

## Subtitling for d/Deaf and Hard of Hearing Children: Past, Present and Future<sup>1</sup>

### Abstract

*Since the projection of the first film ever in 1895, audiovisual products have been an important way to access information. More evidently so with the emergence of a need for audiovisual translation (AVT) following the inclusion of intertitles and sound. Over recent decades the growth of this academic field, and the market, have been hugely significant – there is no doubt that AVT is no longer a secondary field within Translation Studies (TS) but a mainstream field of research and, undeniably, also a mainstream practice in the translation market. That said, as a young discipline, there is still a long way to go and plenty of new subfields to explore in depth. That is the case of subtitling for hearing impaired (SDH) children.*

*The present paper looks at the history of this subfield of study – its research, theory and practice – to offer an overview of the past and present of this discipline but, most of all, to present a view of where we are heading. This paper analyses some of the most challenging characteristics of SDH for children and tries to envision future practices and trends in research in this field.*

**Keywords:** *audiovisual translation, accessibility, subtitling for the deaf (SDH), children, creative subtitling*

### 1. The past and present of SDH for children: old habits, new proposals

During what we might call the *boom* of AVT research in the 1990s occasional, but yet significant, studies on subtitling for deaf children were carried out (BAKER 1985; DE LINDE & KAY 1999; GREGORY & SANCHO-ALDRIDGE 1996; KOOLSTRA & BEENTEJES 1999; KOOLSTRA *ET AL.* 1997 and 1999; MAXON & WELCH 1992 for instance). Since then, the maturing process of AVT, both in its practical application and in the academic field, has favoured the development of new trends and the publication of more studies in the field of subtitling for deaf children, particularly in the last fifteen years (CAMBRA *ET AL.* 2008a, 2008b, 2009, 2010a, 2013, 2014, 2015; DI GIOVANNI 2011; D'YDEWALLE & BRUYCKER 2007; LORENZO 2010a and 2010b; LORENZO & PEREIRA 2011; TYLER *ET AL.* 2009; WARD *ET AL.* 2007; ZÁRATE 2008, 2010A, 2010B, 2014A, 2014B). Nevertheless, there is still a long way ahead, as literature in subtitling for hearing impaired children is still rare when compared to other AVT subfields.

Research in AVT and Audiovisual Accessibility seems to have gained increasing presence within Translation Studies. Nevertheless, AVT research focusing on children and young audiences is still underdeveloped, maybe because it is generally accepted that the world of children is

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<sup>1</sup>This research was conducted as a part of the research projects ITACA. Social Inclusion, Audiovisual Translation and Audiovisual Communication (ITACA. Inclusión social, Traducción Audiovisual y Comunicación Audiovisual), ref. FFI2016-76054-P, 2016-2019, and IDENTITRA. Traducción y representación de la identidad en el texto audiovisual multilingüe (ref. FFI2015-68572-P, G15/P75), both funded by the Spanish Ministry of Economy and Competitiveness.

a bit too simple (DI GIOVANNI 2011: 8-9), that it is not worth academic attention. Audiovisual production for children, nevertheless, is a growing market and focusing on research with materials designed for children is not only necessary in the AVT field, but it also means bringing to the fore important issues such as development, education and integration of children in society (DI GIOVANNI, 2011: 8-9).

In AVT research undertaken over recent decades, it has been acknowledged that children and young audiences have special needs, for they have limited knowledge of the world and their reading skills are not fully developed. Children start watching TV before they can read and they might benefit from certain subtitling strategies and techniques that allow them to improve their reading skills and gain knowledge of the world while enjoying watching a series or a film. That is true for any young audience, but more significantly so when dealing with hearing impaired young audiences, as they typically need more time to learn how to read fluently and therefore might benefit from an extra adaptation of subtitles that allows visual solutions that fit in with their way of interacting and understanding the world.

Nowadays, there is no way of making audiovisual products understandable for hearing impaired young audiences other than to adapt what can be heard in a visual or textual form – either with subtitles, sign language or visual resources such as emoticons or drawings. Although all these three means can be considered equally useful (depending on the characteristics of the audiovisual product and the target receiver), subtitles are, by far, the most popular way of conveying auditory information by visual means, which leads to the need to comprehend deaf children's reading skills in order to adapt the information. Previous studies in the field seem to agree in pointing to three parameters directly linked to reading skills. These parameters, syntax, vocabulary and subtitle speed, are easily adaptable to the needs of hearing impaired children and fit in with the contemporary concept of subtitles.

In early research on SDH, authors such as Quigley and Paul (1984), Neuman and Koskinen (1992) or Koolstra *et al.* (1997) identified vocabulary and syntax as two of the major challenges in subtitling for hearing impaired audiences. Kelly (1996, in ZÁRATE 2010b: 167), in a study with hearing impaired teenagers, concluded that these two parameters do not operate individually, but that the correlation between vocabulary and reading comprehension relies on syntactic abilities. Vocabulary seems to improve with usual exposure to subtitles (KOOLSTRA *ET AL.*, 1997, DOMÍNGUEZ and ALEGRÍA, 2010 and DOMÍNGUEZ, 2014; cf. also ZÁRATE 2014a), but syntax acquisition is still one of the biggest challenges in comprehension of written texts by hearing impaired audiences (ZÁRATE 2010a: 164; DOMÍNGUEZ 2014). With regard to this parameter, authors dealing with SDH for children recommend keeping syntax as simple as possible to improve comprehension (NEVES 2009; ZÁRATE 2010a; LORENZO & PEREIRA 2011). Also, to try and improve syntax acquisition, Zárate (2010a), based on Gormley & Franzen (1978), recommends redundancy between sentences to reconsider interpretation of meaning.

Regarding the second parameter, vocabulary, we have to bear in mind that hearing impaired children starting school at ages between four and five have an average of 500 words in their vocabulary, while their hearing counterparts have up to 3,000 words (STERN 2001 in ZÁRATE 2010a). Moreover, previous research has proven that, even when hearing impaired audiences are expert readers they rely on the key word strategy to comprehend written discourse (DOMÍNGUEZ

& ALEGRÍA 2010; Domínguez *et al.*, 2014). That is, they rely on vocabulary, on key words, to understand what is written because they do not fully understand the syntax, and that reliance on vocabulary hinders the improvement of syntax comprehension (DOMÍNGUEZ & ALEGRÍA 2010; DOMÍNGUEZ *ET AL.* 2014). Thus, when creating subtitles for hearing impaired children special attention must be given to vocabulary and, consequently, repetition and enhancement of difficult vocabulary and its definition by means of orthotypographic resources (as shown in Image 1) might be beneficial for vocabulary acquisition (ZÁRATE 2010a, 2014a and 2014b; TAMAYO 2015). More exposition time on screen, most of all when difficult vocabulary is to be read and comprehended, has also proven to be beneficial (NEVES 2009; TAMAYO 2015).



Image 1. Use of orthotypographic resources to highlight difficult vocabulary (TAMAYO 2015)<sup>2</sup>

The third parameter to be taken into account when adapting the linguistic code is subtitle speed. Although subtitle speed is one of the parameters with most significant academic attention from the audiovisual field, discrepancies on this matter when dealing with SDH for children are still obvious. Such discrepancies are due, probably, to the limitations on carrying out research with hearing impaired children and also to the heterogeneity of reading skills and needs of this group. As far back as the 80s Baker *et al.* (1984), Baker (1985) and in the 90s de Linde & Kay (1999) already recommended reducing subtitle speed for SDH for children to about 60 words per minute. In the UK (leading country in Europe regarding SDH), the communications regulator (Ofcom) recommends a subtitle speed between 70 and 80 words per minute (Ofcom 2006). More recently, Lorenzo (2010b) – based on the six second rule generally adopted in the discipline for interlingual subtitling for hearing adults (D'YDEWALLE *ET AL.* 1987 and BRONDEEL 1994) – recommended the eight second rule for the subtitling of two full lines in SDH for children, which is equivalent to about 9 characters per second (cps). A recent reception study (TAMAYO 2015) including 75 Spanish hearing impaired children aged between 8 and 13 concluded that a maximum speed of 12 characters per second – instead of a maximum of 15 characters per second, as recommended by the UNE Standard 153010 in Spain (AENOR 2012) – improves the comprehension when compared to faster subtitles. Despite the attention received in the recent decades, more reception studies focusing on subtitling speed in SDH for children would be

<sup>2</sup>I have a **hypóthesis** / An idea you can prove? (My translation)

welcome in the discipline in order to achieve a general consensus.

Although changes in these three parameters seem straightforward and empirical evidence is clear, some could argue that the recommendation to adapt the linguistic code might be due to a patronising attitude of professionals and scholars. In addition, it might be held that such an adaptation would mean more time to create subtitles and, therefore, an increase of the subtitling rate, which companies might not be open to accept. Nevertheless, it is appropriate to recall that audiovisual products for young audiences are normally (but not always) designed for them and, therefore, take into account their baggage and knowledge. As that is normally the case, the effort needed to adapt subtitles to the reading skills and knowledge of the world of hearing impaired children might not be as significant and, therefore, the increase in working time and rates, as well as the patronising effect of the adaptation, would probably not be that intense.

It is also true, however, that some audiovisual products are designed with a second audience in mind – parents that watch the audiovisual product with their children (SHAVIT 1980 and 1986; ZABALBEASCOA 2000; DE LOS REYES 2015). Such cases are more often seen in relation to cinema films than TV, for children cannot go alone to the theatre but can watch TV alone at home. In cases in which the audiovisual product was created with the double spectator in mind, a greater effort to adapt subtitles to the needs of hearing impaired children might be needed. But, again, not always. Linguistic adaptation for hearing impaired children, as I see it, should be limited most of the time to the adaptation of syntax, certain vocabulary and subtitling speed. No further adaptation should be needed in audiovisual products with a double spectator because, in contrast to the adaptation of the above-mentioned parameters, adapting cultural references, proverbs, idioms, specific vocabulary or other linguistic elements addressed at adults that cannot be understood by children (either hearing or hearing impaired) would be, indeed, patronising.

In addition, a significant part of the audiovisual material created for children is didactic and it might require different subtitling strategies and techniques for children to learn new vocabulary and gain general knowledge of the world. Such didactic programmes might make use of more technical vocabulary that is also unknown for hearing children and might benefit not from the adaptation of such vocabulary, but, for instance, from the use of orthotypographic resources to enhance new vocabulary and its definition (ZÁRATE 2014; TAMAYO 2015), as shown in Image 1.

Although there are still discrepancies and further research is needed to find the best ways to adapt subtitles to the needs of hearing impaired children, research points in a clear direction: subtitle speed, vocabulary and syntax need to be adapted for hearing impaired children. Unfortunately, official guidelines and the market do not seem to have adopted those recommendations yet.

As far as guidelines are concerned, The Canadian Association of Broadcasters (CAB, 2008) recommends not adapting captions for deaf children, arguing that not adapting the SDH will help deaf children to develop their general knowledge of English. The UNE Standard 153010 in Spain (AENOR, 2012) recommends verbatim subtitles and only when subtitle speed is too fast (15 cps or higher, which is the maximum speed recommended by the UNE Standard for the whole hearing impaired community) edited subtitles are recommended. In the leading market, the UK, BBC guidelines (2009) and Ofcom guidelines (2006 and 2015) do make some recommendations that are in line with the research presented above. The National Association of the Deaf in the USA (DCMP, 2003) also recommends longer duration times for SDH for

children when compared to that for adults. However, the lack of systematic research focusing on audiovisual products broadcast with SDH for children does not allow confirmation as to whether such recommendations are followed in the market.

## 2. The future of SDH for children: meeting new challenges

The future challenges in SDH for children are various. On the one hand, we need to address the fact that research focusing on SDH for children is not being implemented in the industry. On the other hand, we need to explore in depth and beyond the linguistic code to consider SDH not just as words that appear on screen but as a visual experience that can be shaped in many ways. Some of the aspects mentioned in the previous section can be very easily addressed in economic and implementation terms: simplification of vocabulary; enhancement of vocabulary aimed to be acquired with resources such as bold, underlining, italics, different fonts or sizes, etc.; reduction of the subtitle speed; simplification of syntactic structures; etc. The first challenge, thus, is to finally see in guidelines and in real practice what research has proven to be efficient. Meeting this challenge, however, means the involvement of many agents. Although an increase of research on those matters is to be seen in recent decades, much more experimental studies are needed to shed light on preferences and best resources to make audiovisual products accessible for hearing-impaired children. But research alone is not enough. Deaf people's organizations should also fight for their rights and demand real accessible products; governments and organizations responsible for the guidelines should take into consideration empirical evidence that has proven that adapting the linguistic code of audiovisual products enhances comprehension; SDH professionals should become aware of such empirical evidence and demand the time and rates needed to create real accessible products; and the industries and governments should invest in protocols and professionals that are able to create real accessible SDH for children.

In the academic field, and given the existing concept of subtitles as purely textual information, the second challenge we are facing is going one step further towards understanding the needs of hearing impaired children. We need to explore the different preferences and expectations of the audience to offer different subtitles for different needs. Projects such as HBB4ALL<sup>3</sup> or even platforms like YouTube<sup>4</sup> offer the viewer the chance to adapt the form, if not yet the content, of subtitles to the needs of the spectator. The broadcast of *Arthur* in the USA is, to date, the only audiovisual product for children reported in the literature (cf. WARD ET AL. 2007) to be broadcast with two streams of subtitles regarding content (near-verbatim and edited captions), which have been developed by the Media Access Group<sup>5</sup>.

Research on this matter, which has mainly focused on the differences in reading static text, and research within the audiovisual context can only offer preliminary results. Literature focusing on the differences between hearing impaired children with and without cochlear implants when reading static text seems to conclude that both subgroups have similar knowledge of the world

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<sup>3</sup> More information about the project is available at <http://pagines.uab.cat/hbb4all/>

<sup>4</sup> More information about how to customise subtitle format at <https://support.google.com/youtube/answer/100078?co=GENIE.Platform%3DDesktop&hl=en-GB>

<sup>5</sup> More information about the project is available at [http://main.wgbh.org/wgbh/pages/mag/getinvolved/questionnaires/q\\_edited-capsarthur.html](http://main.wgbh.org/wgbh/pages/mag/getinvolved/questionnaires/q_edited-capsarthur.html)

and a similar number of words in their vocabulary (CONVERTINO *ET AL.* 2014). Recent studies, however, show that they use syntactical strategies differently to comprehend written content (LÓPEZ-HIGES 2015). In an audiovisual context, recent research concludes that there are no differences in comprehension performance depending on the hearing aid of the children when they are exposed to audiovisual products with purely textual and real SDH as broadcast on TV (TAMAYO 2015). The same study concludes, in fact, that children whose main communication method is oral, when compared to signing children, comprehend the audiovisual subtitled text better. There is still a long way to go to fully comprehend the differences in the needs of the diverse groups of hearing impaired children with regards to SDH, but evidence is clear – not all hearing impaired children have the same reading skills and the linguistic code should be adapted to their needs, abilities and preferences.

The third challenge I would like to focus on is the need to go beyond the linguistic code and explore creative subtitling that involves other visual signification codes. Recent research (MCCLARTY 2012 & 2014; KRUGER *ET AL.* 2016; FOX 2016) seems to go beyond the concept of subtitles as purely written text to understand it as a visual enhancement of the audiovisual product. In the case of SDH for children, Tamayo (2015) concluded that when the auditory information was conveyed by visual rather than textual resources, the effect of the communication method on the degree of comprehension decreases. In other words, using more visual and less textual solutions bridges the gap between oral and signing hearing impaired children regarding comprehension of audiovisual products with SDH. Thus, subtitles that rely more on the visual and less on the textual are more inclusive. Moreover, making the auditory visual seems to benefit not only comprehension, as shown in a recent study which reveals that creative subtitles may increase audience immersion in a film (KRUGER *ET AL.* 2016).

As mentioned above, adapting the linguistic code is vital, but there is also room for creative solutions (as seen in Image 2 and Image 3) that not only saves space (characters) for subtitling, but can also let subtitles be more in line with the way deaf children tend to communicate, i.e. visually. Creative solutions that make use of visual resources might not only diminish the formal restriction of space and time in subtitling (which is one of the main restrictions in the practice), but they could also make children more engaged with reading and motivate them. Making subtitled audiovisual products attractive might improve enjoyment in reading and might encourage children to venture into other types of reading and motivate them to keep learning and discovering, while helping to decrease social differences between oral and signing children. Although previous attempts to prove that partially visual subtitles improve enjoyment have been made, solid conclusions on this matter could not be drawn, probably due to the lack of familiarization and the short exposure time to new creative subtitles in children (TAMAYO 2015). In the case of SDH for children it could be argued, however, that visual solutions might focus too much on enjoyment and comprehension and not enough on language learning. But this accusation of patronising might be short on arguments. If the original soundtrack was developed and conceived to achieve enjoyment in hearing children, why should we add another function (language learning) to the target product with SDH? Subtitles have proven to enhance second language acquisition, in part because they are linked to an enjoyable activity that can make language learning incidental, as it is in natural language learning (NEUMAN & KOSKINEN 1992;

DÍAZ CINTAS & FERNÁNDEZ CRUZ 2008; PAVESI & PEREGO 2008). If we put too much pressure on learning we could be losing motivation.



Image 2. Use of emoticons to indicate the character is off screen shouting (TAMAYO 2015)



Image 3. Use of emoticon to indicate the emotion (perceived only acoustically) of the character on the left (TAMAYO 2015)<sup>6</sup>

The past and present of research in SDH for children has primarily focused on the linguistic code. The future should also focus on other codes: the musical code, the sound effects code and the paralinguistic code. Once we have overcome the barrier of how to make the words comprehensible we need to focus on how to make the audible comprehensible through the visual. In this sense, Neves (2005 and 2009), Lorenzo (2010a) and Civera and Orero (2010) suggest

<sup>6</sup>I know. (My translation)

that the use of emoticons might be effective in the explicitation of emotions and paralinguistic information while Hersh and Ohene-Djan (2010: 715) go beyond emoticons and suggest even the inclusion of facial expressions of real people. More recent publications such as Foerster (2010), Künzli (2011), McClarty (2012 and 2014), Tamayo (2015), Kruger et al. (2016) and Fox (2016) also advocate for the use of creative subtitling, which can adopt different forms, depending on the audience, the audiovisual product, the audiovisual genre or the function of the subtitles, for instance.

In a recent publication, Tamayo (2015) explores the visual in different ways: using emoticons to explicitate emotions (Image 3), using avatars for character identification (Image 4) and using emoticons (Image 2) and drawings (Image 5) to explicitate sounds. As Künzli (2011) points out, the acceptance of some innovative elements might depend on various factors, such as age or education level.



Image 4. Use of avatars to identify speaker off screen (TAMAYO 2015)<sup>7</sup>



Image 5. Use of drawing to explicitate sound effects in the upper-right corner (TAMAYO 2015)

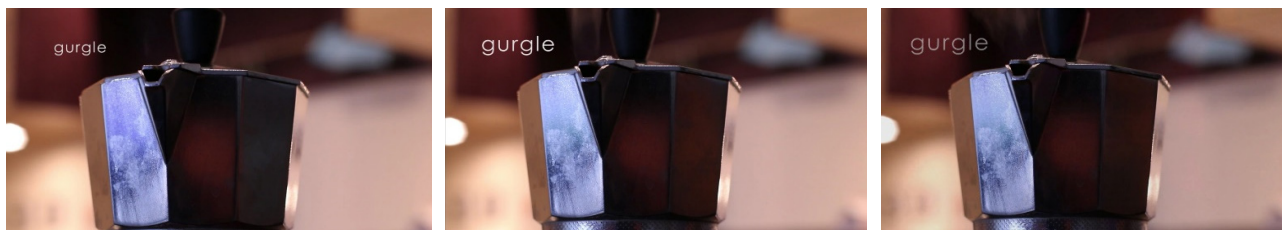
This future challenge, the use of creative subtitles that adapt the auditory in different visual ways, has already been met in products designed for adults, although its practice is still very occasional. The UK is leading this shift. The concept of accessible filmmaking (Romero-Fresco, 2013), although still recent and underexplored, is already gaining importance in the country<sup>8</sup>. The short film *Thursday Morning* (Carmen Camacho, 2014), for instance, makes use of

<sup>7</sup>I said the first thing that came to my mind. / They won't notice. (My translation)

<sup>8</sup>The University of Roehampton offers an M.A. in Accessible Filmmaking which is undoubtedly meeting the challenge by bringing accessiblitors and film producers and directors closer together.



transparency, different font sizes or different positions (see Image 6) that, far from disturbing or just captioning the sound, enhances the viewing by making SDH a significant part of filmmaking and the production process, rather than a postproduction activity or a necessary evil.

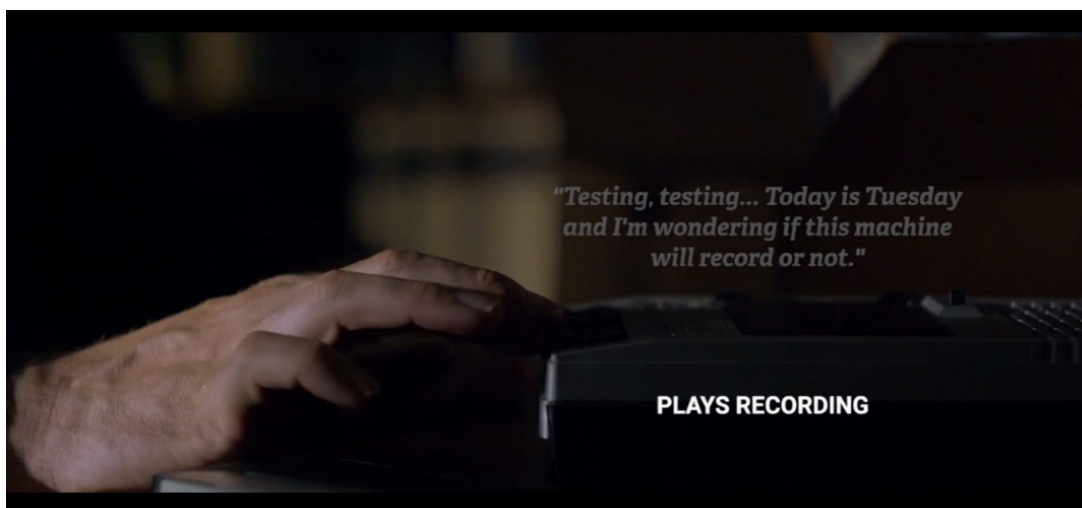


**Image 6. Use of different sizes and transparency to explicitate sound effects (Carmen Camacho, 2014)**

More recently, Romero-Fresco and Fox designed creative subtitles for *Notes on Blindness* (Peter Middleton and James Spinney, 2016), a film about blindness in which the concept of accessible filmmaking goes far beyond captioning and audio description to offer a sensory experience. Image 7 and Image 8 illustrate the use of blurriness, colours, positioning, transparency or font type, among other resources, that could be used not only to make the auditory visual, but to offer the possibility of enjoying a purely visual product with its own full meaning, making subtitles an essential part of the visual identity of the film.



**Image 7. Use of blurriness, colour and positioning in accessible filmmaking. *Notes on Blindness* (Peter Middleton and James Spinney, 2016)**



**Image 8. Use of transparency, positioning and formats in accessible filmmaking.**

*Notes on Blindness (Peter Middleton and James Spinney, 2016)*

These approaches are not yet to be seen in accessible filmmaking for children, at least in broadcast material, but they could serve as a model and inspiration for more peripheral subfields in audiovisual accessibility, for such creative solutions could result in the benefit of self-motivation to read in hearing impaired children. The creative subtitler McClarty has attempted to do so in the film entitled *Camino* (Javier Fesser, 2008) by making use of font types and visual effects that could be linked to character identity in a film played by children as can be seen in Images 9 and 10. As explained earlier, creative subtitles could help to enhance the visual identity of the film. In the following examples (Image 9 and Image 10), font types and visual effects are clearly linked to the identity of the character they are referring to and, thus, might help compensate the missed information through paralinguistic features of character identity.



Image 9. Use of font types to match children's identity, by McClarty

There is no doubt that the concept of accessibility goes one step further with these practices, as they help to create a unique experience by offering visual solutions that become part of the visual identity of the film and by reflecting on the sensory impaired audience directly in the preproduction, production or in the postproduction phases of filmmaking. These practices and their positive reception in society manifestly demonstrate that we need a renewed concept of

accessibility, one that explores the best ways of enhancing audiovisual products.

### **3. Conclusions**

Although peripheral, SDH for children is a growing field of study that is eager for creative solutions and innovative research. The past and present of research in SDH for children has mainly focused on the linguistic code and subtitling speed. But the quantity of empirical data is not enough, we still need to keep furthering our understanding of how hearing impaired children read in an audiovisual context and keep researching about the different needs and preferences of the audiences. But we also need to go one step further and address underexplored areas in SDH for children, such as the reception of visual-based, rather than text-based, solutions. In the industry, there is an urgent need for guidelines and practice to reflect the special needs of the audience by means of resources and adaptations that have already proven to be efficient.

We have been long immersed in a new shift in AVT. We already watch audiovisual products when, where and how we want. New projects are showing that some characteristics might be worth exploring further in the future and we are now seeing a more coherent and cohesive way of working to assure accessibility. Moreover, we are experiencing an evolution of accessibility as an aesthetically enhancing practice. It is about time that this shift reached under-researched subfields in audiovisual accessibility such as SDH for children.

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## **Filmography**

*Notes on Blindness* (Peter Middleton and James Spinney, 2016)

*Thursday Morning* (Carme Camacho, 2014)