User profiling in audio description reception studies: questionnaires for all

Defining disability is not an easy task due to its multidimensionality. This paper begins with a revision of some of the most common models to define disability. The second part of the article examines end user profiling in articles, European funded projects and PhD thesis' related to one of the media accessibility modalities: audio description. The objective is to understand the approach taken by researchers. The final part of the article will propose a new approach in the study of end users in experimental research in Translation Studies, Audiovisual Translation, and Media Accessibility. This new approach gives a response to the International Telecommunication Union's suggestion of leaving the biomedical approaches behind. Our suggestion is based on Amartya Sen's capabilities approach, which has not yet been applied to user profiling in media accessibility studies. The article finishes by illustrating how this approach can be applied when profiling users in media accessibility questionnaires.

Keywords: media accessibility; capabilities, models of disability; audio description

1. Introduction

Defining disability is a daunting task given its connotations when applied to human conditions: physical, cognitive and social. Disability holds a human element in regards to a medical condition, associated with social and financial backgrounds that cannot be measured or simplified by one single definition or theoretical model (Albrecht et al. 2001). Theoretical models are useful and necessary, although it is important not to overlook the fact that they are simplistic and imperfect (Albrecht et al. 2001). Yet, models and definitions facilitate the task of researchers, as they offer a theoretical background and a methodology to work with. There are several models disability can be framed by, the medical one being among the earliest. Nonetheless, since studies into Disability began in 1994 at Syracuse University, there has been a radical, academic

departure from it. This change of mindset has facilitated the emergence of other models that see disability as the result of a plethora of factors that have little or nothing to do with the person's impairment.

This paper is divided into five sections. First, it will present some of the most popular models of disability. Second, it will look at research performed using these models. Third, it will describe a new approach from which to investigate disability within Media Accessibility (MA) studies. Fourth, some examples on how to apply this new model will be provided. Finally, some conclusions are drawn.

1.1. Models of disability

Fisher and Goodley (2007) explain the medical approach to disability:

> A growing preoccupation with 'normality' meant that illness and disability became separated from everyday life and were constructed as forms of individual pathology. In this process the medical profession came to exert almost complete jurisdiction over the definitions of normality and abnormality (Fisher and Goodley 2007: 66).

The Medical Model is still dominating research in general. This is reinforced by our following of its linguistic composition, with the prefix "dis" changing the meaning of the word "ability". In line with this, the lack or limitation on the capability of a person is classified by their condition. The Medical Model focuses on a biological reality being the cause of the impairment and it sees impairments as a personal condition that needs to be prevented, rehabilitated, or taken care of (Marks 1997). Despite its popularity, this model has been criticized on different grounds by activists and academics, for its failure "to acknowledge the defects in the environment" (Marks 1997: 87).

In contrast, the Social Model shifts the focus from health to society. It was mainly developed by Michael Oliver, who "sees disability, by contrast with impairment, as something imposed on disabled people by oppressive and discriminating social and institutional structures" (Terzi 2005: 201). This model has at least nine different

versions (Mitra 2006) and deals with human diversity (Edler 2009). Disability is not the result of having a physical impairment, but the failure of society to consider individual differences (Bøttcher and Dammeyer 2016). Therefore, disability is not an attribute of the individual, but an environmental, social creation (Mitra 2006). However this model is not exempt from drawbacks. On one hand, and according to Shakespeare, “the simplicity which is the hallmark of the social model is also its fatal flaw” (Shakespeare 2010: 271). This author claims that the denial of impairment is an important factor in many disabled people’s lives and that the unrealistic concept of a barrier-free utopia, in which all barriers are removed are among the weaknesses of this model. On the other hand, Terzi (2005) considers there to be an aspect of over-socialization of sources and causes of disability, as well as the model overlooking the complex dimensions of impairment.

Even though these two models are paradigmatic, there are others worth mentioning. The UN Convention on the Rights of Persons with Disabilities (CRPD) was initially drafted as a human rights convention that aimed to substitute the Medical Model for the Social Model. Yet, according to Degeners (2016), the drafters went beyond the Social Model and wrote a treaty based on a new approach: the Human Rights Model of Disability, to be implemented by the CRPD. It encircles many human rights: political, civil, economic, social and cultural. It goes beyond the anti-discrimination rights of disabled persons (Degeners 2016). Regarding its weaknesses, Berghs et al. (2016) underline that lack of enforcement has been issue and in turn, the lack of defined penalties. This is true for some world regions, but is not the case for the US, Australia or Europe, where laws have been enforced through heavy penalties applied by the CRPD. The Netflix caption lawsuit is a good example. In June 2011, the National Association of the Deaf (NAD) filed suit against Netflix for their lack of closed captioning for video streaming as a violation of the Americans with Disabilities Act. The judge ruled in favor of the NAD and Netflix was ordered to provide captions in its video streaming library in 2014, and to continue captioning content published from that moment on, along with having to pay a hefty sum for legal fees and damages.

The Nagi Model (Nagi 1991) has a dynamic approach based on the differences between four different but interrelated concepts: active pathology, impairment, functional limitation, and disability. Disability is an “inability or limitation in

performing socially defined roles and tasks expected of an individual within a sociocultural and physical environment" (Nagi 1991: 315). These roles and tasks are organized into spheres of life activities, such as work, education, family, etc. For instance, think of a 10-year-old girl with a severe hearing impairment who does not attend school but stays at the farm where she lives with her parents helping with farming chores. If she lives in a society where young girls are not expected to go to school, then she cannot be labelled as "disabled" under this model. Conversely, she will be labelled 'disabled' if she lives in a place where girls her age go to school, as she is therefore not performing her socially expected role.

The Biopsychosocial Model is a response to the over-medicalisation of the International Classification of Impairments, Disabilities and Handicaps (ICIDH). The UN World Health Organisation in 2001 published the International Classification of Functioning, Disability and Health (ICF). The ICF was intended to complement its sister classification system, the International Classification of Diseases (ICD) (Brown and Lent 2008). The ICF Model sees disability as the result of a combination of individual, institutional and societal factors that define the environment of a person with an impairment (Dubois and Trani 2009). It is set in motion by the World Health Organization Disability Assessment Schedule II (WHODAS II), and covers all types of disabilities in various countries, languages and contexts, which makes it suitable for cross-cultural use. Dubois and Trani (2009) consider the ICF to be limited in its scope and use, since its primary purpose is classification. They believe the complexity of disability requires a wider and more comprehensive analytical view. Ellis (2016) also raised this issue, highlighting the difference between disability and impairment.

In 2017, the UN agency International Telecommunication Union (ITU) released a report addressing access to telecommunication/ICT services by persons with disabilities and with specific needs that stated the following:

> Besides the more commonly used "medical model of disability", which considers disability "a physical, mental, or psychological condition that limits a person's activities", there is a more recent "social model of disability," which has emerged and is considered a more effective or empowering conceptual framework for promoting the full inclusion of persons with disabilities in society. Within this social model, a disability results when a person (a) has difficulties reading and

> writing; (b) attempts to communicate, yet does not understand or speak the national or local language, and (c) has never before operated a phone or computer attempts to use one – with no success. In all cases, disability has occurred, because the person was not able to interact with his or her environment. (ITU 2017: 2)

Contextualised within the realm of research in MA; this implies that simply knowing whether or not the person has a hearing or a visual impairment is of little to no use. The ITU is calling for a new approach that analyses different aspects of each individual that might have an influence on what researchers are testing. This has already been found relevant in previous studies (Romero-Fresco 2015). Romero-Fresco (2015) pointed out that reading subtitles was related to a person's educational background rather than to their hearing impairment. This is the point from which we depart. How to approach the question of demography among persons with disabilities when the objective of the study is not to restore their sensory impairment.

2. Approaches followed by previous researchers on audio description (AD)

User profiling is often carried out through questionnaires which gather demographic information. How to formulate questions is very often related to the model of disability adopted (Berghs et al. 2016). The following 14 publications, which focus on user-centred research in AD, have been analysed: Fernández-Torné and Matamala 2015; Szarkowska 2011; Szarkowska and Jankowska 2012; Walczak 2010; Romero-Fresco and Fryer 2013; Fresno et al. 2014; Fryer and Freeman 2012; Fryer and Freeman 2014; Szarkowska and Wasylczyk 2014; Udo and Fels 2009; Walczak and Fryer 2017; Walczak and Fryer 2018; Walczak and Rubaj 2014; Chmiel and Mazur 2012a. Three experimental PhD dissertations were also included in the analysis (Fryer 2013; Cabeza-Cáceres 2013; and Walczak 2017 (framed within the EU-funded project HBB4ALL), as well as other research results from major/extensive/wide-scale projects such as DTV4ALL,[1] ADLAB,[2] the Pear Tree Project (Chmiel and Mazur 2012b), OpenArt (Szarkowska et al. 2016), and AD-Verba (Chmiel and Mazur 2012).

1 See http://www.psp-dtv4all.org/ [retrieved 08/04/2018]
2 See http://www.adlabproject.eu/Docs/WP3%20Report%20on%20Testing [retrieved 08/04/2018]

The studies in question show different approaches to the profiling of users with disabilities as part of the demographic questionnaire prior to any test. There are two questions common to all: gender and age. When asking about gender, there is always a choice between “male”/”female” but the option of not answering the question or selecting another option is never offered. In relation to age, it is often asked by offering intervals; although in some cases it can also be an open question where a figure has to be entered.

Most questionnaires also query level of education. This is presented in various forms: items can be very detailed (Fernández-Torné and Matamala 2015), with a choice of three options (primary education, secondary education, and higher education) (Szarkowska 2011) or contain a moderately detailed list (primary, vocational, secondary, college/university student, university degree) (ADLAB project).

As for the occupation of the participants, it is not generally asked for but with the exception of one study (Fernández-Torné and Matamala 2015).

With regards to the language participants generally use, the majority of questionnaires do not refer to it. The exceptions are the questionnaires in DTV4ALL and the Pear Tree project.

Technology and AD exposure of participants were asked in most questionnaires. The objective of such questions was to corroborate whether the participants were familiar with a given technology and service, how well they knew it, and how frequently they used it. Information about participant habits regarding consumption of audiovisual content was also a point in common for all questionnaires, by means of closed or multiple-choice questions.

Regarding how disability is profiled, researchers take two approaches: self-reporting (Szarkowska ahd Jankowska 2012, Walczak and Fryer 2017) or responding to a question regarding physical condition (Fernández-Torné and Matamala 2015; Fresno and Soler-Vilageliu 2014). How the condition is classified also has three different approaches:

(1) Using WHO binary classification: blind and low sighted (Fernández-Torné and Matamala 2015; Fresno and Soler-Vilageliu 2014, Szarkowska and Jankowska 2012).
(2) Adopting RNIB classification (Szarkowska 2011, TV3 in the DTV4ALL project, and the AD-Verba Project):[3] "Which of these best describes your sight with glasses or contact lenses if you normally use them but without any low vision aid? Imagine you are in a room with good lighting and answer yes, no or uncertain to each part, please. Can you see well enough to: Tell by the light where the windows are?/ See the shapes of the furniture in the room?/ Recognise a friend across a road?/ Recognise a friend across a room?/ Recognise a friend if he or she is at arm's length?/ Recognize a friend if you get close to his or her face?/ Read a newspaper headline?/ Read a large print book?/ Read ordinary newspaper print? (Possible answers: 'yes', 'no', 'uncertain')".
(3) Beyond WHO and RNIB, Walczak and Fryer (2017) included:
    - self-reported sight loss (mild, considerable, complete) and visual acuity specification;
    - age when registered as visually impaired;
    - and the medical name of the visual condition.

Also, all researchers requested information regarding the origin of the condition. In most cases the question of whether the sight loss is congenital or acquired was included, sometimes by giving two options (congenital/acquired), and other times (less often) by giving more options, such as intervals (e.g. from birth/for between 1 and 10 years, etc.).

After analysing the most recent experimental research with end users in the field of AD, it can be said that all demographic questions follow the medical approach when profiling. Although other sociological oriented questions are also present, still the ultimate matching of disability and technology proficiency is performed by an inductive inference by the researcher.

3. The Capabilities Approach

Amartya Sen, Nobel laureate economist, developed the Capability Approach, which has been used as a framework to analyse different concepts in welfare economics

3See http://www.rnib.org.uk/professionals/knowledge-and-research-hub/research-reports [retrieved 08/04/2018]

(Mitra 2006). It was later complemented by philosopher Martha Nussbaum (Terzi 2005). This approach can be useful in other disciplines, such as Disability Studies (Mitra 2006). The Capabilities Approach revolves around two main concepts:

(1) “capabilities”, which are seen as a person’s “practical opportunities”, such as having the chance to eat something if you feel hungry, and
(2) “functionings”, viewed as “actual achievements”, such as actually eating. In Sen’s words:

> Functionings represent parts of the state of a person–in particular the various things that he or she manages to do or be in leading a life. The capability of a person reflects the alternative combinations of functionings the person can achieve, and from which he or she can choose one collection. (Sen 1993: 31)

Sen (1993) claims the interaction between these concepts can have an impact on peoples lives. This author illustrates his point through an example, contrasting the two terms: two women have the same functioning (not being well nourished) but very different capabilities. One has the capability, this is, the opportunity to be well nourished but decides to starve for her religious beliefs, whereas the other cannot afford to buy any food. It can, therefore, be seen that a person’s capabilities and functionings are influenced by external factors (in that particular example, religious beliefs), which can be grouped into three categories: commodities, personal characteristics and structural factors (see figure 1 for a simplified version of how the Capabilities Approach works).

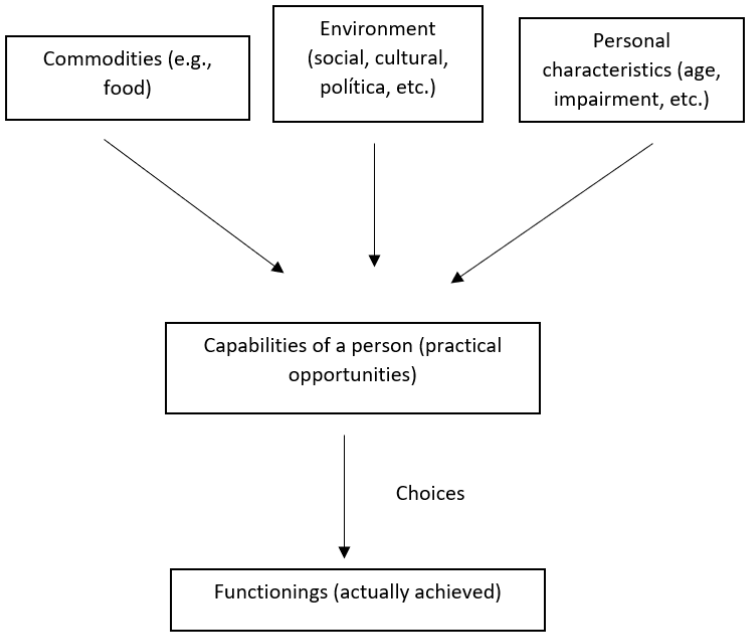

Figure 1. A simplified version of Sen's Capabilities Approach (Mitra 2006: 240)

Sen (1993) emphasized the plurality of purposes for which the capability approach can have relevance. Mitra (2006) suggests applying the Capabilities Approach to Disability Studies to define "disability" on a conceptual level:

> Under Sen's approach, capability does not constitute the presence of a physical or a mental ability; rather, it is understood as a practical opportunity. Functioning is the actual achievement of the individual, what he or she actually achieves through being or doing. Here, disability can be understood as a deprivation in terms of capabilities or functionings that results from the interaction of an individual's (a) personal characteristics (e.g., age, impairment) and (b) basket of available goods (assets, income) and (c) environment (social, economic, political, cultural). (Mitra 2009: 236-237)

Mitra (2006) understands that disability may occur when there is a health impairment, but also other factors that result in a deprivation of capabilities or functionings. If a person is deprived of practical opportunities because of an impairment, Mitra believes we are talking about what she calls "potential disability", whereas if the person's functionings are restricted by the impairment we are talking about "actual disability". The difference between these two types of disability can be seen through an example. If an 18-year-old visually impaired person wants to attend college but lacks the opportunity, they can be seen as a "potential" disabled person in comparison with someone who has a similar

background. In this case it can be seen that health impairment reduces a person's practical opportunities, and this can lead to disability. A person is actually disabled if they cannot do something they value doing or being, which, in this example, would be going to college.

The Capability Approach contributes to a new and useful insight on disability by differentiating between the two levels of the problem: the capability level and the functioning level. It proves to be a different approach because, for instance, unlike the Social and Medical Models, it provides a comprehensive account of the variety of factors that might lead to deprivation. In contrast to the Medical Model, the impairment is not always the cause of disability, and, unlike the Social Model, the environment is not always the reason for disability (Mitra 2006). The ICF, although initially thought of as an integration of the strengths of the two main models, it fails to achieve its objective and could benefit from becoming open-ended. It should also recognise that not all dimensions of life may be specified and classified, and thus the classification does not, and cannot be expected to offer an exhaustive account of the lived experience of health deprivations (Mitra 2018). It can therefore be concluded that this new disability approach conforms to what the ITU has recently required and can be applied to studies dealing with disability, such as those working on MA.

4. Applying the Capabilities Approach

The Capability Approach developed by Sen is a useful framework for defining disability and understanding its consequences (Mitra 2006). Its usefulness in defining disability and formulating disability policies was considered by Mitra (2006) but to date no applications regarding the methodological approach have been followed in MA studies. This is what this section will deal with.

The way to implement this model in any discipline is by drafting a list of capabilities and functionings that are relevant to the object of study:

> The full range of the disability experience can then be covered, by shifting the focus away from the restricted view of identifying types of impairment. The fact that each individual is asked about the level of difficulty he/she experiences in functioning in the various dimensions of well-being makes it easier to assess the

> level of disability in a comprehensive manner. [...]However, specific information is required to assess and measure disability within this paradigm. Data are related to individuals' potentialities, the possibilities that they can "be" what they wish to be, their aspirations and what they value. It also entails gathering information about vulnerability, which expresses the risk of suffering a reduction of the capability set, measured by the probability of falling to a lower state of well-being. Finally, it requires information about the opportunities offered by the environment. (Dubois and Trani 2009: 198).

Sen's theoretical Capability Approach proposal is open. It does not offer an application model since it does not make a complete list of capabilities functionings, personal characteristics, commodities and environmental factors (Mitra 2006). Sen does not propose a prescriptive method to rank capability sets (Mitra 2006; Terzi 2005). This voluntary incompleteness makes the capability approach difficult to implement operationally, but in turn allows for adaptation to every scenario. For example, in the field of Media Accessibility, it should be adapted to the tested technology. The capabilities and functionings may vary according to relevant personal factors, resources, and structural factors. It will also vary depending on the object of study. Therefore, the demographics of the study should be adapted to the study characteristics.

In the field of MA, researchers could implement the following steps:

(1) Think of an access service that could prevent one or more groups of persons from being potentially or actually disabled whilst accessing audiovisual content. Measuring disability is perhaps an impossible task, but for research purposes, where the focus is not on how to restore medical conditions, selecting relevant capabilities or functionings to form an "evaluative space" is needed (Mitra 2006). What needs to be done is drafting a set of functionings (or capabilities) that our access service can provide.

(2) Carefully analyse the group or groups of persons that could benefit the most from this service. This should be achieved by not only taking into account their sensorial impairments, but also the personal, structural and environmental factors. For example, a person with sight loss may not be able to access a TV series because the menu EPG (Electronic Programme Guide) is not accessible and they cannot activate the AD function. The same situation can occur for someone with reduced motor skills such as dexterity,

or a person with learning disabilities who finds it challenging to interact with the TV remote control. The final result is that neither the person with sight loss, learning disability nor dexterity can enjoy a TV programme.

(3) Carry out, for example, some focus groups in which all the target groups are represented to confirm which particular service could amplify their capability set and, therefore, avoid disability from occurring or from being a possibility. These occasions should also be used to elicit more information regarding what features the service requires in order to offer a better and more enhanced experience. Listing relevant functionings and capabilities should be a user-centered activity. However, members of groups may be so deprived in specific dimensions that they lack self-critical distance. A good example is the addition of subtitles in some opera theatres (Oncins 2015). While sighted people enjoy subtitles, people with sight loss may have an audio description but not audio subtitles. Blind and partially sighted audience members may not be aware of the existence of subtitles and subsequently do not request the service.

(4) Develop the service according to what the target groups have requested.

(5) Test the service to ensure that what has been developed complies with what users require so that they are no longer disabled in that particular field or occasion. Obviously, the users taking part in the tests should come from all the various target groups that were considered initially.

It is precisely in this last stage that questionnaires should reflect the variety of users taking part in the tests and, therefore, the need to mainstream accessibility. This can only be done by expanding the section that contains the demographic questions. Were this to be done, the plethora of factors leading to disability could be better observed. As we have seen, MA research tends to include questions regarding physical impairments but does not always consider other factors that could cause or are already causing a person to be disabled. This is precisely what needs to be solved but, again, we cannot provide a one-fits-all solution because the questions depend on the object of study, i.e., on the particularities of the technology or service tested.

Questions asked in focus groups or questionnaires should not mix health issues with impairments, functionings and capabilities because they would reduce the empirical relations between the different concepts of the Capabilities Approach. The question

“are you limited to the number of movies you can watch due to a visual impairment?” would be an example of the type of question that should be avoided. Also, in MA studies, there is no reason beyond statistic to ask for gender-related information, unless a capability falls under a cultural or religious category. Regarding age, most studies request age as with gender, in order to have a statistically comparable representative group. In some cases, requesting age was associated to the origin of the condition, for the researcher to assume some impact on the object of study. According to Sen’s model, requesting age will have a direct implication on questions such as: “do you consume AD?”.

The EU-funded EasyTV project (https://easytvproject.eu/) aims at easing the access of audiovisual content and the media to the functionally diverse and to the growing ageing population of Europe. This will be achieved by developing new access services, such as customised subtitles, subtitles for colour-blind users and a crowdsourcing platform with which videos in sign language can be uploaded and shared. These access services are expected to grant an equal and better access to audio-visual content in terms of both choice and quality. The project was started off by discussing with users precisely what capabilities they would like to have when consuming audiovisual content. For the initial focus groups, “super end users” were recruited. Not all of them suffered from a physical impairment. In addition to being regular users, they had some knowledge on the technologies that would be tested. This knowledge was deemed crucial since they were requested to advance their expectations to match the innovation. It would have made no sense to consult end users with no prior knowledge or experience of functional diversity or technological background because at that stage what we required was not their acceptance of the final service, but issues related to technology development. This allowed us to apply Sen’s theory to a concrete case. During the focus groups carried out at that stage, the following list of questions were drafted:

(1) How is your current experience using TV?
    “It is not easy to access the TV”.
    “It is very difficult to use the remote control”.
(2) Which modalities do you use to interact with the TV?
    “Using the remote control is very difficult without audio feedback”.

The response to the difficulty to access TV elicited possible technologies and the following opinions.

(1) For image magnification two important issues emerged:

- “It would be useful to magnify a specific portion of the screen (for example objects that need to be recognized) or overlaying text that is not clear, so I can read it better”.
- “It is important to stop playing the image to let me magnify the screen or a portion of it”.

(2) For audio narratives the following features are considered crucial for blind and low vision persons:
-“It is useful to have this service available both automatically (without user interaction) and manually (using the remote control or speech commands) to manage the volume of available audio tracks”.
- “For example, when listening to opera I am only interested in the music, so I should be able to lower the volume of the audio description”.
- “During live programs, it is very useful to know what is happening and what the TV is showing during silent time. When I am with my family they tell me what is going on, but when alone, nothing can be done”.

(3) Regarding the speech interface to control TV functionalities, blind people consider voice control and audio feedback to be very important when using the remote control. It is also very important to export content (audio and video) into a mobile device.

The above are all practical opportunities (capabilities) that end users would like to have and should be taken into account by developers. The beneficiary of these solutions is not isolated to the collective of persons with disabilities, since these solutions will be of great help also to the ageing population, people with reading issues, and by default to all. This universal approach has already been accepted with subtitles, which are no longer for the deaf and hard of hearing community, but also for the 80 per cent of people who watch media content in public spaces with the volume turned off.[4]

Testing in Easy TV has profiled the user requirements of people with sensorial disabilities: deaf and hard of hearing and visually impaired. Yet, results from tests do not correspond to sensorial disabilities. An example is the use of Smart TV functionalities and access to set up controls. Expectations and needs defined by user interaction with Smart TV are in fact related to age or behaviour, rather than disability. This real example extracted from test results in the EasyTV project show the need to adopt the Capability Approach. If it were to be implemented, in future

4 See https://digiday.com/media/silent-world-facebook-video/ [retrieved 12/04/2018]

stages, for each capability detected, a list of demographic factors surrounding it should be drafted. Another good example suggested while testing object-based audio (OBA) was to develop audio description on 360º video. It was found that OBA will benefit audio description since layers of information are added regarding sound directionality (Orero, Ray and Hughes forthcoming). Since OBA can be mixed by the audience, it turned out that people with hearing loss enjoyed OBA as mixing the dialogue track with the sound track allowed for a better dialogue intelligibility, producing a clean audio effect. This goes to show that a technology developed for one group was also beneficial for another group, something that would have never been tested if users were selected on the basis of their disability.

5. Conclusions

MA research has been using the medical model to profile end users for their experimental research. This is probably due to research being framed within the UN CRPD, where accessibility is considered a tool towards achieving a human right (Greco 2016). The UN convention CRPD motto “nothing about us without us” has also conditioned participants for accessibility tests. After a decade following this research approach, results point towards the need to consider a wider audience for testing. Ellis (2016) has already clarified the difference between impairment and disability. Research data gathered from visually impaired persons apply to society in general. By applying the Capability Approach, research will not consider disability/health conditions as individual attributes. Focusing on impairments resources, structural and personal factors should yield data closer to the research objective than to a medical solution of health restoration. Failure to use an interactional model may generate an unnecessary focus on prevention/rehabilitation through the Medical Model or social oppression through the Social Model (Mitra 2018). The Capability Approach can be used by MA researchers and technology developers, since they need to find out what capabilities and functionings users would like to have. They also need to verify whether the technology they develop provides opportunities the target groups that are currently missing. This approach is also interesting for them as they can start recruiting users with a more varied profile and not just people with physical impairments. MA academic researchers are also

within the stakeholders, since they are often the ones in charge of testing access services within projects or PhD thesis' and need to be aware of the fact that sometimes the results yielded are due to the informants' personal or environmental factors rather than them being partially sighted.

The Capability Approach will also work towards solving a negative feature in most existing research: the low number of participants. Profiling beyond medical prognosis opens participation to a wider audience and a higher potential participation. This Capability Model will also do away with the user representativeness required for statistical validity. For example, the number of blind people in a country will no longer have to be taken into consideration to determine the number of users needed in the tests. Mainstreaming accessibility will have an impact not only in research but also in its application to industrial sectors working within investment frameworks. MA services are valid to society and especially to persons with disabilities. This reduced sector should be the gatekeeper for quality, since in some cases access marks the threshold to deprivation.

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