Text-to-speech audio description of voiced-over films. A case study of audio described *Volver* in Polish

Agnieszka Szarkowska
University of Warsaw, Poland
Anna Jankowska
Jagiellonian University, Krakow, Poland

Abstract

Given that the production (esp. recording) of AD is quite costly, there are not very many audio described films available on the Polish market. Moreover, there is practically no audio description to foreign films in Poland since it has been assumed that blind and partially sighted audiences will not manage to assimilate multiple soundtracks (original soundtrack in foreign language, voiceover and audio description). In order to overcome the cost hurdle, we propose text-to-speech audio description (TTS AD) as a cheaper alternative to traditionally produced AD. We will demonstrate how TTS AD can be combined with voice-over to produce AD to foreign films on the example of Volver *by Pedro Almodovar. We will also present the results of a survey conducted among a group of blind and partially sighted audience after a screening of voiced-over* Volver *with TTS AD. The results of the survey demonstrate that the participants are quite open to the idea of TTS AD both as an interim solution – until there are more audio described films available – and as a permanent solution.*

Introduction

Back in the 1990s, the map of audiovisual Europe was divided into dubbing, subtitling and voice-over countries (Gottlieb 1998). With subtitles in the cinemas and television voice-over for both fiction and non-fiction audiovisual productions, Poland seems to be an exception in Europe's audiovisual landscape.

Television voice-over is at the same time an advantage and a disadvantage for the blind and partially sighted audience. On the one hand, unlike subtitles, voice-over provides them with the translation of the foreign dialogue. Unfortunately, at the same time it has been assumed that due to multiple soundtracks (the original soundtrack in a foreign language, the voice-over and the audio description), it is pointless – if not impossible – to combine voiced-over foreign films with audio description (AD). Therefore, there is practically no audio description to foreign films in Poland. This stands in stark contrast with the number of foreign language films screened in cinemas, broadcast on TV or released on DVD/Blue-ray. Last but not least, as declared on many occasions, blind and partially sighted people, just like a sighted audience, want to watch foreign films.

In order to audio describe a foreign film, one needs to combine the AD script with either audio subtitling or voice-over. Since an overwhelming majority of films in Poland are voiced-over, in our paper we will present how this AVT modality can be combined with audio description. Given that the production (esp. recording) of AD is quite costly, there are not very many audio described films available on the Polish market. In order to overcome the cost hurdle, we propose text-to-speech audio description (TTS AD) as a cheaper alternative to traditionally produced AD. We will demonstrate how TTS AD can be combined with voice-over to produce AD for foreign films on the example of *Volver* by Pedro Almodóvar. Finally, we will also present the results of a survey conducted among a group of blind and partially sighted audience after a screening of voiced-over *Volver* with TTS AD.

Polish audiovisual landscape

Until recently, Europe has traditionally been divided into dubbing, subtitling and voice-over countries (Gottlieb 1998). However, the recent findings of the Media Consulting Group (2007) show that this classical division is a simplification of a far more complex situation. We no longer can, if we ever could, talk about strictly dubbing, subtitling or voice-over countries since most of them employ all three methods in various contexts.

With dubbing, subtitling and voice-over existing side by side, Poland seems to be an excellent example of this complexity. The most popular AVT modality in Polish cinemas is subtitling. For young audience, however, dubbing is preferred. Nevertheless, movies considered to be suitable for audiences of any age (e.g.

Alice in Wonderland, Harry Potter, Shrek) are often made available both dubbed and subtitled. Voice-over is without any doubt the predominant modality in television broadcasts. It is used for both fiction and non-fiction audiovisual products, the only exception being animated and non-animated productions for children and some animated movies for the general audience (e.g. *Shrek*). The choice, however, is not always obvious – the BBC television series *The Chronicles of Narnia* was broadcast with voice-over, whereas the motion picture *The Chronicles of Narnia* by Walt Disney Pictures was dubbed. DVDs and Blu-ray usually contain both voice-over and subtitles, or dubbing and subtitles.

Such an audiovisual landscape influences many areas – one of them is accessibility for the blind and partially sighted. While cinema with subtitles is virtually inaccessible to audiences with visual impairments, one could argue that television voice-over has the advantage of at least providing them with the translation of the foreign dialogue. In the long run, however, this seems to be a drawback rather than an advantage for the blind and partially sighted. Currently there is no audio description on Polish television mostly because the digital turn is yet to come.[2] Unfortunately, the chances of making television fully accessible for the visually impaired are scarce since it has been assumed that it is impossible to provide audio description for voiced-over programs. In a country with a high import of foreign television programmes, where most – if not all – of them are voiced-over, this virtually means that television will not be accessible, or it will be accessible in a very limited way, via audio described programs produced in Polish.

Audio description in Poland – development and challenges

Though to many it may come as a surprise, audio description was launched in Poland already in the late 1990s. As described by Jankowska (2008: 242), the project was initiated by Andrzej Woch, a blind employee of the Jagiellonian University in Krakow, and funded by the Central Library of the Polish Association of the Blind (*Polski Związek Niewidomych*, PZN). The so-called *typhlo-films* involved providing additional commentary for twenty films on VHS tapes, making them available to the blind and partially sighted in the Central Library. As opposed to today's audio description, freezing the image whenever the additional commentary did not fit in the gap between the dialogues was a common practice in typhlo-films. It is highly probable that due to this feature the idea of describing films for the blind and partially sighted did not manage to force its way to broad social consciousness until some years later. Nevertheless, it should be noted that within the typhlo-film project additional commentary for the blind was provided also for foreign voiced-over films. This, until recently, was the only attempt at combining audio description with voiced-over films.

The first public audio described cinema screening, which took place on 27 November 2006 in Białystok, can be regarded either as a revival or as the true

beginning of audio description in Poland. The audio description for this first screening was read live by an audio describer who was sitting with the audience and reading the script with a microphone in his hand, so that AD could be heard by all the spectators. Ever since, the only more or less regular screenings of audio described films take place in Warsaw as a part of the project *Cinema beyond silence and darkness* carried out by the *Foundation for Children Help on Time* (*Fundacja Dzieciom Zdążyć z Pomocą*).[1] Irregular screenings take place in other larger cities, but they are rather one-off events very often organized by enthusiasts and unfortunately almost as often by amateurs.

Until very recently audio described programs have been available only online. Polish public television (TVP) audio described some of its programs (about 74 hours) and made them available online on its website. The audio described programs include two feature films, five TV series and one series for children. In order to access audio described films, one needs to receive a special password which can be obtained from the Polish Association of the Blind – free of charge for its members or for a fee for non-members. As to DVDs, at the moment of writing this article there are only 12 discs with AD available on the Polish market.

This situation will hopefully improve since on 1 July 2011 a new law obliging all broadcasters to provide AD and SDH came to life. Unfortunately at this point it is really hard to predict when and if the broadcasters will provide accessibility services. The law stipulates that 5% of quarterly broadcast (commercials and tv-shopping excluded) in 2011 and starting from 2012 about 10% of quarterly broadcast (10% relates to AD, SDH and sign language interpreting taken together)[3]. It also allows the broadcasters to apply to the National Broadcasting Council for individual permission to lower the percentage of accessibility services. In the case of not providing the services, the law provides for a fine up to 10% of yearly income. From what can be observed now, broadcasters are becoming interested in providing accessibility services. Although because of financial reasons they are more willing to provide SDH than AD due to their programmes. At the time of writing this article, the only broadcaster to provide AD was TVP – however it should be mentioned that they screened one of the series that has been made available on-line since at least 2008.

It should be stressed that – apart from typhlo-films – all the above mentioned films and TV series were either originally filmed in Polish or were dubbed into Polish. As we have already explained, it has been assumed that due to multiple soundtracks (the original soundtrack in a foreign language, the voice-over/audio subtitling and the audio description), audio description cannot be combined with foreign films screened with voice-over or audio subtitles. As a result, for the time being there are no audio described foreign language films, which is especially striking when compared with the amount of foreign language productions present on TV or released on DVD/Blu-ray. Above all, it also collides with the preferences and capabilities of the blind and partially sighted people who, as declared on many occasions, want to watch foreign films just like the sighted audience.

This is also confirmed by our findings from a pilot study conducted prior to launching the TTS AD project. In February 2010 we asked a group of 17 pupils, aged 12 to 18, from the Special Educational Centre for Blind and Partially Sighted Children in Krakow, about their television viewing preferences as well as about their opinion on combining audio description with voiced-over/audio subtitled foreign programs. When asked about the audio described films and series they would like to watch, 53% preferred foreign productions, 29% opted for Polish and 18% did not prefer either one of the options. The views on combining audio description with voice-over or audio subtitling were especially interesting, as 87% of the interviewed pupils declared that multiple soundtracks would not be an obstacle to film enjoyment.

Unfortunately, reluctance towards providing audio description to foreign films is not the only challenge that needs to be faced in Poland. After the initial enthusiasm, the lack of financing inhibits the implementation of audio description.

Previous studies on the use of synthetic speech by the visually impaired

The invention of synthetic speech has been an important milestone in the everyday lives of many visually impaired people, who can now benefit from a host of text-to-speech (TTS) applications both in their work and for leisure activities. There are numerous applications harnessing the power of text-to-speech systems for people with visual impairments: from GPS-based mobility aids, screen reading software for web browsing, email, etc., educational tools, such as TTS dictionaries and textbooks, to entertainment, for instance audio subtitles in audiovisual materials (see Freitas and Kouroupetroglou 2008 in Cryer and Home 2008: 5).

Synthetic speech enables visually impaired people to access information without relying on other people reading it to them or waiting for it to be brailled (Garcia 2004; Llisterri, Fernàndez, Gudayol, Poyatos and Martí 1993), thus allowing for more independence. This is particularly important in the context of receiving financial information (Thompson, Reeves and Masters 1999).

It is thanks to a relatively low cost of synthetic speech that the number of materials made accessible to the blind and partially sighted people is on the rise. A good example is the RNIB service known as *Talking Books*.[4] RNIB research on user attitudes towards synthetic speech in *Talking Books* reveals that while most users prefer a human narrator for leisure reading, they felt synthetic voice "would be acceptable for reference, instructional and non-fiction books" (Cryer and Home 2009: 5). It has also been found that the attitude towards synthetic speech varied greatly and largely depending on previous experience with TTS applications. Many users stressed that – as opposed to a human narrator – synthetic speech allows them to choose their own accent-free voices with

neutral emphasis; this, in turn, makes it possible for users to "add their own interpretation" (Cryer and Home 2009: 6).

Synthetic speech has also been used to read daily newspapers to blind and partially sighted people, as reported in a study by Hjelmquist, Jansson and Torrell (1990). The four-month study revealed that "whilst initially many users had doubts about the system, and found synthesised speech difficult to understand, all reported 'getting used to it' after a few hours of listening" (cited in Cryer and Home 2008: 6). In fact, the more experience users have with synthetic speech, the better their comprehension performance is (Rhyne 1982; Venkatagiri 1994).

Apart from previous experience with synthetic speech, other factors that may influence comprehension of text-to-speech messages include the presentation rate (Hjelmquist, Dahlstrand and Hedelin 1992; Koul 2003), the voice intelligibility (Papadopoulos et al. 2009) and the presence of background noise (Koul and Allen 1993). Last but not least, it is the quality of synthetic speech – especially its intelligibility and naturalness – that plays a crucial role both in comprehension and attitude towards text-to-speech systems. It needs to be noted that some of the studies cited here were conducted several years ago and that the quality of synthetic speech has improved considerably since then.

Text-to-speech audio description

Over the past few years audio description became fashionable. Sadly, despite the growing enthusiasm and demand for audio description, the number of audiovisual products accessible to the visually impaired is hardly sufficient.

Text-to-speech audio description (TTS AD) was proposed as a possible option to increase the output of audio described programs through cost reduction. As noted by Szarkowska (2011: 145) "TTS AD offers unequalled cost-effectiveness in terms of AD production in comparison with conventional methods of producing audio description as it does not require the recording of the AD script (for pre-recorded AD) nor does it incur any human labour costs for the reading out of the AD script (for live AD)". In fact, the human labour costs mentioned above are reduced to the cost of creating and adapting the audio description script to the demand of TTS AD. Apart from all the pitfalls of traditional AD script writing, the TTS AD process is not excessively complicated (see Szarkowska 2011 for details).

In order to create text-to-speech audio description, first an AD script is written and then, using subtitling software, it is synchronised with the film. Put simply, synchronizing the AD script with a film means preparing a list of AD chunks in the form of subtitles, each consisting of text and time codes. From the technical point of view, the process differs from preparing the traditional subtitles only by the fact that the text is to appear in the gaps between the dialogues and not simultaneously with them. Later on, the text file is read by speech synthesis software while the film is played on a multimedia player, or the AD script can be recorded and mixed with the multimedia file.[5]

The TTS AD project

The scarcity of audio description concerns not only the amount but also the range of audiovisual products. On the one hand, due to the costly production process, there are simply not enough audio described products. On the other hand, the reluctance towards audio describing films with voice-over/audio subtitling results in a lack of foreign films with audio description.

The goal of the TTS AD project is to research the possibility of increasing both the number and the range of audio described films through investigating the feasibility of combining TS AD with audiovisual programs broadcast with dubbing, subtitling and voice-over as well as programs filmed originally in Polish.

The TTS AD project is being developed at two Polish universities – the University of Warsaw and the Jagiellonian University of Krakow. The five-stage study includes the implementation of TTS AD in:

1) a Polish feature film (see Szarkowska 2011),
2) a foreign feature film with Polish dubbing (unpublished MA thesis and PhD dissertation)
3) a foreign feature film in English combined with voice-over in Polish (discussed in this paper)
4) a foreign feature film in English combined with audio subtitles in Polish (work in progress),
5) a documentary in English combined with voice-over in Polish (work in progress).

It is our contention that the ultimate purpose of audio description is to serve the blind and the partially sighted community, therefore reception studies are the core of our research. In order to find out the opinion of the blind and partially sighted viewers, we conduct a survey after every screening. One of the most important research issues is whether visually impaired viewers would accept TTS AD either as a permanent or interim solution. Having completed three out of the five stages, we can say that so far TTS AD has proved to be an acceptable solution for the visually impaired community, as 94% of our viewers accept TTS AD as an interim solution and 63% are willing to accept it as permanent solution.

Rationale

The film selected for the purposes of this research was *Volver*, a 2006 Spanish drama directed by Pedro Almodóvar. This is how Peter Bradshaw described it in his *Guardian* review:

> *Volver* (in English, *Coming Home* or *Coming Back*) is a gripping melodrama inspired by the trash TV that is a soundtrack to its characters' lives. Penélope Cruz is Raimunda, a hard-working woman with a teenage daughter, Paula, and a feckless, layabout husband. […] Raimunda's family life shatters with one terrible act of violence, and there

is a secret about her late mother Irene that surfaces when Irene returns from beyond the grave to make contact with her astonished daughters.

The film rendered itself quite well for audio description. It nevertheless presented the audio describer with a number of problematic issues, such as the vivid imagery of picture composition, insufficient time to convey important information, culture specificity of certain elements presented on screen (food, places or signs in Spanish) and the intensity of emotions expressed in the characters' faces, especially in close-ups. Given that several scenes featured at least two female characters, whose original voice was covered by voice-over, the issue of speaker identification was particularly pertinent. In order to solve this problem, the names of the characters were incorporated in the AD script whenever it was deemed necessary.

As the film was already available on DVD with Polish voice-over translation, it was decided that this version would be used in the study, complemented with the AD script read by text-to-speech software. For the project, the speech synthesiser Ivona (Ivo Software) was used together with the synthetic voice Krzysztof (Loquendo).

Audio subtitling vs. voice-over

Volver was one of the few foreign (i.e. non-English speaking) films audio described in the UK and released on DVD, so the AD script had to be accompanied by a translation of dialogues, which was done through audio subtitles read out by a female narrator. The choice of the female voice most probably stemmed from the nature of the film, where women play the most important characters. The AD script, in contrast, was read by a male voice talent. This solution enabled the audience not to confuse the AD script with the dialogues. However, the presence of one female voice for all the (mainly female) characters and the poor quality of the recording of audio subtitles, which drowned out the original Spanish voices so that they were hardly audible, resulted in viewers having difficulties recognizing which character was speaking as many scenes in the film feature a few women talking. As a result, the overall quality of the AD was perceived as poor and the audio described film met with fierce criticism from the British visually impaired community (Leen Petre from RNIB – personal communication).

It is worth noting at this point that the British audience is not used to hearing a translation of a film being read out to them on top of the original voices. Polish viewers, in contrast, have had many years of experience of listening to the voice-over translation of film dialogues on television, which makes them more accustomed to this AVT modality.

Audio subtitling and voice-over seem to be two audiovisual translation modalities which have a lot in common. First of all, they both consist of a translation of the dialogue list of a foreign or multilingual film. Secondly, the

translation is read out to the target audience – the main difference being that in the case of voice-over, the target audience is simply conceived of as mainstream sighted population, whereas in audio subtitling it comprises a much smaller group of visually impaired people. Thirdly, the translation is usually read out by one voice talent (typically male in Poland), while the voices of the original actors can still be heard in the background though their volume has been turned down. Polish voice-over is done in a professional recording studio, which usually guarantees good sound quality. Finally, apart from the different target audiences envisaged at the production stage, audio subtitling is created together with the AD script and thus allows for some flexibility in combining the two tracks, whereas in the case of Poland, AD would be added to a voiced-over film at a later stage, which makes it virtually impossible to introduce changes to the pre-recorded voice-over so that it can be seamlessly interwoven with the AD script.

Research questions

The key objective of the present study was to determine whether visually impaired viewers would find it acceptable for text-to-speech software to read AD scripts to voiced-over feature films. To address this objective, the following three research questions were formulated:

1) Which AD voice would the visually impaired prefer if they had a choice between a human voice and a synthetic voice?
2) Would TTS AD be acceptable as an interim solution, until a system has been agreed to have a human voice reading out the AD?
3) Would TTS AD be acceptable as a permanent solution, next to AD read by a human voice?

Procedure

The screening took place at an informal meeting for blind and partially sighted people organised by the Foundation Chance for the Blind (*Fundacja Szansa dla Niewidomych*) in Jachranka, near Warsaw, on 24 April 2010.

The audience was first invited to watch the film and after the projection they were asked to answer 13 questions, which were read out by sighted volunteers. The first part of the questionnaire was meant to establish participants' age, education, degree and type of sight loss (congenital/acquired). The second part aimed to find out their views on the use of speech synthesis in AD, their previous experience with audio description and their familiarity with text-to-speech software.

Sample

After the screening, a total of 20 people were interviewed: 14 women (70%) and 6 men (30%). As shown in Table 1, five of them were blind (25%), 13 were partially sighted (65%) and two of them (10%) were sighted.

Table 1. Participants by age and degree of sight loss

Age bracket	Blind	Partially sighted	Sighted
18-25	-	3	-
26-39	2	7	1
40-59	3	1	-
60-74	-	2	1
Total	5	13	2

Most participants (12 people, 67%) had a congenital sight loss, while one in third (8 people, 33%) acquired their sight loss at a later stage in life. Both the degree and type of sight loss was determined based on self-declarations of the participants.

12 out of 20 participants (67%) said they use text-to-speech software regularly, either at home or at work. Only 11 people (55%) had seen some films with audio description before, while nine of them had no prior experience of AD.

Results

When asked about what voice they would prefer to read AD scripts, half of the participants (10 people, 50%) declared their preference for a human voice. Perhaps somewhat surprisingly, one person preferred a synthetic voice to read AD, whereas many others stated that this depends on the type of programme (6 people, 30%). Three participants (15%) were not sure and would have preferred to have more experience with AD to make a more informed choice.

In terms of accepting TTS AD as either an interim or permanent solution, most participants were in favour of both (see Table 2). Some expressed their concerns whether the introduction of TTS AD would not result in eliminating human voices and substituting them completely with synthetic voices.

Table 2. The acceptance of TTS AD as an interim or permanent solution

	Interim	Permanent
Yes	95%	70%
No	-	15%
Don't know	5%	15%

n=20

Overall, all participants apart from one were in favour of introducing TTS AD as an interim solution, especially if it meant more audio described programmes accessible to people with visual impairments. The participants were slightly more sceptical, however, about the introduction of TTS AD as a permanent solution: while 70% of them support the idea, one in three is either against or unsure.

A closer examination of the preferences for TTS AD as an interim or permanent solution based on the degree of sight loss has shown a slight tendency on the part of blind participants to be more supportive of the idea (see Table 3).

Table 3. The acceptance of TTS AD as an interim or permanent solution by degree of sight loss

	TTS AD as interim			TTS AD as permanent		
	yes	no	don't know	Yes	No	don't know
Blind	100%	-	-	80%	-	20%
Partially sighted	92%	-	8%	70%	15%	15%

n=20

This may be due to the fact that partially sighted viewers can to some extent rely on their eyesight to watch films, while blind viewers are more dependent on AD and thus want more audio described films regardless of the voice reading the script.

In terms of gender, it is female participants who appear to be more inclined to accept TTS AD than men (Table 4).

Table 4. The acceptance of TTS AD as an interim or permanent solution by gender

	TTS AD as interim			TTS AD as permanent		
Gender	yes	no	don't know	Yes	no	don't know
Women	100%	-	-	79%	14%	7%
Men	83%	-	17%	50%	16%	34%

n=20

There seem to be no clearly discernible correlations between the preference for TTS AD as an interim or permanent solution in terms of participants' age (Table 5).

Table 5. The acceptance of TTS AD as an interim or permanent solution by age

	TTS AD as interim			TTS AD as permanent		
Age	yes	no	don't know	Yes	no	don't know
18-25	100%	-	-	67%	33%	-
26-39	90%	-	10%	60%	20%	20%
40-59	100%	-	-	75%	-	25%
60-74	100%	-	-	100%	-	-

n=20

Interestingly, participants from elder age groups seem to be slightly more willing to see TTS AD as a permanent solution than those from younger age groups in the study. Naturally, the sample is too small to draw any further reaching conclusions.

As stated above, previous studies on synthetic speech revealed that the experience and exposure to text-to-speech software may positively influence the attitude towards it. This pattern seems to be confirmed in our study (Table 6).

Table 6. The acceptance of TTS AD as an interim or permanent solution by the use of TTS software

	TTS AD as interim			TTS AD as permanent		
	yes	no	don't know	Yes	no	don't know
TTS users	100%	-	-	75%	8%	17%
Not TTS users	86%	-	14%	57%	29%	14%

n=20

TTS users are more likely to accept TTS AD both as an interim and as a permanent solution when compared to those who have had no regular experience with speech synthesis software. This pattern is more noticeable with regard to TTS AD as a permanent solution.

A similar trend can be observed when it comes to the preference for either human or text-to-speech narrator (Table 7).

Table 7. The preference for human/synthetic audio describers by the use of TTS software

	TTS users	Not TTS users
Human	33%	64%
Synthetic	-	12%
Depends on the programme	42%	12%
Don't know	25%	12%
Total	12 people	8 people

n=20

In the study, people who do not habitually use text-to-speech software were more likely to prefer human narrators, while regular TTS users were more open to the idea that TTS AD may be a good solution for some types of programmes, but not for all (42% stated the choice of the human/synthetic voice depended on the programme). This issue will be pursued in further stages of our research when we investigate the application of TTS AD in non-fiction genres, such as a documentary and an educational programme.

Conclusion

Although we acknowledge that further research involving a wider range of films and more varied viewers is needed all in all, the present study not only reveals a considerable potential of text-to-speech audio description but also the acceptance of visually impaired viewers of audio description for voiced-over films. Together with the results of other parts of the project, it seems clear that TTS AD is acceptable for the majority of the visually impaired viewers interviewed with a surprisingly high number of people also accepting it as a permanent solution.

Acknowledgements

This work has been supported by the research grant 'Text-to-speech audio description' no. N N104 148038 of the Polish Ministry of Science and Higher Education for the years 2010-2011 and research grant 'Audio description with text-to-speech software' from the Faculty of Philology of the Jagiellonian University in Krakow.

Many thanks to Marzena Chrobak, the Polish translator of the *Volver* screenplay published by the ZNAK publishing house, for letting us use several fragments of her translation in the AD script. We also thank Joanna Pietrulewicz and Agnieszka Walczak for their help in administering the questionnaire after the screening. Last but not least, we owe our warmest thanks to Marek Kalbarczyk for inviting us to Jachranka and allowing us to carry out the study.

NOTES

1 Special screenings used to take place twice a month, on selected days. So far 21 films, with both audio description and subtitles for the deaf and hard of hearing have been presented, however the project was suspended for some months due to lack of financing.

2 Things in Poland have just changed and AD has been introduced on Polish television right after writing this article.

3 10% includes audio description, subtitling for the hearing impaired and sign language interpreting taken together.

4 In 2009, the RNIB Talking Books library had over 16,000 titles. According to Cryer and Home (2009: 8), "it takes an average of five days to record a Talking Book, and around 100 new Talking Books are added to the library each month". It is believed that synthetic speech "may significantly reduce the time required to produce new books, which may mean more books could be produced" (*ibidem*).

5 Initially it was impossible to change the reading speed and the volume, which were set at the same level throughout the film. Because of that at times audio description was not audible or it did not convey as much information as needed. Now those problems are solved thanks to some advanced features of the text-to-speech software which allows the control and the adjustment of the volume and the reading speed to the on-screen action.

REFERENCES

Cryer, H. and Home, S. 2008. "Exploring the Use of Synthetic Speech by Blind and Partially Sighted People." RNIB Centre for Accessible Information, Birmingham: Literature review #2.

Cryer, H. and Home, S. 2009. "User Attitudes towards Synthetic Speech for Talking Books". RNIB Centre for Accessible Information, Birmingham: Research report #7.

Bradshaw, P. 2006. "Volver." *The Guardian*, 25 August 2006. Available at: http://www.guardian.co.uk/film/2006/aug/25/drama.pedroalmodovar

Cryer, H. and Home, S. 2009. "User Attitudes towards Synthetic Speech for Talking Books." RNIB Centre for Accessible Information, Birmingham: Research report #7.

Freitas, D. and Kouroupetroglou, G. 2008. "Speech Technologies for Blind and Low Vision Persons." *Technology and Disability* 20, 135-156.

Garcia, L.G. 2004. "Assessment of Text Reading Comprehension by Spanish-Speaking Blind Persons." *British Journal of Visual Impairment* 22 (1): 4-12.

Gottlieb, H. 1998. "Subtitling". In *Routledge Encyclopedia of Translation Studies,* Baker M. (ed.), 244-248. London and New York: Routledge.

Hjelmquist, E., Jansson, B. and Torell, G. 1990. "Computer-Oriented Technology for Blind Readers." *Journal of Visual Impairment and Blindness* 17: 210-215.

Jankowska, A. 2008. "Audiodeskrypcja, szczytny cel w tłumaczeniu." *Między Oryginałem z Przekładem* (14): 225-246.

Media Consulting Group. 2007. "Study on Dubbing and Subtitling Needs and Practices in the European Audiovisual Industry. Final Report", Media Consulting Group, Paris / Peacefulfish, London. http://ec.europa.eu/information_society/media/overview/evaluation/studies/index_en.htm

Papadopoulos, K. et al. 2009. "Perception of Synthetic and Natural Speech by Adults with

Visual Impairments." *Journal of Visual Impairment and Blindness* 103 (7): 403-414.

Rhyne, J. M. 1982. "Comprehension of Synthetic Speech by Blind Children." *Journal of Visual Impairment and Blindness* 10 (10): 313-316.

Szarkowska, A. 2011 "Text-to-Speech Audio Description. Towards wider availability of AD." *Journal of Specialised Translation,* 142-162.

Thompson, L., Reeves, C. and Masters, K. 1999. "In the Balance: Making Financial Information Accessible." *British Journal of Visual Impairment* 17 (2): 65-70.

Venkatagiri, H. S. 1994. "Effect of Sentence Length and Exposure on the Intelligibility of Synthesised Speech." *Augmentative and Alternative Communication* 10: 96-104.

The questionnaire

1. Age
- ☐ 18-25
- ☐ 26-39
- ☐ 40-59
- ☐ 60-74
- ☐ 75+

2. Gender
- ☐ Female
- ☐ Male

3. Are you
- ☐ Blind
- ☐ Partially sighted
- ☐ Sighted

4. Type of sight loss
- ☐ Congenital
- ☐ Acquired

5. Do you use text-to-speech software regularly at home or at work?
- ☐ Yes
- ☐ No
- ☐ Don't know

6. Have you seen any films with audio description?
- ☐ Yes
- ☐ No
- ☐ Don't know

7. If you had a choice, which AD voice would you prefer?
- ☐ A human voice
- ☐ A synthetic voice
- ☐ Depends on the film/programme
- ☐ Don't know / doesn't matter

8. Would you accept TTS AD as an interim solution, until a system has been agreed to have a human voice reading out the AD?
- ☐ Yes
- ☐ No
- ☐ Don't know

9. Would you accept TTS AD as a permanent solution, as an alternative to a human voice?
- ☐ Yes
- ☐ No
- ☐ Don't know

10. Did you like the fact that the AD script was read by a male voice – just as the *lektor*'s voice?

□ Yes, I liked it
□ No, I'd prefer to have a female voice
□ Don't know

Why?

11. Was it easy to decide who was speaking?

□ Yes, it was quite easy
□ No, it was quite difficult
□ Sometimes it was difficult
□ Don't know

Why?

12. Did you like the fact that the AD script included fragments of Almodovar's screenplay and that AD was not only a description of what was going on on the screen, but it also included extra information, such as the description of the main characters at the beginning of the film?

□ Yes
□ No
□ Don't know

Why?

13. What did you like and what did you not like in the AD you have just seen? Do you have any comments?