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Universal Design for digital television in Spain

Contents

Abstract

Universal Design is an approach to the design of products, services and environments to be usable by as many people as possible regardless of age, ability or circumstance. This principle has to be follow in the development of the audiovisual sector and in the process of migration of television from analog to digital. Although the new digital television systems offer a wide range of opportunities for disabled people, they also represent new barriers that were not present in analog environments. In this article we analyze the current situation of accessibility services in digital television in Spain, the accessibility to digital TV equipments, and finally the development prospects set by the regulation.

1 Universal design as a strategy to achieve accessibility in digital TV

Digital TV migration started in Spain in 1997 with the digitalization of satellite platforms. It rapidly spread to the rest of audiovisual content distribution networks: Digital Terrestrial Television, Digital Cable and IPTV through ADSL. The new broadcasting technology optimizes signal transmission processes and entails a deep change in the industry's technical structures and new user attitudes: contents tend to be available everywhere, any time and in different screens and devices. Although the new digital television systems offer a wide range of opportunities for disabled people, they also represent new barriers that were not present in analog environments.

Spanish Law 51/2003 on Equal Opportunities and Non Discrimination defines Universal Accessibility as the requirement to be met by all environments and systems, so that they are available to everybody. Asis Roig and his research group on Universal Accessibility[1] (2006: 12) explain how this definition signals a new way of understanding disability with the focus on the adaptation of environments, so that they are practicable for all. Disability is considered as a complex series of circumstances that encumber social participation of disabled people. The nature of such obstacles is often social, given that they originate in the design of an environment (architectural, technological, cultural or social) exclusively conceived for a standard human being. Therefore, solutions are to be sought in an adequate construction of society.

[1] Research group of the Institute Bartolomé de las Casas of the Universidad Carlos III de Madrid.

> "Universal Accessibility is understood as the result of overcoming the medical / rehabilitation paradigm by incorporating the elements of the social model. (…) From the point of view of the social model, policies should aim at standardising society so that it meets the needs of all and enables full participation of disabled people in all sectors of community life". (Asis 2006: 12)

In order to achieve this goal, we can apply the principles of "Universal Design" or "Design for All" as defined by Ron Mace in The Centre for Universal Design, North Carolina State University. Universal Design is an approach to the design of products, services and environments to be usable by as many people as possible, regardless of age, ability or circumstance. This principle should inspire all actions and initiatives of the audiovisual sector.

That is why we need to analyze how to make the new digital television accessible for all, as well as to identify the implications for audiovisual industry, consumer electronics' manufacturers and broadcasters. Let us focus first on the accessibility to audiovisual contents and on the level of development achieved so far in Spain and then move on to cover accessibility to digital TV equipments, and finally to the development prospects set by the regulation.

2 Accessibility to digital television contents

2.1 Accessibility services

As defined by GT5 FTTVD[2], the working group on digital television accessibility set up by the Spanish Government, digital television accessibility services are all techniques and procedures aimed at facilitating access for all to Digital TV. Subtitling, audio description and Sign Language interpretation are considered accessibility services to audiovisual contents. Accessibility services to facilitate navigation through graphic user interface of Digital television receivers are considered accessibility services to digital TV environment: usability of interactive services, text-to-speech converters, voice recognition systems and personalization applications. (FTTVD 2005: 71; CERMI 2006: 52)

Subtitling for the deaf and hard of hearing is an accessibility service that displays on screen a written text reproducing oral communication. The discursive elements which appear on the screen (letters, words, posters, etc.), and the sound track (songs, voice over, effects, etc.), allow people with a hearing impairment to understand the information provided audiovisually (Diaz Cintas 2003: 32). Pereira, specifies that subtitles should reproduce "not only what is said, but also how it is said (emphasis, tone of voice, accents, foreign languages, different noises, etc.) and who says it". (Pereira 2005: 162)

Analog TV has traditionally been using subtitling through teletext, a technology that is still valid in the digital context. In the new digital TV platforms and DVDs we can also use DVB subtitling[3] which offers greater graphic resolution and better performance (Utray 2005: 335).

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[2] Working Group 5 of the Technical Forum of Digital Television: Accessibility to Digital Television for People with disabilities.

[3] DVB (Digital Video Broadcasting) is the European Standard used by Digital Television. DVB subtitles are defined in the DVB ETSI 300 743 v1.2.1 standard.

Audio description is the mode chosen to access audiovisual media for those who have sight problems (Orero 2005: 7). We find a definition of that service in the official Spanish Standard AENOR[4] (2005: 4):

> "Audio description is an assistive service consisting of a set of techniques and abilities, whose main objective is to make up for the lack of perception of the visual component in any audiovisual message, by providing suitable sound information which translates or explains it in such a way that the visually impaired can perceive the message as a harmonious work, as similarly as possible as the sighted"[5]

It allows blind people or people with visual impairment to access television programs, audiovisual productions and other telecommunication means containing images, by providing a spoken account of the key visual elements. The description of elements like actions, costumes, gestures and changes of scene, among others, makes it possible for the blind or the visually impaired to fully follow the story. The narration describing these visual elements is carried out by specialized describers and is then mixed with the sound track in the spots between dialogs.

In Spain, analog television is broadcast with audio description through the second audio channel of the Nicam Dual system. This technique is based on the use of stereo channels to broadcast two different mono signals. The sound track in mono can be heard through the main channel, and the mix of the sound track and the audio description, through the optional channel. Digital environment does not need to resort to this technique, given that it can associate several audio signals to a video program without the restrictions of the Nicam Dual system.

Concerning Sign Language services, the Spanish Bill of the Audiovisual Law (*Ley General del Audiovisual)* defines them as the interpretation of the message into Spanish Sign Language, permanently shown on screen (MITYC 2006: 52). This can be done by incorporating a window with the interpreter into the image.

Interactivity is a natural element of digital television and should, therefore, also be accessible. We consider as interactive services all menus and information on screen, whether they are resident applications of the receiver[6] or services associated to television contents. These applications can be used to complement and enrich audiovisual contents as independent information services or as set-up and personalization options of the equipment.

In order to enable access of the visually impaired to these interactive screens, sound tracks must be added to the menus through a system that provides the user with an automatic verbal interpretation of the graphic elements (texts, icons, etc.). Voice synthesis systems that are already integrated to different computing terminals could also be integrated to DTV receivers, provided that they have sufficient capacity and that the applications enabling the use of this technology are available.

The integration of voice recognition applications in Digital TV receivers is necessary for users with physical disabilities or reduced movement capacity that are unable to operate the remote control. What is at stake here is to make it possible to use human voice as an interface with a machine capable of interpreting spoken information and of acting accordingly.

Finally we should be aware that applications and main menus must be friendly and easy to use and have the personalization options to adapt to the features of each user. Recent experience on the definition of accessibility in computing applications and in the Internet can be used as the basis for developing a code of good practices for usability on TV interactivity.

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[4] AENOR is the Spanish body for standardization
[5] Translation by the author of this article.
[6] Resident applications are navigation and set-up menus that receiver manufacturers provide with the equipment.

The recommendations of the consortium W3C on Web Accessibility (WAI- Web Accessibility Initiative) and AENOR Spanish standard for accessibility to computing application can be useful references for that matter. (AENOR 2003b)

2.2 The current situation of television accessibility in Spain

Subtitling for the deaf and hard of hearing in Spain is provided to a greater or lesser extent by all the main TV channels in the country. Today, around 30% of television broadcasting is made with subtitles through teletext, even though there is no regulation that commits broadcasters to provide this service.[7]

In 1990, Televisión de Cataluña was the first to broadcast subtitled programs[8] and ever since has been the pioneer and leader in number of subtitled hours. In 2003, it broadcast 4,721 hours of subtitled material through its channels, and more than 6,000 hours by 2005. RTVE launched its subtitling service for the deaf in 1991, with 25 hours that year, and progressively increased that number to more than 6,800 hours in 2005 through the following channels: TVE 1: 2,380; La 2: 3,052; TVEi: 1,443. (RPD 2005: 105; Utray et al. forthcoming).

It is only natural that state-owned television has taken the lead in this kind of services but, surprisingly, some of them in the Autonomous Regions, like TV de Galicia or TV Autonómica Canaria, did not start to broadcast subtitles until 2004 and others have not even started yet.

As far as commercial television on a national level is concerned, Telecinco started to broadcast subtitles in 1998 and has since become one of the most active channels. It currently broadcasts an average 2,400 hours per year of subtitled material. Antena 3 launched this service in 2000 and has already beaten its competitor with almost 3,000 hours in 2005. Antena 3 NEOX, one of its DTT channels, broadcast 70% of subtitled material in the first semester of 2006.

Pay TV channels as Cartoon Network, Disney Channel and Factoría de Ficción have been very active in the broadcasting of subtitles for the deaf. Cartoon Network started to subtitle cartoons in April 2000, and at present 35% of its programs is subtitled. Disney Channel started to subtitle in November 2003 and has publicly committed itself to subtitle more than 30 movies a month. The thematic channel Factoría de Ficción is considering subtitling its premières[9].

So far, the broadcasting industry has not really started to regularly produce and broadcast material with audio description, nor has it committed itself to do so. There are technical reasons that explain why the provision of this service is restrained. In the first place, the Nicam Dual system is not authorized throughout the whole of the Spanish territory. In addition, this resource is used to broadcast contents in original version and is therefore not available for audio description. Since 1995, *Canal Sur*, the state-owned channel of the Andalusia region, has regularly used a radio channel for audio description, but this method is not recommended due to the problems caused by the synchronization of television and radio transmission networks. Despite this, RTVE broadcast 224 hours of audio described contents with the Dual system in 2004, including the popular program *Cine de Barrio*.

Much the same can be said of Sign Language interpretation. Since the beginning of television broadcasting, we have seen very little of it, because the image of the interpreter takes a lot of room on screen and is not attractive for the rest of the audience. We find some

[7] Estimates of Begoña Gómez Nieto in the Review Fiapas nº 100, Sept. 2004 P. 10. RPD indicate 20%. in "Spanish Centre for Subtitling. Preliminary study for its setting-up and viability report"(RPD 2005: 105)

[8] Broadcasting of Teletext subtitles of the movie "Gandhi", on September 10 1990 in TV3.

[9] Agreement passed in September 2004 between audiovisual organizations and broadcasters and the Ministry for Employment and Social Affairs.

instances in several channels of the Autonomous Regions or in RTVE with broadcasting the yearly debates on the State of the Nation with Sign Language interpretation as well as some other programs like *En Otras Palabras*.

As for interactive services, their development in Spain is quite embryonic and nothing has been done yet about accessibility. Processing and graphic cards capacity in the receivers makes it difficult to develop and incorporate new services. As Schmidt explains in his *Guide to Creating Talking Menus* (2003) the situation in the U.S. is similar: "…it is currently next to impossible for American cable or satellite services to offer audio-navigation services. The computers inside American STBs are simply too primitive to support this additional capability". The Spanish satellite operator Digital + currently broadcasts an interactive service with information on the Spanish Organisation for the Blind (ONCE) and its lottery but, unfortunately, even this service is not accessible.

The main analog channels do provide information on accessible programs through teletext. Almost all channels have an information service addressed to the users of subtitles for the deaf, with help screens that explain how to run the service and get informed about updated broadcasting timetables that help organize the use of TV.

3 Accessibility to digital TV equipments

Manufacturers should consider accessibility as a user requirement that cannot be ignored and that can even mean a significant increase of their costumer base. Equipment accessibility should also be promoted by regulators and by standardization organisations. In the UK, the Consumer Expert Group[10] already informed the government in 2004 on the need to tackle Digital TV accessibility, and recommended to use a Universal Design strategy to make all equipments accessible (CEG 2004). Its 2006 report "Digital TV Equipment: Vulnerable Consumer Requirements" (CEG 2006) highlights that the mainstream market has not solved this problem and that action is required in order to ensure the access of people with disabilities to Digital TV systems: all equipments should provide a basic access service; all accessibility issues associated with menus, electronic program guides, remote controls and equipment connectivity should be resolved; a complete range of access services should be available through affordable equipment.

The installed base of digital TV receivers in Spain is formed by Digital Terrestrial Television (DTT) set top boxes that have been massively commercialized since 2005, and those from satellite and cable pay TV platforms. In the second case, we are dealing with vertical platforms[11], in which receivers are loaned to subscribers, but are owned by the digital platform. Users' choice of the different models is restricted to the operator's offer. With DTT open platform, users have to purchase receivers in the free market: manufacturers sell the equipment independently of distribution networks, TV channels and content providers. This has caused the emergence in the market of an array of receivers with different features, functionality and price (Perez-Ugena et al 2005: 203).

Receivers can be classified in two main categories: baseline receivers and interactive receivers. Baseline receivers are the lower cost equipment and have the simplest functionality. They must comply with the minimum requirements established by the standard

[10] The Consumer Expert Group was appointed by the broadcasting Minister, Lord McIntosh, to advise Government on consumer issues relating to digital switchover

[11] Digital TV vertical platforms manufacture the receivers and control the whole production, broadcasting and reception chain, as is the case, in Spain, of Digital+. Horizontal platforms, like Spain's DTT open platform, operate with receivers from the free market and, in that case, content providers have to verify the interoperability of broadcasting.

for its commercialization. Interactive receivers offer the possibility to access to the interactive services delivered by broadcasters and must incorporate an operating system (OS) with a software API[12] whose mission is to facilitate the development and execution of those applications. From the perspective of Universal Design, the aim should be to ensure that the specifications of baseline receivers include compliance with accessibility requirements. Nevertheless, we must keep in mind that certain accessibility services for disabled people will require specific equipment with more features and peripherals.

Pay TV platforms receivers used to have their own proprietary APIs and operative systems, but DTT horizontal platforms had to agree on an open API, so that both manufacturers and content providers can work on the same system without having to pay royalties. Europe, and particularly Spain, have established the MHP (Multimedia Home Platform) system, which is the open API specified by the DVB consortium. Interoperability of interactive receivers can only be achieved if they all use the same system. This way, broadcasters would be able to provide accessibility services that could be run in all interactive equipment. Unfortunately the majority of receivers commercialized in Spain are baseline receivers and do not integrate the MHP system because of the increased cost of the receivers.

In the United Kingdom they use a different API for DTT, called MHEG 5, which has less performances that MHP. With regard to accessibility applications for people with disability, they have chosen to manufacture a specific accessible receiver developed by NETGEM, with the requirements agreed upon with the RNIB[13], the BBC and other players in the British market. This receiver uses local mix audio description (Yong 2004: 13) and gives access to a spoken Electronic Programme Guide (EPG) through the telephone return channel. This kind of solution is not considered Universal Design because it requires specific equipment and is therefore not recommended in a start up stage.

3.1 Usability of Digital TV receivers

Manufacturers and content providers should increasingly enhance easy to use equipments and services. With ever more channels and services, digital television users must learn how to use the remote control in combination with screen menus when choosing channels or navigating through the information and the different options. Naturally, architectures that take into account the needs of people with physical, sensorial or learning disabilities also make it easier for the remaining consumers to use the devices. But although some requirements can have a negative impact on costs, the latter can be decreased if they are taken into consideration from the very beginning and applied to all products, and not only to few specialized high performance equipments. (Stallard 2003: 28).

Remote control is the key tool to access television and other electronic equipments in the homes. The design of the remote has to take into account basic rules for size, shape, labelling and clarity. This is particularly relevant for people with dexterity difficulties. People with visual disability appreciate that the keys of the remote control are different in shape and have tactile indicators to make their use easier, but they also agree that the core difficulty is to combine the remote control with the screen menus[14].

Another problem for usability is the growing number of remote controls in the homes and their complexity. A home equipped with a television, a video recorder or DVD, a sound

[12] API (*Applications Programming Interface*). Programming application required to develop and run interactive services.

[13] RNIB *Royal National Institute of the Blind* is the organization that represents people with visual disabilities in the United Kingdom.

[14] Interview with Mercedes Hernández and Fernando García from the General Managing Direction of the ONCE (unrecorded).

system and a digital platform is faced with the challenge of having to use four remote control devices to have access to the different audiovisual contents, and often to combine two of them. This makes operation very difficult, not only for people with some kind of disability or for the elderly, but also for users in general. If we want to progress in this field, we need to promote agreements between manufacturers on universal remote controls. They should be easy to use with accessibility criteria and have the option to be programmed to operate with different equipments.

3.2 Speech technologies: synthesis and recognition

As noted above, assisted navigation with a voice synthesizer is a fundamental requirement for people with visual disabilities. Incorporating a voice synthesizer into the receivers to give sound to texts written in the interactive menus can be a viable solution for the next generation receivers, as shown in the models of the Profit Project "Digital TV for ALL"[15]. In MHP environments, software synthesizers could be integrated in the receiver through download. To that end, applications should be carefully developed bearing in mind that sound will be added. For example, in a navigation menu or an EPG, there are many simultaneous data on screen and we have to decide how to translate them into sound and in what order they will be uttered to the user. Voice navigation entails a very different attitude in the user compared to graphic interfaces and can involve a different functional behavior.

The National Centre for Accessible Media, NCAM[16], has published a good practices code for the design of talking menus for digital receivers[17] with a guide for developers and producers of this kind of service (Schmidt et al. 2003).

For people with physical disabilities who have difficulties to operate the remote control, we have to implement voice recognition applications in order to achieve an independent TV consumption. Voice recognition has already been successfully integrated in some mobile telephones and in electronic agendas (PDA). Specific remote controls with this kind of capacity could be a solution that does not involve any major alteration of the receiver.

High quality speech technologies require great amounts of computing and memory resources. Therefore, in the short term, a balance must be found between implementation costs and the quality of the expected functionalities and between what will be considered "sufficient" accessibility services and what will not.

3.3 Personalization of applications: user profiles

Many of the requirements highlighted by user associations entail a personalized set-up of the receiver. For example, people with hearing disabilities would appreciate that once subtitles have been selected, the receiver would keep this selection when changing channel or even in the following sessions. To that end, a slot of persistent storage has to be dedicated to the definition of user profiles, as in the case of parent control services or of personalized lists of channels. Therefore, it is likely and recommendable that the personalization of accessibility profiles is available in all receivers within its capacities and functions.

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[15] "Digital TV for ALL" is a PROFIT research project for the analysis of digital TV accessibility, supported by the Spanish Ministry of Industry, Tourism and Trade, through the National Program for Service Technologies of the Information Society – Strategic Action for e-inclusion with the participation of Formato Multimedia, SL., TVC Netmedia Audiovisual SL, ASIMELEC, and the Institute of Public Law of the University Rey Juan Carlos

[16] *The National Centre for Accessible Media* is a research center for media accessibility http://ncam.wgbh.org/

[17] *A Developer's Guide to Creating Talking Menus for Set-top Boxes and DVDs* http://ncam.wgbh.org/resources/talkingmenus/

3.4 Recording equipment

VHS video and DVD recorders are present in most Spanish homes. The problem of these formats is that when recording, teletext information will not be recorded and subtitles will thus not be available. The old *Super VHS* video recorder, which belongs to the semi-professional range, could record the teletext, but was very expensive and is currently out of catalog. Specific equipment that record teletext subtitles, like the Telemole[18], are still available (Stallard 2003: 38).

Recording equipment to be implemented in the future should have the capacity of recording associated data, and specially, accessibility services. This functionality is not only aimed at people with some kind of disability. It can be interesting for everybody, given that it can also record other interactive services and value added contents.

Personal Video Recorders (PVRs), which record on hard disk, are being introduced in the market with very good prospects. Television programs can be recorded in an intelligent way, by analyzing an EPG and comparing it with the user's profiles. PVRs are expected to revolutionize the way of watching TV. The DVB working group is currently specifying PVR's technical aspects. Therefore, the accessibility requirements should be defined as soon as possible so that all digital video recorders and PVRs can record and reproduce accessibility services in compliance with Universal Design principles.

4 Trends and measures to facilitate digital TV accessibility in Spain

The regulation of the audiovisual industry in Spain has recently been incorporating legal texts with explicit measures on accessibility. The "Reform Plan for the Audiovisual Sector"[19], includes an agenda for the implementation of accessibility services and for the establishment of a State Council for the Audiovisual Sector, which will ensure the enforcement of broadcasters' obligations. Pursuant to the draft bill of the General Audiovisual Law (MICyT 2005), by 2015, a 100% of the State owned TV programs will be subtitled, and a 10% will provide audio description and Sign Language. It also establishes the percentages for Commercial TV broadcasting (Utray 2006: 251). But these initiatives are still under parliamentary debate.

Achieving accessible audiovisual communication means involves the whole production, distribution and exhibition chain of audiovisual products. In order to warranty homogeneity and interoperability, every accessibility service should have a code of good practices agreed upon by all stakeholders. AENOR, the Spanish body of standardization has already developed a standard for subtitling through teletext (AENOR 2003a) and another for audio description (AENOR 2005). As envisaged within the working group FTTVD (2005: 74) and as confirmed in a CERMI's[20] publication (2006: 48), similar standards are needed for every

[18] http://www.connevans.com/information/telemole_FAQ.pdf

[19] The Government in its Council of Ministers of 06.24.2005 approved the "Reform Plan of the Audiovisual Sector" whose objectives are to boost a sustainable, profitable and independent audiovisual sector to ensure cultural, social and political pluralism and achieve a prompt, orderly and feasible transition from analog technology to digital terrestrial technology. This plan includes three bills – the "Public Service Law for State Owned Radio and Television", the "General Audiovisual Law" and the "Law for the Establishment of a State Council of the Audiovisual Media"- as well as two Royal Decrees modifying the "National Technical Plan for Digital Television" and the "National Technical Plan for Private Television"

[20] CERMI (Comité Español de Representante de Personas con Discapacidad) is the representative committee of the main associations of people with disabilities in Spain.

identified accessibility service. Therefore, there is a need to develop preliminary studies to define the specifications of the new services and to update existent standards.

Another government initiative to promote audiovisual accessibility in Spain is the creation of the Spanish Centre of Subtitling and Audio description (CESyA: Centro Español de Subtitulado y Audiodescripción). In November 2005, a Framework Agreement for the creation of the CESyA was signed by the Royal Board on Disability, the CERMI and the University Carlos III of Madrid. This public institution is mandated, among other things, to promote subtitling and audio description for disabled people and, in general, to encourage all mechanisms that favor accessibility in the Spanish audiovisual arena. It helps all audiovisual accessibility stakeholders converge and serves as a link for dialog. The associations that represent people with disabilities, the content production/distribution industry, the exhibitors/broadcasters, the consumer electronic industry and the regulator of the audiovisual sector can find in the CESyA a reference for the effective implementation of accessibility in audiovisual media.

One of the main objectives of the CESyA is to create and manage a database service with reviews of subtitled and audio described audiovisual works, which will be permanently updated and available to all stakeholders through the Internet. The aim of this activity is to gather and reference all subtitled and audio described productions in order to encourage the exchange of materials and to boost the subtitling market, audio description and other accessibility services (Ruiz et al. 2006).

Another priority field is to make the audiovisual industry aware of the concept of Universal Accessibility and thus achieve awareness in the population as a whole. The CESyA will also be the pioneer observatory of international research and standardization in subtitling and audio description. Training is also part of the objectives of the Centre and a follow up of national and international initiatives will be carried out, as well as collaboration in the definition of training programs in order to achieve standardization in the training of audiovisual accessibility professionals.

The creation of this center is a necessary step in order to make progress in the implementation of accessible audiovisual media in Spain and to achieve equal opportunities and rights for people with visual or hearing disabilities.

5 Conclusions

Digital television is a completely new technology that is being massively implemented in the homes in Europe and, in compliance with the applicable legislation, it should be considered and designed, from the very start, to be usable by all citizens. Unfortunately, this principle is not being met and we are once more failing to apply Universal Design from the beginning. This situation is particularly serious given the high capacity of interventionism of European governments in an industry that is as tightly regulated as DTT. If user associations and the regulation bodies of the sector do not rapidly react, we will again be forced to react to an environment that has been inadequately designed and that discriminates a category of users as the disabled people in breach of the mandates of democracy.

In Spain, some progress has been made in recent years in the public and the private sectors: the main commercial and state owned television channels already have departments in charge of subtitling services for the deaf, and legislators have started to consider accessibility to their legal texts. But there is still much work to be done to achieve the level of development reached by such countries like the USA, the UK or Canada, where there is a greater tradition in audiovisual accessibility services.

The incorporation of interactivity to broadcasting carried out by digital television must be carefully studied because it constitutes a barrier that was not present in the analog

environment. It is a great challenge for both broadcasters and receivers' manufacturers. Applying the principles of Universal Design in this field and building an easy to use interactivity is imperative, not only for people with sensorial disabilities, but also for a much larger group of citizens that have difficulties when using these new services.

The creation in Spain of an institution like the CESyA, a center for the exchange of subtitled and audio described material, which was already a claim in the EU (Stallard 2003: 38), should place our country in the forefront of the promotion of audiovisual accessibility. Social awareness in this field can contribute to the construction of a more egalitarian and democratic society that is aware of the diversity of its citizens.

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