




Of Pride and Prejudice

The Divide between Subtitling and Sign Language Interpreting on Television

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Abstract. *It is no longer questionable whether d/Deaf and hard-of-hearing viewers should be offered accessibility services on television. This matter has been widely discussed at a European level and most countries have taken legislative action, while television broadcasters have implemented different solutions – mainly closed captioning/teletext subtitling and sign language interpreting – to make their programmes accessible to people with hearing impairment. It is common to find d/Deaf and hard-of-hearing viewers complaining about what they are offered on television. It is also common to hear that television providers are doing their best to make their services available to all. There is still another group of voices turning down or singing the praise of one or the other solution, for a number of reasons which range from technical and aesthetic issues to political and social motivation. This paper examines the advantages and drawbacks of using subtitling and/or sign language interpreting on television while trying to establish why both are much loved or much hated accessibility solutions.*

Keywords. Intralingual subtitling, Accessibility, Translation/interpreting policy, Legislation, Technology 

1. Introduction

The discussion over the presence of sign language interpreting or subtitling on television has been, to borrow Sacks' words about the Deaf world (1990: xiv), "a charged (at times embattled) area, where passionate opinions have contended" for quite some time. The contenders in this particular feud – the viewers (the Deaf, the hard-of-hearing and the hearing), the providers (the broadcasters, the interpreters and the subtitlers), the legislators and the lobbying groups – seem to be largely guided by their personal interests, seldom establishing an open dialogue over the feasibility, adequacy or even validity of their demands and beliefs. This longstanding feud may stem from the fact that many of the stakeholders in the situation have limited knowledge of the



requirements of their counterparts, choosing to continue fighting for their beliefs rather than establishing communication lines to negotiate solutions and to draw upon each others' strengths. Another element which seems relevant to the case is the role that each of these contenders consider media to play and the importance that may be given to one particular role at the expense of others. The fact that the media may be seen "as a medium (information provision), as a mediator (deliberative processes, activism), as a political actor (the media and media-professionals), as a citizenship right (communication rights), as a tool for or indicator of enhancing equal opportunities, but also as a battlefield for meaning" (ECREA 2007) generates much disagreement and suggests that the debate over television accessibility solutions for hearing impaired viewers will continue for some time to come.

Technically speaking, access to television may be offered to hearing impaired viewers in three distinct forms, namely (1) signed language programmes, (2) spoken language programmes with sign language interpreting, and (3) subtitled programmes. Each of these raises a number of related issues. The provision of signed programmes, which place the Deaf world in a central position, means that it is hearing viewers who may need accessibility solutions, since very few will have competence in a sign language. This would basically mean taking hearing people to the Deaf world rather than the usual situation of taking the Deaf to the hearing world. Spoken programmes with sign language interpreting, on the other hand, exclude hearing impaired viewers who do not know a sign language. Subtitling, the third option, arguably represents the 'neutral' or 'middle-of-the-road' solution, catering for all alike and failing for that very reason. Thus, the issue of which category of viewer is placed in central position and the direction of translation/interpreting is likely to remain the subject of ongoing debate, and cannot be resolved merely with reference to simple technical possibilities.

From a social perspective,¹ accessibility to the media gained increasing importance at the turn of the century, as awareness of the need to cater for disabled citizens and to address discrimination grew. Partly due to initiatives such as the European Year of People with Disabilities 2003, accessibility issues have been foregrounded and people in general have been made aware of the need to guarantee that disabled people share equal rights and enjoy equal opportunities, if not in practice then at least in principle. This does not mean that accessibility is a new concern in audiovisual translation (AVT). In fact, quite apart from the (*strictu sensu*) disability issue, all AVT is about accessibility, as is rightly argued by Gambier (2003:179), since all forms of AVT – subtitling, dubbing, voice-over and interpreting, among others

¹ Deaf Studies do not partake of the disability perspective and many argue that Deaf people are not disabled, but rather that they are a linguistic minority. Contrast with this is the fact that, still today, funding to facilitate access for Deaf communities is, however, predominantly provided through disability funding streams and disability/access legislation.

– are a form of mediation, or vehicle, allowing viewers access to a product in a different language and/or a different culture. However, as far as hearing impaired² audiences are concerned, the effort to make audiovisual texts available to d/Deaf viewers dates back to the time of the “talkies”, when films were specially subtitled for showings at Deaf clubs.³ It was, however, with television that media accessibility was brought into the lives of hearing viewers, even if in the hidden format of closed captions or teletext subtitling.⁴ Whereas closed captioning and teletext subtitling have been around since the 70s, sign language has only been regularly used on television since the 90s, perhaps due to the status of sign language in different countries and the acceptance (or otherwise) of the various Deaf groups as minorities with an identity and a language of their own.

Given that what we are currently offered on television is the direct outcome of technical, social and political changes, media accessibility may

² Different terminology is used to refer to d/Deaf people. The choices made throughout this paper are intentional even if, at times, they may appear to be inconsistent. The implications of the use of terms such as “hearing impaired, deaf, Deaf, hard of hearing” will be dealt with and clarified at various points in this paper.

³ In 1949, two Americans, Edmund Boatner and Clarence O’Conner, the former superintendent of the American School for the Deaf and the latter superintendent of the Lexington School in New York, set up Captioning Films for the Deaf (CFD), which aimed to raise funds to provide captioned movies for deaf viewers. The first CFD film to be captioned in the United States was *America the Beautiful*, a 25-minute short, by Warner Brothers, designed to help sell war bonds during World War II. By 1958, the CFD had captioned 30 films, all of which circulated among Deaf clubs and schools for a small fee (cf. Boatner 1980).

⁴ The first TV programme to be aired with captioning for the deaf, in the USA, was an episode of the *French Clef*, soon to be followed by an episode of the *Mod Squad*, both broadcast in 1972. These first captions were open; one year later, in 1973, the first captioning of news bulletins was aired when PBS began re-broadcasting news programmes using open captioning. Unlike the USA, the first subtitling efforts in Europe were not directed towards making films accessible to people with hearing impairment. Instead, they aimed at translating Hollywood talkies for European audiences. In the 70s, the British followed in the American footsteps and set out to provide subtitling for the Deaf and hard of hearing on television using the teletext system; like the closed captioning system used in the USA, this concealed the teletext signal in the VBI (Vertical Blank Interval). However, instead of resorting to line 21 alone, the teletext system allows for the concealment of information at the end of each of lines 6 to 22 and 318 to 335. The system that was originally developed, named Ceefax (internally known as Teledata), was announced to the public by the BBC in October 1972 and put into experimental use in 1974. At the same time, ITC was developing its own system, named ORACLE (Optical Reception of Announcements by Coded Line Electronics). Both systems used a common format, CEPT1, which was standardized in 1974, ensuring that future television receivers would get teletext at a reduced price. Aspects such as decoders, character sets and the use of colours were agreed upon, and in 1976 “the world’s first public teletext service was put into general use in England” (NCAM, accessed 2004).

be predicted to follow the major changes taking place in media technology. The development of accessibility services is likely to reflect the way Deaf populations see and position themselves within hearing societies, as well as the measures that policy makers take to promote social and linguistic diversity whilst guaranteeing social integration and compliance with major legally-binding covenants and treaties, such as the Universal Declaration of Human Rights (United Nations, 1948), the Madrid Declaration (2002), and nationally based Disability Charters and Acts.

2. Subtitling – outlining the basics

As previously mentioned, the regular use of captioning/subtitling on television dates back to the 1970s, when three countries – the USA, the UK and France – started working on subtitling software to be used in this medium. Closed captioning was developed in the USA; teletext subtitling in the UK; and ANTIOPE in France. Even though, in principle, all three systems were offering ‘hidden subtitles’ to be called up only by those who deliberately wanted to have them on screen, they were developed using different technologies, and soon each country was elaborating and following specific norms in the subtitles they were providing. The French soon dropped the development of their subtitling solution, and closed captioning and teletext subtitling systems became the two main technical solutions to be used on analogue television in order to provide subtitling for hearing impaired viewers. These two systems have since become the standard in their country of origin and have been adopted by many other countries under the influence of the USA or the UK. As things stand today, closed captioning has spread throughout the American continent, while teletext subtitling is mostly used in Europe and Australasia.

This technical divide has given rise to an often heated discussion over the correct terminology to refer to subtitling for hearing impaired viewers, highlighting the differences between closed captioning and teletext subtitling on television. The main issue appears to be that closed captioning is regarded as strictly *intralingual*, and very often a verbatim transcription of speech, whilst subtitling, in its open mode and as used in European non-English speaking countries, is *interlingual* and particularly directed at hearing audiences. Although teletext subtitling in the UK, like closed captioning in the USA, has been closed and intralingual, it seems to be confusing to those accustomed to the term *captioning* to see the word *subtitling* being used for two apparently different realities.

Despite the differences in technology, norms and terminology, both captioning and teletext subtitling aim at making television programmes accessible to viewers who do not have full hearing. Although the d/Deaf are seen as the privileged addressees of such solutions, captions/subtitles have

been considered equally valuable to foreigners wishing to learn or improve their command of the language in question, children learning to read, and even anyone trying to follow broadcasts in noisy environments, such as train stations or shopping centres.

For clarity, and in the hope of sidestepping this needless divide, the expression ‘subtitling for the d/Deaf and hard of hearing’, ‘SDH’ for short, will be used in this article to refer to any type of captioning/subtitling solution – open or closed, intralingual or interlingual – that has been especially devised to convey relevant sound (voice, speech, sound effects and music) in audiovisual text(s) to viewers with some degree of hearing loss. In fact, closed captioning and teletext subtitling represent only one technical solution in the context of analogue television. Before they were developed, d/Deaf viewers were already finding other ways to gain entrance to the world of audiovisual texts and, in the near future, digital technology is bound to change these paradigms. Terminology that is open to new contexts by being focused on the intended addressee(s) may prove to be economical and practical. Nevertheless, the decision to adopt ‘SDH’ as working terminology does not exclude further debate over the adequacy of the designation, an issue that has been amply addressed in Neves (2005): it seems inevitable that in aiming to provide one set of subtitles that is equally adequate for the Deaf (social minority with a sign language as first language), hard of hearing (viewers with residual hearing) and the deafened (people with residual hearing and/or hearing memory), none of these addressees is likely to be duly catered for. However, for the purposes of this article, it seems appropriate to adopt the standard term and use it within the scope of the definition provided here. By accepting that subtitles for the d/Deaf and hard of hearing – or subtitles for the hearing impaired (preferred terminology in the DVD market) – are directed at a specific set of people, we are accepting some form of discrimination, albeit positive discrimination. While subtitling for all categories of viewer is still an ideal that cannot be fulfilled, and while technology does not allow for subtitles to be ‘built’ or ‘tailored’ to the individual needs of each viewer, it makes sense to accept positive discrimination as a way forward in order to cater for viewers with special needs.

3. The origins of sign language interpreting on television

In 1976, Brislin placed sign language interpreting within the field of translation and interpreting studies when he defined interpreting as “the transfer of thoughts and ideas from one language to another, whether the languages are in written or oral form; whether the languages have established orthographies or do not have such standardization; or whether one or both languages is based on signs, as with sign languages of the deaf” (*ibid.*:1). This means that sign language interpreters share all the responsibilities

of other professionals in the field and, in the case of those working within the context of media communication, they are seen as the face of the Deaf community, role models for those acquiring sign language and as mediators between the hearing and the Deaf worlds. Unlike oral language interpreters who mainly work into their mother tongue, sign language interpreters necessarily work into their second language since they need to be able to hear and to have an oral language as their own in the first place. At best, sign language interpreters will be bilingual and bicultural, like many of their Deaf interlocutors, but will always be playing the double role of representing the hearing world for the Deaf community and be part of the Deaf world from the point of view of the hearing.

On television, sign language interpreters take on yet another role – that of actors/actresses, using a language that is ‘modulated’ to fit the specific medium. Just as in the case of speech, which is ‘fabricated’ to appear natural on screen, sign language is adapted by the constraints that the medium imposes on it. In the case of signers being ‘boxed’ into a corner, the signing becomes confined to the space provided and takes on a screen format, removing amplitude to arm and hand movement and placing all signing at an unnatural chest level. This situation is less noticeable when interpreters are presented in medium or long shots, but in that case it is the facial expression that may be lost. In both situations, for those who are familiar with and use sign language, sign language interpreting on television is a genre of its own, where encoding and decoding are shaped by the medium through which the language is being conveyed.

Although it is relatively easy to pinpoint the first appearance of subtitling for d/Deaf and hard of hearing viewers on television, it is far more difficult to be exact about where and when sign language was first used in this context as a language of communication on screen (as in the inclusion of a signing participant); it is similarly difficult to be exact about when sign language interpreting, as an audiovisual translation solution bridging the gap between the world of sound and the Deaf world, was first introduced on screen.

As happened with closed captioning or teletext subtitling, it appears that signed programmes, or programmes featuring sign language interpreting, also saw their first appearance in audiovisual media in two of the leading countries in terms of media accessibility for hearing impaired viewers – the UK and the USA. In 1981, BBC2 launched *See Hear*, a programme broadcast with open subtitles and presented in sign language by Martin Colville, a hearing presenter, and Maggie Woolley, a Deaf presenter. Two years later, in 1983, *The Smurfs* introduced sign language to American television audiences, achieving higher rates of popularity than the version using spoken English.⁵ These developments were followed by the appearance of works of fiction

⁵ Cf. Hanna-Barbera News Release, Dec. 1983, available at http://bluebuddies.com/Smurfs_Smurf_Sign_Language.htm.

that featured the issue of deafness as their focal point.⁶

Given the wider availability of sign language interpreting and the odd appearance of signing actors in audiovisual fictional material, it is reasonable to argue that audiovisual texts, and television in particular, have helped to make Deaf culture better known and to bring visibility to sign language as a means of communication specific to those belonging to the Deaf world. This does not necessarily mean that the medium has also foregrounded the special needs of hearing impaired viewers, however. Indeed, most audiovisual material does not include hearing impaired viewers among the intended audiences, and both sign language interpreting and subtitling largely feature as afterthoughts or add-ons, often seen as a nuisance and an intrusion on the original product.

In addition to the political, economic and technical issues raised above, the use of sign language on television (or elsewhere, for the matter) is also influenced by the way in which sign language is perceived and the status and lobbying force of the Deaf community in a given country. The fact that Deaf people have only recently been accepted as a social and linguistic minority, rather than as people with a disability, may also explain the relatively slow

⁶ Within the world of fiction, signing came to the fore in commercial film making in the USA in 1984 (moving on to TV in 1985) with *Summer to Remember* (directed by Robert Lewis), where a deaf boy made peace with the world around him after learning to communicate with an orangutan through sign language. Sign language gained greater visibility still with the 1986 Academy Award winner *Children of a Lesser God* (directed by Randa Haines), for which the then 21-year-old hard of hearing signer Marlee Matlin was awarded the Oscar for her leading role as 'Sarah'. These two productions are among the most important landmarks in the introduction of sign language to television and cinema lovers, but they were not the first fictional products to portray Deaf people on television. In her online article 'Deaf History - Deaf People - Television Fifties to Today', Berk (2007) documents the appearance of d/Deaf people on television and identifies "Screen Director's Playhouse/'Number Five Checked Out' (16/January 1956) - a young deaf woman" as the first portrayal of d/Deaf people on television. A closer examination of the Deaf world was later aired on television in 1965, when six 25-minute episodes of the series *Alexander Graham Bell* (directed by Alec McCowen) were shown on British television. The topic was later taken up, in 1992, with a very successful Canadian mini-series, *The Sound and the Silence* (directed by John Kent Harrison), also aired under the title *Alexander Graham Bell: The Sound and the Silence* in the USA and *The Sound and the Silence: The Alexander Graham Bell Story* in the UK; this series portrayed yet another battle in the world of d/Deaf, that of Deaf education and the debate over whether deaf children should be raised to oralize or to learn and use sign language as their natural language. These films and series, using sign language and showing the Deaf world on British and American television, certainly brought visibility to deafness and to the issue of linguistic and cultural differences between the Deaf and the hearing worlds. They reveal a concern, on behalf of their producers, to make the needs of people with hearing impairment known to people in general; however, their message seems to have been taken lightly, or perhaps seen as mere fictional invention, since the problems they portray are still to be widely found in the countries in which they were aired, as in most other countries.

uptake of sign language on television. Most countries are now aware of the need to recognize sign languages as minority languages; however, they are dealing with the issue in quite different ways.⁷

Although sign languages now enjoy legal status, as in the 1988 European Parliament Resolution on Sign Languages (Doc A2-302/87),⁸ this does not guarantee Deaf people the opportunity to enjoy full use of a sign language. This will only be the case when, further to legislation and policies, concrete action is taken to incorporate sign language in education, public and private services, social activities and recreation. In many respects, Deaf people share the discomfort and disadvantages of many other minorities. There is, however, one issue that is markedly different and which puts the Deaf minority at a specific disadvantage compared to other minorities. Whereas most (linguistic) minorities have a choice between using their language or that of mainstream society, Deaf viewers are naturally and physically excluded from using the dominant (oral) language, and must use their visual language(s) not as an alternative but as an imperative.

It is difficult to establish how many people use a sign language around the globe. On the one hand, not all pre-lingually deaf people are able to use a sign language. On the other hand, it is not only the Deaf who are familiar with and use a sign language. The families of signing Deaf children, teachers, social workers and interpreters, among others, may learn and use a sign language to interact with their Deaf interlocutors, which means that the number of users of a sign language is considerably higher than the number of pre-lingually deaf persons.

4. Accessibility of services today

Even though no exact mapping has yet been made of the present situation of SDH and sign language use/interpreting on television, it is clear that we have come a long way in the last 30 years. As far as Europe is concerned, accessibility is now high on most national agendas and has finally become an

⁷ Austria, the Czech Republic, Finland and Portugal, for instance, have incorporated the right to sign language in their constitutions. (French-speaking and Flemish speaking) Belgium, Denmark, Germany, Greece, Iceland, Ireland, Italy, Norway, Poland, the Slovak Republic, Slovenia, Sweden, Switzerland and the United Kingdom have recognized sign languages in acts and laws, often in relation to education. Other countries, still, such as the Netherlands and Turkey, are currently working on integrating sign language nationally. To complicate matters further, while we may assume that there is one national signed language per state as is the case in many monolingual countries regarding spoken languages, this is not always the case in practice, some countries – such as Spain, Belgium, Ireland, Switzerland and Finland – have more than one sign language. Moreover, just like oral languages, there are normally a number of regional varieties of the same signed language as well as other forms such as baby signing, make sign language a complex field to map.

⁸ Available at: <http://www.policy.hu/flora/ressign2.htm>.

explicit issue of debate in the European Union context. In its 1988 Resolution on Sign Language for Deaf People, the European Parliament called upon broadcasting authorities (point 9) to include “translation into sign language, or at least subtitles, of television news broadcasts, programmes of political interest – especially during election campaigns – and, as far as possible, of cultural and general interest programmes”. Twenty years and two amendments after the Television Without Frontiers (TWF) Directive⁹ was first drawn up, the Commission of the European Community, which has been slow to take up the challenge, has recently set forward an ‘Amended Proposal for a Directive of the European Parliament and of the Council Amending Council Directive 89/522/EEC on the Coordination of certain Provisions Laid Down by Law, Regulation or Administrative Action in Member States Concerning the Pursuit of Television Broadcasting Activities’. This proposal (Brussels 29.03.2007 COM(2007) 170 final 2005/0260 (COD)), which had its title changed to “Audiovisual Media Services Without Frontiers” to accommodate the technical changes expected to follow from the implementation of interactive digital television (iDTV) and internet protocol television (IPTV), has now found space for the following amendments:

(Amendment 65 (Recital 47b)) The right of persons with a disability and the elderly to participate and integrate in the social and cultural life of the community is inextricably linked to the provision of accessible audiovisual media services. The accessibility of audiovisual media services includes, but is not restricted to, sign language, subtitling, audio-description and easily understandable menu navigation. (p. 9)

and

Concerning accessibility issues the Commission can accept Amendments 135 subject to the following rewording:

Article 3j

The Member States shall take appropriate measures to ensure that audio-visual media service under their jurisdiction are gradually, and, where feasible, made accessible to people with a visual or hearing disability.

In its report according to Article 26 the Commission shall also describe the progress made in achieving the objectives of paragraph 1. (p. 14).

⁹ Detailed information on the TWFD and its amendments can be found at: <http://europa.eu/scadplus/leg/en/lvb/124101.htm>.

This is a case of legislation playing catch up with practice, ultimately legitimizing and accommodating what has slowly been emerging. Both the requirements and the benchmarking proposed in this document seem to be designed to cover actual trends in various European countries. Television broadcasters in the UK and in Spain, for instance, have benchmarked progressive increase of SDH on television to 100% in the very near future. Both countries are far less demanding in terms of signing, not specifying actual benchmarks for this modality. The Ofcom guidelines (2004) in the UK, the AENOR norms (2003) in Spain or the Co-regulation Protocol among Portuguese television broadcasters (2002),¹⁰ for instance, demonstrate that national bodies are making determined moves towards inclusion and media accessibility. Pre-recorded and/or live SDH and sign language interpreting have slowly been introduced and are expanding in other countries such as Italy, Belgium, Germany and Greece. And even countries with weaker traditions in subtitling, such as Poland, are showing signs of change.¹¹ Media accessibility seems to have become trendy in the academic world, and many professionals in audiovisual translation and in sign language interpreting also see it as an area for expansion. This prediction is convincing if we consider that, in countries other than the USA and the UK where captioning/teletext subtitling are firmly established, most countries are still lagging behind, providing limited volumes of SDH on programmes which might not be of general interest or which are shown at odd times, when viewers are working or sleeping. In most cases, too, SL interpreting is limited to official contexts (e.g. speeches by statesmen), the odd news bulletin or specific programmes on disability.¹²

Different countries are investing in media accessibility to different extents and are addressing the issue in ways that reflect their technical potential, their political and ethical stands and the lobbying power of their Deaf and hard of hearing communities. The future of media accessibility, which I believe to be much brighter given the foundations that have now been laid and the technological developments under way, will be highly dependent on the way all stakeholders address the debate which, until now, has focused mostly on introducing concrete services. The inevitable debate over whether media

¹⁰ Even though this co-regulation protocol may seem simply self-regulatory, it has gained importance in that broadcasters will only see their licence renewed if they abide by the regulations therein.

¹¹ TVP1 or TVP2 offer 3 to 5 hours a day of subtitling in programmes which include popular soaps, a couple of films, quiz shows and 2 daily information bulletins. Sign language is featured in one soap opera, one daily news bulletin and a programme about disabled people. Most of these programmes are broadcast very early in the morning (information provided by Renata Mliczak, personal correspondence, 18/04/2007).

¹² For a detailed account of the situation of media accessibility in Europe, see Remael and Orero (forthcoming).

accessibility to d/Deaf audiences should be realized through use of a sign language or through SDH is here to stay and will remain with us as long as hearing impaired audiences continue to have limited access to the media. In spite of the progress documented above, the 100% benchmark is likely to be difficult to achieve, which means that the choice between sign language interpreting and subtitling as the preferred accessibility solution will remain a bone of contention for many in the field. The arguments presented for and against the various types of solutions are equally valid and are easily justified. What has not yet been considered is whether they may be reconcilable and whether they may be made to work together towards even better solutions.

5. Forces at play – the contenders' standpoint

If we are to discuss, in some depth, the divide between sign language and SDH on television we will need to take up anew the practical, ethical, technical and economic implications of either solution, which will necessarily be interpreted differently by each of the stakeholders in the process: *the addressee/audiences(s)* – the Deaf, the hard-of-hearing and the hearing viewers at large; *the providers* – the producers, the broadcasters and the professionals; and *the political and social forces* – the legislators, the Deaf associations and various other lobbying forces. These will all be strong contenders, at times working together and at times clashing with each other and fighting for different agendas. A better understanding of who these forces are and what they expect from television is central to this discussion, for only then will it be possible to put into perspective what may or may not be done to improve current standards.

5.1 The addressees

First and foremost, given that it is their needs that have given rise to the debate in the first place, it is essential to understand who the audiences we are addressing are when we talk about providing accessibility services, and to try to clarify their demands and their needs.

It seems appropriate, at this stage, to take up anew the terminology issue that I raised in section 2. In using SDH, we are addressing two groups of people simultaneously, namely the d/Deaf and the hard of hearing; these two groups are distinctly different in the way they perceive and interact with the world, and therefore represent quite different categories of television viewer. Given that hearing loss can occur in various degrees and can be classified according to various parameters, there is often difficulty in drawing a line between being considered 'hard of hearing' and being considered 'deaf'. Deafness may be defined in terms of audiological measurements, focusing

on the causes and severity of the impairment, but it can also be approached in terms of social integration and language use.

If we stay within the sphere of strictly audiological parameters, a hard of hearing person may be identified as someone who has a mild to moderate hearing loss (somewhere roughly between 15 and 60dB). Rodda and Grove (1987:2) use the term ‘hard-of-hearing’ to refer to “those with lesser but significant degrees of handicap”. This definition is rather loose, but it is consistent with a view expressed by Padden and Humphries in *Deaf in America: Voices from a Culture* (1988) and quoted in an (unattributed) article titled ‘For Hearing People Only’ in *Deaf Life* (1997:8):

‘Hard-of-hearing’ can denote a person with a mild-to-moderate hearing loss. Or it can denote a deaf person who doesn’t have/want any cultural affiliation with the Deaf community. Or both. The HoH dilemma: in some ways hearing, in some ways deaf, in others neither.

This definition brings us to the difference between being ‘deaf’ and ‘Deaf’ (with a capital D). Once again, if we are to return to audiological parameters, then it is feasible to consider as ‘deaf’ anyone who has a hearing impairment over 60dB, in other words, people with severe to profound hearing loss. However, the true difference between ‘deaf’ and ‘Deaf’ lies in the realm of sociology and culture. In this context, ‘deaf’ simply refers to someone who cannot hear well enough to process aural information conveniently, whereas to be ‘Deaf’ means to belong to a linguistic minority – the Deaf community – which has a visual language and codes of conduct that differentiate it from other communities.

In fact, when it comes to television accessibility in general, and to subtitling in particular, it may be more useful to think in terms of providing accessibility solutions for four quite distinct groups who should be categorized in quite different ways: the profoundly *Deaf* – who use sign language as their first language and read written text as their second language; the *oral deaf* who relate to a spoken language as their first language and see themselves as part of the hearing community even though they themselves have very little or no residual hearing; the *late deafened* who have acquired deafness to greater or lesser degree at some stage but who have a memory of hearing; and the *hard of hearing*, who have some degree of hearing capacity. Each of these (sub-)groups will necessarily have different needs and may well demand different services.

The needs of these specific groups have not been analyzed in depth. Most studies on accessible media solutions seem to be focused on Deaf viewers alone (see Bowers 1998, De Groot 2001, Pérez 2003, Neves 2005 and Kalanzi 2005), perhaps because it is much easier to conduct research within Deaf

clubs and institutions. This means that most of what is taken into account when addressing accessibility services is treated from the perspective of these minority groups. Informal contact with other hearing impaired viewers, however, makes it possible to speculate on the needs and desires of those other less known groups. This means that whatever is said here about these particular sub-groups should be seen as mere hypotheses, to be confirmed or disproved through empirical research.

Deaf communities will most probably prefer sign language interpreting to subtitling. On the one hand, using sign language as their mother tongue means they will have greater ease in following signed messages; at the same time, they are also likely to see signed interpretation as a means of disseminating the language and gaining visibility for their culture. These are the viewers who may be expected to lobby for sign language interpreting. They often challenge the limited volume of signed programmes, the quality of the signing and about the poor visibility of cornered boxed signers, the latter making it almost impossible for them to follow lip movement and to see facial expressions, which are vital components of sign languages. These viewers will wish to see sign language being used as the medium of expression in certain programmes, such as news bulletins, and will also call for sign language interpreting to be provided for most other programmes, particularly for primetime, mainstream television programmes. This choice is in itself a statement against the disability model and in favour of the cultural model (Lane *et al.* 1996), which treats Deaf people and their sign languages as a cultural and linguistic minorities with a right to a distinct identity as Deaf people.

Of the various groups listed above, oral deaf people are arguably the most disadvantaged. In many cases, they do not have competence in a sign language; at the same time, they may be poor readers because they may not have been motivated to master a language that has been forced on them as a first language, a language they cannot hear but that they have acquired through lip-reading or through other oral techniques. These are normally passive television viewers who do not relate to sign language interpreting and who find reading subtitles onerous, which diminishes their viewing pleasure and hampers their access to information and entertainment. These viewers seldom state their choices. They often feel that they belong to neither world. Given their profile and the difficulty they experience in connecting to either group – the Deaf and the hearing – this group would certainly benefit from adapted/edited subtitling. Carefully devised subtitles that manipulate language to be easily read can make reading easier and more enjoyable and even serve as a tool for improving their overall reading skills, which are often rather poor (for example, see Conrad 1979 for a seminal, detailed account of literacy and deafness in the UK).

Viewers with acquired deafness make up yet another specific group. They

will have had hearing at some point, will have been brought up as hearing people and will have acquired the language and cultural references of the hearing community. The later the onset of deafness the closer they will relate to the hearing environment. Even if their hearing loss has progressed to profound or severe deafness, they will have acquired the structure of oral language and will relate to subtitles as written versions of the strings of words they once heard. They will also have an auditory memory and will be able to relate to the reference or description of sound as something they have already physically experienced in the past. These viewers may or may not have assimilated to Deaf culture; they may have acquired a sign language as a means of communication, but subtitles will still be written and read in their first language, their mother tongue. They will relate to subtitles that help them to activate their hearing memory. They will enjoy subtitles that may transport them to previous auditory sensations. These will be the type of viewers who appreciate extra subtitles (labels and tags), with details about music and sound effects, and are likely to demand verbatim or near-verbatim subtitles. Their literacy skills (specifically, reading ability) will engender a feeling of competence, and they will experience subtitles as potentially challenging, but truly helpful.


Finally, hard of hearing viewers have residual hearing that may help them perceive certain shades of the sound spectrum. They may pick up particular sounds or may be able to activate selective hearing that directs their attention to particular sounds, if they make a determined effort to catch sounds that may otherwise go unheard. These viewers tend to point out that they are not provided with equal opportunities in comparison to their hearing peers. They are the strongest defenders of verbatim subtitling and will seldom admit that they cannot follow subtitles, even those with reading rates that reach up to or even above 200 words per minute.

Defining distinct audience profiles within the all-in-one 'for the deaf and hard of hearing' label is, in my opinion, urgently needed in the context of addressing accessibility solutions on television. Not many studies have taken these distinctions into account, and even though the groundbreaking research carried out by Woll (1991), Kyle (1992) and De Linde and Kay (1999) makes a strong case for the existence of hearing impaired viewers with different profiles and different needs, these scholars do not quite spell out what each group would benefit from nor make clear what each requires in terms of accessibility solutions.

On the whole, then, the accessibility services currently being provided on most televisions are equally inadequate to all viewers. Sign language interpreting serves the needs of a few, subtitles are useful to different degrees; but, in targeting imaginary addressees, both are inevitably less than adequate to most. This may seem like an attempt to paint a very grim picture of what is arguably a genuine and thoughtful effort to provide accessibility services

to hearing impaired audiences. I would rather like to see it as a call for reflection. The first question that service providers should ask themselves is: “How much do we know about the needs and wishes of our audiences?”. The second question, for viewers themselves to reflect on, is: “Do we really know what we need? And do we make our requirements known to our providers?”. What I am suggesting here is that audiences are not being given what they require because they are not making their needs clearly known, either because they have not been given the opportunity to express themselves or because they, too, do not know what they really need, and what they can demand. It is difficult to accept that d/Deaf people end up adopting the attitude reported in Lane *et al.* (1996:436-37; emphasis added):

You may wonder why captioning is so high on the Deaf agenda, when so many Deaf people have difficulty reading English, especially English that rapidly disappears. We wondered too, so we asked some Deaf friends. The consensus seems to be, *it's better than nothing*. However, ASL would be much preferable.

The ‘better than nothing’ attitude may be responsible for much of the poor quality that characterizes many accessibility services on offer. Viewers do not voice their needs and instead tend to accommodate to what they are given. Sometimes, as reported in a study conducted in Portugal in 2003/2004 (Neves 2005), people are not aware that special services are available to them, or that they do not have the equipment or the skills to activate such services. Some viewers, particularly among the elderly, may not have television sets with teletext services, or may not know how to activate the system. To make things worse, they seldom share their concerns with their hearing counterparts, who still see accessibility services as an extra that inhibits their enjoyment. Hearing people seldom acknowledge that they too can benefit from and enjoy access services. They tend to make little use of what is provided for d/Deaf viewers, and they may even object to subtitling and sign language interpreting as a cumbersome imposition. Sign language interpreting, which is mostly broadcast open, is contained within the smallest possible area on the screen so as not to cover too much of the image; even so, many hearing viewers still see the superimposed box as a unwelcome intruder. Subtitling is usually treated more lightheartedly. In countries that subtitle, the subtitles are no longer considered obtrusive because viewers have grown used to having them in foreign films and programmes. Teletext subtitles are often less welcome because of their inelegant font and the black box which characterizes this type of subtitling. However, the inconvenience is minimized by the fact that they are closed - to be activated only when needed. 

5.2 *The broadcasters*

The second force that comes into play in the battle for accessibility measures on television are the broadcasters. For this group, accessibility services are usually seen as a burden, representing extra costs and making broadcasting less flexible. Most frequently, signing and/or captioning or teletext subtitling are imposed on this group by regulations or outside forces. As mentioned before, their benchmarks are determined by law, and very few set up R&D groups or hire in-house professionals to work towards improving both quantity and quality of services – the BBC having been an exception for many years.

The introduction of accessibility services in general, and of closed subtitling solutions in particular, has meant that broadcasters have had to invest in broadcasting equipment, and sometimes in specific software for the production of subtitles. In addition to equipment, they have to hire specialist in-house teams of subtitlers or opt for outsourcing the work, thus minimizing their costs. In some instances, as in the case of RTP in Portugal, SDH has been provided by non-qualified professionals who have come to learn the tools of the trade as they work. Since SDH has only been introduced in academic contexts in the past few years (cf. Neves, forthcoming), most subtitlers currently in place have had to acquire their knowledge through practice and most are unlikely to have had the kind of theoretical training that can alert them to linguistic nuances and the social and communicative implications of deafness, among other things.

Whereas live subtitling has been practised for a number of decades in countries such as the US and the UK, its introduction has proved particularly challenging to most European broadcasters. In order to offer this service, providers have had to invest in specific subtitling systems, mainly based on velo or stenotyping keyboard solutions, and have had to address the lack of specialized professionals to carry out the task. Some have resorted to in-house training of their professionals while others, like Sky News in the UK and ZDF in Germany, have opted to outsource the work to companies who now specialize in offering this service. The recent development of voice-recognition solutions has allowed the introduction of machine based simultaneous subtitling. This has proved adequate in programmes such as weather forecasts, where the range of vocabulary and grammatical structures are limited to a number of pre-fabricated strings, but it has been less adequate for other programmes where language is used to its full potential. Experiments are being carried out with subtitling software that interacts with voice-recognition systems, such as Dragon and Viavoice, but these systems still do not handle most languages. And there have been some successful

instances of respoken live subtitling¹³ using voice recognition solutions and machine subtitling, particularly in English speaking environments, but this again has been limited to programmes with a fairly constrained language component. Software developers such as Synapsys (Mellor 2000), BBC (Evans 2003) and Sysmedia (Lambourne 2003) have been putting considerable effort into improving the performance of their software, particularly in terms of linking it to voice recognition devices. Both Dragon and Viavoice seem to be particularly good at relaying the English language, but when it comes to other languages such as Portuguese, the system still needs to be improved considerably.

Despite the considerable progress that has been achieved in terms of providing live subtitling on television, and the impressive volume of subtitling now being produced in the US and the UK for instance, viewers often complain about poor output, time-lag between speech and subtitle presentation, excessive editing and frequent inaccuracies¹⁴ (see Ofcom 2005). These complaints seldom reach their target, and not many broadcasters have an open channel for people to air their views. The BBC offer viewers the facility to send an email (subtitling@bbc.co.uk) if they have complaints or comments relating to specific programmes. Unfortunately this is in itself ironic because, in order to write a complaint about the lack of access offered to some by subtitles, one must be literate in English (or the language of the territory), but this is the problem for many Deaf people – functional literacy is so low as to make letter writing in a formal register a huge challenge, if not impossible for many. But a forum for direct interaction between providers and receivers would enable constructive dialogue and allow broadcasters to work towards greater adequacy and better quality. This may be developed by establishing working groups that bring together broadcasters, professionals, researchers and audiences in common projects. R&D work carried out in a multi-disciplinary environment¹⁵ may also help to improve standards and to develop new technological and technical solutions, thus minimizing the cost and effort involved in reaching innovative and/or more adequate solutions for a service that is still far from being adequate.

As in the case of subtitling, sign language interpreting is also seen by many broadcasters as a source of additional problems rather than as added

¹³ Respoken subtitling is a new SDH genre – an interpreter relays natural speech into a speech recognition system that feeds into an automatic subtitling system.

¹⁴ It is difficult to establish quality criteria and to draw tangible conclusions from such complaints because they result from a number of variables which are related to the subtitling type (prepared or live), the programme type and/or the audiences' needs and expectations.

¹⁵ An interesting example of this multi-disciplinary approach may be seen in the MUSA Project, which established a consortium to study machine translation in subtitling (see <http://sifnos.ilsp.gr/musa>).

value. It may be the case that sign language interpreting costs less than subtitling because it requires fewer pieces of equipment both for production and transmission. But its positioning within the screen image makes it problematic, particularly for programme directors and technicians who have to reconfigure the screen image to make space for the extra element. The aesthetic dimension of sign language interpreting is often pointed out as a disadvantage, and broadcasters appear to be particularly sensitive to this issue because they ultimately wish their programmes to prove more appealing than those of their counterparts. The choice between a minimized, boxed interpreter in the corner of the screen and a full-size interpreter standing or sitting alongside a speaker, or even acting as a main presenter, is often determined by the importance accorded to the signer and, above all, by the programme type. It is also worth noting the increasing number of Deaf in-screen presenters/ interpreters working in TV, (particularly in the UK). This is an area that should be closely watched as norms for best practice in terms of user-friendly presentation will emerge from the work of these professionals.

A further difficulty that is often used to explain the lower volume and quality of sign interpreted programmes concerns the lack of qualified professionals. Kyle et. al. (2005:53) mention this in the Scottish context, reinforcing what is largely common knowledge when they say: “Deaf people consistently repeat what is known for some time, there are not enough people who know sign language and there are not enough interpreters”. Indeed, sign language interpreting is still a skill that is mastered by few people. Some sign language interpreters come from families with Deaf members and have acquired the language through direct contact with Deaf people. This is certainly an advantage, since sign languages, like all other languages, are living means of communication which are constantly undergoing change, and direct contact with the relevant language communities is therefore essential in order to reflect the language in use by any one community. However, in most countries, professional interpreters today are learners of their national or regional sign language as a second language. There is a very small uptake of interpreting as a profession by CODAs in most of Europe, the States and Canada, as far as we know. As in the case of subtitlers, sign language interpreters, whatever their background, would benefit from initial training and theoretical cushioning. Furthermore, since sign language interpreting, like other types of language use on television, displays its fair share of unnaturalness, which derives from the staged situation of any television performance, sign language interpreters would also benefit from specific training in interpreting within the audiovisual and television context, and here too, research may lead to findings which can improve standards.

Given the shortage of sign language interpreters mentioned above, and, as in the case of subtitling, experiments have been carried out to test the possibility of using machine generated signers – or avatar signers. Interpreters

tend to consider their virtual companions as formidable competitors, but broadcasters see them as a justifiable alternative if they are to increase their output of signed programmes. Some Deaf viewers also welcome them, even though they continue to prefer the human interpreter. They see avatar signers as a way of gaining access to more signed programmes (see Pyfers 2002).

A further step may be taken if the results of recent research by the American team, Nicoletta Adamo-Villani from Purdue University and Gerardo Beni from University of California Riverside, is transported to the television setting. These researchers propose the use of the “semantroid” to help young children learn how to read. This new signer is said to be “a reduced avatar (limited to head and hands) which maximizes the semantic content conveyed while minimizing the perceptual effort to perceive it” (Adamo-Villani and Beni 2005). According to Adamo-Villani and Beni, these avatars are superior to their human counterparts in terms of displaying those elements which are most meaningful in sign language, namely facial expression and hand gestures. This is further enhanced by using a toon shader to 3D avatars, thus flattening down non-relevant features to 2 dimensional appearances and showing up in 3D the parts that actually shape the sign language. Adamo-Villani and Beni (*ibid.*) thus use the term “semantic intensity” to describe the effect achieved by the ‘semantroid’, defining it as “the ratio of the ‘amount of meaning’ conveyed to the ‘amount of effort’ required to perceive it” (*ibid.*: 439). The fact that these avatars are reduced to the meaningful parts of the signing body may be used to advantage on the television screen, covering up less of the original image while foregrounding the features that are essential to the expressiveness of sign language. Here, as with subtitling, collaborative research is needed if all parties are to benefit from these developments.

To sum up, it seems appropriate to acknowledge that the demand for greater output, which has characterized the past few years, has exerted considerable pressure on broadcasters. In their attempt to achieve external and internal benchmarks, they have lowered their standards of quality and have often failed to establish what best suits their audiences. On a brighter note, it should also be mentioned that accessibility services have largely moved from being treated as a burden to being used as an asset in the race for audiences and shares. And perhaps here lies the secret for a better future in accessibility services. Accessibility services can increase profit when they are incorporated in mainstream television with sense and sensibility. It is often forgotten that d/Deaf people are citizens, tax payers and consumers. They are entitled to information, entertainment and, like their hearing counterparts, to spend money on goods and services. The world of commercials has not yet come to grips with the power of accessible ads. When creatively incorporated in the production phase – as in the case of the ‘big ad’ for Carlton beer (www.youtube.com/watch?v=aWDNy43ATjc) which features karaoke type subtitles, or the ad for the Brazilian Avaianas (beech

slippers) which uses sign language interpreting as its main medium (www.youtube.com/verify_age?next_url=/watch%3Fv%3DctMWwaQBY8M) – accessibility can be profitable, since the message becomes available to more consumers and, as in the previously mentioned ads, equally attractive for hearers and d/Deaf people alike.

A positive outlook on subtitling and/or sign language interpreting can thus allow television providers in general to experience accessibility as a ‘plus’ rather than a cumbersome compromise, adopted in order to comply with rules and legislation and to keep lobbying forces reasonably happy.

5.3 The legislators and lobbying forces

The final group of contenders – the legislators and the lobbying forces – has taken on the main social role of ensuring that basic human rights are guaranteed. The countries with the strongest tradition in accessibility services for the hearing impaired are those where the Deaf communities have taken an active stand, demanding equal rights and opportunities. This is certainly the case in the US, the UK and more recently in Spain. Even though these are not considered by many to be organizations OF Deaf people for they are mostly run by hearing people, organizations such as the NCI in the US (www.ncicap.org), the RNID in the UK (www.rnid.org.uk), FIAPAS in Spain (www.fiapas.es) or, at a broader European level, FEPEDA in the EU (www.fepeda.net), have made valuable contributions towards increasing accessibility solutions on television. Legislation seldom precedes social pressure, and here like elsewhere, much can be achieved as a result of open communication channels. As Stevens (2005) rightly argues, “[o]ften, the government’s policy regarding Deaf people and the legislative framework in a given country correlate highly with the degree of acceptance of multicultural and multiethnic values”. It has taken sign languages some time to be accepted as languages in their own right, and accessibility services will follow the rate at which different communities are accepted as equal. Now that legislators and governments have committed themselves to international and national measures, perhaps here too we are on the road to improvement.

In all, it appears that despite the fact that change is still under way, interest in accessibility issues is unlikely to wane. If for no other reason, benchmarks will be kept as proof of true concern for guaranteeing equal rights to all. In this endeavour, quantity and quality may not necessarily go hand in hand, and the next step may be to question what d/Deaf viewers really need. What broadcasters are willing to offer may not be the most effective accessibility service; and what legislators rule may still not be enough to foster true inclusion.

6. A proposal

Feuds and tensions aside, I believe there is space for both sign language interpreting and for SDH on television. Democratic systems open space for the promotion of different agendas, and these are as valid as the beliefs they stand for. It seems obvious, however, that the one agenda that is shared by all is the desire to offer/gain access to the information and entertainment provided by television. While it is not yet possible to have all solutions available for every programme, thus allowing people to choose the one which suits their needs best, I suggest we try to find solutions which are valid for most viewers.

Even though I see a place for sign language on television and partake of the belief that sign language interpreting plays a very important role in making the Deaf world more visible, I am a firm advocate for subtitling on television in the belief that it can guarantee true inclusion and play an important role in enhancing d/Deaf people's ability to interact with the hearing world. It is essential that people with hearing impairment (d/Deaf or hard-of-hearing), regardless of their social position, are able to communicate with and to integrate into the hearing majority. I take this assumption a step further in advocating edited/adapted rather than verbatim subtitles. The demand for verbatim subtitles in countries such as the UK and the USA has often been justified by the claim that adaptation is patronizing (see Ofcom 2005). Those who advocate verbatim subtitling argue that d/Deaf viewers are entitled to all the information that is given to hearing viewers. This gives rise to a catch-22 situation. In fact, experience shows that even hearing viewers cannot follow verbatim subtitles¹⁶. One of the most basic rules of subtitling in general is that subtitles should be made simple and brief so that decoding them does not become too taxing for the viewer, who also needs time to take in the rest of the message conveyed by the multicoded text in which the subtitles are embedded. In addition, subtitles must be readable and 'invisible', adding only to the pleasure of watching television. The moment they become unmanageable, they stop being useful and become a burden. Subtitles have the added advantage of being easily placed in any type of programme, of being a reasonably cheap solution and of being a discreet mediator that does not compete with the characters on screen. They come across as more neutral and flexible than sign language interpreting, and may even carry more information than their signing counterparts.

It may be the case that subtitles will be better received by Deaf people when they no longer have to fight to be accepted as culturally different rather than disabled. But as long as sign language interpreting is required to play the political and social role of bringing the Deaf world to the attention of hearing

¹⁶ Veiga (2006) discusses this issue at length in the Portuguese context.

people, it cannot realize its full potential as a vehicle for true accessibility. When sign languages are accepted as specific languages in their own right, they may be used as conveying languages of communication, and perhaps it will be hearing people who will then demand accessibility services in these instances. While the world of sound is predominant, and will inevitably remain so because of the very nature of the world we live in, d/Deaf and hard-of-hearing people will still need to rely on whatever services they can access, and they can only continue to demand that they be given the opportunity to hear through their eyes. There is ultimately no 'best' solution, and it seems senseless to fuel the tension between the two alternatives on offer, subtitling or interpreting. It seems more productive to support and invest in both SDH and sign language interpreting, to fight for quality over quantity, and to urge all stakeholders to examine what it is they are advocating, why they think it is the best solution, and to keep an open mind on the issue, accepting and rising to the challenges brought about by progress and change.

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References

- Adamo-Villani, Nicolleta and Gerardo Beni (2005) 'Sign Language subtitling', in *Unpublished Proceedings of Siggraph 2005 – 32nd International Conference on Computer Graphics and Interactive Techniques*, Educators Program, Los Angeles. <http://www2.tech.purdue.edu/cgt/Facstaff/nadamovillani/Abstracts/Sign%20Language%20subtitling.doc> (accessed 20 February 2007).
- AENOR (2003) *Norma Española UNE 153010-2003. Subtitulado para personas sordas y personas con discapacidad auditiva. Subtitulado a través del teletexto*, Madrid: AENOR, Asociación Española de Normalización y Certificación.
- Berk, Jamie (2007) 'Deaf History – Deaf People – Television Fifties to Today', *About.com: Deafness*. <http://deafness.about.com/cs/history/a/television.htm> (accessed 1 June 2007).
- Boatner, Edmund (1980) *Captioned Films for the Deaf*, www.cfv.org/caai/nadh93.pdf (accessed 1 June 2007).
- Bowers, Collette (1998) *The Nature and Constraints of Subtitling with Particular Reference to Intralingual Subtitling and other Forms of Media Access for the Deaf and Hard-of-Hearing*, Unpublished MA Dissertation, Manchester: University of Manchester.
- Brislin, Richard W. (1976) 'Introduction', in Richard W. Brislin (ed.) *Translation: Applications and Research*, New York: Gardner Press.
- Commission of the European Communities (2007) *Amended Proposal for a Directive of the European Parliament and of the Council Amending Council Directive*

- 89/552/EEC, Brussels 29/03/2007 Com (2007) 170 final.
- Conrad, R (1979) *The Deaf School Child*. London: Harper & Row.
- De Groot, Vanja (2001) *Zogezegd, so ondertiteld? Een Verkennend Onderzoek naar de Taalkundige Verschillen tussen spraak en endertiteling voor doven en slechthorenden en de manier waarop deze bestudeerd kunnen worden*, Unpublished MA Thesis, Tilburg: Katholieke Universiteit Brabant.
- De Linde, Zoé and Neil Kay (1999) *The Semiotics of Subtitling*, Manchester: St. Jerome.
- ECREA (2007) *Symposium: Equal Opportunities and Communication Rights. Representation, Participation & the European Democratic Deficit. Call for Papers*, available at: http://iamcr.org/pipermail/announcements_iamcr.org/attachments/20070201/b9061a8b/CallforPapers_ECREA_final.obj (accessed 1 March 2007).
- Evans, Michael (2003) *Speech Recognition in Assisted and Live Subtitling for Television*, BBC R&D White Paper.
- Gambier, Yves (2003) 'Introduction. Screen Transadaptation: Perception and Reception', in Yves Gambier (ed.) *Screen Translation*, Special Issue of *The Translator* 9(2): 171-190.
- Kalanzi, Dimitri (2005) *Language Technology in the Service of Deaf and Hard of Hearing People Accessing Audiovisual Material: Text Simplification*, Unpublished PhD, Manchester: University of Manchester.
- Kyle, Jim (1996) *Switched On: Deaf People's Views on Television Subtitling. Previous Reports*, www.deafstudiestrust.org.U.K./previous_projects/switched_on.htm (accessed 12 January 2004).
- Kyle, Jim, Anna Marie Reilly, Lorna Allsop, Monica Clark and Alexy Dury (2005) *Investigation of Access to Public Services in Scotland Using British Sign Language*, Scottish Executive Social Research.
- Lambourne, Andrew (2003) *Speech-based Subtitling. An Outline of Sysmedia's Expertise in Speech Technology and Linguistics for Subtitling*. http://www.sysmedia.com/downloads/pdf/white_papers/speech_based_subtitling.pdf (accessed 18 July 2007).
- Lane, Harlan, Robert Hoffmeister and Ben Bahan (1996) *A Journey into the Deaf-World*, San Diego, California: Dawn Sign Press.
- Mellor, Barry (2000) 'Real-time Speech Input for Subtitling', in *Mercator Conference on Audiovisual Translation and Minority Languages*. www.aber.ac.uk/mercator/images/barry.pdf (accessed 4 July 2007).
- Ministro da Presidência (2002) *Novas Opções para o Audiovisual*, Lisboa: Presidência do Conselho de Ministros.
- NCAM (n/d) *Projects: ATV Closed Captioning*, National Center for Accessible Media. <http://ncam.wgbh.org/projects/atv/atvccsumm.html> (accessed 4 January 2003).
- Neves, Josélia (2005) *Audiovisual Translation: Subtitling for the Deaf and Hard-of-Hearing*, Unpublished PhD, London: University of Surrey Roehampton. Available at: <http://rrp.roehampton.ac.uk/artstheses/1>.
- Neves, Josélia (forthcoming) 'Training in SDH', in Jorge Díaz-Cintas (ed.)

- The Didactics of Audiovisual Translation*, Philadelphia & Amsterdam: John Benjamins.
- OFCOM (2004) *Code on Television Access Services. Statement of Ofcom*, London: Office of Communications.
- OFCOM (2005) *Subtitling – An Issue of Speed?*, London: Office of Communications.
- Padden, Carol and Tom Humphries (1988) *Deaf in America: Voices from a Culture*, Cambridge, Mass.: Harvard University Press.
- Padden, Carol and Tom Humphries (2005) *Inside Deaf Culture*, Massachusetts & London: Harvard University Press.
- Pérez, Ángela (2003) *Subtitulado interlingüístico para sordos de ‘Carla’s Song’*, Unpublished MA Dissertation, Vigo: Universidade de Vigo.
- Pyphers, Liesbeth (2002) *State of the Art: Sign Language Animations*, MultiReader project. <http://www.equalaccess.nl/MultiReader/animations.htm> (accessed 18 July 2007).
- Remael, Aline (forthcoming) ‘Sampling Subtitling for the Deaf and Hard-of-Hearing in Europe’, in Aline Remael and Pilar Orero (eds) *Media for All*, Amsterdam: Rodopi: 23-52.
- Rodda, Michael and Carl Grove (1987) *Language, Cognition and Deafness*, London: Lawrence Erlbaum Associates.
- Sacks, Oliver (1990) *Seeing Voices. A Journey into the World of the Deaf*, New York: Harper Perennial.
- Stevens, Helga (2005) *Equal rights for Deaf people: From being a stranger in one’s own country to full citizenship through sign languages*, ICED 2005 – Maastricht – 17-20 July 2005. www.eudnet.org/papers/2005/2005MaastrichtICEDEqualRightsforDeaf.doc (accessed 20 April 2007).
- Timmermans, Nina (2003) *Report: A Comparative Analysis of the Status of Sign Languages in Europe*, Strasbourg. <http://www.fevlado.be/themas/gebarentaal/documenten/Status%20van%20gebarentalen%20in%20Europa.pdf> (accessed 31 March 2007).
- Veiga, Maria José (2006) *O Humor na Tradução para Legendagem: Inglês/Português*, Unpublished PhD, Aveiro: Universidade de Aveiro.
- Woll, Bencie (1991) *Sign Language on Television*, Bristol: CDS, University of Bristol.
- UNO (1948) *Universal Declaration of Human Rights* <http://www.un.org/Overview/rights.html>
- UNO (2002) *The Madrid Declaration – Non discrimination plus positive action results in social inclusion*. <http://www.ausilioteca.org/bridge/docs/madrid.pdf>.