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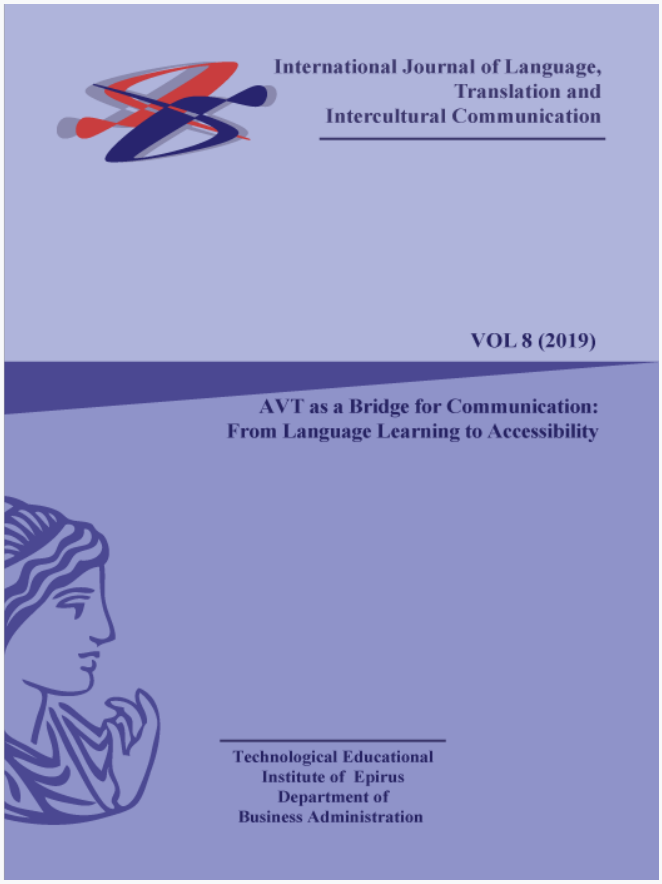
AVT as a Bridge for Communication: From Language Learning to Accessibility



Accessibility Mainstreaming and Beyond – Senior Citizens as Secondary Users of Audio Subtitles in Cinemas

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Accessibility Mainstreaming and Beyond – Senior Citizens as Secondary Users of Audio Subtitles in Cinemas

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Abstract

Audiovisual accessibility is traditionally seen as a means of providing access for people with sensory impairments, be it sight or hearing loss (Orero, 2004). Recently, a much broader perspective opened as some also see it as a way of providing linguistic accessibility (Díaz Cintas, 2005; Orero & Matamala, 2007) or even as services that cater for the specific needs of people who "cannot, or cannot properly, access the audiovisual content in its original form" (Greco, 2016: 23). This article fits squarely into this trend as it reports on a survey-based study set out to find out preferences regarding linguistic accessibility in the cinema among unimpaired senior citizens in Poland. On the whole, 40 people aged 60 or more took part in the study. Results show that senior citizens are more likely to choose voice-over and dubbing over subtitling. This could be because the majority of participants declared that they experience discomfort or difficulties when reading subtitles. As a result, they are willing to use a mobile app that would enable them to listen to audio subtitles in the cinemas.

***Keywords**: accessibility, subtitles, audio subtitles, technology, mobile applications*

1 Introduction

While audio description (AD) and audio subtitles (AST)[1] are primarily meant for persons with sight loss, the issue of secondary or extended audiences of these access services has attracted attention for quite some time now. Claims, both within academia and outside it, that services such as AD and AST have potential for users without sight loss are not uncommon. Nevertheless, many of them seem to be based on anecdotical evidence. AD is thought to be beneficial for a much broader audience, as it supposedly can enhance language development, boost writing skills and improve learning outcomes (Edelberg, 2018; Peskoe, n.d.; Remael, Reviers, & Vercauteren, 2015). It is also thought to be useful for people who have difficulties in recognizing emotions, e.g., those with the autism spectrum (Garman, n.d.; Listening is learning, n.d.). Some also claim that AD can be used by sighted people who do not direct their full attention on the visual – e.g. because they are multitasking, driving a car or running – and that it can also help to better understand a complicated plot (Gonant & Morisset, 2008; Patrick, 2018; Snyder, 2010). AST is often said to be for those who cannot or do not want to read subtitles, that is to say, senior citizens, persons with dyslexia, poor reading skills or impairments such as receptive aphasias or multiple sclerosis (Centre for Excellence in Universal Design, 2014; Jankowska, n.d.; Mihkla et al., 2014). Unfortunately, to date, there is little empirical evidence on the benefits or effects of using AD and AST by persons without sight loss (Fryer & Freeman, 2013; Krejtz, Szarkowska, Krejtz, Walczak, & Duchowski, 2012; Perego, 2016; Walczak, 2016). Data on the actual use or

[1] Audio subtitles are also known as audio subtitling, spoken subtitles or spoken captions.

need and willingness to use them is even more lightweight as it is largely anecdotic (e.g., Price, 2017).

This interesting area of secondary users should be explored both more extensively not only for pure academic interest but also for more practical reasons. It seems that extending access services to secondary audiences might be a good step towards mainstreaming access services, hopefully for the benefit of all. A good example of how this can work is the case of subtitling for the deaf and hard of hearing (SDH) in the US. According to Downey (2008) the major step towards both regulating and providing the service nationwide was convincing the stakeholders that SDH had a wide audience that went beyond the population of those with hearing loss.

In the paper, after giving a short overview of accessibility of AD and AST in Poland, we describe the AudioMovie project, which aimed at mainstreaming AD and AST through an alternative and less money-consuming system of distribution and reproduction. The main component of the system is a mobile application for cinemas that allows users to listen to alternative soundtracks such as AD an AST. The results of a market research study are also presented. The survey-based study was conducted in order to find out whether AudioMovie could be attractive for senior citizens without sight loss and thus widen the possible target group of the app and render it more attractive to the film and cinema industry.

2 The AudioMovie project – mainstreaming accessibility

Poland is seen as a stronghold of voice-over. While it is true for television broadcast, the situation is significantly different in the cinemas where subtitles are the main AVT modality (Szarkowska, 2009). Dubbing, however recently gaining ground (Godziński, 2018; Zwierzchowski, 2018), is used mostly for children and family films. As a result, accessibility for audiences with sight loss in Polish cinemas is a challenge, since both AD and AST need to be provided for these audiences to enjoy the cinematic experience.

Access services for persons with sight loss in Poland have been on the rise since 2006; nevertheless, the situation is still far from satisfactory, especially when it comes to the cinemas. As pointed out by some researchers (Jankowska, 2018; Jankowska & Walczak, 2019), while thanks to the efforts of some NGOs, accessible screenings are organized in some Polish cities, regular cinemas still do not offer AD and AST on a systematic basis. This, on the one hand, is because not many films are officially distributed with AD and AST, even if the soundtracks are available (for more information on the reasons for that, see Jankowska & Walczak, 2019). On the other hand, only about 10% of Polish cinemas have the equipment necessary to cater for audiences with sight loss (Statistical Office in Kraków, 2014). Unfortunately, the headsets required to listen to AD and AST are still quite expensive and the income from tickets sales does not compensate the investment. All in all, it seems to be a vicious circle of inaccessibility – since there are very few films with AD and AST, investing in infrastructure is pointless. And vice-versa, without infrastructure it is equally pointless to provide AD and AST since almost no one will be able to enjoy it.

The main goal of the "AudioMovie - Cinema for All"[2] project was to create a complete system of alternative distribution of AD and AST in order to mainstream access services in

[2] "AudioMovie – Cinema for All" (www.audiomovie.pl) was a project carried out within the framework of the Social Innovations Programme financed by the Polish National Centre for Research and Innovations (2015-2018). The

Polish cinemas (for more information see Jankowska & Walczak, 2019). The main component of the system is a mobile application that allows users to reproduce alternative soundtracks in the cinemas; however, it is important to notice that the different stages of the project included elaborating the legal framework for creating and sharing AD and AST as well as creating a cloud-based service for the sharing and storing of alternative soundtracks.

The AudioMovie app is a mobile application designed for both IOS and Android and is currently available only in Polish. It allows users to reproduce alternative soundtracks (e.g. AD, AST or dubbing) on their mobile devices in the cinemas. The alternative soundtracks are automatically synchronised with the film. For copyright reasons, all the soundtracks available in the app are protected with a QR code. This means that although soundtracks can be downloaded to the app at any time, they can be reproduced only after a QR code assigned to a specific screening has been scanned. This feature was introduced after consultations with film producers and distributors who did not wish for the alternative soundtracks to be freely available.

The app has two launching modes. In the first one, users launch the app after obtaining a QR code in the cinema. When the code is scanned [*Skanuj*] (Figure 1) users are automatically redirected to the screening associated with the QR code and they can download [*Pobierz*] (Figure 2) and reproduce [*Oglądaj*] (Figure 3) the alternative soundtrack(s).

Figure 1: The AudioMovie app – QR code scanning module

project was carried out by a consortium of six partners with expertise in accessibility, information and communication technologies, intellectual property rights and implementation of research results: the Seventh Sense Foundation [Fundacja Siódmy Zmysł], the "Katarynka" Foundation for Audio Description Progress [Fundacja na Rzecz Rozwoju Audiodeskrypcji "Katarynka], the Institute of Innovative Technologies EMAG [Instytut Technik Innowacyjnych EMAG], Jagiellonian University in Kraków and the EMAG Centre of Technology Transfer [Centrum Transferu Technologii EMAG].

Figure 2: The AudioMovie app – downloading tab

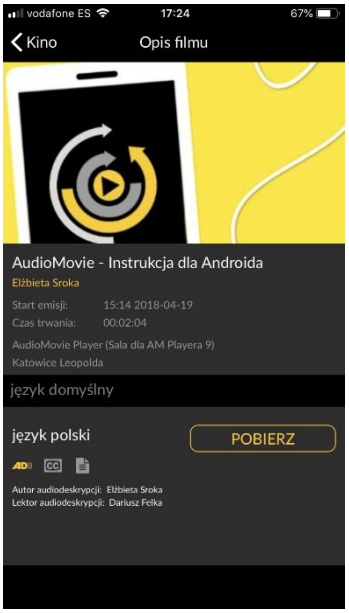
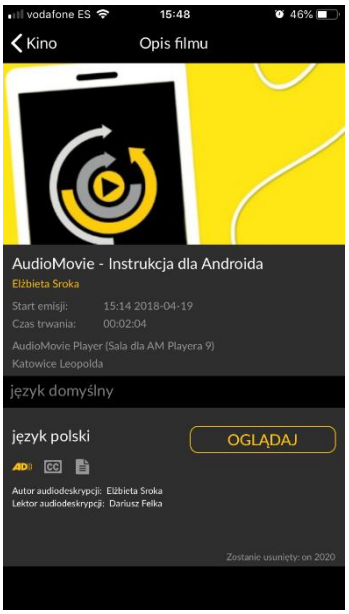


Figure 3: The AudioMovie app – reproduction tab



In the second launching mode, users can download alternative soundtracks prior to their visit to the cinema. To do that they open the "Cinema" [*Kino*] tab (Figure 4), choose the screening they plan to assist and download [*Pobierz*] the alternative soundtrack(s) (Figure 5). To unlock the soundtrack(s) they need to scan [*Skanuj*] a QR code provided in the cinema (Figure 6). Finally, they are ready to reproduce [*Oglądaj*] the downloaded soundtrack(s) (Figure 7).

Figure 4: The AudioMovie app – screening selection tab

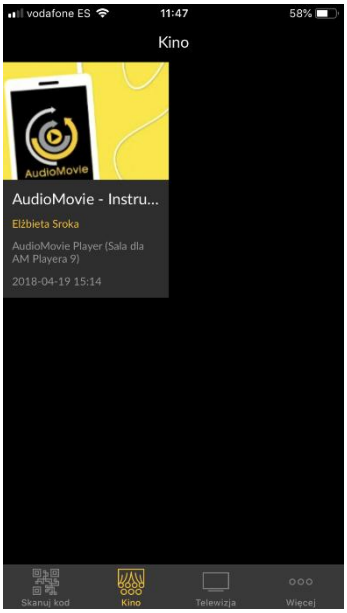


Figure 5: The AudioMovie app – downloading tab

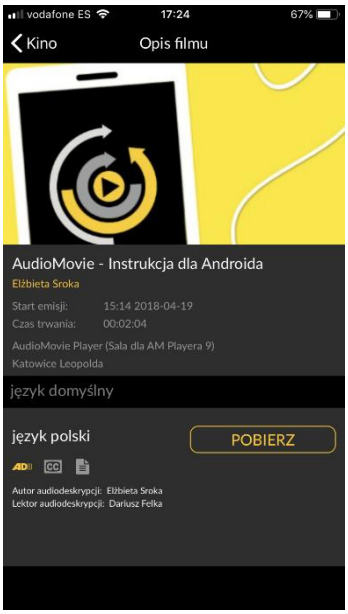


Figure 6: The AudioMovie app – QR code scanning tab

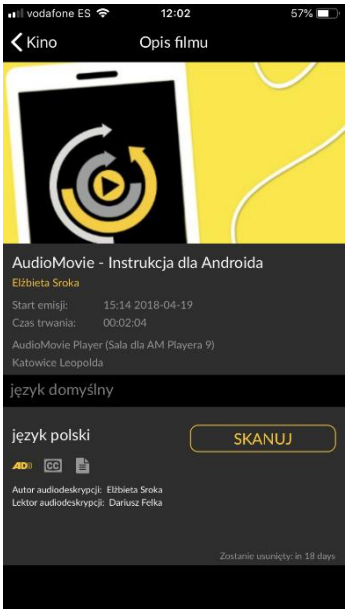
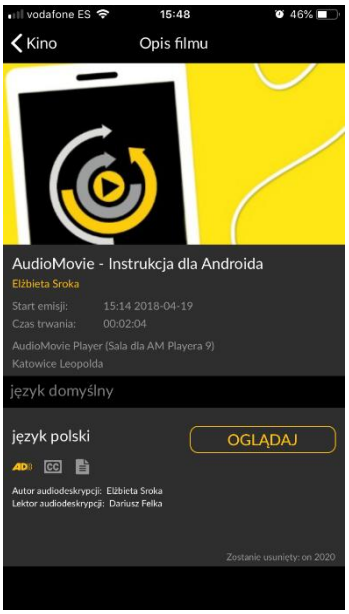
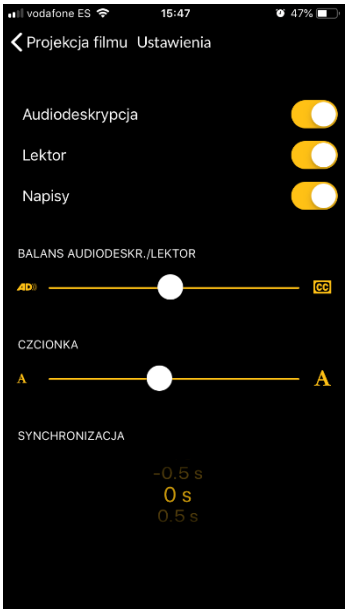


Figure 7: The AudioMovie app – reproduction tab



Users can configure the app and choose which soundtracks they want to use and set the sound balance between them (Figure 8).

Figure 8: The AudioMovie app – settings tab



Once the QR code is scanned and soundtracks are downloaded and ready to play, the app starts reproducing and synchronising them automatically as soon as the film begins.

3 The AudioMovie project – beyond mainstreaming accessibility

Initially, the project was intended to mainstream accessibility understood in the narrow sense of this word, that is to say, we targeted the audience with sight loss. However, very soon it became evident that, if we wanted the app to become more than an interesting, yet unimplementable outcome of a research project, we had to widen the target audience of the app. Why? During the lifetime of the project, we opted for participatory design that included different final users of the app. On the one hand, we worked with audiences with sight loss. On the other with the different actors of the film and cinema industry – e.g., producers, distributors, cinema owners and representatives of the financing bodies such as the Polish Film Institute [Polski Instytut Sztuki Filmowej] (PISF) and Polish Ministry of Culture and National Heritage [Ministerstwo Kultury i Dziedzictwa Narodowego] (MKiDN). It was the industry representatives that brought our attention to the fact that although mainstreaming accessibility seems to be a noble cause, they operate in a market reality and are bound to generate financial profit. From their point of view, an audience with sight loss, as a target group, is not large or attractive enough. Another issue is that the concept of a person with sight loss watching a film still seems to be a very abstract idea for many people in the film industry. They tend to perceive accessibility for those with sight loss as a another pointless regulation coined behind the closed doors of legislators.

With that in mind, we first focused on rising awareness among the film industry through workshops, promotional materials and meetings. All that was meant to convince them that AD and AST are not a mere invention thought up by legislators, but an actual need of persons with sight loss. While it seems that we managed to get this message across, the issue of the spending power of the audience with sight loss still remained unresolved. According to different sources it is estimated that the Polish population of people with sight loss hovers from 1,650,800

(Kaczmarek, 2011) to 1,820,300 (Sadowska, 2014). Despite this, the Polish Association of the Blind [Polski Związek Niewidomych] (PZN), the biggest user association in Poland, has only around 55,000 members (Polski Związek Niewidomych, n.d.).

It was the cinema owners who suggested that widening the target group of potential app users, by also addressing it to senior citizens, could help to render the concept attractive to the film industry and avoid market failure. According to the Polish Central Statistical Office [Główny Urząd Statystyczny] (GUS) 8,500,000 of people in Poland are aged 60 or more (Polish Central Statistical Office, 2016). This constitutes more that 22% of the Polish society (Polish Central Statistical Office, 2016).

Rendering the concept attractive for the industry means showing that it can bring box office profits. According to the experience of cinema owners, senior citizens are keen on going to the cinema although they often "turn around at the ticket office once they learn that the film is subtitled" (Maria Gierat, in personal communication). With this type of comments in mind we decided to extend the scope of the project and carry out two studies to see if senior citizens and other persons without sight loss could become potential users of the AudioMovie app. The first study consisted in carrying out a market research survey. The second study was a usability test carried out with senior citizens, persons with dyslexia and intellectual impairment. In this paper, we report on the partial results of the first study – those that concern people aged 60 or more.

4 Overview of the study

The main goal of the current study was to assess whether the AudioMovie app could be useful for audiences without sight loss, in order to widen the group of potential target users of the app. To be more specific, whether the app could attract people aged 60[3] or more who are often listed as potential secondary users of AST.

4.1 Research method

The study was conducted using the CAWI (Computer Assisted Web Interviews) method and a traditional paper survey. The paper survey was introduced at the request of one of the collaborating institutions, the University of the Third Age in Nysa [Uniwersytet Trzeciego Wieku w Nysie], which argued that for some of the respondents giving feedback in a more traditional way might be more feasible.

The link to the online survey was made available via the project's website and social media of both the AudioMovie project and project partners. In addition, the link to the survey was sent by email to organizations and associations working for people aged 60+, as well as to a number of third age universities all over Poland. The paper survey was conducted by a volunteer from the Seventh Sense Foundation during one of the lectures of the University of Third Age in Nysa (Poland). The completed surveys were then collected and entered into the online form manually to allow further analysis. The study followed the ethical rules of empirical research with human participants. All data collected during the study were anonymised.

[3] The threshold for becoming a senior is not clearly defined. While some institutions set it at 65, others prefer 60 or even 55. In our study we opted for 60, following the recent publications by GUS (the Polish Central Statistical Office, 2016).

4.2 Research procedure

The online survey was conducted from 1 August 2016 to 30 April 2017. The paper survey was distributed in October 2016 in Nysa (Poland) during a class of the Third Age University in Nysa.

The survey consisted of 18 multiple choice questions that allowed us to gather demographical data (age, gender, education level, knowledge of foreign languages) and information about participants' preference regarding AVT modalities (dubbing, subtitling and voice-over) when it comes to cinema and television. Given the scope of this paper and current use of the AudioMovie app, we report only on cinema preferences.

4.3 Participants

Overall 182 participants took part in the study out of which 54 (29.5%) were aged 60 or more. Within the 60+ group, 17 participants declared to have sight and/or hearing loss. The data provided by participants with sight loss were excluded from the analysis presented below, as in this case we were interested only in the responses provided by participants without visual impairments.

The overall data of (N=40) the participants (32 female and 5 male), aged between 60 and 80+ are considered in the analysis. That accounts for 21.97% of the entire sample. According to the Centre of Public Opinion Research [Centrum Badania Opinii Społecznej] (CBOS) people aged 60 or more constitute 22.2% of the general population in Poland (Centre of Public Opinion Research, 2016).

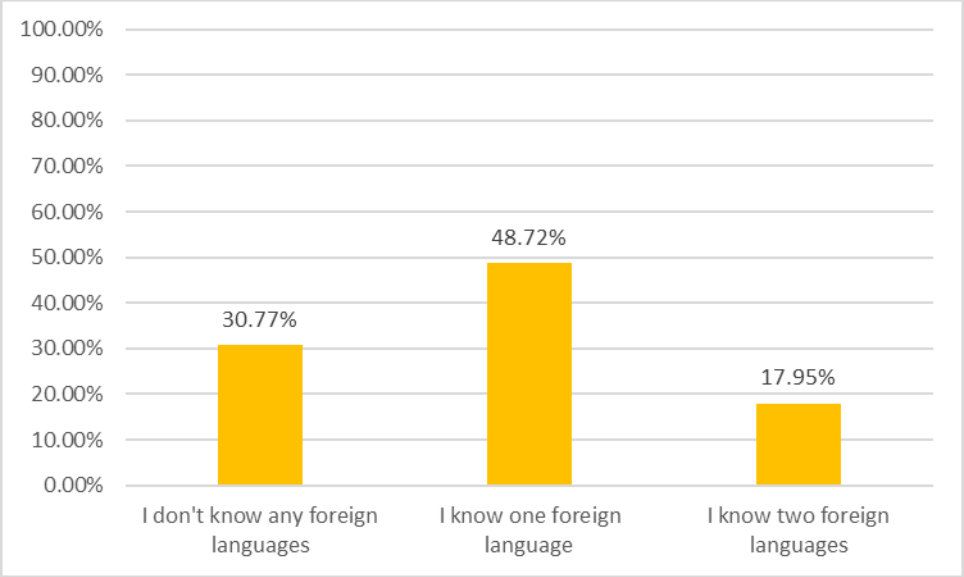
5 Results

5.1 Education and foreign language knowledge

When it comes to educational background, 32.5% of the participants declared to have a higher education and 67.5% a secondary education. This is different from the data of the general population of Poles aged 60 or more. According to CBOS (2016), 42% of people aged over 65 have a primary education, 19% a vocational education, 25% a secondary education and 14% a higher education. However, it should be noted that according to the Centre for Public Opinion Research [Ośrodek Badania Opinii Publicznej] (OBOP) (2000) people with a higher and secondary education go to the cinema more frequently. This and the fact that some of the participants of the study attended a third age university, can explain why the education level of our participants is statistically higher..

It is believed that knowledge of a foreign language can influence people's preference when it comes to different AVT modalities. This is why we asked the participants about the foreign languages they know. When asked "How many foreign languages do you know", 2.56% of the participants answered that they know three foreign languages, 17.95% declared to know two and 48.72% one. Almost one third (30.77%) of the participants declared not to know any foreign languages (see Figure 9).

Figure 9: Foreign language knowledge



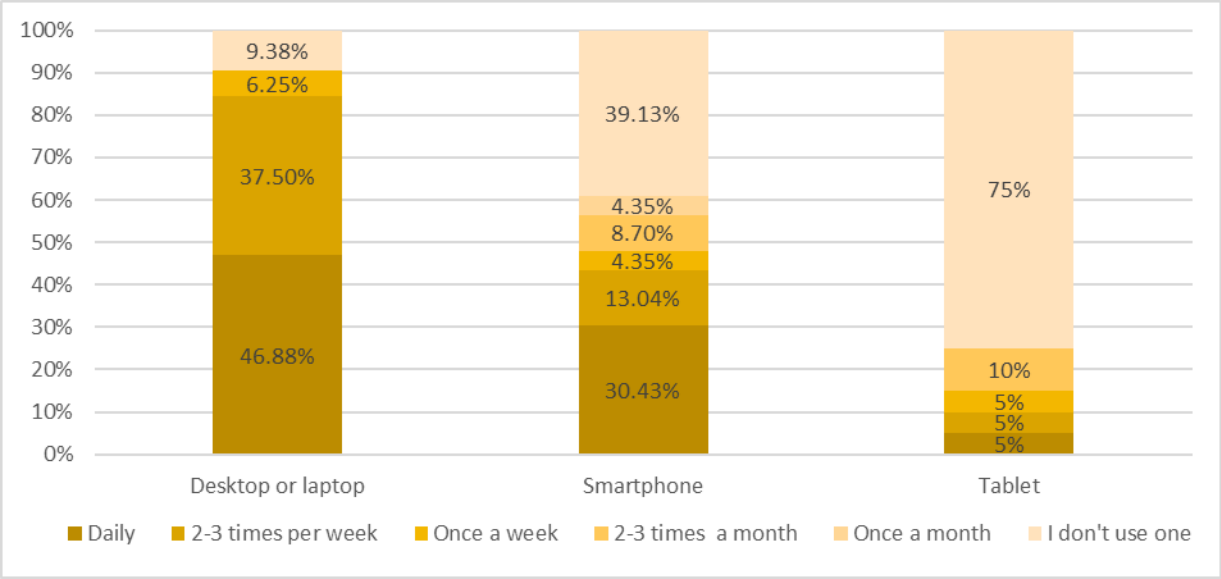
Participants declared to know Russian (47.5%), English (30.5%), French (11%) and German (11%). Out of those who declared to know Russian, 70.5% said that they had a basic proficiency level and 29.5% an intermediate level. Results for English and French were similar with 73% and 75% of the participants with a basic proficiency level and 2% and 25% with an intermediate level. Results for German are visibly different as 50% of the participants who declared to know it said to have basic proficiency, 25% an intermediate level and 25% an advanced one. This could be influenced by the fact that Nysa, where the paper survey was administered, is close to the German border.

5.2 Digital profile of participants

We wanted to establish the digital potential of the participants; that is why we asked them about the devices they use to go online. The participants answered that they mostly use laptops or desktop computers and smartphones. Tablets resulted to be the least popular devices. These results are in line with statistics of the share of devices used to access the internet in Poland (Mobee Dick, 2018).

What is particularly important and interesting for the purpose of this study is the use of smartphones among people aged 60 and more. According to the most recent data from GUS, the percentage of smartphone users among senior citizens (65 or more) increased in the last three years from 3% to 15% (Forbes, 2018). Our results show that smartphones are even more popular among the participants of the study – slightly over 60% of the participants declared to use a smartphone more or less frequently (see Figure 10). This significantly higher result can be partially explained by the fact that in our study the age threshold was set at 60 and not at 65. Another issue is that since our survey was mostly conducted online, we suspect that the digital skills of our participants are more developed than in a typical Polish citizen aged 60 or more. Nevertheless, it cannot go unnoticed that almost 39% of the study participants declared not to use a smartphone at all.

Figure 10 Devices used by participants to go online



5.3 Cinema profile of participants

To find out the participants' habits regarding cinema attendance, we asked them how often they go to the cinema. Most participants said that they visit cinemas various times per year (42.5%). Nearly as many (37.5%) declared to go to the cinema once a month. Those who go to the cinema more than once a month are a minority (10%). Only three participants said that they go to the cinema once a year and one participant declared to go once every few years. None of the participants said they had never been to the cinema. According to the data from GUS (2016) in 2014 only 45% of all Poles went to the cinema and only 18.9% of people aged 65 or more. Those who went to the cinema at least once every three months were even scarcer (ca. 5%). Again, our results seem to be higher than the average. We believe this might be because the survey was distributed through associations for senior citizens that tend to attract more active persons.

When asked about their cinema-going habits, most participants declared that they do not go to the cinema alone. Most of them go to cinemas with friends (58.97%) or family (43.59%). Only four participants said that they go to the cinema on their own.

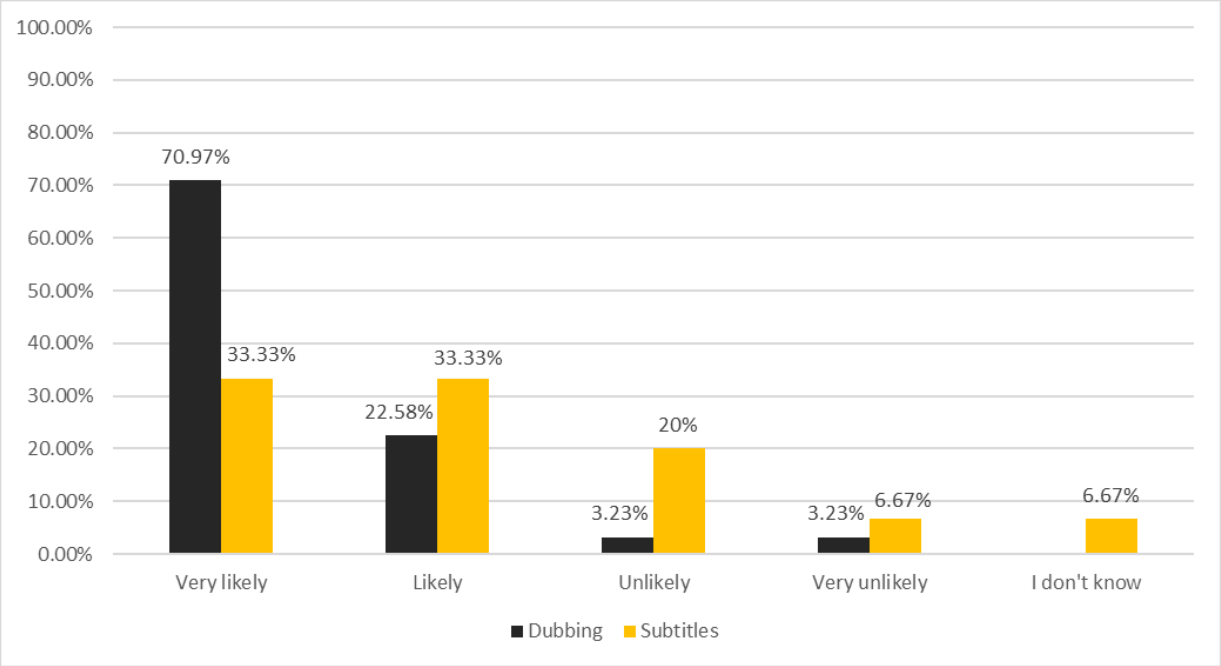
5.4 Audiovisual translation preferences

We also aimed at looking into participants' preferences when it comes to the consumption of different AVT modalities, that is to say: subtitling, dubbing and voice-over. This is why we asked the participants about their preferred AVT modality – out of these currently offered in the cinemas[4]. However, apart from asking them to choose from what is actually available (Figure 11), we also asked them to indicate their preferred AVT modality – if they were allowed to choose freely (Figure 12).

[4] Subtitles are the default AVT modality offered in Polish cinemas for foreign films. Dubbing, however, is recently used mostly for films targeted at younger audiences. Voice-over is currently not used in the cinemas.

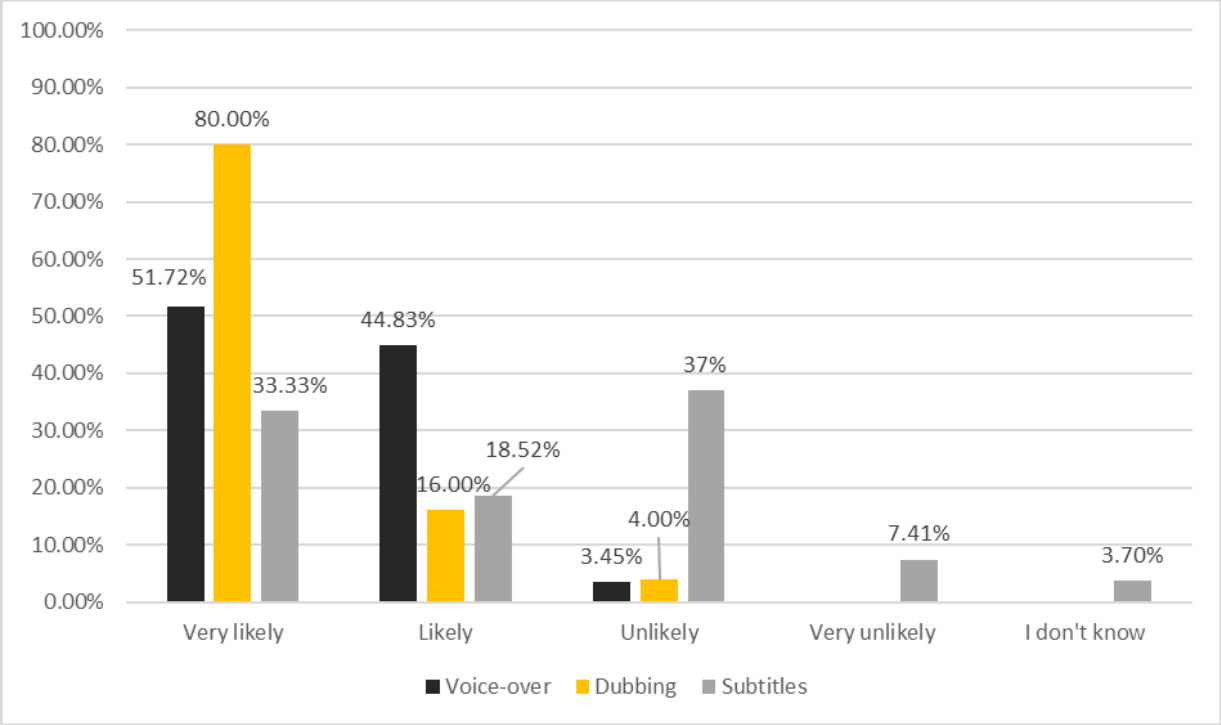
When asked to indicate their preferred AVT modality in the cinema (Figure 12), the majority of the participants declared that they are most likely to choose dubbing (93.55%). Subtitles were selected by 66.66% of the participants. At the same time, while only 6.46% of the participants declared that they would be unlikely or very unlikely to choose dubbing, 26.67% of them declared that they would be unlikely or very unlikely to choose subtitles.

Figure 11: Audiovisual translation preferences in the cinema (when choosing from the available AVT modalities)



If participants were free to choose any AVT modality in the cinema (regardless of its actual availability), most of them would choose voice-over (96.55%) or dubbing (96%). Subtitles were not only the least preferred modality (51.85%) but also the one that caused the most reluctance (44.45%).

Figure 12: Audiovisual translation preferences in the cinema (when choosing from voice-over, dubbing and subtitling)



We did not find any significant correlations between education level, foreign language knowledge or foreign language proficiency and AVT modality preference.

It is hard to relate our results to general population in Poland as up-to-date studies on AVT modalities preferences are scarce. We were able to access the results of six studies (see Table 1 below) . OBOP conducted two studies, in 1997 and 2000. Another study was carried out in 2000 or 2004[5] by the Institute for Market and Public Opinion Research [Instytut Badania Rynku i Opinii Publicznej SMG/KRC][6] (SMG KRC) (Bogucki, 2004; Szarkowska, 2008) and one more by BBC Prime (Subbotko, 2008) probably around 2007. The issue of preferences is also tackled in two academic publications. The first of them is a report from HBB4All (Szarkowska & Laskowska, 2014) and the second is an article reporting on a study carried out exclusively among students from the University of Łódź (Bogucki & Deckert, 2018). Overall, the first four studies show that when it comes to television Poles show a strong preference for voice-over and dubbing. Results of the study by Szarkowska and Laskowska (2014) seem to indicate a change in the preferences. However, it should be noted that their study had several limitations – it was conducted exclusively online, over 80% of the participants were aged between 21 and 40, the environment of AVT modality preference (television vs. cinema) is not clearly stated, and finally, the sample was rather small, as only 189 people participated in the study.

[5] Szarkowska (2008) indicates that the study was carried out in 2000 and Bogucki (2004) refers to 2004.
[6] Since 2000 the name of the company changed to Millward Brown

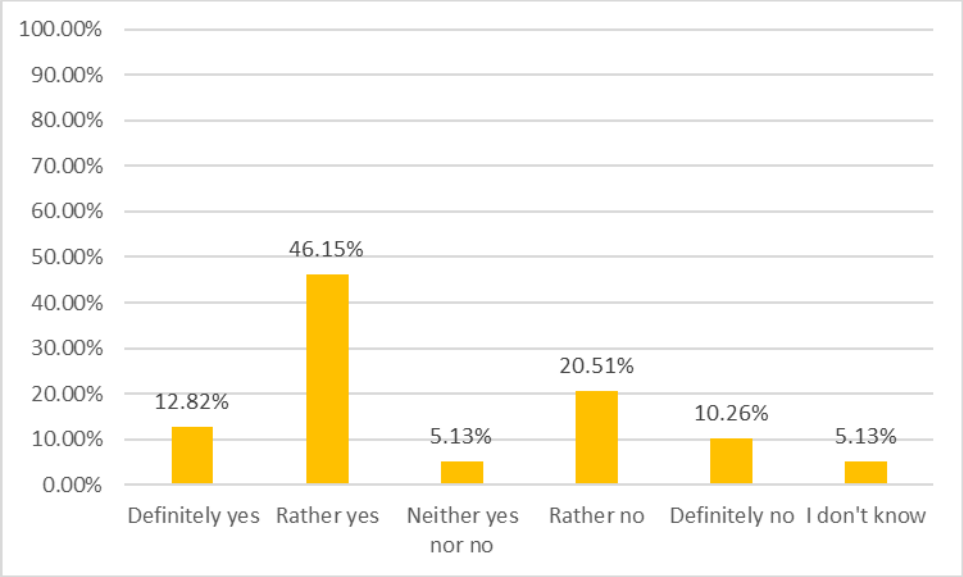
Table 1: Polish audience AVT modality preferences

	OBOP (1997)	OBOP (2000)	SMG KRC (2000 or 2004)	BBC Prime (2008)	Szakowska & Laskowska (2014)
Voice-over	54%	57%	50.2%	52%	6.88%
Dubbing	36%	34%	43.4%	no data	no data
Subtitles	5%	9%	8.1%	4%	77.25%

5.5 Difficulties in subtitle reading

We were also interested in finding out if reading subtitles poses any problems to the study participants (Figure 13) and whether this can influence their decision on going to the cinema (Figure 14). Over half (58.97%) of the participants confirmed that they experienced discomfort or difficulties when reading subtitles in the cinema. Almost one third (30.77%) declared not to experience any of the above. Only four participants were either undecided or could not say whether they experienced any problems or difficulties.

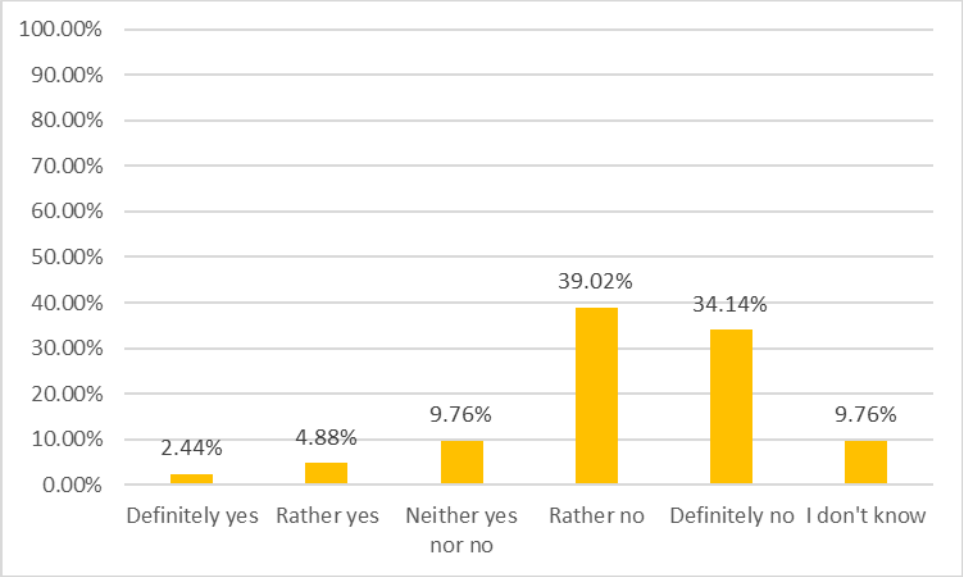
Figure 13: Difficulties in subtitle reading



We did not find any significant correlations between education level, foreign language knowledge or foreign language proficiency and the difficulty in reading subtitles.

When asked "Do you ever refrain from going to the cinema because of having to read subtitles" (Figure 14), a vast majority of participants (73.16%) declared that subtitles do not discourage them from going to the cinema. Only 3 people confirmed that they refrain from going to the cinema because of subtitles. What is interesting, almost 20% of the respondents were undecided.

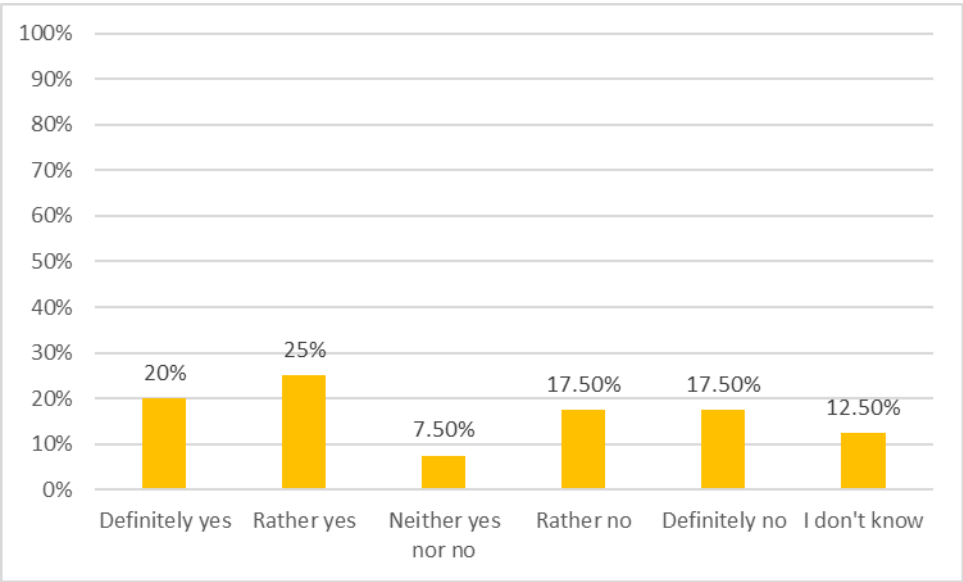
Figure 14: Influence of subtitles on abstaining from going to the cinema



5.6 Willingness to use a mobile application

To find out whether people aged 60 or more are possible future users of the AudioMovie app, we asked study participants about their willingness to use a mobile application that would enable them to listen to alternative soundtracks in the cinema (Fig. 15). Almost half of the participants (45%) declared that they would be willing to use such an app. However, at the same time a large part of them was either reluctant (35%) or undecided (20%).

Figure 15: Willingness to use a mobile application in the cinema



6 Discussion

The results of our study show that senior citizens seem to be a large group of cinema goers and their needs should be catered to. One of those needs is the linguistic accessibility of foreign language films screened in the cinemas. While the participants of our study do not abstain from going to the cinema because of having to read subtitles, the majority of them declare that it is not easy for them to read subtitles. Moreover, a vast majority of the participants would choose dubbing and voice-over instead of subtitles, if they were given such choice. This, in our opinion, shows that senior citizens are potential users of AST. Given the fact that there are currently about 8,500,000 people aged 60 or more in Poland, the provision of AST in the cinemas could possibly increase box office income. What is more, participants of our study seem to perceive going to the cinema as a social event – they usually attend screenings with friends and family. This means that they go to the cinema with people who have different accessibility needs – especially since the preference for subtitling is stronger in the younger generation . Enabling personalised accessibility – meaning senior citizens could enjoy a subtitled film with AST, while their family members could read subtitles – might also increase the number of cinema goers.

When it comes to reproducing AST through a dedicated mobile app, the results of our study seem to show that senior citizens are willing to adopt such a solution. This is especially interesting since the details of the AudioMovie app were not explained to the study participants and they did not have the opportunity to use it. This is why, in order to confirm whether senior citizens are potential AudioMovie users, further and more detailed studies, such as usability tests, should be carried out. However, when considering senior citizens as possible users of the AudioMovie app the fact that 40% of study participants declared not to use smartphones should also be taken into account. Moreover, according to GUS (Forbes, 2018) and CBOS (Centre of Public Opinion Research, 2017) only 15% of senior citizens use these devices. This can be a serious obstacle in widening the target audience of the app. At the same time, it should be noted, that the number of smartphone users among people aged 60 or over is rapidly growing (Forbes, 2018). Nevertheless, since for now mobile devices are not a natural environment for senior citizens, when considering the implementation of the AudioMovie system in the cinemas, issues such as additional assistance from the staff or even renting mobile devices should be considered.

Although the initial results seem promising, several limitations of this study should be considered. The first of them is the small and not representative sample size and its little diversity in terms of education level as well as cinema and digital profile. The second is the fact that the survey was conducted both on paper and online – the latter could have influenced the outcome, since those who completed the online version could be more open towards new technologies. This is why further quantitative and qualitative studies are necessary.

Conclusion

In this paper, we have presented the results of a study that aimed at establishing whether the AudioMovie app could be attractive to senior citizens who for use in cinemas to listen to AST. The initial results show that while senior citizens indeed are potential audience of AST, using a mobile application could be a possible barrier. This barrier should be considered when working on the implementation of the AudioMovie system into the cinemas, or any other output based on information and communications technologies, so that the digital divide does not cause additional exclusion.

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