Recommendations for the use of video-mediated interpreting in criminal proceedings

1 Introduction

The recommendations presented in this chapter constitute one of the major outcomes of the AVIDICUS Project, which set out to assess the viability of video-mediated interpreting in the criminal justice system. The project has provided an initial assessment of interpreting in two relevant videoconference settings: a) in criminal proceedings which involve a VC, e.g. the hearing of a remote witness, with an interpreter being located at either side of the VC ('videoconference interpreting' – VCI), and b) in proceedings which use a video link to access an interpreter who is not physically present ('remote interpreting' – RI). The review of current practice undertaken in AVIDICUS (see Braun & Taylor in this volume) suggests that there is a growing demand for both forms of video-mediated interpreting throughout Europe in all areas of criminal justice. At the same time, the review reveals a considerable fragmentation of knowledge and a high level of uncertainty among legal practitioners (e.g. judges, prosecutors, solicitors), police officers and interpreters about these forms of interpreting.

Equally importantly, the findings from the AVIDICUS Project and related project initiatives, reported in several chapters of this volume, suggest that whilst basic practical problems with video-mediated interpreting may be resolved quickly through initial training and a process of familiarization, the combined complexities of technological mediation (through videoconference) and linguistic-cultural mediation (through an interpreter) also create deeper-rooted behavioural and communication problems which require further research to be fully understood. In particular, further research is required to investigate how the double mediation through videoconferencing and interpreting affects the specific goals of legal communication and to elicit adaptive strategies to mitigate such effects.

Prior research on legal videoconferencing has sounded a note of caution over the increasing use of videoconference technology in legal proceedings. Haas (2006: 61) emphasises that there is "a growing body of scientific evidence that shows videomediated personal interactions are perceived as significantly different by the participants and observers than in-person interactions". Federman (2006: 450) claims furthermore that a multiplication of the complexity of legal communication "by the mediation effects created through videoconferencing introduces the significant possibility of inconsistency, inaccuracy, and altered judgment". Federman's claim is based on the assessment of the findings of videoconference use in immigration hearings, which also involved an interpreter, although the focus of the analysis was not on the interpretation. Research dealing specifically with video-mediated interpreting has generated mixed findings, making it difficult to infer the potential risks and challenges. As Roziner & Shlesinger

The outcomes of this study are reported in detail by Ellis (2004). See Braun & Taylor's contribution on current practice in this volume for a summary of the outcomes of this study.

(2010) highlight, most of the studies conducted to date show almost no difference in the actual interpreting performance between traditional and video-based interpreting, but they reveal that the majority of interpreters have negative perceptions of video-mediated interpreting and are less satisfied with their own performance in video-based interpreting. This latter finding is corroborated by the AVIDICUS survey among legal interpreters regarding their attitudes to video-based interpreting (Braun & Taylor in this volume). With regard to the actual interpreting performance, the AVIDICUS comparative studies in relation to spoken-language interpreting as well as Napier's study in relation to video-mediated sign-language interpreting (all reported in this volume) suggest that video-based interpreting in criminal proceedings is more challenging than traditional interpreting in comparable settings, although given the small sample sizes it is currently difficult to draw final conclusions with regard to the significance of these differences.

At the same time, the growing number of migrants in Europe,² who for the purposes of specialised communicative situations such as legal proceedings need to rely on the services of an interpreter, implies an increased demand for public service interpreting, including legal interpreting, with the effect that the 'appeal' of video-mediated interpreting as a potentially cost-effective and sustainable solution is likely to rise in criminal justice institutions. There is a consensus, reinforced by the new European Directive on the rights to interpretation and translation in criminal proceedings,³ that the criminal justice services need to provide language and interpreting support in criminal proceedings (and are responsible for appointing sufficiently qualified interpreters, see van der Vlis in this volume), coupled with an increasing perception that certain measures can be adopted to make the use of videoconferencing effective. The Harvard Law Review, for example, concedes that "improving the technology used, limiting use to preliminary hearings, and requiring the respondent's consent could help balance the efficiency videoconferencing purportedly provides with the substantive requirements" of the judicial system (2009: 1192).

The new European Directive and also the European E-Justice Action Plan⁴ specify that the demand for qualified legal interpreters can be met with the help of videoconference technology. Time will tell to what extent this will be possible and to what extent training, familiarization and increasing knowledge, improved technology and improved system designs will facilitate video-mediated interpreting in criminal proceedings. An important task in bridging the gap between current experience and (future) demand will be the development of (European) standards for video-mediated interpreting in criminal proceedings (and other types of legal proceedings). As a first step in this process, the formulation of recommendations and guidelines is an important instrument to avoid known problems and to disseminate the findings of the growing body of research to all

See e.g. Demography Report 2010. Latest figures on the demographic challenges in the EU. Eurostat News Release 5/2011. Available at http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-01042011-BP/EN/3-01042011-BP-EN.PDF.

Directive 2010/64/EU of the European Parliament and of the Council on the right to interpretation and translation in criminal proceedings. Available at http://www.europarl.europa.eu/oeil/file.jsp?id=5840482. See also Morgan (in this volume).

⁴ European E-Justice Action Plan of the European Council (OJ No. C 75/01, 31-03-2009). Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2009:075:0001:0012:EN:PDF. See also van der Vlis (in this volume).

stakeholders. The introduction of such recommendations is the aim of this final chapter of the present volume.

Section 2 will firstly summarise the main risks and challenges associated with videomediated interpreting, based on the findings of the research conducted in the AVIDICUS Project and the findings emerging from similar research. Section 3 will then present three sets of initial recommendations on the use of video-mediated interpreting in criminal proceedings, addressing the three major target groups in this process:

- Judicial authorities planning to implement video-mediated interpreting services,
- Legal practitioners and police officers,
- Legal interpreters.

In line with the global aim of the AVIDICUS project and this volume, the emphasis in these recommendations is on how to implement and use video-mediated interpreting in criminal proceedings without jeopardizing the fair access to justice of all (European) citizens, regardless of their knowledge of the language used in the proceedings. Section 4 will conclude this chapter, highlighting the key aspects for allowing *appropriate* use of video-mediated interpreting in criminal proceedings.

2 Video-mediated interpreting in criminal proceedings: risks and challenges

The AVIDICUS project undertook different studies in order to gain a better understanding of the difficulties arising in video-mediated interpreting in a legal context, including a review of current practice, two surveys among judicial institutions/legal practitioners and legal interpreters, and a series of empirical studies comparing traditional legal interpreting with the different forms of video-mediated interpreting. Additional information comes from the feedback received during training sessions delivered to practising interpreters, trainee interpreters and legal practitioners (see individual chapters in this volume). Drawn together, the findings of AVIDICUS paint a comprehensive picture regarding the challenges of video-mediated interpreting in criminal proceedings. The suspension of the physical co-presence of the interpreter and/or some of the primary interlocutors has been found to have potentially wideranging implications, which researchers have only begun to investigate. This section will give an overview of the main problem areas and risks upon which any recommendations, guidelines and standards should build. It is intended as rationale for the three sets of recommendations (for judicial authorities, legal practitioners and legal interpreters) that will be presented in Section 3.

The overview will begin with a brief review of the specifics and general challenges of legal communication and legal interpreting (2.1) and then discuss various issues related to videoconferencing and interpreting, especially the implications arising from the distribution and number of participants involved in the communication (2.2), the view and image of the remote site that the participants receive (2.3), the role of the participants' own image (2.4) and the sound quality and its implications (2.5). Furthermore, a number of communication-related problems will be discussed, especially the difficulties in creating a 'rapport' with the remote interlocutors (2.6) and videoconference-specific difficulties with the management and coordination of the communication (2.7), and related to this, the interpreter's working environment (2.8). Further problems will be outlined by way of overview in section 2.9.

2.1 Legal communication and legal interpreting

Legal communication comprises specific genres and has specific purposes ranging, for example, from collecting evidence to assessing, presenting and disputing evidence, making and pronouncing decisions and reviewing and appealing these decisions.

The primary interlocutors – i.e. police officers, prosecutors, judges and other legal practitioners, and suspects, defendants, victims or witnesses – may have shared or conflicting goals of communication, depending on who talks to whom, the stage the proceedings have reached, and which of the above purposes is at play.

When the primary interlocutors do not share a sufficient amount of linguistic knowledge, an interpreter is required to mediate the communication. As Hertog (2002: 145) points out, today there is a need for legal interpreters both at transnational level, i.e. in cross-border cases, and at national level because of "an ever-increasing number of individuals who do not understand or speak the language of the country but end up involved in its legal system". Given the specialised nature of legal communication, the need for an interpreter at national level arises even when the other-language speaker has some basic knowledge of the language of the host country but would be unable to understand the specialised discourse of legal communication.

What is characteristic of cross-cultural, interpreter-mediated legal communication is an asymmetry of power. This arises because the communicative situation involves, on the one hand, institutional representatives of the legal institutions of the host country, who are normally legal professionals with a sound knowledge of the law and legal language and, on the other hand, other-language speakers who may be unfamiliar with the legal system of the host country, under stress, vulnerable, emotional, uneducated, not used to public speaking, using non-standard language or illiterate.

Legal interpreters have to be able to take all of this in their stride. This requires training and an appropriate qualification. The specifics of legal interpreting and the skills and knowledge required of a qualified legal interpreter have been outlined by Berk-Seligson (1990, 2009), Corsellis (2008), Hale (2007), Hertog (2002), Kadric (2001), Mikkelson (2000) and many others. Legal interpreting requires at least:

- a profound knowledge of the relevant working languages, including knowledge
 of all registers from specialised legal terminology and formal language to dialect,
 colloquial language, slang and swearing,
- culture-specific knowledge of the host country and the country, territory or culture of the other-language speaker,
- a sound knowledge of the legal systems of the host country and the country of the other-language speaker and a clear understanding of the differences between them.
- appropriate interpreting skills and strategies for all relevant modes of interpreting (two-way consecutive interpreting, whispered simultaneous interpreting and sight translation), i.e. the ability to relay the message accurately, completely and stylistically appropriately – which, it should be noted, is more than 'just' speaking two languages,
- knowledge about how to deal with cultural and ethical challenges often arising in cross-cultural communication, including knowledge about how to prevent or resolve potential misunderstandings,

- the ability to cope with emotionally loaded, inconsistent and/or conflicting communication goals, and any other consequences that cross-cultural legal communication, as described above, involves,
- the ability to coordinate the interaction between the primary interlocutors and the interpreter, including the ability to intervene appropriately to deliver the interpretation and ensure that nothing is lost.

In any situation of legal interpreting, whether in a traditional setting or a video link, a legal interpreter will encounter linguistic and socio-cultural problems such as specialised terminology, regional and social variations of language, and culture-bound references or culture-specific behaviour. Interpreting is cognitively demanding, and problems associated with an overload of cognitive processing capacity can be observed in almost any interpreting situation. On the surface, such problems often show up as hesitations, drawing out words, self-corrections or language mixing (see also Mead 2002, Gile 2009²) but cognitive overload also leads to problems with accuracy, completeness and appropriateness of the rendition.

In the AVIDICUS comparative studies, the occurrence of such problems was by no means confined to the forms of video-mediated interpreting, but – as the reports by Braun & Taylor, Balogh & Hertog and Miler-Cassino & Rybińska in this volume show – the studies revealed a tendency for such problems to be more frequent and magnified in video-mediated interpreting.

As stated above, given the many challenges of legal communication, legal interpreting requires training and a qualification. Furthermore, legal interpreters need to abide by a code of conduct which makes reference to such crucial notions as impartiality, awareness of conflicts of interests, and awareness of limitations. However, in video-mediated interpreting the interpreters also face a range of new or additional challenges which are not ordinarily part of their training as yet and for which recommendations and guidelines – and arguably an amended code of conduct – are required. These challenges are described in the subsequent sections.

2.2 Distribution and number of participants

One of the most important questions in video-mediated interpreting is how the primary interlocutors and the interpreter are distributed, i.e. who shares and does not share the same location. The concept of 'remoteness', i.e. the lack of co-presence, and the impact of this, has also been one of the main concerns in research on videoconferencing and distance communication as such. In the context of legal interpreting, a basic distinction has to be made between the remoteness of the interpreter, which leads to 'remote interpreting' (RI), and the remoteness of the other-language speaker or both the other language speaker and the interpreter, which leads to 'videoconference interpreting' (see Section 1 for definitions). Figures 1 to 3 summarise the different constellations currently in use in criminal proceedings.



Figure 1: Remoteness of the other-language speaker (interpreter in the main location): Videoconference Interpreting A

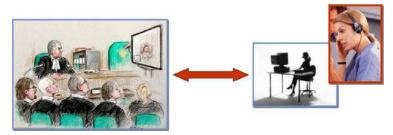


Figure 2: Remoteness of the other-language speaker and the interpreter: Videoconference Interpreting B



Figure 3: Remoteness of the interpreter: Remote Interpreting

One consideration in all of these settings is the question of how the separation of the primary interlocutors from each other and/or from the interpreter affects the interpreting performance. However, since, as Hale (2007: 145) points out, "[t]he behaviours of all participants influence the interaction and effectiveness of the interpreting activity", a related consideration is how the physical separation affects the communicative behaviour of the primary interlocutors themselves and what the possible knock-on effects on the interpreter's task and performance and the possible impact on the proceedings are. Such questions can be said to be particularly relevant in the context of legal communication because most forms of legal communication (police interview, statement taking, court proceedings etc) are highly interactive, and the legal interpreter is traditionally a member of the group of communicators and is therefore highly 'visible' for the primary interlocutors.

With regard to the impact on the interpreter, the consensus is that remote interpreting, i.e. the form of interpreting in which the interpreter is separated from all other interlocutors, is the most difficult form of video-mediated interpreting, although the AVIDICUS survey shows that the difference in perception between remote interpreting and videoconference interpreting is not large. All such forms were seen by a majority of

interpreters as being considerably or slightly more difficult than traditional interpreting. The reasons for this will be described below (see section 2.6).

As far as the effect on the primary interlocutors is concerned, Braun (2004, 2007) has found a number of changes in their communicative behaviour, including a tendency to over-elaborate and a lower degree of coherence in their utterances. As was pointed out in Section 1, Haas (2006) comes to similar conclusions.

It also needs to be noted that the different forms of video-mediated interpreting are not necessarily interchangeable. The reasons for the use of remote interpreting (RI) are quite different from the reasons for using either form of videoconference interpreting (VCI). With regard to VCI, the AVIDICUS comparative studies have made it clear that there is no 'best' place for the interpreter but that different participants have different views. Many interpreters feel that they would like to be co-located with the non-native speaker. This is also confirmed by other studies (see BiD 2008, Ellis 2004).

Another consideration is whether the equipment is needed for only one or multiple settings, i.e. whether it is, for example, likely that the same equipment is used in court for different purposes and stages of the proceedings, with interpreters in different places.

The setting and number of participants and the purpose of the communication will determine the specification of the equipment required, i.e. the number and size of screens, the number of cameras, any ancillary equipment such as document readers, or additional functions such as document or application sharing, the room layout and the place for the VC equipment. The subsequent sections will return to the importance of identifying an appropriate place for video screens and cameras in relation to the participating interlocutors and the interpreter.

2.3 View and image of the remote site

Interpreting is known to rely heavily on non-verbal clues such as mimic, gesture, posture (cf. Bühler 1985, Poyatos 1997) and on the interpreter's general visual perception of the communicative situation. Some of the major problems of videoconference communication are that it imposes constraints on the perception of non-verbal clues and general visual perception, and also that it makes direct eye contact virtually impossible. Research into visual perception in monolingual video-mediated communication suggests that the video channel, even when providing high quality video images, supports the perception of visual clues less efficiently than face-to-face communication (see Braun & Taylor's overview of current practice in this volume). Reflecting upon the role of visual perception in remote interpreting, Moser-Mercer (2005) concludes that a better understanding of the functions of visual information and of the interpreters' perception of these is required.

For the time being, an important point is that the view in videoconferences never provides a complete view of the remote site; only an 'extract' of the remote site is visible, and due to the two-dimensional nature of a video screen, there is no peripheral vision.

Within these constraints, the view of the remote site that the interpreter requires depends to a certain extent on the number of primary interlocutors, but as a basic principle, every participant in a VC **including the interpreter** should be able to

- see the participants at the other location(s),
- be seen by the other side,
- see his/her own image (see section 2.4).

This is necessary for two reasons. Firstly, the interpreter (as well as all other participants) needs to be able to re-construct the situation at the remote site (e.g. who is sitting where in relation to each other, who is speaking to whom) from what s/he can see and hear via the video link. In complex situations, this will require more than one screen and camera and possibly a high amount of cognitive processing on the part of the interpreter. Secondly, the interpreter needs to see the remote participants in order to gauge their reactions. If this is not possible, the interpreter will feel that s/he interprets 'into the void', and this has been identified as one of the main reasons for the distance and isolation felt by interpreters, especially in remote interpreting (see Mouzourakis 2006).

However, there is another layer of complexity. Given that visual and non-verbal communication plays a crucial role in making sense of what is said and resolving potential ambiguities, the interpreter should not simply be able to see the remote participants, but s/he will require a view of their faces, facial expressions and possibly lip movements to aid comprehension of what is being said. This has important consequences for the position of the primary interlocutors in relation to the cameras that deliver the video image for the interpreter:

- The interpreter should have a frontal view of the remote participants.
- At the same time, it is important that the interpreter does not become the centre
 of attention simply by appearing on a video screen. In other words the setup
 should not create a situation in which the primary interlocutors have to turn
 away from each other in order to see the interpreter.⁵
- In videoconference interpreting A (interpreter in main room), the interpreter should therefore be seated next to the main speakers so that s/he can be seen at the remote site together with the main speakers.
- In videoconference interpreting B (interpreter at the remote site together with the other-language speaker), the interpreter should be seated next to the other-language speaker so that both are in direct view at the main site (e.g. the court room).
- In remote interpreting (interpreter separated from all primary interlocutors),
 more than one screen may have to be implemented in different positions at the
 main site to enable the primary interlocutors to look at each other and at the
 interpreter (on screen) at the same time, rather than turning away from each
 other and directing their gaze at one central screen towards the interpreter.

With regard to VCI B, one of the AVIDICUS comparative studies experimented with positioning the interpreter slightly behind the other-language speaker but this led to a number of problems for the other-language speaker, e.g. having to turn his/her head towards the interpreter and away from the screen, which was found to be undesirable by all parties involved (see Balogh & Hertog in this volume).

In remote interpreting, the ideal situation would be that the interlocutors, e.g. a police officer and a suspect, are able to keep sight of the interpreter on the video screen while looking at each other (as expected). In the AVIDICUS study, some of the instances of remote interpreting used a set-up in which the screen was perpendicular to the interlocutors (in police interviews). This turned out to be problematic in the sense that the

See also van Rotterdam and van den Hoogen (in this volume), who make similar points with regard to the room layout for legal videoconferencing in general.

police officers and suspects looked towards the interpreter on the screen rather than at each other (see Braun & Taylor's report of the AVIDICUS comparative study in this volume). Only a longitudinal study will be able to show whether this can be resolved by adapting the position of the interlocutors.

The considerations regarding the view of the remote site are closely linked to the quality of the video image. Given that it is essential for the interpreter to recognise gestures, facial expressions and also the speaker's lip movement, the image quality needs to be of highest standard. Low-quality images would mean that the interpreter has to do additional cognitive processing to infer any visual information that is lost. The image quality also needs to be stable, i.e. the interpreter's visual input should not be disrupted by a sudden drop in the image quality or split-second pixilation of parts of the image as a result of bandwidth problems or error frames in the image transmission. Initial technical standards for the image quality in remote interpreting have been outlined by Esteban Causo (in this volume) with regard to conference interpreting and by van Rotterdam & van den Hoogen (in this volume) with reference to legal videoconferencing. What has to be tested further is whether the standards suggested for legal videoconferencing in general will be also robust enough for legal *interpreting* via video link.

2.4 Own image

Apart from seeing the remote interlocutors, the interpreter should also have access to his/her own image (also known as the "picture-in-picture" or "near-end image"). Seeing his/her own image is an important control mechanism for the interpreter.

In the simplest case, having sight of his/her own image enables the interpreter to confirm whether s/he is in shot and facilitates the control of the interpreter's visual signs. This is particularly important in the consecutive mode, which is currently the most used mode in video-based interpreting in criminal proceedings in Europe (see Braun & Taylor's overview of current practice in this volume), as the interpreter needs to be able to intervene and interpret at suitable points. Many interpreters use visual signs, e.g. raise their hand, to signal that they would like the speaker to stop. In video links, this is crucial because verbal intervention is more disruptive than in face-to-face communication (see Braun & Taylor's report on the AVIDICUS comparative studies in this volume). The own image provides a useful means of controlling whether the visual signals are visible and effective.

Access to the own image also helps the interpreter to assess how s/he is perceived at the remote site, as the interpreter's 'image' arguably contributes to building confidence and trust. Since the perception of someone on a screen tends to be more intense than the natural perception in face-to-face communication, the control of one's non-verbal behaviour is likely to become more important than in face-to-face interaction. Finally, although real eye contact is impossible to achieve in a videoconference, access to the own image will enable the interpreter to create the illusion of eye contact, which is another important element of creating trust.

2.5 Sound

If there is any shared outcome in the small body of research on video-mediated interpreting, it is that the sound quality of the equipment used is crucial for an interpreter in any situation. Some interpreters argue that sound even takes priority over the image

(see Braun & Taylor's report on the AVIDICUS surveys in this volume). In a comprehensive model of legal interpreting and its challenges, such a weighting may be unsustainable, but clearly sound is one of the most important elements of communication for the interpreter to rely on. Sound quality has a strictly technical dimension, i.e. the audio transmission capacity of the equipment used, but it is also influenced by number of environmental factors. Both will be outlined in this section.

With regard to the technical dimension, Esteban Causo (in this volume) highlights the problem that the sound transmission in common videoconference equipment is normally limited to a frequency of 7500 Hz – and in some older equipment even to 3400 Hz – because of the audio compression algorithms used (usually G.722 and G.711 respectively), whilst the audible human frequency ranges from approx. 20 to 20000 Hz. Although Esteban Causo refers to the difficulties of *simultaneous* interpreting (especially the simultaneity of processing the speaker's utterances and producing an equivalent message in the target language), sound problems affect interpreters in all modes of interpreting. In the AVIDICUS studies, which were conducted using market-ready equipment and in which the consecutive mode of interpreting was used, listening comprehension problems and ensuing mishearings were among the most serious problems (see Braun & Taylor in this volume for example).

Based on the studies conducted in supra-national institutions in relation to remote conference interpreting, the International Association of Conference Interpreters (AIIC) states in their interpretation standards that the minimum frequency bandwidth available for remote (simultaneous) conference interpreting should be at least 100 - 12.500 Hz.6

Esteban Causo also highlights further conditions that may have an adverse effect on the sound quality, emphasising that "videoconferences are frequently linking standard offices unsuitable for this purpose, or have a poor set up, which means sound reverberation [...], simple omni directional microphones integrated in the table, etc." (Estaban Causo in this volume). This point is particularly relevant in legal interpreting, where video equipment is often fitted into existing environments (court rooms, police custody suites etc). Moreover, interpreters frequently complain about the noise in court rooms, generated, for example, by rattling papers, poor room acoustics or people moving in and out of the court room while a session is in progress. In a video link, this is likely to magnify the technologically induced sound problems.

As related issue, interlocutors may – in the course of the communication – also change their position in relation to the installed microphones, raise or lower their voices, or change their voice modulation. This has further implications for the design of the VC system as a whole, the peripheral equipment such as microphones and loud speakers, control options (especially volume control) and possibly other parameters. All of these need to be taken into account in the design of technical solutions to minimize the risk of miscomprehension and distortion of the communicative message. They are part of the initial technological recommendations outlined by van Rotterdam & van den Hoogen (in this volume) with specific reference to legal interpreting. Miler-Cassino & Rybińska (in this volume) also highlight that video-mediated interpreting may require training for the interpreters in voice modulation and voice projection.

See AIIC (2000). The sound problems for interpreters especially in ISDN-based videoconferences have also been highlighted in various studies (e.g. Böcker & Anderson 1993; Braun 2004, 2007; Mouzourakis 2006).

The impact of any sound quality problems are likely to be compounded in situations where the interpreter does not have a frontal view of the remote speaker(s) to see their lip movements and facial expressions (see Section 2.3) or when speakers mumble, speak a dialect or with a strong accent, or have difficulty speaking, all of which is particularly relevant in the context of legal interpreting (see Section 2.1).

As pointed out in Section 2.3, non-verbal and visual clues are crucial for interpreting, and this is especially true when the interpreter faces listening comprehension problems. This is where sound quality, video quality and view of the remote site come together. Hence, an appropriate view and a high-quality image, as well as high-quality sound, are vital

Equally importantly, image and sound need to be synchronised. Any discrepancy between sound and image will require additional processing effort on the part of the interpreter to 'piece' sound and image together. Given the point made in Section 2.1 that interpreting is cognitively demanding and that interpreters often work at the limit of their cognitive processing capacity even in traditional interpreting situations, it is clear that any additional distraction from less than perfect technical parameters is likely to turn this into a processing overload. This is exacerbated by the fact that because of the novelty of many videoconferencing situations, interpreters are less likely to develop coping strategies when a processing overload occurs (e.g. when a speaker speaks too fast) than in traditional situations. Thus, the risk that less than perfect technological conditions may adversely affect the interpreting performance is very high.

Another point that was explained in Section 2.1 is that legal interpreting often involves a high degree of interaction, i.e. two-way communication or, when an interpreter is involved, three-way communication. This requires turn-taking and sometimes entails overlapping speech. Another technological parameter that is therefore vital is that the equipment used for video-mediated legal interpreting should be full-duplex systems, allowing sound from both locations to be transmitted at the same time without the sound 'cutting out'. Having said that, the AVIDICUS tests, which used full-duplex systems, revealed that even such systems create a certain degree of interference and sound 'loss' when two speakers in different locations speak at the same time, especially when they speak with a raised voice (which, in turn, is a characteristic feature of videoconference communication, mainly to compensate for a lack of 'rapport' with the remote site – see Section 2.6). In the AVIDICUS tests, overlapping speech was one of the main reasons for omissions and the loss of information (see Braun & Taylor in this volume).

In remote interpreting in criminal proceedings, another problem may arise. In this setting, interpreters are likely to work in centralized hubs. Whilst conference interpreters normally work in soundproof booths, this is not common in legal interpreting, but soundproofing will have to be considered in interpreter hubs to control the level of noise created when many interpreters work in the same space.

2.6 Rapport with the remote interlocutors

In videoconferences, the interlocutors are in different environments at their respective sites and may be exposed to different influences (e.g. background noise or disruptions). The physical separation of the interlocutors creates a latent uncertainty about what 'the other side' does, i.e. the atmosphere or communicative situation at the remote site is generally more difficult to gauge. In a seminal work in the field, Short *et al.* (1976) have

postulated that the rapport between the interlocutors in a VC is usually weaker than in traditional face-to-face communication, leading to a feeling of reduced 'social presence'. In her study of video-mediated interpreting in business settings, Braun (2004, 2007) found that the reduced social presence manifests itself, for instance, in unnatural ways of speaking, especially a tendency to speak louder and, in some cases, also a tendency to over-elaborate and to be less coherent. The interlocutors also seem less focussed on what they want to say.

The majority of the interpreters who responded to the AVIDICUS survey (see Braun & Taylor in this volume) confirmed the problems with rapport. They felt that the use of a video-link in interpreting makes it more difficult to build a rapport with the (remote) interlocutors. Many of the interpreters who participated in the survey among legal interpreters, the comparative studies and/or the training sessions (all reported in the various chapters in this volume) saw this as one of the main problems of delivering interpreting via video link. The AVIDICUS comparative studies furthermore replicated some of the problems identified in Braun (2004, 2007), especially the tendency to speak louder and to be less focussed on the communication.

Legal interpreters are used to working in close physical proximity to the primary interlocutors. Some of the interpreters who participated in the AVIDICUS comparative studies reported that the closeness helps grasp all the subtleties of the communication and to resolve communication problems. As one of the comparative studies shows, the decreased rapport may also mean that problems at the other side are misjudged or go unnoticed (see e.g. Miler-Casino & Rybińska in this volume for an example in which the prosecutor did not notice at all how nervous the remotely situated interpreter was).

Furthermore, the interpreters felt that video-mediated interpreting takes longer and is more tedious. One of the AVIDICUS comparative studies, which compared the duration of face-to-face and remote interpreting as well as the effort required to resolve communication problems confirmed the interpreters' impressions (Braun & Taylor in this volume). For example, the videoconference sessions were on average 19% longer than the face-to-face sessions, and many interpreting problems required a lengthier exchange between the interlocutors to be resolved.

The comparative studies also reveal that videoconference participants seem to try and compensate for the weaker rapport by putting more effort into the communication, resulting in, for example, the tendency to speak louder. The interpreters who took part in the test reported that they had to concentrate more and that they tired more quickly. These points will be discussed further in Section 2.8.

In the training sessions delivered to practising interpreters as part of the AVIDICUS project (see Braun *et al.* in this volume), some interpreters furthermore highlighted the importance of the 'human factor'. They pointed out that their presence often has a positive or reassuring effect on the other-language speaker, as they are the only person to share his/her language. All in all, the difficulty in establishing a rapport in video-mediated communication seems to be partially responsible for negative reactions of interpreters to video-mediated interpreting.

Yet another problem of video-mediated communication concerns the contextualisation of the situation. A remote witness in another country or a remote suspect in another borough of a big city may refer to a location with which an interpreter who is used to working in a particular area may be less familiar. In other words, the interpreter may not be aware of the specifics of the remote location.

Remoteness and its effects are issues that will require a substantial amount of further research. A crucial task in minimising the risks of video-mediated interpreting would be the investigation of the possible long-term effects of video mediation and interpreting on the participants in videoconferences and the dynamics of the proceedings. Until this is possible, the introduction of video-mediated interpreting should be slow and incremental, allowing for adjustment as more research outcomes become available.

2.7 Communication management

As explained in the previous section, remoteness is an overarching condition of videoconferences that seems to affect all aspects of communication, including communication management. The management of the communication in legal settings has several dimensions. On the one hand, it concerns procedures at all stages (and before and after) a communicative event. Questions arise with regard to the briefing for the interpreter when s/he is not physically present, but also over the opening procedure in the VC, the introduction and other aspects. What is required here is a set of guidelines for each communicative event to ensure an appropriate standard of communication. In the meantime, time should be set aside at the beginning of the communicative event to make sure procedures are established for the event in question to minimize the risk of miscommunication.

Another aspect of communication management is technical control, e.g. in the case of breakdown. As Ellis (2004) points out, it should not be left to the interpreter to solve technical problems. It is in fact the fear of an increasing dependency on the technology that also contributes to creating negative attitudes among interpreters towards videomediated interpreting. Appropriate technical support and clear procedures are likely to be reassuring for the interpreters.

It is also essential that the interpreter has a certain amount of control over the technology. Among the interpreters who took part in the AVIDICUS comparative studies and the training, the opinion regarding technical interventions was divided. Whilst some wanted to have everything set up beforehand and did not want to operate any equipment during the interpretation, others would have welcomed the opportunity to have some control over the technology even while interpreting, especially panning the camera around and zooming in. Whether this is practicable will depend on the setting and the number of participants, but should be considered in the planning stage.

A third and equally important dimension of communication management in dyadic communication is the actual co-ordination (or synchronisation) of the talk. In the various settings of legal interpreting, the interpreter is traditionally part of the group of interlocutors, and the delivery mode is mainly consecutive. In the interest of a smooth conversation flow, the interpreter usually keeps pauses between the end of a speaker's turn and the delivery of the target text to a minimum and sometimes even starts his/her rendition while the speaker is still completing his/her turn. Ideally the interpreter should be visible for all interlocutors and should be able to maintain eye contact with the interlocutors to handle turn-taking in this tripartite communication situation.

One of the factors that influences the co-ordination of the talk in videoconferencing are transmission delays, however slight, present even in high-quality broadband connections. Such delays let pauses between turns appear longer, which in turn creates uncertainty and produces the wrong signals (such hesitations usually being interpreted as inability to produce an appropriate reply or as disagreement). On the other hand,

attempts to resolve 'deadlock' situations created by long pauses frequently result in overlapping speech, e.g. when an interlocutor starts to restate his/her utterance just as a response from the remote site arrives (see also Braun 2007).

Furthermore, it seems that the artificial sound source in a videoconference does not accommodate overlapping speech in the same way as natural speech does (see also Section 2.5). This is compounded by the fact that turn-taking problems have been observed in the AVIDICUS studies to be much more frequent in video-mediated interpreting than in face-to-face interpreting for several reasons. One reason is the slight transmission delay, which makes it more difficult for an interpreter to intervene without too much disruption. Another, with similar effect, is the generally decreased rapport between interlocutors in a VC (see Section 2.6), which slows down the interlocutors' verbal and nonverbal reactions and makes the assessment of the remote interlocutors' behaviour (e.g. whether or not they are about to stop speaking) more difficult.

Moreover, interlocutors who are agitated and speak fast or interlocutors who are not very experienced in working with an interpreter may find it difficult to adapt to speaking in short 'chunks' and to pause for the interpreter. They may continue speaking when the interpreter begins the interpretation and thus create extended overlap with the interpreter, which for the reasons outlined above is difficult to resolve when the interpreter is in a different location (see also Braun & Taylor in this volume).

The conclusions to be drawn from the communication management problems in video-mediated interpreting are multiple. One concerns the selection of equipment. As was pointed out in Section 2.5, full duplex sound is required to minimise problems arising from overlapping speech. However, as mentioned in Section 2.6, practice shows that full-duplex audio does not guarantee the elimination of problems with overlapping speech. Therefore, adjustment, i.e. a change of strategies, on the part of the interpreter will be required. This, in turn, may take some time, even though prior research (Braun 2004, 2007) and one of the AVIDICUS studies (Miler-Casino & Rybińska in this volume) suggest that the adjustment may not take long. It will, however, be useful for interpreters to have a chance for a 'dry run' especially as part of a training or familiarization session.

The wider implication is that the way the interpreters work, including the way to gain the floor, may partially change. If the interpreter is less successful with his/her attempt to intervene and stop the speakers at appropriate points, a detainee, for example, may speak in longer turns and information may be lost. Given that many legal interpreters are used to interpreting in very short chunks and some are not well trained in memorization and note-taking techniques, this is an important point for interpreter training.⁷

Even wider is the implication that the changes in turn-taking may change the dynamics of the communication, giving a police officer, for example, less of a chance to intervene and ask a quick follow-up question. The consequences are as yet unclear but will be one of the research questions that will be followed up in AVIDICUS II.8

Other conclusions to be drawn from the problems with the co-ordination of talk in videoconferences concern situations with more than two primary interlocutors, where overlapping speech between the primary interlocutors is likely to occur. Such overlaps

This is one of the reasons why the AVIDICUS training module for practising interpreters piloted in Warsaw by TEPIS was embedded in a more comprehensive CPD measure which also included notetaking training (see Braun et al. in this volume).

⁸ EU DG Justice grant, JUST/2010/ JPEN/AG/1558, 2011-2013.

are likely to cause additional communication problems, especially when primary interlocutors do not share the location of the interpreter (i.e. all primary interlocutors in remote interpreting or those at the other site in videoconference interpreting).

2.8 Working environment

The introduction of video-mediated interpreting raises important issues for the working environment of the interpreters, both in the sense of the actual physical environment and in the sense of the atmosphere or ergonomics. This has also been one of the major considerations in the various studies conducted in supra-national institutions in relation to remote conference interpreting (see Roziner & Shlesinger 2010 for an overview).

With regard to ergonomics and atmosphere, the AVIDICUS survey and the feedback from the interpreters participating in the comparative study indicate that interpreting in front of a video screen is more tiring than interpreting in the traditional way, confirming prior research on remote conference interpreting (e.g. Moser-Mercer 2003). The reasons have to be further researched but it can be assumed that the following aspects of seeing, speaking and listening in a videoconference play a part.

Focussing on a two-dimensional screen which only allows 'extracts' of the remote location to be seen, without any peripheral vision (see also Section 2.3) is likely to require more cognitive resources to construct and understand the situation at the remote site. In short, video-mediated interpreting is likely to require more concentration.

As was pointed out in Section 2.6, videoconference participants have a tendency to speak louder in order to compensate for their uncertainty of whether everything that is said actually arrives at the remote site. Both speaking with a raised voice and listening to speakers who raise their voices is likely to add a strain on the interpreter's cognitive resources. In combination with the problems of listening comprehension due to difficulties with currently available sound quality (see Section 2.5), the effort required for listening to and analysing the speaker's utterances could be considerably higher than in traditional interpreting situations.

Fatigue can be assumed to be directly linked to the interpreting performance. One of the AVIDICUS comparative studies analysed the distribution of interpreting problems on the timeline of the face-to-face and video-based sessions (Braun & Taylor in this volume). This analysis revealed a greater increase in the number of interpreting problems during the video-based sessions, which became more noticeable in the second half of the sessions. The video-based sessions show, for example, a steep increase in the number of paralinguistic problems, which are often indicative of a cognitive overload. Moser-Mercer (2003) reported similar findings from her study on remote conference interpreting.

In connection with this, the duration of an interpreter's turn in a video link will require attention. The conference interpreting profession has adopted 30-minute turns as the standard duration of a working turn for a conference interpreter. Our data and Moser-Mercer's study show a decline in the interpreting quality (increase in the number of errors) after approximately 15 to 20 minutes, suggesting that interpreters may not be able to work for an extended period of time in a video link. What is noteworthy is that the guidelines for remote interpreting issued by the Wisconsin Circuit courts, which

recommended 30 minute turns in 2006, were revised in 2010 and now recommend 15 minutes as the maximum length.⁹

The physical working environment of the interpreter is another concern, but given the variety of different settings of video-mediated interpreting in terms of the distribution and number of participants, type of communication etc., it is difficult to make generalizations with regard to potential challenges. One crucial point is noise level, as pointed out in Section 2.5. Other issues concern the work space, i.e. screen size, desk, view of the other (onsite and remote) participants, lighting, temperatures and other factors. Such detailed technical recommendations were beyond the scope of the AVIDICUS Project, which focused on the quality of interpreting and aimed at initial general recommendations for video-mediated interpreting. However, the technical recommendations formulated by van Rotterdam & van den Hoogen (in this volume) for legal videoconferencing as such cover important issues relating to the audiovisual environment of videoconferences and can serve as an important starting point for more detailed technical recommendations on video-mediated interpreting.

2.9 Further problems and conclusions

Although the focus of the AVIDICUS Project was on the *quality* of interpreting in videomediated communication, the work also brought up a range of other points that will require consideration. These are, inter alia:

- possible differences in acceptance of videoconference communication in different cultures,
- possible correlations between the viability of video-mediated interpreting and language pair, type of crime/offence, age group, gender and cultural specifics of the other-language speaker,
- possible consequences of the fact that people who are suspected of, accused of or involved in a crime may be under stress, vulnerable, aggressive or violent in the videoconference situation.

The AVIDICUS comparative studies, which used simulations of real-life situations, have pointed to a number of generic problems that can be addressed immediately. However, not everything can be anticipated and researched: each setting and solution has its own specifics. The following key points are, therefore, of utmost importance to mitigate risk:

- The introduction of video-mediated interpreting into criminal proceedings should be incremental, with in-built pilot phases at each stage and a real commitment to adjustment as the need arises before moving on to the next stage.
- At present, until further research has been conducted, video-mediated interpreting should only be used for low-impact crime and short procedures,
- A crucial prerequisite for all forms of video-mediated interpreting is the use of trained, qualified and experienced legal interpreters as well as the use of legal practitioners and police officers who are experienced in working with an interpreter.

http://www.wicourts.gov/services/interpreter/docs/telephoneinterpet.pdf

The recommendations made in the next section of this chapter will take up these key points and elaborate a range of further points for the three relevant target groups (judicial authorities, legal practitioners and police officers, and legal interpreters).

Two further important points that are incorporated into the recommendations are the provision of training for legal interpreters and legal practitioners/police officers and close co-operation between all stakeholders. Judicial institutions, legal practitioners, police officers and interpreters need to co-operate to create the best possible working conditions and to make sure that the fairness of justice is not jeopardized. This requires listening to each other and interacting with each other, from the planning stage onwards. Co-operation is also required when it comes to assessing the suitability of a video link. Experienced interpreters will have developed good insight into the communicative challenges of legal communication and will be able to advise on the appropriateness of a video link. Interpreters who have experience in both interpreting and videoconferencing will, of course, be of most value with regard to providing advice, and their voices should be heard.

3 Recommendations for the use of video-mediated interpreting in criminal proceedings

3.1 Recommendations for public/judicial services

1. Identify your needs

Map out your setting. Identify, for example, who talks to whom, who needs to see/hear whom, where the main parties and the interpreter are located, whether the distribution and especially the location of the interpreter is flexible and how long the interaction is likely to take.

2. Involve expertise at the planning stage

Involve interpreting/linguistic, legal and technological expertise to work out the specifics of your setting and to approve your solution.

3. Use the best available technology

Provide high-quality sound and video for all parties involved and additional equipment for the interpreter as required (e.g. head-phones); use a separate document camera (for the presentation of documents, images and other material that can facilitate interpreting)

4. Provide an appropriate work environment for the interpreter

Provide an ergonomic and quiet work environment for the interpreter; allow the interpreter to control the equipment (e.g. volume control).

5. Allow a 'trial and error' phase

Run a pilot before any large-scale purchase, implementation and roll-out of equipment. Identify critical instances in communication process and make necessary adjustments.

6. Allow for a stage-by-stage introduction of new technology

Start with low-impact crime, evaluate the effect of technology at each stage and assess the implications for the next stage.

7. Use qualified participants and interpreters

Use trained and experienced legal interpreters. Use legal staff members who are experienced in working with interpreters.

8. Offer training to the interpreters and legal staff

Offer an early-stage induction before rolling out the technology. Provide continuous professional training (including awareness of wider context, mastery of technology, communicative situation and supportive techniques such as stress management).

9. Agree risk-assessment procedures

Agree procedures for deciding whether or not a video link in combination with interpreting is appropriate. Consult experienced interpreters.

10. Develop guidelines/protocols for your procedures

Specify who is responsible e.g. for booking, timing, testing, starting and controlling the connection; describe the procedure before, during and after the session (briefing of interpreter, beginning of session, introductions, rules during session, debriefing) for all participants.

11. Make provisions for breakdown

Develop a protocol for communication breakdown or technological breakdown; do not leave it to the interpreter to resolve breakdowns.

12. Work towards a code of best practice

Judicial services, legal practitioners and interpreter associations should cooperate to develop joint codes of best practice for videoconference and remote interpreting.

3.2 Initial recommendations for interpreters

1. When you are booked

- Ask about the specifics of the video link, e.g. where the main are parties located, whether your location is flexible or not (i.e. whether you have to be in one particular location, e.g. a court or a prison, or whether you can choose the location), how long the videoconference is likely to take etc.
- If there is time, ask to visit/inspect the site before.
- Ask for the connection to be tested in your presence.

2. Before the session

- Check whether you can see/hear and can be seen/heard; make sure you are not too close to the camera and your seating position is comfortable.
- Ask for a briefing to be given to you and e.g. exhibits to be shown via the video link before the actual session starts.
- Agree procedures for the beginning of the session (e.g. how and by whom the
 introductions including, where required, a language/dialect check of the otherlanguage speaker will be done and whether/when a brief explanation of the
 'rules' of videoconferencing is required).
- Agree procedures for the entire session including signals for metacommunication (e.g. visual signals to stop a speaker or to ask a speaker to slow down).
- Bear in mind that the situation is new for everyone, including the other participants.

3. At the beginning of the session

- Follow agreed procedures; don't feel you have to take on responsibility for explaining the videoconference setting.
- Check whether you can see/hear and can be seen/be heard by all participants at the other end.
- Check whether the agreed signals are effective; ask for adjustment if necessary.
- Don't rush, allow yourself time to get used to the situation and the remote participants.

4. During the session

- Monitor your source text comprehension closely to avoid mishearings.
- Monitor your output: be clear and explicit but avoid repetitiveness and overelaboration.
- Control your voice: don't speak louder than you normally do.
- Use the agreed signals to gain the floor; if you use your hands, make sure they are visible for the other side.
- Always ask if you are unsure (e.g. in the case of a possible mishearing, a local reference at the remote site or lapse of attention).
- Don't be afraid of intervening, even if you feel this may be more disruptive than in a face-to-face situation.
- Keep a comfortable seating position: avoid leaning into the screen/camera.
- Control your non-verbal behaviour: create the illusion of eye contact and control your facial expression, using your own image (if available).
- Increase the rapport: try not to move out of shot; if you have to, explain what you are doing.
- Point out disturbances at your end (e.g. noise, changes in visibility of participants).
- Ask for a break if necessary (including a break to resolve a problem at your end).

5. After the session

• Immediately: ask for a (short) debriefing with legal practitioners/police officer if deemed necessary.

- Back home: note your observations after your first sessions and reflect upon the situation.
- If you encountered problems, identify their source, especially if there are recurrent problems.
- If necessary, discuss the problems with the judicial services.

3.3 Initial recommendations for legal practitioners and police officers

1. When you book an interpreter for a video link

- If you deploy an interpreter to work in a video link, make sure that the interpreter knows that a video link is involved.
- Inform the interpreter about the specifics of the video link, e.g. where the main parties and the interpreter will be located, whether the location of the interpreter is fixed or whether the interpreter can choose (e.g. whether s/he is in court or in prison), how long the video interaction will take etc.
- If there is time before the session, invite the interpreter to visit the site.
- In the schedule for the session, allow time for:
 - briefing the interpreter on-site or via video link, as required by the setting,
 - the connection to be tested in the presence of the interpreter,
 - breaks for the interpreter at appropriate points, when the session is long.

2. Before the session

- Allow enough time for set up at the beginning of the session.
- Briefing: give the interpreter a briefing (concise, factual) and, where relevant, show exhibits to the interpreter.
- Agree/state procedures for the beginning of the session (including the introductions and a brief explanation of the 'rules' of videoconferencing if deemed necessary) and the entire session.
- Check whether everyone can see/hear and can be seen/heard as appropriate.
- Allow the interpreter to agree signals for meta-communication.
- Bear in mind that the situation is new for all participants.

3. At the beginning of the session

- Follow the agreed procedures; as a legal practitioner/police officer, you are responsible for the session and the video link (it is not the interpreter's responsibility).
- Check again whether everyone can see and hear as appropriate.
- Check whether the agreed signals are effective.
- Stop the session if adjustments need to be made (e.g. if somebody is out of shot).
- Do not rush; allow everyone time to get used to the situation and the remote participants.

4. During the session

- Communicate clearly: phrase your points in clear and plain language to avoid misunderstandings.
- Control your non-verbal behaviour: eye contact, facial expression.
- Increase the rapport: indicate clearly what you are doing (e.g. if you move out of shot).
- Monitor your output: speak slowly and clearly but avoid repetitiveness and overelaboration.
- Control your voice: don't speak unnaturally loudly.
- Always give the interpreter enough time to interpret.
- Respect and reply to the interpreter's request for clarification or for resolving a videoconference-induced problem.
- Respect an interpreter's request for a break (at appropriate points).

5. After the session

- Immediately: try to have a short debriefing with interpreter if required.
- Back home: note observations after your first sessions and reflect upon the situation.
- If you encounter problems, identify their source, especially if there are recurrent problems.
- If necessary, discuss problems with your institution.

4 Conclusions

The main sources of input for the three sets of recommendations outlined in this chapter were the outcomes of the AVIDICUS comparative studies, the review of current practice, the AVIDICUS surveys and the feedback from the AVIDICUS training sessions (all reported in the various chapters in this volume). One of the most important outcomes was the range of potential risks and challenges arising from the combined use of videoconferencing and interpreting in criminal proceedings. These were summarised in Section 2 of this final chapter of the present volume.

Generally speaking, in spite of using partially different methodologies and assessment methods, the three comparative studies conducted in the AVIDICUS Project came to very similar results with regard to the viability and quality of video-mediated interpreting in criminal proceedings. All forms of video-mediated interpreting were found to magnify known problems of (legal) interpreting to a certain extent. As a consequence, the number of serious interpreting problems was generally higher in the forms of video-mediated interpreting compared to face-to-face interpreting. Furthermore, a range of additional problems for the interpreter were observed including, for example, problems with the view of the remote participants, gaze and eye contact, sound and listening comprehension, communication management and the co-ordination of the talk, and rapport with the remote interlocutors.

The interpreters also faced challenges from the changing communicative behaviour of the primary interlocutors (who, for example, raised their voice unnecessarily, were unsure about where to look or whom to look at or did not react to the interpreter's signs to stop speaking). Furthermore, the video-mediated sessions took longer than the face-to-

face sessions. The absence of procedures for video-mediated interpreting (e.g. what to do at the beginning of the session) led to uncertainty and further problems with the coordination of the talk.

The work carried out in AVIDICUS points to an urgent need for training as well as to the need for an incremental approach to the introduction of video-mediated interpreting with in-built pilot phases and a real commitment to adjustment as the need arises.

Given what is at stake in legal proceedings, the problems uncovered in the original AVIDICUS project should not be taken lightly. The major conclusion underlying the recommendations is that a sufficient quality of interpreting performance is the *conditio* sine qua non for the use of video-mediated interpreting in criminal proceedings. At the same time, the potential advantages of videoconferencing, when appropriately used, the influence of training, technological improvement, system design and clear guidelines must be investigated further, especially at a time when traditional ways of conducting criminal proceedings and gaining access to qualified interpreters seem to be increasingly difficult to maintain. The recommendations presented in Section 3 are intended to facilitate appropriate use of the technology.

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