**Seniors, iTV and content about Social Services: clarifying the relationship**

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**ABSTRACT**

Over the years, television has been seen as a mean of enriching human development. The technological evolution of this mean of communication led broadcasters to deliver more attractive and diversified contents. Hence, traditional broadcasting evolved from the traditional passivity to the granting of a participatory role for viewers, creating a new paradigm – Interactive Television. Elderly viewers are great consumers of television and represent a considerable portion of people who can take advantage of the interactivity potentialities. Most of the times, changes in social services take too much time to reach elders due to their technological, sensory or cognitive limitations, which tend to occur with the aging process. In this framework, the research team aim to find principles for the development of content about social services considering iTV potential and the limitations of elderly viewers. For accomplish this goal the team developed audiovisual content and also evaluated its effectiveness.

**KEYWORDS:**

Seniors, elderly, iTV, interactive television, digital television, social services.

**Introduction**

The aging of the world’s population is an unquestionable fact. The progress in areas such as economy and health, as well as the overall improvement of living conditions as comfort, hygiene regulations and safety have made possible one of the humanity’s greatest desires: longevity (Ferreira 2013, 15).

With the passing of time, most of elderly people reduce their role in society and the role they take in a community, which can create a feeling of loneliness and self-doubt. This feeling may have effects on their social inclusion family environment and also on their physical and mental health. (Teixeira 2010, 4). Aging is a process that occurs in many different ways and not all persons handle it in the same way, it depends on each individual perspective and capabilities in the cognitive and visual aspects, etc. (Silva 2014, 65).

There are physical and physiological changes in the eye structure, leading to visual impairment, light sensibility, color blurring, and night vision loss. The hearing loss is also a factor on the aging equation (Cardoso 2009, 1). There is a considerable loss in sound perception, normally in the lower sound range. These two constants, hearing and visual loss, when put together can lead to social loneliness and depression. (Silva *et al*. 2013, 145).

Another characteristic that is associated with aging is the movement limitation on the shoulders, something that can appear silently and painlessly. (Silva 2014, 66). Due to this limitation, seniors have to spend more time in doing day-to-day tasks, such as: getting dressed, driving, showering, getting to sleep, among many others. This lack in their movement range, associated with hearing and visual impairments, becomes a risk of social exclusion that can lead to depression.

Besides the physical lacking, there are also the cognitive problems. It is known that older people can have difficulties in assimilating new information and their reasoning ability is visibly worn out and reduced. Globally, seniors have a bigger difficulty in realizing some tasks better than others and are more susceptible to information loss. Beyond the scientific breakthroughs, Silva (2014, 1) defends that technological discoveries are constantly changing the way society goes through his life and is organized. Television is, without any doubt, one of those discoveries (Silva 2014, 1 *apud* Ruggiero, 2000). The mass communication translates itself in information through the social media, particularly television, newspapers, magazines, cinema, radio and, of course, internet. Although internet has a prime role in society, television is still the greatest mean of entertainment and communication. So, television is the mean of communication that can leverage interpersonal relations and social cohesion. (Abreu 2007, 23). Wolton (1996, 16) defends that television “is an object that incorporates conversation. We speak with each other, and then speak with others away of our homes. In this scenario it is an indispensable social bond in a society where individuals tend to be frequently isolated, and sometimes lonely. It is the only activity that can create an equivalent link between rich and poor, young and old, urban and rural lifestyles, a link between learned and non-learned.”

With this in mind, we can surely assume that television is seen as a path to construct opinions and to enhance knowledge by the masses. It influences our way to deal with life in terms of values, traditions and the overall norms (Abreu & Branco, 1998). If we set this concept to the McLuhan’s perspective (1964), which enhances the revolutionary power that was generated by television and also classify the means of communication as hot or cold. On the one hand, the hot means are channels that have high definition standards and are focused on any social target and have the tendency to be very visual, logical and private. On the other hand, the cold means have the tendency to be more aural, intuitive and emotionally engaging (Santos, 2003). Hence, McLuhan states television can be defined as an aural and touching path that demands participation and involvement. We can work while listening to the radio, but the same situation cannot with certainty occurs while watching television, because we can do both activities but there is no guaranty to do both well.

In the television market scene, as in many other communication and social media, the spotlight as been somewhat stolen by the influence of the internet, either by the existence of web portals (with on-going live feed of information, radio live streams or contests live stream) or also by the capability to disseminate personal information contents (Silva 2014, 1). The emergence of personal computers and the dissemination of Internet originated a big technological revolution that with the development of its infrastructure enabled the creation of new services and shifted the already existing media to this digital paradigm – Interactive Television (Silva 2014, 1).

 In 2011, the Independent Television (TVI) was the first Portuguese channel to implement interactive television with experimental sessions, via cable television. The user started to have access to thematic and complementary information, the control over visual frames and, visual angle or even polls (Violante *et al.*, 2015). However, TV programs that offered to viewers the control over an interactive character by using their phone like “Hugo” (the first interactive Portuguese TV program) are one of the examples of a simple basic way of television interactivity. The constant technological evolution together with the constant demand of new services by the TV industry that release them, have potentiated the need and the producing of new services, for instance life support services and information and communication services.

From this point of view, the pertinence of this investigation is indisputable, since aging is a global phenomenon that has induced several deep changes in developed societies. These changes challenge younger generations to develop multiple gerontechnologies (gerontology + technology), which are technologies that meet the elderly’s expectations and needs in their “natural environment”. They can help elderly in their social anxieties and general needs. Many of the developed technologies have as goal the social insertion and integration of elderly in the already existing communities, enlarging their social network and increasing their levels of well-being and literacy. In this context, television rises as an effective way to induce and support dialogue and conversations between people (Abreu 2007, 23). Additionally of being the closest and most familiar mean of communication to the elderly, television can be seen as a more advanced technological service for this population segment o. So, it can be an important technology supporter through features such as distance helping, the support of services that promote social interaction on the collective viewing, the provision of medical information or, as is the goal of this proposal, the information dissemination on public services relating to society. (taken from: project proposition +TV4E, 2015). Besides the important investment of the public administration in disseminating the public and social services, they are still not correctly thought out and drawn to the needs of this specific public (seniors). Due to this fact elderly commonly are in a disadvantaged position, for not knowing how to access public services and assistances they can benefit from (e.g. medication discounts, medical appointments, etc.), thus, there is a high informational dependence on their caregivers’ network.

In this framework, this article aims to enumerate a set of variables and principles for the orientation of audiovisual contents that respect the specificities, needs and expectations of the target audience, so seniors may be fully informed on the numerous changes that occur in social services, in a short period of time.

**Guidelines**

On a first trial, a preliminary test was carried out with 8 seniors (with aged between 55 -considered pre-senior-) and 75 years old. It was possible to confer some of the aspects describe in Fisk *et al* (2009), Zaphiris, Ghiawadwala and Mughal (2005) and in Caldas (2014, 33) for the conceptualization of audiovisual contents:

1. Avoid decorative fonts (example: Gothic, Rosewood and Old English), so the use of Arial or Verdana is advised;
2. Reaching contrast of 50:1 (example: black text on white background or vice-versa);
3. Avoid the movement of text (*scrolling);*
4. Using only 140 words per minute (pausing in speech is essential);
5. Considering the contexts on which male voices (ads) and female voices (for drawing attention) are used;
6. Minimize the background sound and eco;
7. Avoid background music while audio content is delivered.

In this context it should be equally had in mind the following recommendations (Czaja & Sharit, 2012), due to their prior use in recent studies with the same target audience:

1. Do not overcharge the senior’s visual channel, so replacing the use of text for narration is recommended;
2. The speed of narration should be slow or moderate, thus not overwhelming the cognitive capacity of the senior is recommended;
3. Avoid audio information overload;
4. Not overcharging the senior with visual and audio information simultaneously;
5. It is imperative that the narrator’s voice transmits calm as well as preventing possible fears;
6. Using narration to direct the user’s attention to visualization of given information;
7. Avoid formal conversation.

**Research Process**

In order to understand the relation between the best approaches to create audio-visual content and senior’s specificities, a set of interviews and tests with target audience was carried out. This exploratory study will be helpful to the next steps of the +TV4E project.

During the evaluation and data retrieving process, it was necessary to create 2 different groups with 8 elements in each one. Each participant was asked to evaluate two videos on the available topics. In this case, the available topics are: 1) the process of billing validation through the eFatura portal; 2) the driving license regulated by a points system. After the topic selection, which was dependent on the senior’s interest, a brief questionnaire about to his personal data, age, professional career and the structure of his family was presented. After that, the interview proceeded with questions related to television habits, types of audiovisual devices existing in the family household and the overall level of digital literacy. To characterize digital literacy, the metrics defined in Digital Literacy European Commission Working Paper andRecommendations from Digital Literacy High-Level Expert Group(Group 2008, 5) were used. Thus, it is necessary to know if a person was able to:

1. Copy or move a file or a directory;
2. Use the copy and paste tools to copy or move information within a document;
3. Use arithmetical formulas in a spreadsheet;
4. Compress files;
5. Connect and install new devices (for example: a printer);
6. Use the search engine;
7. Sending an e-mail with attached files;
8. Post messages on discussion groups, forums and chats;
9. Use the internet for phone calls;
10. Share movie filesand music files with other users;
11. Create a web page;
12. Develop a software app using a programing language.

In short, a person has high digital literacy if is able to execute five or more of these tasks, medium digital literacy when is able to execute three or four and low digital literacy when is only able to execute up to two of these tasks.

Then, the physical capabilities (auditory and visual) of the participant are tested, as well as their cognitive capabilities (memory and concentration). To evaluate physical capabilities, we asked the participant about their physical limitations. On the other hand, to evaluate the cognitive capabilities we carefully studied their speech looking, indirectly, for faults. In this case , it was important to perceive which social services the senior had more interest in obtaining information on, what were their greatest doubts and how, normally, they get information about social service changes (for example: did you know that in 2016, the age of retirement went up to 66 years and 2 months?. If is the case how you got hold of this information through television, newspapers and radio?). Before this, it was imperative to perceive the level of difficulty that the senior had in reaching this kind of changes and to try and minimize them to the least possible.

Upon finalizing the first part of the questionnaire, already described, it was time to present the first video. After the video visualization we proceeded with a set of questions related to the contents showed. This set of questions was repeated after the visualization of the second video, to enable the adequate evaluation of the video construction. The evaluation contained the font size (if it was readable or not), the image quality, audio quality and if the video was or not appealing. Secondly, it was necessary to know if the information was clear to perceive or if there were mechanisms that created difficulty in the video perception and the understanding of information, such as sound volume (to high/ to low), text reading (font to big/small), video length (too long/short), the use of complex words, among other points.

Then, some questions about the presented video were asked in order to test the concentration capability and the clarity of the delivered information. Lastly, the senior had to choose between the first and the second video, justifying his choice.

Simultaneously, the standardized scale SAM (Self-Assessment Manikin) (Lang, 1980) was used as a complement. The SAM is considered a non-verbal, pictograph and simple application test.

The SAM scale presents three pictographical scales and each one is composed by a sequence of five or nine drawings, graded in intensities, which represent different levels of emotional dimensions (pleasure, arousal and dominance). The pleasure dimension is represented at one end by an unhappy and bored figure and at the other end by a happy smiling figure (Leão 2012, 20). Thus, the classification of arousal goes from the state of relaxation or ease (represented by a relaxed figure with closed eyes) to excitement (represented by an activated figure with wide and open eyes) (Leão 2012, 69). Lastly, the dominance dimension is represented at one end by a controlling figure and at the other end by a completely controlled figure. (Leão 2012, 28). The SAM is an especially instrument that can be used in countries of different cultures, since it is free from cultural influences and doesn’t make use of language. (Bradley & Lang 1994, 58).



Figure 1 – Simplified SAM scale (Lang, 1980)

<http://irtel.uni-mannheim.de/pxlab/demos/index_SAM.html>

**Data analysis**

In this section it will be analyzed the set of results of the first eight questionnaires. In this sample there are three males and five females, with varied ages:

1. Two persons with ages between 55 and 59;
2. Three persons with ages between 60 and 65;
3. Three persons with ages over 65.

The obtained results showed that six of the eight subjects had only other adults in their families, and the remaining two had adults and children. Hence, the study showed that none of the subjects lived by themselves. Regarding television habits, it was confirmed that this sample of elderly people watches one or more hours of television per day. The retrieved data showed that the spaces chosen to watch television by this sample were the living room, the kitchen (either alone or with company). Seven of the eight participants have computers or other mobile devices, like smartphones and tablets, but hardly or never use the computer. Among the eight persons, six of them never use the computer; this can be explained by a low technological literacy. Regarding the physical conditions of our sample, none of them or very few have hearing impairments and only 5 have higher visual impairments. Concerning the cognitive capabilities, none of the eight participants has difficulties understanding and making himself understood. Regarding the memory and concentration capabilities, only one person has problems in concentrating and memorizing.

All of the suggestions given about social services were considered important by the participants, however medical compensations and appointments were also considered important, as well as medical fees and insurance. The results showed that, normally, the majority of the sample gets informed about the social services changes on television, confirming that television is the greatest informative “friend” for the senior community. By the participant’s point of view, the way and how to get information was rated as shown below:

1. 4 considered it a hard process to obtain information;
2. 3 considered it an easy process to obtain information.

It is important to note that the three participants, who found it an easy way to access this kind of information, have family members working in social services.

After dividing the group of eight seniors in two groups of four, we attributed to each group a theme (each theme included two videos with different approaches), which are: 1) the process of billing validation through the eFatura portal; 2) the driving license regulated by a points system.

On the first theme, two videos were firstly presented to the subjects and after its visualization they answered to a questionnaire. Whilst in the second group, who evaluated the second theme, participants had questions about the topic before watching the videosand afterwards they confirmed their answers.

On the first theme, the greatest difficulties shown by the seniors were the font size and the use of complex words. After watching the videos none of the four persons in the group was able to reproduce the information that the videos presented. Consequently, we can conclude that it is a difficult process.. Usually, this kind of process is done by their relatives. When they were asked to choose between videos (same theme, different approaches), two seniors chose one and the other two seniors the other, but all gave the same justification: “More enlightening.”.

On the second theme, the process was inverted: the subjects firstly were inquired about the theme and afterwards they watched the videos about it. Regarding this question, although only two seniors had a driving license, all of the seniors responded correctly to the major points of the matter. Thus, all the four seniors knew the day on which the new system of driving license went active (1st July of 2016), and how many points would be attributed to each driver (12). They also knew, where to check the points that they had (‘Portal de Contra-ordenações Rodóviarias’).

When the seniors were asked about the quantity of points that would be removed if they drove under drug or alcohol influence, two of four participants did not know the answer. One of the seniors, who did not know the answer, had driving license and the other did not. Based on these results, we conclude that elderly can be informed about a subject that is not directly related to them. When they were asked to choose between the two videos (same theme, different approaches), all of the seniors choose the same video, because they thought it was more simple, enlightening, contained more information and considered also that the presence of a presenter helped to understand the video.

In short, when comparing the two videos, seniors prefer the one that contained a presenter helped to obtain the information. So, the seniors prefer a human presence rather than an animated presence.

**Conclusions**

Throughout this project, we firmly believed that interactive social services would become a must-have in the lives of elderly, for all the benefits it brings to them. As we stated and defended, an easy access to this kind of services would be a good mechanism, since the majority of seniors do not interact with the Internet at all. Reinforcing these services will contribute to the welfare and overall social inclusion such as the mental stability of seniors.

Thus, we can eliminate / dismiss the part of information given by Internet, because all of the subjects in the study admitted not to use it and, consequently, they do not obtain any social service information by it.

We can conclude that physical and cognitive problems are of the most importance for the learning capabilities of seniors. The participants consider easy to obtain information on the social services when some elements of their family are connected to those services; the opposite is said by those who don’t have workers on social service in family. For those seniors, to obtain such information is too difficult. Even if some social services are not directly connected to their welfare, they like to be informed of the overall new information of the remaining services. They like to be aware of all the new changes that are happening in society, so they can create a conversation about it with others.

Considering the classification of audio visual materials, it is note that seniors only have two standards, they like it and consider it good or they hate it and consider it bad; for them there is no equilibration. This fact leads to the SAM (Self-Assessment Manikin), because we obtained neutral results in this matter (they always selected the same drawing). It is also important to say that when two videos were showed one after the other, the participant had a tendency to grade and classify them on equal terms, even if they were substantially different at visual and audio level. We can also state that seniors don’t give too much importance to the graphical part of a product (its appearance), if the information is clear. The same do not happen with young people, who give extra importance to the product appearance. The overall impression of an audio visual material can be justified by the proximity with the researcher, taking in mind the researcher’s feelings on the matter. Even if the matter at hand is beyond their knowledge, they say that the information on the video was well distributed and understood.

If the researcher has the need to make a questionnaire to seniors, he should to select a questionnaire of open response, because seniors have the tendency to choose whatever the researcher states, even if the statements are false.

The creation of audio visual materials on these social services has to be properly done in order to meet the needs of seniors. Some of useful principles are: good sound, good image quality, using simple words that are easy to understand and taking into account the font size (over 18). Using a human presenter, makes easier the flowing of knowledge and seniors understand better the topics that are presented. Videos with a length bigger than two minutes will make seniors lose his attention.

Nowadays, seniors are still very dependent on others for many situations, especially the examples we mention in this project. Therefore, with the development of this subject we hope that Private and Non-Private Organizations will take these “guidelines” in mind in order to reach better this special population segment.

**Acknowledgments**

The research leading to these work has received funding from COMPETE 2020 and National Funding (through FCT: Fundação para a Ciência e Tecnologia I.P.) under grant agreement no. PTDC/IVC-COM/3206/2014.

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