, even when you don't speak uh very loudly it's still accepted. It's still heard. I don't have the feeling that I talked necessarily louder, but I tried to maybe enunciate more. (I5)

Although this point remained under-explored in the reflective sessions, I5's comment resonates with anecdotal feedback from interpreters across all fields that remote interpreting is more tiring than onsite interpreting and with the experimental research that has shown an earlier onset of fatigue in remote interpreting (Braun 2013, Moser-Mercer 2005). It seems that the effort which is put into clearer enunciation as a means of overcoming the distance and the latent uncertainty of whether the message has reached the remote participants, i.e. the perceived lack of 'presence', requires additional cognitive resources of the interpreters and comes at the price of fatigue. Although less clearly articulated in the reflective interviews than other problems, the additional effort required in VRI is likely to contribute to the negative overall perception of this modality of interpreting among many interpreters.

In addition to this, I8, who was one of the interpreters with prior experience of videoconferencing (in the form of VCI), highlighted some of the practical consequences of speaking up in the video link during a police interview, especially problems caused by echo:

> You know that there would be people who are shouting, others would be swearing, and so on. And when I raise my- I have got a voice which projects to start with, and uh so sometimes people are shouting, and I'm trying to shout as well, like, to express what they are saying. There are echoes with the equipment. (I8)

These problems also have implications for turn-taking, which is another dimension that was highlighted as problematic during the reflective sessions.

4.3.2 *Turn-taking and interaction: Intervention*

The main points that were raised by the interpreters in relation to turn-taking were the difficulty with intervening to gain the floor and, linked to this, the loss of control over the communication management and over the pace of the speaker. The following comments illustrate this:

> What worries me is sometimes, you know, that uh it's not as easy perhaps to intervene … to ask a question. (I1)
>
> The problem that one would have with the, with the video link, would be for the interpreter to- it would be difficult for the interpreter to control the speed of the speech delivery. (I2)

More specifically, I5 referred to her own practice (in onsite interpreting) of 'latching' on to the speaker, i.e. of beginning to speak while the original speaker is completing his/her utterance as a normally effective way of intervening to gain the floor, and explained why she felt that this would be more difficult in VRI:

> In a normal situation, I can start working uh uh I can start talking and still listen to the person carrying on speaking. So that saves time. It's quicker. But in a video I wouldn't, I wouldn't try. I need to listen very carefully to the whole thing before I plunge in. (I5)

Although I5 did not attribute her difficulties with 'latching' directly to the technical problem with overlapping speech in video links, her emphasis of the need to listen carefully demonstrates awareness of the possible loss of information through overlapping speech, which was also evident in Braun's (2013) analysis of VRI.

Furthermore, the awareness of problems with overlapping speech in video links led both the interpreters and police officers to reflect on how long turns, which would require some chunking on the part of the interpreter, could be managed in VRI. PO1 pointed to the problem that

> the vast majority of detainees, unless they've been arrested a number of times, won't be used to being interviewed with an interpreter. They are not used to saying something and stopping, saying something and stopping. (PO1)

Whilst PO1 thought that this was simply "a practical problem we have to get around anyway," PO3 reflected on the additional difficulties with this situation in VRI and considered various remedial strategies:

> [One] problem I would see is if your defendant was going on too fast, how the interpreter would actually stop them. Now whether they normally- here they can just put their hand up as a visual signal, a visual cue. Now, whether you actually get the officers to do that for them, whether the interpreter on the remote says 'stop, please, let me get that far,' whether they say as part of their introduction that 'I'm

> not sitting next to you. Uh please if you're going to go on more than a couple of sentences, please stop and let me do it,' that's probably an issue. Uh it may be an issue for the uh interviewing officers to be aware of. Uh because literally just to let them ramble and not get the interpreting uh you may lose something of value to both sides. (PO3)

Most notably, PO3's comment makes it clear that he knows that the interpreters' intervention strategies may not be effective and that there is a need for involving the officers in a collaborative solution. Similarly, I7 explained that she was not sure whether her normal strategies, i.e. the use of embodied cues such as hand-raising to get a speaker to pause, would be effective and that she switched to more note-taking to keep track of longer turns:

> Usually uh when I'm, I'm face-to-face, because obviously I'm, I'm experienced, I just make sure that uh by- when the person does a too long phrase, I usually show, I show my hand and I, I stop them. But because it [the simulation] was my first time, I felt a bit, well, perhaps not intimidated but, you know, felt- and, you know, she was just going on. So, what I was doing uh to make sure that my interpreting was, was precise, I was uh writing things down. (I7)

Although the solutions outlined by PO3 and I7 are different, the perception that the suspect could be "just going on" was a common concern about VRI. It was partially that point which led both stakeholder groups to conclude that, in I1's words, "you definitely have less control" over the interaction in VRI. As I7's comment above highlights, one element that nurtured this perception was the experience that embodied cues and paralinguistic means of expression work less well in video links than in face-to-face communication. This will be explored further in the next section.

4.3.3 *Embodied and paralinguistic resources: Fragmentation*

As the discussion of the video feed in Section 4.2.2 showed, there was general agreement among the interpreters that it is useful to have access to the visual image of the remote participants, and to the embodied resources they use. This was widely seen as making VRI easier than telephone interpreting:

> And uh on the telephone, it's, it's less easy to do it, because you can't see what's going on. But uh with the video link, it- you know, you can actually see the people, so it makes it uh easier. (I8)

However, the interpreters also felt that the access to these resources was less good in VRI, meaning that embodied cues were less effective than during onsite interpreting or were lost altogether. One of the interpreters struggled to identify the exact reasons for this, merely saying:

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> You can see the reaction of the person … I use my hand … It's a- it, it, it's different when the person is sitting next to you. It, it, it's- I can't put it in words. I can see the body language. You can see many things you don't see over uh a video link. (I4)

I4's difficulty in explaining what is missing in a video link resembles the discussions of the 'sense of presence' in technology-mediated communication (see Section 2 above), which is generally seen as a phenomenon that is difficult to pin down. We will return to this in Section 4.3.4 below. A comment by I8 is more insightful as it links the ineffectiveness of the embodied cues to the way in which the remote participants were shown on screen:

> [In onsite interpreting] I can pick up more from their body language and so on, which I won't be able to pick up from the, from the video link, because it's just- you see a head, and sometimes even the head- you see half the head, because the person is moving. (I8)

This comment gives a more concrete clue to the cause of the problem than I4's comment but they can both be conceptualised as attempts to pinpoint the fragmentation of videoconference environments (Heath & Luff 2000), the extract-like, incomplete views of the other side that they offer (Braun 2004), and the difficulty of creating convivial media ecologies, as discussed by Nardi and Whittaker (2002). The perception of fragmentation thus emerges as one of the central concepts here. I2's comment that "when we were doing the face-to-face, her [the suspect's] body language was much more important to me … I could pick it up much faster" further corroborates this point.

In another comment, I2 also made specific reference to the difficulty of identifying intonation patterns in VRI and described the impact she thought this may have on the course of the police interview:

> When we were doing face-to-face, I got the impression that I was more able to pick up the different intonations. That gives clues to the officer. And these clues are very important to a question he's going to ask. (I2)

It is not entirely clear what caused this impression but the interpreters' overall positive assessment of the sound quality in the simulations suggests that the problem did not stem from the audio quality. It is more likely to have arisen from the difference between the measurable audio quality and the way in which sounds are subjectively perceived. The implications of this difference are one of the aspects that need to be investigated further in order to resolve the discrepancy between objective and subjective measures that stands out in VRI research to date.

Apart from that it is noteworthy that the police officers had little to say about embodied cues. This is not too surprising given that the suspect was co-present with

the officer. Although debatable, their comments on the video feed (see Section 4.2.2) suggest that they generally paid little attention to the visual feed from the interpreter. The asymmetry between the interpreters and the legal stakeholders with respect to the perceived importance of visual or embodied cues from the remote site is perhaps one of the biggest differences between VCI and VRI. Whilst the interpreters will find visual and embodied cues from the remote side important in both configurations, the legal practitioners are more likely to pay attention to such cues in VCI, when the defendant or witness is remote. The next section will focus on a phenomenon that is closely linked to the ability to access visual, embodied and paralinguistic cues, i.e. the rapport with the other participants.

4.3.4 *Rapport with the other participants: Involvement*

The rapport with the other participants in a communicative event mainly concerns the sense of togetherness or sense of presence, i.e. the feeling that there is a direct relationship with the others. Although, as was pointed out above, this concept has been found to be difficult to grasp, there were abundant references to it in the reflective sessions. Some interpreters conceptualised their relationship with the primary participants in terms of physical closeness to the primary participants. For example, I6 contended that the rapport she develops in onsite interpreting "is different [because] you, you seem uh- because you are closer" and that this makes onsite interpreting "a little bit easier." By contrast, I5 highlighted one of the advantages of being remote:

> Sometimes it's a plus, because when you are close to, to the person who's being arrested and, and they usually are upset especially if it's a, a lorry driver who's just had a fatal accident, and uh it can get very emotional and they cry and everything and it's, it's upsetting for you too because you feel terribly sorry for them uh in which- you know, in, in this case, you, you, you are feeling more remote. (I5)

Others described the differences in terms of the level of emotional and communicative support they are able to provide when they are co-present with the police officer and the suspect:

> Sometimes you can have a- you know, there are moments within an interview where you sort- you have to relax the others. Because it's much- you, you're gonna get a better mileage. (I1)
>
> Uh the detainee is very often distraught. They are very upset at being there. They don't understand the system. It's all the emotions that come along with being arrested. The interpreter is, is reassuring, it's very reassuring to have the interpreter there. You know, they sort of hang on to you. You are, you are their lifeline. You're the one who's going to, you know, communicate. (I2)

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Although the ongoing debate about the interpreter's role may call some of these arguments into question, the important point here is that some of the interpreters themselves seem to see the reduction in the level of support they are able to offer as a negative aspect of VRI. As the comment by I1 shows, she clearly felt that her approach of "relaxing the others" is beneficial for the communication.

Yet other interpreters discussed rapport in terms of being involved in the interview. I4, I5 and I7 contended that they felt "more involved" when co-present. I5 added that "you get the vibes" when you are in the same room. Similarly, I2 thought that she "wasn't in it at all" in the VRI session, while I3's perception was that "you feel somehow it's not really quite so real." After initially emphasising that it is "difficult to explain why," I3 offered the following explanation:

> It's the stimuli. I mean, would you like to live your life virtually, doing things through a screen or would you like to actually go to a shop and get the stuff and uh and be with actual people rather than talking to them via, what, Skype, or something like that? (I3)

I3's conclusion, which was borrowed for the title of this chapter, was that when working remotely, "you're just a disembodied voice really". It appears, then, that the fragmentation of the communication environment, which was highlighted in the previous section, also leads to a perception of a reduced involvement in the communication via video link. This is crucial if we bear in mind that involvement is an important prerequisite for contextualised comprehension, for drawing appropriate inferences, deriving the intended meaning and creating coherence, i.e. the pragmatic layer of communication.

In the light of this it is particularly interesting to note that two of the police officers who commented on rapport, while acknowledging some of the differences that the interpreters pointed out as well, did not think that these would have any important implications. PO2, for example, contended that "having the interpreter there, maybe it's a bit more comforting for the police officer, but for me, it really doesn't make much difference at all." PO3 was more explicit about the absence of any legal implications:

> Uh well clearly you don't get the same dynamic of having somebody sitting here and actually if your interpreter was at the police station, you can actually get to know them beforehand. You may know them anyway because they've been to the police station before. Whereas with remote, you- probably the first time you've ever met them is on a camera. Uh from a legal point of view I don't see any problem with it. (PO3)

The picture emerging here is one of partial convergence of the two stakeholder groups, i.e. interpreters and police officers. While they largely agree that VRI is

different from onsite interpreting in terms of its 'dynamics', they construct different frames for VRI from this, one emphasising the fragmentation, the difficulties with rapport-building and being involved, and the ensuing communication difficulties, the other arguing that they are irrelevant.

The perceptions of rapport by the interpreters in this sample corroborate the findings from Braun & Taylor's (2012c) survey of a larger sample of 150 legal interpreters, in which most interpreters rated their rapport with the participants in VMI as being considerably lower than in onsite interpreting. Interestingly, however, this survey also revealed that the ratings for rapport did not correlate with the interpreters' ratings of their own performance, which were more positive. The next section, which analyses the perceptions of the interpreters in our sample in respect of their interpreting performance, yields similar conclusions.

4.4 Perceptions of impact on the interpreting performance

One part of the reflective sessions focused on the interpreters' perceptions of their own performance. In the light of their experience during the simulations and, where applicable, other previous experience with VMI, the interpreters were asked whether they thought that VRI would have an impact on their interpreting performance.

The answers can be divided into three groups. The first group includes five interpreters (I4, I5, I6, I7 and I8) whose (first) reaction was that VRI has no impact. However, three of them then either qualified their initial reply or added explanations which suggest the opposite (underlined in the transcripts). The answers to the question of whether VRI affects their performance are worth investigating more closely:

> Uh not necessarily, because I'm used to it. (I8)
>
> No, I don't think so. But uh I'd hate to think, you know, that it is someone that really speaks with a very strong accent. (I7)
>
> I think in the same room, it's more human. OK, so it's more a human factor. But I don't think it has an impact on the ability to trans- to interpret. The only thing that could go wrong with the video is the sound. And then, because you don't hear very well, you've got to really make sure that you hear the person, because the sounds can interfere, as opposed to uh where you sit face-to-face. Other than that it's the same. (I6)
>
> I think because you have to look at the screen uh I would say it's a bit more tiring. (I6)

While I8 makes it clear that she thinks VRI does not affect her own performance because of her experience (which was with VCI), her answer leaves open the possibility that the performance of other interpreters may be affected. I7's answer is noteworthy in light of the comments that this interpreter made about speakers with strong accents. I7 explained (in a different part of the reflective session) that approximately 80% of her work for the police involves French speakers from African countries and that many of them speak with a strong accent, making her job harder. Similarly, I6 referred to another situation that is not unlikely in VRI, i.e. problems with the sound quality, and conceded that VRI is more tiring than onsite interpreting. As was pointed out earlier, previous research has linked fatigue in VRI to a reduction in performance quality (Braun 2013, Moser-Mercer 2003). In contrast to the initial reactions by the interpreters in this group, their further comments therefore seem to suggest that there is a real possibility that VRI will in fact impact on the interpreter's performance.

The second group consists of two interpreters who stated that it would be too early to say whether VRI would affect the interpreter's performance. However, one of the two highlighted her perception that VRI is more tiring and contemplated the possible consequences. They include loss of concentration and accuracy problems, which are again strong indicators for a real impact of VRI on the performance quality (emphasis added):

> I couldn't say at this stage. (I1)

> In general, I think it's a little bit early to decide whether it will affect- it will have an effect or not. But uh certainly, I mean, I wouldn't do a, a complicated case via video link. Uh but it is much more tiring to do it. I mean, you really need to concentrate a lot more. (I2)

> I was so busy concentrating! I wouldn't like to do that all day long. Because that would be very tiring! I mean, if I had to do four, five interviews like that, all day long, that would not be very nice job. You would feel very isolated. You would feel very tired. If you get fatigue, then your concentration is affected. And then your interpretation is affected. Your accuracy is different. (I2)

A third set of views was held by I3, who believed that VRI could affect the quality of the performance and offered the following explanations (emphasis added):

> Well it, it could do because I think your mind is kept alive by the fact that you're there, and even if the furnishing is very simple, there are things, they're like uh probably a desk, a chair and things around you. And there might be smells, there might be sounds, anything. You see, they're all stimuli, you know, mental stimuli. (I3)

> It might be a bit tricky when it comes to the names. They say 'My name is …' and there's sometimes very long foreign names, and then they mention a lot of other long foreign names, so I suppose the end result would be um, um, less- uh poor quality, I would imagine. I don't know. (I3)

While the second point is linked to concerns about miscomprehension due to inferior sound quality (see also Section 4.2.1 above), the first comment refers to the interpreter's difficulty with building a coherent mental representation of the situation, which was discussed by Braun (2004, 2007) and Moser-Mercer (2005) as one of the difficulties in VMI.

The discrepancies between the interpreters' initial reactions and their subsequent explanations is partially mirrored in one of the police officers' comments on the interpreters' performance. Although denying any difference for himself, he highlighted a range of potentially problematic situations such as showing objects to a remote participant, which might well lead to a difference the interpreting performance:

> Well, for the remote, obviously, the person being interviewed is going to be looking at the screen all the time. Uh, well, is it harder for them to understand both of us? I, I'm not sure. But for me, really, to be honest, it makes no difference to me really, I- you know, whether there's a screen or an individual. It really does not make one bit of difference to me, apart from if I've got some- an interpreter sitting down here, maybe I can get a bit quicker. If the person's sitting there, I can show them something. I can show them a bit of paper, I can I can directly speak to them. It might faze a younger officer but, to be honest, it really does not faze me. (PO1)

The other two officers each had a different view of the impact of VRI on the interpreters:

> I think it's harder for them to obviously interpret when they're not face-to-face. (PO2)

> Videoconferencing is not new. And for those that have done it before, it doesn't really matter whether it's a police interview or it's just a- interpreting from a distance. Uh for those, as soon as they get over the fact, you know, they're on camera, presumably they can see what we're doing this end. Uh I don't think it's an issue. (PO3)

PO3's view clearly contrasts with many of the problems of VRI that were highlighted by the interpreters in our sample. Moreover, research suggests that adaptation, whilst possible, is limited to some aspects of performance. For example, comprehension problems, which would ensue from strong accents or problems with the sound channel have been shown to be difficult to resolve (Braun 2004, 2007, 2013).

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The analysis of the interpreters' and police officers' perceptions of performance quality in VRI thus reveals a partial divergence as well as a considerable stratification within each group. However, the most interesting observation is perhaps that some of the interpreters initially rejected the idea that VRI would affect their performance, which was in stark contrast not only with the many concerns the interpreters had voiced about VRI and the problems they had reported from the simulations, but also with the subsequent explanations they gave in relation to their VRI performance. Moreover, the perception that VRI has no or little impact on the interpreter's performance is also in sharp contrast to the analysis of the interpreters' actual performance, which was found to be significantly lower in VRI (Braun 2013). The reasons for these multiple discrepancies are difficult to identify, but the SCOT framework offers a possible explanation. It seems that the interpreters in our sample are acutely aware of a range of challenges that VRI creates but that they do not consistently project these challenges onto their own performance. This missing link points to a low degree of stabilisation in the process of conceptualising VRI as a (relatively) new practice. A coherent semiotic structure around VRI, i.e. a clear understanding of what it is, how it differs from onsite interpreting and from other configurations of VMI, and how the differences may affect the interpreting performance, has not yet been articulated among the interpreters as a stakeholder group.

5. Conclusions

This chapter has presented the first exploration of participant perceptions of VRI in legal contexts, using a sample of eight legal interpreters and three police officers who were experienced in working with interpreters. The participants' views were collected in reflective interviews following a simulation of onsite interpreting and VRI in police suspect interviews. The interviews were analysed under the themes of overall perception of VRI, technological basis, communication management and interpreting performance. The SCOT framework was used to explore what the participants' perceptions reveal about the extent to which the meaning of VRI as a socio-technological practice to overcome language barriers has stabilised among the two stakeholder groups.

One of the key outcomes is that the two social groups considered in this chapter are at very different stages of the process of stabilisation. The officers, who were representatives of the MPS in London, seem to have reached closure in the sense that their conceptualisation of VRI is relatively uniform, and clearly reflective of institutional needs and values. The need to reduce the cost of interpreting is presented as the problem, whereas VRI is presented as an important part of the solution.

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Objections to VRI on the part of the interpreters are reduced to being side-effects of cultural change, which are, however, not insurmountable. In contrast to this, the interpreters conceptualise VRI as a significant challenge in a changing professional landscape but, as the differences in their perceptions of individual aspects of VRI show, as a relevant social group the interpreters are still searching for a coherent frame with a shared set of meanings for VRI.

As a second important outcome, the analysis of three of the four themes has revealed a set of core concepts which seem to play a key part in the framing of VRI for the interpreters, as shown in Table 2 below.

Table 2. Core concepts associated with VRI by the interpreters, as emerging from the thematic analysis

Main theme	Sub-theme	Core concepts
1. Overall perception of VRI	Adoption of VRI	Dependence
	Usage situations	Appropriateness
2. Technological basis	Audio and video feed	Quality
	VRI environment	Presentation
	Operation of equipment	Control
3. Communication management	Delivery of interpretation	Effort
	Turn-taking	Intervention
	Non-verbal cues, paralanguage	Fragmentation
	Rapport	Involvement

The interpreters' perceptions of the adoption of VRI is closely linked to the notion of *dependence*. The fear of becoming dependant on the technology leads the interpreters to focus on the constraints of VRI, leaving little room for the potential affordances including new business opportunities and the prospect of making the interpreting profession more sustainable in the long term. The focus on the constraints of VRI was also reflected in the discussions about how and where VRI can be used, although this discussion was linked to communication genres and, above all, considerations of *appropriateness*. The exploration of the technical parameters highlighted audio *quality*, visual *presentation* and *control* over the equipment as three key aspects, with excellent audio quality being the prime concern of most interpreters. With regard to communication management, the interviews highlighted the interpreters' concerns about the *effort* that is needed to produce a meaningful output and to get it across to the remote participants, and about the fatigue as a consequence of this. Other concerns arose from the problems with *intervention* in the flow of speech. Along with the reduced effectiveness of embodied and paralinguistic resources in VRI, these problems were perceived as a consequence of the *fragmentation* in videoconferencing. Fragmentation, in turn, was found to be responsible

for reducing the opportunities for *involvement* in the communicative event, leading the interpreters to feel, in the words of one of them, "like a disembodied voice".

Furthermore, the analysis has shown that there is little convergence and mostly divergence between the interpreters and the police officers in respect of these concepts. In some instances, the police officers highlight different concepts altogether. For example, the adoption of VRI is framed in terms of dependence on technology by the interpreters, whereas it is conceptualised as part of a more complex cultural change by the police officers. Whilst the limited number of police officers in the present study makes a consistent identification of relevant core concepts for this group in relation to each theme difficult, the core concepts identified for the interpreters seem more stable. In line with the low degree of stabilisation of the VRI frame among the interpreters there is, however, a considerable degree of variation in the interpreters' perceptions around many of these concepts. Irrespective of this, it is fair to say that the interpreters' perception of VRI is mostly critical.

This critical perception is, however, at risk of being neglected, mainly for two reasons, which the SCOT framework helps to highlight. The first is the power differential, whereby legal interpreters are not sufficiently recognised as communication experts by the legal stakeholders, i.e. – in terms of SCOT – are not fully recognised as a relevant social group in relation to VRI. The second is the greater degree of stabilisation that the conceptualisation of VRI has reached among the legal stakeholders compared to the interpreters. Due to these two factors, the technological frame adopted by the justice sector institutions is therefore much more likely to be adopted as the dominant frame, making the interpreters a "disembodied voice" in a dual sense.

Another factor in this development is the emergence of an increasing number of interpreting technology providers as a further relevant social group in relation to VRI. Although the dynamics of this group would warrant a separate study, technology providers tend to align with the users of interpreting services and the interpreting agencies rather than with the interpreters themselves. Moreover, anecdotal evidence suggests that some members of this group have little understanding of the specifics and complexities of interpreter-mediated communication. All of this makes the negotiation of a common technological frame for VRI more complex and potentially more difficult. One important element will be the development of technical standards, which constitutes a strong form of closure for a technological artefact. However, as the use of the SCOT framework to analyse the evolution of technological artefacts and practices in different fields and over many decades has impressively demonstrated, the most important element for the successful design of technology is that the relevant groups – i.e. interpreters and their professional associations, users of interpreting services (both institutional clients such as the police and private clients such as defendants, or their

representatives), interpreting service providers including agencies, technology providers, policy makers and researchers – enter into a meaningful dialogue to resolve misconceptions and construct a joint understanding of good practice in order to shape the technological artefact and associated practices in such a way that it is beneficial for all involved.

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Does interpreter location make a difference?

A study of remote vs face-to-face interpreting in simulated police interviews

Sandra Hale[1], Jane Goodman-Delahunty[2], Natalie Martschuk[3] and Julie Lim[1]
[1] The University of New South Wales | [2] University of Newcastle | [3] Griffith University

Remote interpreting has traditionally been the less preferred option when compared to face-to-face interpreting. But the recent pandemic has shifted the landscape, making remote interpreting the default in many, if not most, settings. Improved videoconferencing technologies have facilitated this transition. The main question is whether remote interpreting has any impact on interpreter performance, including interpreting accuracy. This article presents the results of an experimental study that compared the performance of 103 qualified interpreters in three language combinations (English + Arabic, Mandarin and Spanish) in three conditions (face-to-face vs video remote vs audio remote interpreting) in the context of simulated police interviews. The interpreters' preferences and perceptions were elicited and analysed, and their performance assessed by independent trained raters using detailed marking criteria. The results showed no significant differences between face-to-face and video interpreting, but significant decrements in audio remote interpreting performance. More than one-third of the interpreters perceived remote interpreting as being more difficult due to technological challenges. No differences emerged between the language groups on any measure.

Keywords: interpreting accuracy, interactional management, video interpreting, telephone interpreting

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1. Introduction

The accuracy of interpreting in police settings is paramount to achieving justice. Monolingual investigative interviews are complex speech events. Different interviewing techniques and strategies are used by the interviewers to achieve their goals (Heydon 2005). When the interviewer and the interviewee do not share a common language, to remove the language barrier, the only solution is to include an interpreter. However, only competent and ethical interpreters can adequately perform such a job. Specialist legal interpreters require much training and experience in order to interpret accurately in such high-stakes settings. Unfortunately, this fact is not always acknowledged, and untrained and unqualified bilinguals are often used to "help out" (Hale 2010). The reality is that such bilinguals can not only not help but can also make the situation even worse, leading to negative consequences (Berk-Seligson 2009).

The dilemma arises when there are not enough competent interpreters available to perform legal interpreting jobs in all the required language combinations. In international conference settings, it is common for highly competent interpreters to be flown in from different locations to interpret for important meetings. Interpreting is considered to be a crucial contributor to the success of such international and multilingual meetings and the associated costs are included in organisations' annual budgets. Domestic legal settings, however, generally struggle with resources, and very rarely would there be the necessary funds to fly in interpreters from other cities or countries to interpret during police interviews or court cases. This has led to an increase in the use of remote interpreting in legal settings in some parts of the world (Braun et al. 2018; ImPLI Project 2012) by means of both videoconferencing facilities and the telephone (Shaffer & Evans 2018; Wakefield et al. 2015). The COVID-19 pandemic has forced the use of remote interpreting as the default for both international and domestic settings. Whether this new trend will continue to increase into the future has yet to be seen. In any event, accessing qualified interpreters remotely either via telephone (Kelly 2008) or via video (Licoppe & Veyrier 2017) is admittedly a better alternative to settling for lesser quality and hiring unqualified bilinguals to work face-to-face (Gracia-García 2002; Skinner et al. 2018). Nevertheless, the remote options have both advantages and disadvantages.

A number of advantages of remote interpreting have been proposed, including reduced delays, access to trained interpreters in languages for which the supply is scarce (Braun 2016; Kelly 2008), higher levels of security and anonymity for interpreters (Braun 2013; Braun et al. 2018; Rosenberg 2007) and lower costs due to the absence of travel (Braun 2020). The COVID-19 pandemic has added yet another advantage: that of maintaining the required distance between partic-

ipants to avoid the spread of the virus while continuing to function in the new landscape. Both international multilingual meetings and conferences as well as domestic bilingual interactions have been made possible by using remote interpreting platforms.

On the other hand, many disadvantages have been highlighted in relation to remote interpreting. These include poor-quality equipment, inadequate working conditions and remuneration for interpreters, a lack of clear protocols, difficulties with turn management and coordination, a lack of visual cues in telephone interpreting and additional communication challenges for all involved (Kelly 2008; Lee 2007; Määttä 2018; Wadensjö 1999; Wang 2018; Xu et al. 2020). Comparisons of the performance of interpreters in face-to-face versus remote interpreting in police interviews also found more inaccuracies in the remote mode, particularly in relation to distortions of the message (Braun & Taylor 2011).

Higher levels of interpreter fatigue and stress, physical discomfort such as eye straining in video remote interpreting (VRI), a loss of presence and a perceived lack of control, higher levels of isolation and cognitive load, and lower levels of motivation have also been cited as negative aspects of remote interpreting (Braun 2020; Koller & Pöchhacker 2018; Roziner & Shlesinger 2010; Skinner et al. 2018). Security is also an issue for police settings, because having interpreters in a remote location could lead to security breaches. Concern has also been raised regarding the lack of reliability in remote bilingual communication due to poor technology in comparison to face-to-face bilingual communication (Braun & Taylor 2012; Goodman-Delahunty & Martschuk 2016). For these reasons, some argue that the disadvantages outweigh the advantages and in particular that telephone interpreting should be used only as a last resort (Wang 2018). One other important aspect of face-to-face interpreting in domestic legal settings is the ability of interpreters to ensure that the non-mainstream language speaker is kept linguistically present by interpreting simultaneously in the whispering mode while the other participants speak to each other in the mainstream language. Unless specialist remote simultaneous interpreting equipment is used, interpreters are unable to perform this task remotely. However, it is worth noting that new, improved technologies are being developed rapidly, particularly in response to the recent global pandemic. Nevertheless, despite more advanced equipment being available in the market, both recent studies and current anecdotal evidence have shown that old-fashioned equipment is still being used by interviewers in different settings, and that interpreters often use their own mobile telephones with poor reception from unknown locations (Braun et al. 2018; Xu et al. 2020).

In addition to whether remote interpreting is conducted via the telephone or via video link, the locations of the different participants also vary, producing different challenges of their own. For example, the interpreter can be co-present with

the interviewer and remote from the interviewee or co-present with the interviewee and remote from the interviewer or even remote from both interviewer and interviewee (Braun 2019). Different studies have looked at different configurations, but it is the configuration in which the interpreter is remote from the other two participants that is the focus in this article, because the unavailability of qualified interpreters to work on-site leads to the need to hire them remotely.

Very few studies have compared the performance of face-to-face interpreting and that of remote interpreting in a rigorous way with large samples and experimental methods in legal settings (Braun 2013; Braun & Taylor 2011; Mellinger & Hanson 2018). This article reports on the results of a section of a large-scale experimental study that compared the performance of Australian professional Arabic–English, Mandarin–English and Spanish–English interpreters in simulated police interviews in three conditions: face-to-face, remote by telephone and remote by video (Goodman-Delahunty et al. 2020).

2. Telephone remote interpreting

Telephone remote interpreting was an innovative initiative by the Australian Department of Immigration to respond to the high demand for interpreters during the peak of the migration era in Australia. It was established in 1973 as the Emergency Telephone Interpreting Service (ETIS), later becoming the Telephone Interpreting Service (TIS) when the services were extended beyond emergency situations; and finally adopting the name Translation and Interpreting Services, due to the addition of on-site services (Jakubowicz & Buckley 1975; Ozolins 1998). Telephone interpreting was soon adopted by many different countries around the world, with the participation of numerous service providers, including commercial providers (Hlavac 2013; Kelly 2008). However, its original purpose, as an emergency service, is still regarded by some as the only valid reason for using such a service (Wang 2018).

Until 2018, telephone interpreting was not assessed by the National Accreditation Authority for Translators and Interpreters (NAATI). This changed in response to the NAATI Review (Hale et al. 2012), which recommended that telephone interpreting be tested in view of its increased use in interpreters' professional practice. In addition, the Australian Institute of Interpreters and Translators (AUSIT) developed recommended protocols for telephone interpreting that outline what should happen before, at the start of and during telephone interpreting assignments. AUSIT stressed that "Some interactions are not suitable for telephone interpreting. The interviewer should assess the appropriateness for this mode of interpreting" (2020b).

The limited research on telephone interpreting supports the view that telephone interpreting should be used sparingly, and then only when adequate protocols and working conditions can be ensured. However, practice shows that telephone interpreting is being used increasingly, even for long assignments, without meeting the required minimum working conditions and adequate remuneration, which is compromising the quality of the interpretation (Hlavac 2013; Wang 2018; Xu et al. 2020).

Most research into telephone interpreting has been in the form of surveys of interpreters about their views on, perceptions of and experiences regarding this type of interpreting. A few studies (Oviatt & Cohen 1992; Rosenberg 2007; Wadensjö 1999) have used very small samples to conduct discourse analyses of interpreting performance, some comparing telephone and face-to-face interpreting. Even fewer studies have used experimental methods with larger samples. There is a general call for further empirical research into telephone interpreting (Gracia-García 2002; Ozolins 2011).

Wadensjö (1999) analysed the performance of the same Russian<>Swedish interpreter who interpreted twice for the police one month apart for the same woman, once via the telephone and once face-to-face. The interpreting was authentic, hence the two interviews differed, although they covered the same topic. After the face-to-face interpreted session, the Russian interviewee was interviewed by the researcher about her preference regarding the location of the interpreter, to which she responded that the face-to-face interpreting made her feel more comfortable. This opinion of the end-user is consistent with that of police and military interviewers in Australia and the Asia Pacific, who were interviewed about their experience of working with interpreters and who also stated their preference for face-to-face over remote interpreting (Goodman-Delahunty & Martschuk 2016).

In the study cited above (Wadensjö 1999), a discourse analysis of the interpreted interviews revealed that in the face-to-face interview, the interpreter had more control over the turns, at times switching to simultaneous interpreting, a finding that was also evident in a recent study of interactional management in police settings (Hale et al. 2020a). The interpreters' ability to use simultaneous interpreting in the face-to-face interactions in Wadensjö's study made the tempo faster and more fluent than when the interview was conducted over the telephone. Wadensjö contended that "the sense of immediacy inherent in face-to-face interpreting" (1999: 262) is missing in telephone interpreting, which limits the interpreter's ability to manage and coordinate the interaction.

Another study compared the performance of the same interpreter, also the researcher, over a period of 14 months, interpreting via the telephone in medical consultations and business settings in the USA (Rosenberg 2007). This reflexive

study identified particular aspects of telephone interpreting practice, including the lack of an adequate introduction at the commencement of the interview, the lack of visual cues and poor sound that impinged on understanding, and the interpreter's own tendency to use the third person pronoun at times to make clarifications.

Ko (2006) researched interpreters' perceived fatigue, stress and concentration span in eight three-hour-long telephone interpreting sessions over four weeks. The study showed that interpreters' perceptions improved after a period of practice, indicating that familiarity and experience may help to improve performance.

A survey of 20 Korean interpreters in Australia showed that most interpreters perceived the lack of visual cues as their greatest challenge when interpreting over the telephone (Lee 2007). Wang (2021) surveyed 465 Australian interpreters, who indicated that they preferred face-to-face over telephone interpreting due to better working conditions that led to perceived better performance.

Some of the findings in the studies cited above also emerged in a recent observational study of 17 telephone-interpreted interviews in NSW Legal Aid offices in Australia (Xu et al. 2020). All the participants experienced the same difficulties, in particular in relation to the lack of visual cues. One aspect that was highlighted in this study was the interviewer's loss of control over what the interpreter was doing on the other end of the telephone line. This became more obvious when the interpreter was unresponsive, while sounds of children in the background indicated that the interpreter was occupied with attending to the children rather than performing the interpreting task.

3. Video remote interpreting

VRI has the additional benefit of providing some visual cues to the parties, the lack of which has been one of the main negative features of telephone interpreting. Skinner et al. (2018: 13) proposed two main reasons for favouring VRI over telephone remote interpreting: "(1) It is widely accepted that spoken language interaction includes important nonverbal elements of communication (e.g., eye gaze, gestures, etc.), and (2) the evolution of technology means it has become much easier to interact via video." However, a survey of 166 legal interpreters working globally via video link disclosed that they still prefer face-to-face interpreting (Braun & Taylor 2012), as VRI cannot fully replicate all of the extralinguistic cues available to interpreters and speakers alike. In a more recent study consisting of reflective interviews of eight experienced legal interpreters and three police officers in London, the interpreters perceived remote interpreting more negatively than the police officers, citing a lack of control, difficult interactional management,

a fear of technical problems, perceived higher cognitive effort and higher levels of fatigue (Braun 2020). In healthcare settings, Azarmina and Wallace (2005) reported that interpreters prefer face-to-face interpreting to video-link interpreting, but prefer the latter to telephone interpreting. In conference settings, Roziner and Shlesinger (2010) also found a strong interpreter preference for onsite interpreting, with European Parliament interpreters perceiving remote interpreting as more stressful and conducive to poorer performance.

There are some interpreters, however, whose views about remote interpreting are more positive, as found in a study of experienced conference interpreters who worked via video link for the 2014 FIFA World Cup and expressed a favourable attitude towards VRI (Seeber et al. 2019). Notably, these interpreters worked in booths with optimal working conditions, as they would in a regular conference, and they had interpreted in the same way for the previous world cup. The interpreters compared this experience to interpreting face-to-face for press conferences, which they assessed to be more stressful because of their full exposure to the public. However, the interpreters still had reservations about the lack of control over the audio and visual input and their inability to interact with the technicians and the conference delegates when working remotely. Although the interpreters all accepted the need for video remote interpreting due to the large distances between venues, about half of them were not completely comfortable with the remote condition, which made them feel less immersed in the situation and more vulnerable due to their over-reliance on the technology. They also felt the lack of access to visual cues increased their effort when interpreting (Seeber et al. 2019: 296).

In a small Austrian study of five young graduates with interpreting degrees, working in German and five other major languages (Arabic, Bosnian/Croatian/Serbian, Russian, Turkish and Austrian Sign Language), the interpreters were interviewed about their experiences and perceptions of the differences between interpreting face-to-face and remotely via video link in healthcare and social community-based institutional settings (Koller & Pöchhacker 2018). Although these interpreters admitted to some challenges in relation to technical problems, in general they reported being just as comfortable interpreting remotely as face-to-face. They did not consider the remote setting to be particularly more stressful than the face-to-face setting, and although they admitted to experiencing fatigue, they attributed this to computer work rather than to remote interpreting. The interpreters commented that their degree equipped them to be able to work under stress and to adapt to new technologies.

In a survey of 26 practitioners and examiners in Australia, Hlavac (2013) found that although face-to-face interpreting was preferred, most acknowledged that remote interpreting via video link is likely to increase and that interpreters

should be trained in this mode. The difference in attitude towards remote interpreting may point to a generational factor in being able to cope with changes in technology and the use of equipment. Roziner and Shlesinger (2010) also speculate that interpreters who interpret in the remote mode from the outset may suffer less from perceived feelings of isolation and alienation.

The foregoing studies report interpreters' own perceptions of remote interpreting and of how their performance may be affected. Moser-Mercer (2003) conducted the first controlled experimental study to assess independently the impact of VRI on interpreters' stress and fatigue. Using a within-participant design with six interpreters (English/French/Spanish), the experiment compared their interpreting at a meeting on site with their interpreting for the same meeting off site, using video link. The interpreters worked in pairs using standard conference interpreting booths in both conditions. The equipment was of a high quality and three cameras were used to give the remote interpreters multiple extended views of the room and the speakers. The study used physiological and psychological measures to assess stress and fatigue. It also elicited the interpreters' self-assessments of their own performance in addition to the delegates' assessments of interpreting quality. Interpreting quality assessed by independent assessors showed significantly higher error rates in the remote condition, although the delegates did not perceive any quality difference between on-site and remote interpreting. The interpreters were generally positive about both conditions; their main concern was a lack of control due to their being away from the conference hall. However, repeated psychological self-assessments revealed that the interpreters reported feeling more stressed when they worked remotely. Regarding fatigue, the interpreters reported being significantly more tired after remote than after face-to-face interpreting. Small variations were found in stress hormone values, with the values for remote interpreting being consistently higher, although not statistically significantly so. The author recommended larger samples to reassess significance (Moser-Mercer 2003).

A later and larger experimental study of 36 conference interpreters in the European Parliament (Roziner & Shlesinger 2010) also revealed no statistically significant differences in objective assessments of the interpreters' performance, health and stress, despite the interpreters' subjective self-evaluations of poorer performance and higher levels of stress in remote interpreting. The main effect of remote interpreting on practising interpreters was found to be psychological, causing feelings of isolation and alienation.

It is worth noting that the foregoing studies were conducted using high-quality conference interpreting equipment and optimal conditions, replicating almost exactly the conditions in international conference settings. Remote interpreting in legal settings is unlikely to enjoy such high-quality working conditions.

A recent ethnographic study of the use of video interpreting in twelve European legal systems found that, despite some improvements, the working conditions of interpreters were far from adequate. The interpreters who were interviewed complained about the poor sound and image quality, which impinged on their performance, commenting that no adjustments to the equipment had been undertaken to accommodate interpreters (Braun et al. 2018). This is in part due to the lack of consultation with interpreters and their professional associations when procuring or setting up the equipment.

Another major difference between international conference settings and domestic settings, such as courts and police interviews, relates to the dialogic nature of the latter. While conference interpreters are accustomed to working in a booth and interpreting unidirectionally, community interpreters work alone and operate mostly in dialogic settings, coordinating turns and managing the interaction. Remote interpreting, even with a video link, makes such interactional management much more complicated and at times impossible (Licoppe & Verdier 2013). Without clear protocols, speaker roles can be blurred, overlapping speech is more likely to occur, and the interpreter's ability to seek clarification is hampered. As a result of the increased use of video interpreting, AUSIT produced protocols to complement their telephone interpreting protocol, which are published on their website (AUSIT 2020a). In 2021, the American Translators Association (ATA) also published a position paper on remote interpreting on their website (ATA 2021), with very similar content.

As stated above, few experimental studies have compared face-to-face interpreting with VRI in legal settings. In one such study that is directly relevant to ours, Braun (2013) compared the performance of eight experienced accredited French–English interpreters in two simulated police interviews in England, using the consecutive mode. The study used a within-participant design to avoid any confounding variables. The interpreters' performances were rated against four categories of problem: message content, linguistic problems, paralinguistic problems and coordination problems. The results showed that the interpreters performed significantly better in the face-to-face condition in all four categories, with turn-taking problems yielding the greatest difference between the two conditions. Our study expands on previous studies by using a larger sample, with three language combinations, in three experimental conditions.

4. The present study: Research questions

The present study aimed to increase knowledge of the effects of remote interpreting in police interviews by examining interpreter performance in a controlled

experimental interview simulation using a large sample of interpreters in the English–Arabic, English–Mandarin, and English–Spanish combinations. Three interpreting conditions were systematically compared: face-to-face, remote via video (audiovisual) and remote via audio only (simulating telephone interpreting). The researchers used a previously developed assessment method to examine interpreter performance (see Hale et al. 2019). The data collection took place in 2017.

The study focused on documented research gaps by testing the impact of situational variables, namely interpreter location and language combination, on the performance of the interpreters. We use the term "performance" to refer to the overall interpreter performance that goes beyond the accuracy of the target message and which includes items relating to coordination and interactional management, interpreting protocols, ethical choices and bilingual competence. These items are explained in detail below.

The following research questions (RQ) were addressed:

RQ1. Were there any differences in interpreter performance between face-to-face, remote video and remote audio interpreting?
RQ2. Were there any differences in interpreting performance according to language combination?
RQ3. What were the interpreters' general preferences in relation to the different types of interpreting?
RQ4. What were the interpreters' and the interviewees' perceptions according to the different types of interpreting?

Based on previous research, our hypotheses were as follows:

1. Interpreters perform better face-to-face than remotely;
2. Language combination does not affect interpreter performance when education and experience are equivalent;
3. Interpreters in general prefer face-to-face over remote interpreting;
4. Both interpreters and interviewers perceive face-to-face interpreting more positively than remote interpreting.

5. Method

5.1 Participants

A total of 103 qualified interpreters, that is, 42 Mandarin-, 33 Spanish-, and 28 Arabic-speaking interpreters (77.7% female), responded to the call to participate in the study. Their mean age was 41.37 years ($SD = 13.66$; 21–73 years old). The Mandarin-speaking interpreters were on average younger ($M = 35.60$, $SD = 11.05$)

than the Arabic-speaking ($M = 43.50$, $SD = 11.12$, $p = .035$) and the Spanish-speaking interpreters ($M = 46.91$, $SD = 15.95$, $p = .001$; $F(2, 102) = 7.71$, $p = .001$). More than half of the participants had postgraduate-level qualifications, that is, a master's degree or above (51.5%). Almost two-fifths (36.9%) had completed a bachelor's degree. One in ten (9.7%) had completed a TAFE[1] diploma and 1.9% had completed High School.[2]

In relation to interpreting education and training, more than one-third of the participants had completed a master's degree or a graduate diploma in interpreting, and a further 13.6% had completed a bachelor's degree in interpreting; 29.1% reported the completion of a diploma or an advanced diploma at TAFE (see Figure 1). Sixteen per cent had not received any formal interpreting education or training but had passed the NAATI accreditation test (see Hale et al. 2019; Howes 2019), and a further five per cent had attended short professional development or university non-award courses. Fifteen per cent were interpreting students, of whom two-thirds (9.7%) had finished their coursework and were graduating in the same year. The Spanish-speaking interpreters were on average more experienced than the Arabic-speaking and Mandarin-speaking interpreters.

5.2 Research design

The experimental study employed a 3 × 3 between-participants design. The between-participants variables tested the *location of the interpreter* (face-to-face vs remote audiovisual vs remote audio) and *language combination* (Spanish vs Arabic vs Mandarin). Participants from the greater Sydney area were semi-randomly assigned to one of the three interpreter conditions according to their interpreting language and availability. Interpreters who were located interstate were randomly assigned to a remote audiovisual or audio-only condition. Approximately the same number of participants were in each experimental group (face-to-face: $n = 35$; remote audiovisual and audio: $n = 34$ each). The three language groups were evenly distributed across the three *location* conditions.

1. TAFE stands for Colleges of Technical and Further Education. These colleges offer vocational training and are not part of the higher education system. Diplomas and Advanced Diplomas of Interpreting are offered at TAFE colleges. Universities offer undergraduate and postgraduate degrees in Interpreting.

2. These participants were undergraduate interpreting students.

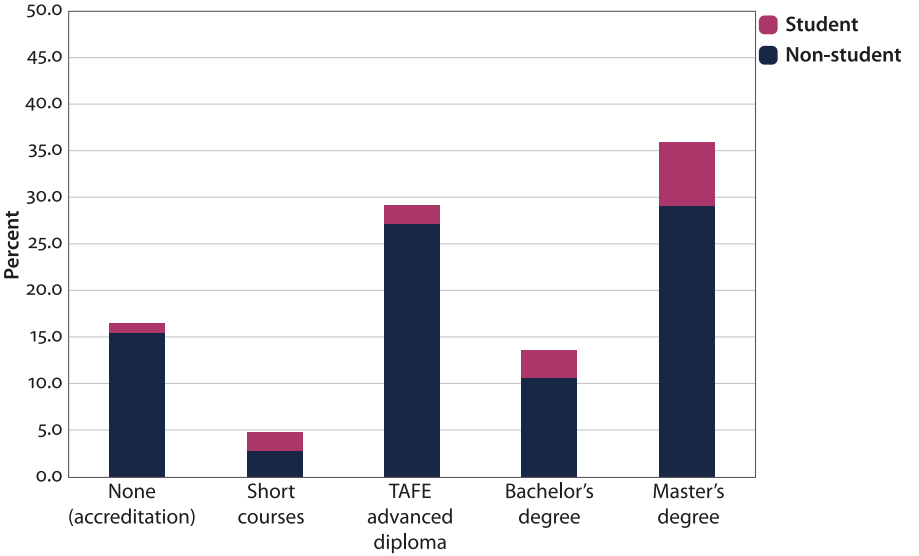

Figure 1. Interpreting education and training of participants

5.3 Interview simulation materials

The script depicted an investigative interview between an English-speaking police interviewer and a non-English-speaking suspect who was charged with financing a terrorist organisation. The script was based on an authentic case and was chosen for its relevance to all three languages. The interview was approximately 2,000 words in length and was scripted in consultation with police practitioners and experts in interpreting to ensure that the content tested a series of realistic interpreting challenges. Interpreting challenges were built into the script – for example, the formal legal language used by the detective and colloquial Australian expressions, such as the professed occupation of the suspect ("brickie", i.e., bricklayer or mason), and vulgar language in the suspect's responses.

The interpreted interviews lasted between 22 and 44 minutes each ($M = 31.01$, $SD = 5.17$). Analysis of variance (ANOVA) revealed that the interview length was dependent on language ($F(2, 103) = 8.48$, $p < .001$, $\eta^2 = .153$) and interpreter location ($F(2, 103) = 22.74$, $p < .001$, $\eta^2 = .326$). The interaction of these variables was not significant ($F(4, 103) = 1.95$, $p = .108$, $\eta^2 = .077$). The Spanish interviews were significantly shorter ($M = 28.62$, $SD = 5.06$) than the Arabic ($M = 31.89$, $SD = 4.36$) and Mandarin interviews ($M = 32.30$, $SD = 4.36$). Furthermore, interviews interpreted face-to-face ($M = 27.47$, $SD = 4.21$) were significantly shorter than those interpreted via video link ($M = 32.13$, $SD = 4.51$) and audio link ($M = 33.53$, $SD = 4.77$), although

the original script was the same length. Technical issues and a larger number of requests for clarification may have contributed to the difference in length.

After the interview, participants were asked to complete a post-interview questionnaire with a series of questions about their demographic information, including interpreter qualifications and experience, and about the interpreting task they had just completed, including overall difficulty and both the perceived mental effort of the different tasks and their preference for face-to-face or remote interpreting.

The actors responded to a series of questions about the interpreters, consisting of the Witness Credibility Scale (Brodsky et al. 2010), a 20-item semantic differential questionnaire capturing respondents' impressions of the interpreters; some specific questions about the interpreters' performance; and questions about the interpreted interview.

5.4 Procedures

The research was approved by the Federal Bureau of Investigation Institutional Review Board (Approval-No. 378–16), the Charles Sturt University Human Research Ethics Committee (Approval-No. H16164), and the University of New South Wales Human Research Ethics Committee (Approval-No. H16164).

Professional actors were employed to play the parts of the police interviewer and the non-English-speaking suspects live for each interpreted interview, amounting to 103 live performances simulating real-life police interviews. They were given the translated scripts and coached on their performance. They learned the script by heart so that they would not need to read it and were asked to adhere to it as closely as possible, except in cases where they needed to accommodate interpreters' different versions of the answers.

Before commencing the simulated interview, the interpreters were instructed to interpret an interview between an English-speaking police interviewer and an Arabic-, Mandarin-, or Spanish-speaking suspect who did not speak English. To control for interpreting mode, interpretation was conducted in both the consecutive and the simultaneous modes, by which the participants switched the mode halfway through the interview and the order was systematically varied (for more information, see Hale et al. 2021). Interpreter location was systematically varied. The participants interpreted face-to-face or via video or audio link using Zoom on a personal computer. In the face-to-face condition, the interpreter attended an interview room and was seated in a triangular position facing both the police interviewer and the suspect. In the remote conditions, the majority of the interpreters attended an interview room and were seated in front of a computer to communicate with the police interviewer and the suspect, who were co-located

in an adjacent interview room. Sixteen interpreters participated from a distant remote location and were either given a Zoom video link or a Zoom audio link. In cases in which we encountered technical challenges or the interpreters were at a location with unstable internet connection, they were called by telephone. In the video link condition, individual images of all three speakers were displayed on screen – one image of the police interviewer and the suspect who were sitting next to each other and one image of the interpreter.

After the interview concluded, the interpreters and the actors completed their respective post-interview questionnaires. After completing the questionnaire, the interpreters were debriefed and received a $100[3] gift voucher to thank them for their participation. The actors were paid their professional fees.

The interviews were video- and audio-recorded and transcribed. The transcription included propositional content, linguistically relevant features such as hesitations, corrections, backtrackings, overlapping speech and side comments.

5.5 Assessment of interpreting performance

Interpreting performance was assessed using a standard rubric applied in oral interpreting examinations to assess interpreting students at the University of New South Wales NAATI-endorsed postgraduate programmes. The rubric was also used in previous research studies by this research team (Hale et al. 2019, 2020a, 2021). The rubric distinguished seven criteria, presented and weighted in order of importance (see Table 1), with detailed descriptors. Depending on the importance of a criterion, different weights were applied, adding up to 100% in total.

Each transcript was assessed by two independent assessors who were blind to the conditions and were trained for the purposes of the study. They were also university-trained and NAATI-credentialled interpreters and translators in the relevant languages. The interrater reliability was good (Krippendorff's $\alpha = .86$; range: $\alpha = .72$ to .99). In all cases, the mean score between the two assessors was used in quantitative analyses.

Analyses were conducted to assess both general performance consisting of all elements (1 to 7 on Table 1) and separately by looking at each individual element of competence. Additional analyses were conducted to assess *interpreting accuracy* (consisting of a composite score of elements (1) accuracy of propositional content; (2) accuracy of manner and style; (3) maintenance of verbal rapport markers: and (5) accuracy of legal discourse and terminology); and *interpreter professional competence* (consisting of a composite score of elements (4) use of

3. $100 is higher than what professional interpreters receive as payment for this type and duration of assignment.

correct interpreting protocols; and (6) management and coordination skills). For better comparability, the composite score was conducted by taking a mean score of respective measures, with possible ranges from 1 to 10, respectively.

Table 1. Assessment criteria

Element of competence	Criterion descriptors	Mark	Weight
1. Accuracy of propositional content	The interpreter maintains the content of the utterance, "what" the speaker said.	10	30%
2. Accuracy of manner and style	The interpreter maintains stylistic features, the "how" of the utterance. This includes pragmatic force (tone, intonation, stress, hesitations, fillers, hedges, repetitions, etc.) and maintenance of register (formal/informal, technical/colloquial).	10	15%
3. Maintenance of verbal rapport markers	The interpreter maintains the rapport features of the original. These include use of first name, acknowledgement markers such as "OK" at the start of a response, politeness markers such as "please" and "thank you", expressions of solidarity and comfort.	10	15%
4. Use of correct interpreting protocols	The use of the direct approach (1st & 2nd grammatical persons), interpreting everything that is said regardless of what it is, seeking repetitions when needed in the appropriate way, transparency (keeping everyone informed if a repetition or clarification is required).	10	10%
5. Accuracy of legal discourse and terminology	Maintaining institutional phrases and grammatical structures, correct use of strategic question types, legal formulas and correct legal terminology.	10	10%
6. Management and coordination skills	This includes features such as establishing the interpreter's role and modus operandi, coordinating turns, asking for repetition or clarification, knowing how to deal with overlapping speech and how to manage the interaction.	10	10%
7. Bilingual competence	Grammatical correctness, correct pronunciation, fluency in both languages	10	10%
Total mark		**70**	**100%**

6. Results

6.1 Interpreters' experience in remote interpreting

The questionnaire results showed that a majority of the interpreters had prior experience in interpreting remotely via telephone (54.5%), with fewer than half of the interpreters reporting experience in interpreting remotely via video link (46.6%). Fifty per cent of the interpreters reported having had experience in both remote methods, 30.1% reported experience with video link only, whereas 17.5% reported having had no experience at all with either video or audio.

6.2 Interpreter performance

6.2.1 *Interpreter performance by interpreter location and language*

To answer RQ1, whether there were any differences in interpreter performance according to interpreter location, and according to language combination (RQ2), separate analyses were conducted for the general interpreter performance and each of the interpreting performance criteria. Specifically, analyses of co-variance (ANCOVA) tested for differences between the experimental groups. Interpreter training and general interpreting experience (in years) were used as co-variates to statistically control for the interpreters' professional background. Post-hoc pairwise comparisons were conducted using the Tukey test; the α-level for significance was adjusted accordingly.

Preliminary analyses included standard Z-scores and Mahalanobis-D^2 to detect univariate and multivariate outliers respectively. Analyses revealed that two outliers scored unusually low on one or more assessment criteria. These cases were removed from the inferential statistical analyses.

An ANCOVA on overall interpreting performance scores with language and interpreter location as independent variables and interpreting training and general interpreting experience as co-variates yielded no differences between the three languages, $p > .10$, but revealed significant differences for interpreter location ($F(2, 101) = 4.05$, $p = .021$, $\eta_p^2 = .08$), showing a medium effect size.[4] The interpreters performed better in person ($M = 68.74$, $SD = 10.93$, 95% CI [64.92, 72.56]) and via video link ($M = 68.44$, $SD = 11.12$, 95% CI [64.43, 72.46]) than via audio link ($M = 61.71$, $SD = 10.87$, 95% CI [57.81, 65.61]). The interaction between language and interpreter location was not significant, $p = .809$.

4. $\eta_p^2 = .01$ indicates a small effect, $\eta_p^2 = .06$ a medium effect and $\eta_p^2 = .14$ a large effect (Cohen 1988).

Further inspection of each of the assessment criteria revealed that the effect of interpreter location held for criterion 2: accuracy of manner and style – $F(2,101)=5.28$, $p=.007$, $\eta_p^2=.11$; criterion 3: maintenance of rapport features – $F(2,101)=3.16$, $p=.047$, $\eta_p^2=.07$; criterion 4: use of correct interpreting protocols – $F(2,101)=5.09$, $p=.008$, $\eta_p^2=.10$; criterion 5: accuracy of legal discourse and terminology – $F(2,101)=4.53$, $p=.013$, $\eta_p^2=.09$; and criterion 6: management and coordination skills – $F(2,101)=5.30$, $p=.007$, $\eta_p^2=.11$.

The effect sizes were medium to large. In other words, the interpreters were more likely to render the original manner and style accurately, maintain the verbal rapport markers, use correct legal discourse and terminology, use the recommended interpreting protocols and demonstrate adequate management and coordination skills when they could see the interviewer and the suspect either face-to-face or via a video link than in the absence of visual cues when interpreting with audio only. These results are displayed in Figure 2.

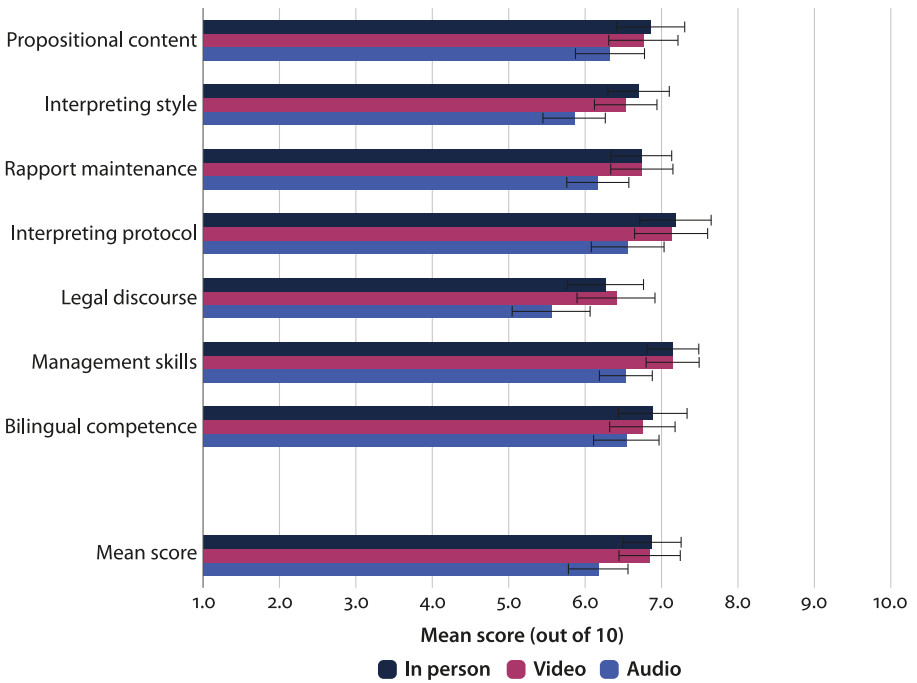

Figure 2. Interpreting assessments according to interpreter location

Additional analyses separated (a) *interpreting accuracy* and (b) *interpreter professional competence* (see 4.1.5), assessing each of them on a scale from 1 to 10. Analyses showed a main effect for interpreter location for both *interpreting*

accuracy ($F(2,101)=3.93$, $p=.023$, $\eta_p^2=.08$) and *interpreter professional competence* ($F(2,101)=3.69$, $p=.029$, $\eta_p^2=.08$), showing a medium effect size. As shown in Figure 3, *interpreting accuracy* and *interpreter professional competence* were scored significantly higher when interpreting in person and via video link than via audio only.

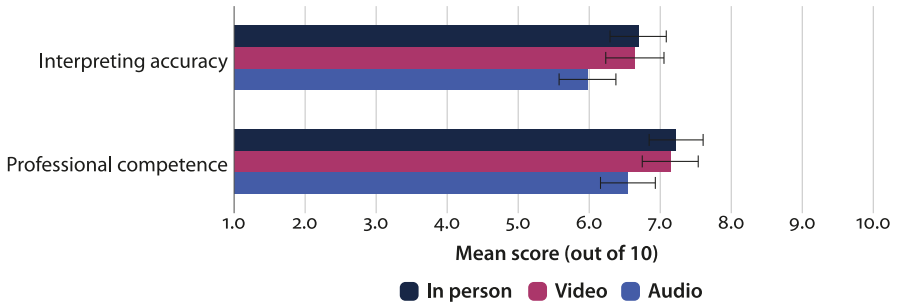

Figure 3. Interpreting accuracy and interpreter professional competence according to interpreter location

6.2.2 *Interpreters' professional competence by interpreter location and language*

One important aspect of interpreter performance in previous studies that was shown to suffer during remote interpreting is the ability of interpreters to manage and coordinate the interaction adequately. This includes the interpreter's use of the accepted protocols to seek clarification, ask for repetition, ask the speaker to slow down or avoid overlapping speech, report technical issues, reinforce their ethical role or coordinate and manage turns, and the use of the accepted pronouns[5] (see Table 2). We have labelled this combination of skills "interpreter professional competence". In addition to rating each interpreter's performance using the assessment criteria shown above (see Table 1), each transcription was coded by independent coders to maintain, omit or add a number of features (see Appendix A). To identify more specifically the differences in interpreter professional competence (interpreting protocols, management and coordination skills), we also quantified the relevant codes for these features by counting the number of times they were present in each interpreter's performance. (see Table 2 and Appendix A).

5. Interpreters are trained to use the direct approach when interpreting, using the same pronouns as the speakers, rather than the reported speech which uses the third person. When the third-person pronouns were used, they were marked as using the incorrect protocol.

Table 2. Means, standard deviations (SD) and medians (Mdn) for elements of interpreters' coordination practices and use of protocols across all experimental conditions

Element	*Mean*	*SD*	*Mdn*
Use of interpreting protocols			
Incorrect pronouns (reported speech)	6.27	14.70	1
Request for repetition	2.62	3.38	2
Request for clarification	2.14	3.18	1
Management and coordination			
Inadequate coordination and management	1.35	2.67	0
Reinforcing role and ethics	1.10	2.10	0
Reporting technical problems	0.85	3.01	0
Request to slow down or avoid overlapping speech	0.53	2.09	0

Because the coded data were highly skewed and showed a large variation in their occurrence, we used Z-transformation to approximate the distribution of the data. Therefore, the following analyses were conducted with means of zero and standard deviations of 1. Figure 4 shows the *Z*-transformed values for the interpreters' professional practices according to interpreting in person, via video link and audio link. The error bars are 95% confidence intervals. A positive value means that the specific practice was more likely while a negative value means that the specific practice was less likely to be used than in the other two experimental conditions.

Between-group analyses of co-variance were conducted with location of the interpreter and language as independent variables and interpreting training and experience as a co-variate. Analyses revealed differences in interpreter professional competence according to the presence of the interpreter. As can be seen in Figure 4, face-to-face interpreters had fewer instances of the use of incorrect protocols, used fewer inadequate management and coordination practices, reported fewer technical problems, asked for fewer repetitions and clarifications, and asked the speakers to slow down less frequently; but they reinforced their role and their ethical obligations on more occasions. Asking for repetitions and clarifications or to slow down or avoid overlapping speech can be considered a sign of interpreters' ability to control the interaction and ensure accuracy when needed. However, it is better if such actions are not needed. Our study found that, unsurprisingly, such requests were needed more often when the interpreters were working remotely. Our analysis, however, found significant differences only between the face-to-

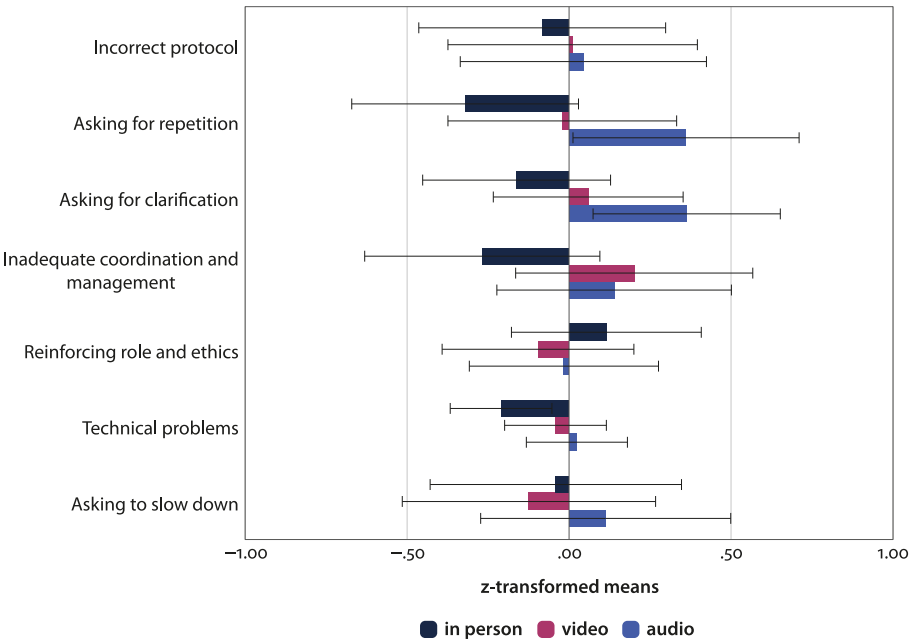

Figure 4. Interpreters' professional practices according to interpreter location

face condition and the remote conditions for asking for repetition ($F(2,103)=3.77$, $p=.027$, $\eta_p^2=.08$) and clarification ($F(2,103)=3.26$, $p=.043$, $\eta_p^2=07$), each showing a medium effect size. In particular, those interpreters who interpreted via audio link were more likely to ask for repetition ($M_Z=0.36$, 95% CI [0.01; 0.71]) and clarification ($M_Z=0.36$, 95% CI [0.07, 0.65]) than the in-person interpreters ($M_Z=-0.32$, 95% CI [−0.67, 0.03]; and $M_Z=-0.16$, 95% CI-0.45, 0.13], respectively). The differences were not significant for the other management and coordination practices.

In addition, a main effect of language emerged, indicating significant differences between the languages in asking for clarification – $F(2,103)=18.82$, $p<.001$, $\eta_p^2=.31$ – reporting technical problems ($F(2,103)=4.63$, $p=.012$, $\eta_p^2=.10$) and reinforcing role and code of ethics ($F(2,103)=5.92$, $p=.004$, $\eta_p^2=.13$), which showed medium to large effect sizes. Specifically, Arabic interpreters were more likely to ask for clarification than Mandarin and Spanish interpreters; and they were more likely to reinforce their role and code of ethics than Mandarin interpreters. The results are displayed in Figure 5.

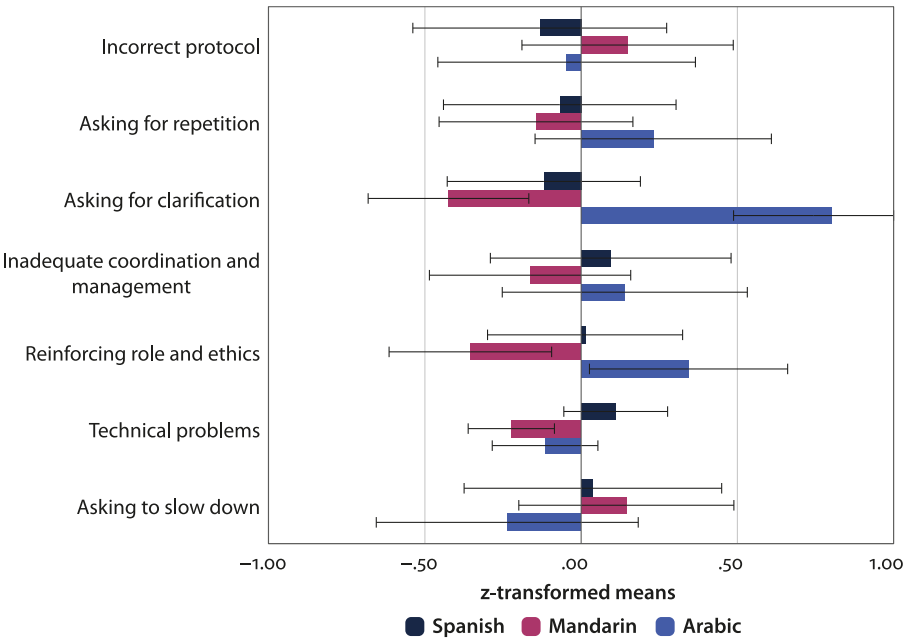

Figure 5. Interpreters' coordination and management practices according to interpreting language

6.2.3 *Interpreters' general preferences*

To respond to RQ3, the interpreters were asked to complete a questionnaire about their general preferences. An overwhelming 80.6% of the respondents preferred the face-to-face mode compared to 5% who preferred the remote mode. Fifteen per cent of the respondents indicated no preference. Although the question did not distinguish between video remote interpreting and audio only, the answers seem to indicate that most interpreters were referring to audio only, as telephone interpreting is still the most common form of remote interpreting in Australia.

Many of the interpreters provided more than one reason for their response. The most common reasons for preferring face-to-face interpreting were non-verbal cues (48 responses), audibility (11 responses), ease of understanding (9 responses), clearer communication (9 responses) and a lower chance of having technical issues (5 responses). Non-verbal features of communication such as body language (22 responses), facial expressions (18 responses), including eye contact and gestures (3 responses), were mentioned frequently in the interpreter responses, among general references for the benefits of non-verbal cues (5 responses). The importance of body language is reflected in the interpreters' comments such as "body language represents 80% of our communication" (Inter-

preter #173) and "because of the visual clues, also, I often struggle with the audio in remote interpreting" (Interpreter #110). Facial expressions were also widely mentioned as helping interpreters to understand attitudes, emotions and reactions.

Audibility (11 responses) was another key reason for preferring face-to-face, with interpreters commenting it was easier to hear all the participants and sounds were clearer. This was often linked to the use of technology in remote interpreting and the possibility of technical problems arising from poor sound quality and a lack of familiarization with the equipment.

Other less common reasons for preferring face-to-face were the ability to have more control over the interpreting session (13 responses) by being able to intervene when problems arose, being able to ask for repetition or clarification and having better control over the interview pace/timing.

Accuracy was mentioned in four responses from those who preferred face-to-face, with one interpreter summarizing the non-verbal and cultural aspects that face-to-face interpreting offers as contributing to the conditions required for interpreting accuracy:

> *Face to face interpreting is the optimum solution to reach higher accuracy levels. Interpreting is not just about translating word by word. The message that has to be converted to the target language must include body, facial and cultural aspects as well.* (Interpreter #181)

Two interpreters cited better pay conditions in general for face-to-face compared to remote interpreting, and another two stated there were more chances of receiving a briefing for face-to-face interpreting.

Reponses pointing to the negative aspects of remote interpreting cited the technology interfering with communication (6 responses), problems with audibility (5 responses), background noise (3 responses), difficulty in putting into context what is happening (2 responses) (e.g., explaining to a client the process of how a device is used in medical settings; Interpreter #111) and difficulty in building rapport (1 response).

Those who preferred interpreting remotely cited "a more neutral position" (Interpreter #185), with the absence of face-to-face contact helping to minimise the client's "tendency to seek for help from the interpreter impartially" and interrupting them (Interpreter #186). The convenience of working from home, the potential for fewer "malicious complaints" because the session is recorded (Interpreter #149) and the possibility of having more control over when to take a break (fewer opportunities on site) were other reasons.

Eight interpreters had no particular preference, commenting that they "like both kinds of interpretation" (Interpreter #146) or have "no preference – will aim to assist in any situation" (Interpreter #194).

In summary, the interpreters overwhelmingly preferred face-to-face over remote interpreting, with non-verbal cues, audibility and ease of understanding and communication cited as the most common reasons, consistent with results of previous studies on interpreter preferences.

6.2.4 *Interpreters' perceptions of the interpreting task*

To answer the first part of RQ4, the interpreters were also asked to reflect on the interpreting task they had just completed by circling a number on a 7-point rating scale (1 = *not at all* to 7 = *very*) to indicate the overall level of their perceived difficulty and also their perceived mental effort when performing the interpreting task.

The results revealed that the interpreters perceived the interpreting task as moderately difficult ($M = 3.45$, $SD = 1.15$, range 1–6). The perceived task difficulty was not dependent on the experimental condition ($r = -.01$, $p = .907$), and was not correlated with interpreting performance ($r = .09$ to $r = .19$, $p = .098$ to $p = .547$). In other words, the interpreters did not perceive remote interpreting to be more difficult than face-to-face interpreting, as other studies have seemed to indicate.

Ninety-one per cent of the interpreters ($n = 94$) listed what they perceived was most difficult about the interpreting task. A total of 37.2% of them reported experiencing difficulties in interpreting legal terminology. Almost one-third of the interpreters (30.9%) referred to difficulties in maintaining emotional variation or emotional expressivity (including obscene language) and keeping up with the speakers' pace or long chunks. For instance, when the suspect spoke with emotion, he tended to talk faster and without breaks. This was more frequently reported by interpreters who were in person (45.2%) than those who were interpreting remotely (video: 23.3%; audio: 24.2%). In contrast, interpreters in the remote condition referred to the context in which the interpreting occurred (46.0%), specifically the remote interpreting setup (e.g., not being able to see the speakers in the case of the interpreters in the audio-only group) and technical problems (e.g., not being able to hear one of the speakers in both remote conditions), as challenges. Technical problems were problematic in particular among interpreters who were connected via audio link (39.4%) compared to only 10% among those who were connected via video link.

The participants' perceptions of their mental effort expended on the experimental interpreting task were analysed quantitatively based on the composite score for each participant derived by summing the five items listed above. The

mean perceived mental effort was $M = 3.79$, $SD = 1.40$ (range 1–7) and it was unrelated to the location of the interpreter ($r = .02$, $p = .880$).

6.2.5 *Perceptions of interviewers and interviewees of interpreters' performances according to interpreter location*

To answer the second part of RQ4, we administered a post-experiment questionnaire to the actors who performed the roles of police interviewer and LOTE interviewees about their perceptions of the interpreters' performance. Analyses revealed a main effect for interpreter presence for both the police interviewer ($F(2, 83) = 3.95$, $p = .023$, $\eta_p^2 = .09$) and the interviewees ($F(2, 83) = 7.71$, $p = .001$, $\eta_p^2 = .16$). Post-hoc analyses using the Tukey test for pair-wise comparisons revealed that the police interviewer perceived interpreters who interpreted in person as more credible ($M = 137.08$, $SD = 21.43$, 95% CI [129.67, 144.49]) than interpreters who were connected via audio link ($M = 120.52$; $SD = 21.16$, 95% CI [110.24, 130.80]), while the perceived credibility of the interpreters who interpreted via video link was between the two other experimental groups ($M = 126.10$, $SD = 21.34$, 95% CI [118.35, 133.84]). Similarly, the suspects perceived the interpreters in person as having been more credible ($M = 166.98$, $SD = 20.14$, 95% CI [160.34, 173.63]) than those interpreters who had interpreted remotely via video link ($M = 153.12$, $SD = 18.56$, 95% CI [146.17, 160.08]) and via audio link ($M = 146.32$, $SD = 22.20$, 95% CI [137.10, 155.55]). The main effect of language and the interactions between interpreter location and language were not significant, $p > .05$, respectively.

7. Discussion

Using an experimental method, this study compared the interpreting performance of 103 qualified Arabic–English, Mandarin–English and Spanish–English interpreters across three different conditions – face-to-face, remote via video link and remote via audio link only – in simulated police interviews held in Sydney, Australia. Specifically, the study aimed to answer four research questions:

1. Whether the type of interpreting had an impact on interpreter performance (face-to-face vs via video vs via audio only);
2. Whether language combination affected performance when interpreters were equally qualified and experienced;
3. What interpreters' general preferences were in relation to the different types of interpreting; and
4. What the interpreters' and the other interview participants' perceptions of interpreting according to the three different types of interpreting were.

Overall, the results supported our hypotheses, corroborating previous smaller studies in most areas. Our results showed that interpreters perform better in the face-to-face condition, which is the type of interpreting interpreters perceive to be more conducive to accurate interpreting and therefore the type they also prefer. Comparisons of interpreting accuracy in remote versus face-to-face conditions revealed that access to visual cues in face-to-face and video-mediated contexts facilitated interpreting performance. This finding provided confirmation that in interpreting tasks, as in monolingual communication tasks, greater access to visual communication cues increased communication accuracy.

Of the three conditions, interpreting without visual cues via audio link produced the weakest performance overall. Notably, the interpreters in the audio-only condition were less accurate in their interpreting. They also scored lower in professional competence, which included the use of appropriate protocols and management and coordination skills. The technical difficulties associated with the management of turn-taking and requests for clarification in the absence of visual cues appeared to make the tasks more difficult for interpreters in the audio remote condition. Our results were partially supportive of the Mehrabian model (Goodman-Delahunty et al. 2020; Mehrabian 1972, 1981; Mehrabian & Wiener 1967) and findings by Braun (2013) suggesting a decrement in performance when interpreting via a video link compared to face-to-face interpreting, and an even stronger decrement in the audio-link condition.

Through questionnaires we also elicited the interpreters' general perceptions of the difficulty of the task and their preferences, as well as the views of the actors playing the police interviewer role (one actor for all the interviews) and the three suspects (one per language) on the interpreters. These results also confirmed those of previous studies. The interpreters overwhelmingly preferred face-to-face interpreting over remote interpreting, with telephone interpreting being the least favourite. They also perceived telephone interpreting to be the least conducive to achieving accurate interpreting due to the absence of visual cues, immediacy and the ability to manage the interaction, and a lack of clear protocols. Video interpreting was also not considered to be ideal, mostly due to the risks associated with the technology. However, the interpreters did not perceive any difference in the difficulty of interpreting across the conditions. The users of their services – in this case the police interviewer and the interviewees – also rated the interpreters more favourably when they appeared face-to-face, perceiving them to be more professional and more credible. These perceptions by all the participants were supported by the independent assessments of the interpreters' performances, which produced higher assessments for the face-to-face than for the remote interpreting. The differences, however, were only statistically significant between the face-to-face and the audio-only interpreting, with no significant differences between face-

to-face and remote video interpreting or between remote video and audio-only interpreting.

Our study is the first to compare performance across three typologically different languages using a large sample. After controlling for the interpreters' interpreting education and experience, we did not find any significant differences between languages on any measure, except for the maintenance of profane language, the results of which are reported in separately (see Hale et al. 2020b). Arabic-speaking interpreters in particular were more likely to omit vulgar language used by the suspect than were their Mandarin- and Spanish-speaking counterparts. However, this difference did not correlate significantly with the interpreter's location.

These results are encouraging for practitioners who require remote interpreting services, as the video-link option is a viable alternative that does not significantly compromise interpreting performance. This has been especially relevant since the onset of the COVID-19 pandemic, when, in many instances, face-to-face interpreting has no longer been an option. The results, however, reinforced the recommendation by others that telephone interpreting should be used only for emergencies when neither video remote interpreting nor face-to-face interpreting is possible.

7.1 Strengths and limitations

Our study had a number of strengths. It is one of the few experimental studies to investigate this topic. It is also one of the largest studies to date to comprehensively compare interpreters' performance in face-to-face, video remote and audio remote interpreting conditions, in three typologically different major language combinations in a police setting. A particular strength of this study is the multi-pronged analysis undertaken of interpreting performance in realistic simulated live interviews. Unlike many prior simulations, this interview was lengthier than those used in many previous studies, which allowed for a more rigorous assessment of performance. Interpreter performance was assessed according to seven different criteria, including items that related to interpreting accuracy and professional competence, such as recommended protocols and management and coordination skills. The experimental context was high in ecological validity compared to those in many other simulated law-enforcement interviews. It included a series of question – answer exchanges between the speakers and was modelled on a transcript of an investigative interview conducted with a non-English-language suspect in a real Australian criminal case.

The study also had its limitations. Only three language combinations were examined and only in one specific setting. The fact that the study took place in Australia, where there is adequate education and training and NAATI certification

for interpreters of these three major world languages, also limits its generalizability to other contexts, where interpreters may not be as well qualified. The length of the assignment is also a limitation. Although it was longer than most other studies, authentic assignments may last longer than our experiment. Further research is required to explore whether fatigue could be a factor that affects remote interpreting more than face-to-face interpreting when assignments are longer than 45 minutes.

Another limitation relates to the interpreters' self-assessments of task difficulty. Increasingly, self-assessments are regarded as problematic measures of the cognitive load of a task (Minkley et al. 2021). We included recommended features of self-assessment of interpreting difficulty, such as multiple items rather than a single item, and framed questions in terms of perceived mental effort. Nonetheless, self-assessments of task difficulty are influenced by an individual interpreter's prior knowledge, interest and motivation, and are therefore subjective and unreliable indicators of task difficulty. As a consequence, we were unsurprised that the interpreters' composite scores on perceived mental effort were unrelated to the interpreters' location, and we did not conduct additional analyses using these scores.

8. Conclusions and recommendations

The results of our study suggest that, where possible, interpreters should work face-to-face to achieve the best results, not only in interpreting accuracy but also to facilitate better interactional management and create a better interprofessional working environment. However, the results of the study also demonstrate that video remote interpreting can be almost as effective as face-to-face interpreting when interpreters are equally competent and experienced. Despite some reservations about remote interpreting from the interpreters in particular, the study disclosed no statistically significant differences between their performance in a face-to-face condition and in a remote video interpreting condition. This difference may become even less significant as interpreters become more experienced in video remote interpreting, particularly if better equipment is used in future, and if adequate working conditions – including clear protocols and regular breaks – are ensured. The study corroborated the negative impact of audio-only interpreting on interpreter performance, adding weight to others' recommendations to use telephone interpreting only as a last resort.

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Appendix A

Table 1. Codes

OP	Omission of propositional content chunk
O1	Omission of various features
DP	Distortion of propositional content
DI	Distortion of illocutionary force/effect
AP	Addition of propositional content
A	Addition of various features
R–	Register lowered
R+	Register raised

Table 2. Protocols, management and coordination features

	Use of interpreting protocols	
IP	Incorrect protocol	Use of reported speech (the indirect approach, third person pronouns)
AR	Request for repetition	In order to interpret accurately
AC	Request for clarification	In order to interpret accurately
	Management and coordination	
IC	Inadequate coordination and management	Loss of control
RR	Reinforcing role and ethical requirement	When needed. Continues to interpret even when a party asks interpreter not to
TP	Reporting technical problems	Reporting technical problems in order to interpret accurately
CF	Request to slow down or avoid overlapping speech	Controlling the flow using correct protocols

Address for correspondence

Sandra Hale
Faculty of Arts
Design & Architecture
The University of New South Wales
Sydney NSW 2052
Australia
S.Hale@unsw.edu.au

Biographical notes

Sandra Hale is Professor of interpreting and translation at UNSW. She is the sole author of *The Discourse of Court Interpreting* and *Community Interpreting* and co-author of *Research Methods in Interpreting*. She is regularly invited to address the judiciary, tribunal members and other legal professionals on how to work effectively with interpreters. She is a NAATI certified interpreter with many years' experience and was the national president of AUSIT from 2014 to 2017.

https://orcid.org/0000-0003-4291-4022

Jane Goodman-Delahunty is a Professor of Legal and Forensic Psychology and a Member of the New South Wales Civil and Administrative Tribunal. An experimental psychologist and lawyer, she conducts empirical legal studies that foster evidence-based decisions to promote social, procedural and distributive justice within organisations and the community. Her recent books include *Understanding Sexual Harassment* (2021, American Psychological Association) and *Juries, Science and Popular Culture in the Age of Terror* (2017, Palgrave Macmillan).

https://orcid.org/0000-0003-4409-0063

Dr **Natalie Martschuk** is a Postdoctoral Research Fellow at the Griffith Criminology Institute, Griffith University. Her research interests are procedural justice in legal proceedings, investigative interviewing strategies, legal decision-making and witness reliability and credibility. Furthermore, she has a strong interest in quantitative research methods and meta-analyses.

https://orcid.org/0000-0002-2963-6139

Dr **Julie Lim** is a Research Officer for a number of externally funded research projects in Interpreting and Translation at UNSW. Her studies have focused on applied linguistics and Asian studies. She is a TESOL practitioner and a certified English language examiner.

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Bilingual videoconferencing in legal proceedings: Findings from the AVIDICUS projects

Sabine Braun, University of Surrey

Katalin Balogh, Catholic University of Leuven

1 Introduction

This chapter focuses on the use of videoconferencing in bilingual legal proceedings that involve an interpreter. The rationale is twofold. Firstly, videoconferences are frequently used in both national and cross-border proceedings now, for example to establish a video link between a court and a defendant in prison or a witness in another country. Due to the current scale of migration and multilingualism in Europe such proceedings are sometimes bilingual and require the integration of an interpreter into the videoconference. Secondly, videoconferences can be used to gain or optimise access to qualified legal interpreters. References to this use of videoconference are incorporated in Directives 2010/64/EU on the right to interpretation and translation in criminal proceedings and 2012/29/EU on the rights, support and protection of victims of crime. Given these developments and the crucial role of videoconferencing in European eJustice, bilingual videoconference-based legal proceedings are likely to become more frequent across Europe.

Just as the use of legal videoconferencing itself has given rise to academic debate, which has suggested that that videoconference technology should be used with utmost care in legal proceedings to ensure that fairness of justice (e.g. Federman 2006, Haas 2006, Johnson & Wiggins 2006, Poulin 2004, Sossin & Yetnikoff 2007, Havard Law School 2009), a number of questions arise in relation to bilingual legal videoconferencing involving the services of an interpreter. Key questions are how the use of a videoconference link affects the quality of interpreting and the dynamics of the communication; how this is related to the actual videoconference setting and the locations of the main parties and the interpreter; and ultimately whether the combination of videoconferencing and interpreting is sufficiently reliable for achieving the specific goals of legal communication such as evidence and information gathering, decision-making and delivering justice (Braun & Taylor 2012a, Ellis 2004, Fowler 2007). The emerging uses of video-mediated interpreting in legal proceedings suggest that the implementation of videoconferencing facilities in legal settings needs to make appropriate provisions for the integration of interpreters.

Against this background, the European AVIDICUS projects ('Assessment of Videoconference-based Interpreting in the Criminal Justice System'; funded by the European Commission, Directorate General for Justice), have conducted research into several aspects of bilingual videoconferencing and have developed relevant guidelines and training (Braun & Taylor 2012a, 2016). AVIDICUS 1 and 2 have focused on the viability, quality and communicative dynamics of videoconference-based, interpreter-mediated legal proceedings, e.g. by comparing traditional and videoconference-based proceedings. The AVIDICUS 3 project is currently conducting a comprehensive assessment of the videoconferencing solutions that are used in legal proceedings across Europe in terms of their fitness for accommodating bilingual situations and integrating an interpreter. The comparative studies conducted in AVIDICUS 1 and 2 pinpoint potential challenges of bilingual videoconference communication; the interim findings from AVIDICUS 3 highlight the emerging variety and diversity of videoconference configurations (e.g. remote witness, remote interpreter, multi-point videoconferences), and point to the need for identifying best practice and areas for improvement.

This chapter will begin by giving an overview of the main configurations of bilingual videoconferencing (section 2) and then outline the key findings of the AVIDICUS projects (section 3). The concluding section (section 4) will highlight future directions of research and development.

2 Main configurations of bilingual videoconferencing with an interpreter in legal settings

The increased use of videoconferencing in legal proceedings concerns both national and cross-border settings. In each setting, the videoconference configurations—i.e. different uses of videoconferencing in terms of where the participants are located—become more complex when interpreter is involved.

National proceedings

National legislative frameworks differ in what is permissible, but in principle the following three configurations can be distinguished:

1. The judicial authority and the person to be heard (who does not speak the official language) are in different locations. This is used especially for video links between courts and prisons but also between courts and police stations (e.g. for first hearings in England and Wales) or hearings of remotely located witnesses. The interpreter is at one of these locations.
2. The judicial authority and the person to be heard are in the same location, and the interpreter is linked in from another location ('remote interpreting'). This is still infrequent in Europe, but common in the United States.
3. The main parties and the interpreter are all in different locations (combination of 1 and 2). This is also still infrequent, and in most cases the interpreter is just brought in via telephone. However, it is conceivable and preferable that a multipoint videoconference is used in such cases.

Cross-border proceedings

Cross-border videoconferencing has a legislative basis in the Second Additional Protocol of the 1959 Convention and the 2000 Convention. The legislation distinguishes between interpreting support for the judicial authority of the requested Member State, who is normally present during the proceedings (at least in criminal cases), and interpreting support for the person to be heard. A distinction therefore needs to be made between the following situations:

A. The person to be heard speaks the language of the requesting authority. The interpretation is provided to enable the requested authority to follow the communication between the requesting authority and the person to be heard. For example, if a Dutch court requests to hear a Dutch citizen who lives in Germany, the communication would normally be in Dutch, and the interpreter would interpret from Dutch into German for the benefit of the German judge.
B. The person to be heard speaks the language of the requested authority. The interpretation is provided to facilitate the communication between the requesting authority and the person to be heard. For example, if a Dutch court requests to hear a German citizen who lives in Germany, the interpreter would interpret between Dutch and German for the benefit of all parties involved.

Other, more complex situations arise when the person to be heard is a minority-language speaker (e.g. if the person to he heard resides in Germany but does not speak sufficient German). Furthermore, due to the presence of both the requesting and the requested judicial authority, cross-border proceedings also lead to a more complex array of possible participant distributions than national proceedings. Essentially the interpreter can be co-located with either authority, s/he can be in a third location, or there can be one interpreter at each side. In the decision about the location of the interpreter, it is important to take into account whether the parties speaking the same language are all in one location (as in case B above) or not (as in case A above).

Notwithstanding the many different configurations, all forms of videoconference-based interpreting share many characteristics of communication, and it is these characteristics that will be outlined in the remaining part of this Chapter.

3 Videoconferencing and interpreting: communicative aspects

Although the use of videoconferencing in legal proceedings has many benefits such as speeding up the proceedings, saving travel costs and avoiding prisoner transport to courts, videoconference (VC) communication can be challenging. Research into VC communication in legal and other settings has consistently highlighted, for example, that technical (video and audio) channels are less effective in transmitting a communicative message than the channels used in face-to-face communication and that it is more difficult to gauge what 'the other side' does and means (Braun 2004, Finn *et al.* 1997, Johnson & Wiggins 2006). Specifically in the legal context, Haas (2006) also highlights interaction problems created by problems with eye contact, identification and interpretation of body language, and poor sound quality. Additionally, video testimony has been shown to be less credible than live testimony (Harvard Law Review 2009). Federman claims that videoconferencing magnifies the complexity of legal

communication and introduces the possibility of "inconsistency, inaccuracy, and altered judgment" (2006: 450). As an example of such effects, Benforado (2010) discusses bias through camera positioning.

The involvement of an interpreter in the VC creates additional challenges. The feasibility of interpreting in a VC depends on a number of factors, including especially:

- The location of the interpreter in relation to the other participants, i.e. whether the interpreter is integrated into a video link between two (or more) sides, or whether the video link is used to gain access to an interpreter;
- The purpose, complexity and duration of the communication, i.e. whether the video link is used for a short exchange between a small number of participants or for a lengthy court trial or similar, involving various layers of communication;
- The mode of interpreting used, i.e. consecutive interpreting, whereby a speaker says a few sentences and then pauses for the interpreter to deliver his/her rendition, or simultaneous interpreting, whereby the interpretation is delivered while the speaker is speaking, either by whispering or with specific equipment (interpreting booth or portable equipment).

Several studies have focused on the use of VC in simultaneous conference interpreting in supranational institutions such as the EU and the UN. These institutions mainly have a need for 'remote interpreting', whereby the interpreters work from a different location, e.g. due to a shortfall of interpreting booths in meeting rooms. Although these settings are different from the requirements for interpreting in legal proceedings, some of the findings are noteworthy. All of these studies have, for example, highlighted the importance of sound and image quality and lip synchronisation as a prerequisite for good interpreting quality (Causo 2012, Moser-Mercer 2003, Mouzourakis 2006, Roziner & Shlesinger 2010). The AVIDICUS projects have provided an assessment of the viability of videoconference-based in interpreting in legal proceedings (with a focus on criminal proceedings; Braun & Taylor 2012a, 2016).

3.1 The AVIDICUS projects

The **AVIDICUS 1 project (2008-11)** provided an initial assessment of the viability and quality of videoconference-based interpreting in legal proceedings, and especially criminal proceedings. The focus was on consecutive interpreting as the most common mode of interpreting in criminal proceedings. Based on the outcomes of a survey among 200 legal interpreters in Europe, designed to identify the most pressing problems and the most likely settings for videoconference-based interpreting (Braun & Taylor 2012c), the project conducted a series of experimental studies to compare the interpreting quality in traditional interpreting and in video links for some of the settings identified in the survey. The analysis of the data showed a number of differences between the two conditions, especially listening comprehension problems, a higher number of interpreting problems (e.g. inaccuracy), difficulties with communication management, problems with rapport-building with the other parties, and a faster decline of interpreting performance over time in video links, suggesting greater difficulties for interpreters and a faster onset of fatigue, and ultimately a higher cognitive load for the interpreters. The analysis also revealed that many of the problems arising were related.

For example, overlapping speech was often followed by omissions. Another observation was that traditional interpreting strategies, such as visual signals, were less effective, e.g. in allowing the interpreter to take the floor and interpret, whilst other strategies, such as oral intervention to take the floor or resolve a problem, tended to feel more disruptive (Balogh & Hertog 2012, Braun 2013, Braun & Taylor 2012d, Miler-Casino & Rybinska 2012, Rombouts 2012).

The findings of AVIDICUS 1 suggested that videoconference-based interpreting magnifies known problems of (legal) interpreting to a certain extent but that improvements may be achieved through training (e.g. to avoid overlapping speech), and the use of high-quality equipment (e.g. to ensure that voices can be heard clearly even in situations of overlapping speech). However, the data also suggested that there are deeper-rooted behavioural and communication problems which may change the dynamics of legal communication and which warranted further research. To follow up on the potential impact of training and equipment and on the potentially changing communicative dynamics in videoconference-based interpreting, the **AVIDICUS 2 project (2011-13)** was designed to address two strands of research. The first strand replicated the AVIDICUS 1 comparative studies, involving the same interpreters but providing them with short-term training in videoconference-based interpreting before they participated again. Moreover, better equipment was used. The second strand of the AVIDICUS 2 research focussed on the analysis of the communicative dynamics in video-mediated legal proceedings (Braun & Taylor 2016).

AVIDICUS 3 (2014-16) is currently assessing the implementation of videoconferencing facilities in legal institutions across Europe in terms of their fitness for the purposes of bilingual proceedings and interpreter integration.

The projects have also developed guidelines of good practice for videoconference-based interpreting in criminal proceedings (e-Justice Portal: https://e-justice.europa.eu/content_manual-71-en.do; see also Braun 2012), and designed and piloted training modules for interpreters and legal practitioners (Braun *et al.* 2012; see also www.videoconference-interpreting.net).

3.2 Main outcomes of the AVIDICUS projects

Findings of the comparative studies

As mentioned above, the initial comparative study in AVIDICUS 1 revealed a higher number of interpreting problems in videoconference-based interpreting compared to traditional interpreting, which led to the design of a follow-up study in AVIDICUS 2. The findings of this follow-up research create a complex picture, making it impossible to say without reservation that training, familiarization and the use of better equipment resulted in a clear improvement of the quality of interpreting. On the positive side, an improvement was observed in relation to some of the parameters that were analysed in the comparative studies. Moreover, the general impression of the observers and the participating interpreters was that under the influence of training and familiarisation, the experience of interpreter-mediated videoconferencing became less stressful for the interpreters, and there are indicators for improved confidence in approaching videoconference-based interpreting.

Adaptive behaviour

In the data from the comparative studies, subtle differences occur between traditional and videoconference-based interpreting in terms of the distribution of interpreting strategies, especially problem-resolution strategies. This further supports the conclusion drawn from the comparative studies that videoconference-based interpreting is, on the whole, more challenging than traditional interpreting. The differences are particularly apparent in the interpreters' more frequent use of passive and inefficient strategies in the videoconference settings. Given the fact that the interpreters participating in the AVIDICUS comparative studies were experienced interpreters, the differences in their use of strategies may suggest that the interpreters' resources were too strained to apply more efficient strategies. At the same time, the data includes a number of successful examples of strategy deployment and adaptive behaviour, and strengthen the assumption made in AVIDICUS 2 that training in videoconference-based interpreting is useful, especially training that supports a detailed reflection upon the effectiveness of different strategies, including problem resolution and pre-emptive strategies.

Communicative dynamics

Another strand of the AVIDICUS 2 research focussed on the analysis of the communicative dynamics in bilingual video-mediated legal proceedings. The analysis of (simulated) investigative interviews suggests that the interviewing officers spent more time developing and unfolding their interview strategy in the face-to-face setting than in video-mediated settings. These results could indicate that the interviewers had better contact with the interviewee during a face-to-face interview and that the interaction was better because the interviewers built up the interview more slowly and with a better foundation. The analysis of the (real-life) court hearings suggests that the use of VC in the court entails a reduction in the rapport between the participants. The participants develop communication strategies that are aimed at restoring the rapport, although in the instances that were analysed some of these strategies led to a fragmentation of the communication and reinforced the changes in the communicative dynamics rather than reducing them. In part, the fragmentation was linked to the use of consecutive interpreting in situations in which traditionally whispered simultaneous interpreting would be used.

Physical location of the interpreter and the parties

The observations in relation to communicative dynamics led to more in-depth considerations of the interpreter's physical location in videoconference situations. In principle, the interpreter can be co-located either with the judicial authority or with the person to be heard (other-language speaker). In cross-border proceedings, where both the requesting and the requested judicial authorities are present in addition to the person to be heard (and other parties such as lawyers), the situation is even more complex. The AVIDICUS comparative studies suggest that there is no 'best' place for the interpreter and that different participants have different preferences. Many interpreters feel that they would like to be co-located with the other-language speaker. Where there is a choice for participant locations, strong asymmetries in the participant distribution should be avoided. If possible, the other-language speaker should not be separated from all other parties and the interpreter. It also needs to be borne in mind that

the interpreter needs to be an impartial participant, focused on mediating the communication between the parties. Due care must be taken that the interpreter's physical location (i.e. side by side with one of the parties) does not undermine the required impartiality or the perception of impartiality. In complex participant configurations, this may be resolved by using a three-way or multipoint videoconference, where the interpreter is in his/her own location, but conclusive evidence is not available and further research is required into multipoint videoconferences with interpreters. A further important point is that the interpreter's location has an impact on the mode of interpreting (see below).

Seating arrangements and spatial organisation

In addition to the interpreter's and the other parties' respective locations, the seating arrangements in relation to cameras and screens are an important factor in the communication. In all data sets that were analysed in AVIDICUS 1 and 2, the seating arrangements and the spatial organisation led to interactional difficulties and changes in the communicative dynamics, and created a need for cooperative adjustments. One common problem was that due to being shown on a large screen or being placed in the centre of the video screen some participants were given an unjustified level of prominence or 'visibility'. A related problem was that seating arrangements gave the impression that the parties on one side of the video link spoke 'as one' or could be perceived 'as one' whilst in fact their roles need to be clearly distinguished – especially in order to maintain the interpreter's partiality.

Visibility of participants

The observations made in the AVIDICUS projects also suggest that as a basic principle, every participant in a VC **including the interpreter** should a) be able to see the other participants at their respective locations, b) be seen by the other parties, and c) see his/her own image. These arrangements will support the participants in constructing the situation at the other side(s) and in gauging the reactions of remote participants. Mutual visibility of all participants including the interpreter is best suited to overcome potential communication challenges in the videoconference. There should not be a situation where any of the parties or the interpreter is left guessing whether or not they are visible to the others. Furthermore, it is important that the interpreter can see the participants' facial expressions and possibly lip movements to aid comprehension of what is being said, and sometimes to resolve potential ambiguities. At the same time, the interpreter should not become the centre of attention simply by appearing on a video screen. The screen(s) showing the interpreter should therefore have an appropriate size (not too large), and the position of the screen(s) should not create a situation in which the parties have to turn away from each other in order to see the interpreter.

Mode (method) of interpreting

So far, consecutive interpreting is normally used in bilingual videoconferences in legal proceedings. This mode allows more easily than simultaneous interpreting for clarifications and interventions that may be necessary to ensure that the interpretation is accurate. Whispered interpreting (chuchautge), which is traditionally used in court proceedings in many Member States to interpret from the court's official language into the language of e.g. the defendant, is possible in videoconferences when the interpreter is co-located with the

defendant (or other person to be heard). Whispered interpreting is also an option in cross-border proceedings when the interpreter interprets for the benefit of the requested judicial authority and is co-located with this authority. Limited tests with whispered interpreting in the AVIDICUS projects show, however, that it has its own dynamics; its viability needs to be investigated further. Simultaneous interpreting with specific equipment is theoretically possible in videoconferences as long as additional sound channels are made available, but there is very little experience with this mode in legal settings in Europe. A move to simultaneous interpreting would constitute a change from existing traditions in many national courts. A prerequisite would be a trained workforce of interpreters able to interpret simultaneously in both language directions but the systematic use of simultaneous interpreting in national courts and cross-border proceedings would require thorough testing and analysis of the interpreting quality and other factors. In the US, the Florida circuit courts use a remote interpreting system that allows for a combination of consecutive and simultaneous interpreting.[1] Whilst this simulates the situation in traditional court proceedings (i.e. the combination between consecutive and whispered interpreting), it still requires an additional investment in suitable technology, testing and training.

Interpreters' working conditions

The introduction of video-mediated interpreting also raises important issues for the working environment of the interpreters. Given the cognitively demanding nature of interpreting, the duration of an interpreter's turn in a video link will require attention. Research shows a decline in the interpreting quality after approximately 15 to 20 minutes, suggesting that interpreters may not be able to work in a video link for an extended period of time. Given the high cognitive load of interpreting it also needs to be borne in mind that any additional distraction—ensuing e.g. from technical parameters, unsuitable positioning and other factors—is likely to have negative consequences for the interpreting quality. This is exacerbated by the fact that because of the novelty of many videoconferencing situations, interpreters are less likely to have coping strategies available when a processing overload occurs in a videoconference (e.g. when a speaker speaks too fast) than in traditional situations.

Some caveats are in order. Current research findings are derived from short-term studies. Given the generally low level of experience with bilingual videoconferencing, it is highly likely that some adaptation and familiarisation is yet to take place. However, given the challenges identified, interpretation in videoconferences should currently be applied with caution. Although some configurations are fairly well established, e.g. the user of interpreters in video links between courts and prisons, there are still no protocols, and many participants' experience with (professional) videoconferencing is still limited.

[1] http://www.ninthcircuit.org/about/programs/virtual-remote-interpreting

3.3 Implications

The outcomes of the AVIDICUS 1 and 2 projects have the following main implications:

- *Training*: The results of AVIDICUS support the need for training the legal practitioners in interpreted video-mediated proceedings, in spite of some concerns about the effectiveness of short-term training. An effective type of training can be joint training sessions, with legal practitioners and professional interpreters. Although there are clearly different issues to be tackled for each group, ultimately the two groups should come together in training, as indeed they will in practice. This is corroborated by the outcomes of various training sessions (for each group and joint sessions) held in AVIDICUS.
- *Mutual trust*: The findings from the AVIDICUS studies make it clear that training and familiarisation cannot resolve all problems. Remaining problems can only be overcome in an atmosphere of openness and mutual trust between the parties, which, in turn, is only possible when the potential challenges of the VC setting are clear to all and when legal interpreters can be confident that their requests for clarification, for example, are not attributed to a lack of competence. Awareness-raising and the promotion of mutual trust therefore need to be included in all inductions to video-mediated and interpreter-mediated proceedings.
- *Interpreters' working conditions and interpreting quality*: Equally important, the quality of interpreting also depends on the quality of the interpreter. Given the current situation in Europe, where there is still insufficient provision of training and education in legal interpreting and where current trends of outsourcing as a way of cost-saving have led to a decline in legal interpreters' overall working conditions, there is a high risk that qualified interpreters, who are able to cope with the challenges of VC-based interpreting, are not available for working in legal proceedings in sufficient numbers, because they choose more attractive interpreting jobs in other segments of the interpreting market. It is therefore necessary to consider not only the impact of VC-based interpreting on the interpreters' working conditions, but also the impact of the current working conditions of legal interpreters on the quality and viability of VC-based interpreting. Current trends in the procurement of legal interpreting seem to work against achieving minimum quality standards and mutual trust, i.e. are not conducive to using the benefits of VC-based interpreting.
- *System design*: Efficiency and quality in bilingual videoconferences are influenced by a range of factors which should not be considered in isolation. The use of high-quality technology – especially with regard to sound and image quality, lip synchronicity and stability of the connection – is one important parameter for enabling successful communication, but it needs to be complemented by other parameters. These include, at least, a suitable audiovisual environment in terms of lighting, visibility, sight lines etc.; careful and appropriate positioning of all participants; and effective communication management. All of these parameters are closely interconnected and build on each other. Minimum standards need to be specified not only for the main technical parameters, but also for the other parameters.

4 Conclusions

Appropriate solutions for bilingual videoconferencing will be beneficial for cross-border proceedings and national proceedings alike and will make the use of videoconferencing in legal proceedings more attractive for legal institutions. This will contribute to the dematerialisation of legal proceedings and to simplifying and encouraging judicial communication, for example between the Member States of the European Union, which are important aims of European e-Justice. Further research into the effectiveness of bilingual videoconferencing therefore constitutes an important horizontal measure for European e-Justice, serving the needs of both civil and criminal justice.

This research needs to be driven by the most recent emerging trends in relation to the use of videoconferencing and interpreting in legal proceedings, which include:

- A potentially more diversified participant distribution leading to three-way videoconferences and new configurations of video-mediated interpreting;
- The extension of the use of videoconferencing and interpreting beyond its current uses mainly in pre-trial stages;
- The use of both the consecutive and simultaneous mode of interpreting in videoconferences, and the associated questions of feasibility and appropriateness.

The questions about the appropriateness of the different modes of interpreting in videoconference-based proceedings is indicative of the more comprehensive question of whether videoconference-based and interpreter-mediated proceedings will work best when they replicate as closely as possible the traditional face-to-face settings, e.g. by transferring known communication strategies and the spatial organisation of face-to-face settings to the videoconference settings, or whether justice is better served when design solutions start from the main requirements for all legal communication—i.e. fairness and efficiency of justice—and when systems are designed such that this is possible. Some of the AVIDICUS findings suggest that a replication of all aspects of face-to-face interpreting is not the most effective solution for video-mediated proceedings. Future research should therefore focus on video-mediated communication and video-mediated interpreting as modes of communication in their own right and address the question of where replicating face-to-face communication makes sense and/or is necessary to achieve appropriate communication and interpreting quality, and where adaptation will lead to better solutions for the fairness and efficiency of justice.

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