CUADERNOS.INFO Nº 35 ISSN 0719-3661
Versión electrónica: ISSN 0719-367x
http://www.cuadernos.info
doi: 10.7764/cdi.35.607

Received: 09-27-2014 / Accepted: 11-25-2014

Description and analysis of television content interactivity in Chile: websites and pay TV[1]

Descripción y análisis de la interactividad asociada al contenido televisivo en Chile: sitios web y TV de pago

FRANCISCO FERNÁNDEZ MEDINA, Pontificia Universidad Católica de Chile, Santiago, Chile (ffernandez@uc.cl)

ABSTRACT

The conversion from analogic to digital television offers opportunities for new services and interactive content that, although in Chile can be found in TV channels webpages and in pay television, they are not present in the current offer of Chilean digital terrestrial television. This paper describes the different types of interactivity in the television webpages and shows the main results of applying usability test to measure the user experience of the pay television interface. The analysis demonstrated that both the display of contents and the interaction design are still far from the user's expectations.

Keywords: Digital TV, interactivity, interface design, usability, user experience.

RESUMEN

La oportunidad de prestación de nuevos servicios y contenidos interactivos que surge del proceso de digitalización de la señal televisiva no se da en la oferta actual de contenidos de la televisión terrestre en Chile, aunque sí en las páginas web de los canales y en la televisión de pago. Este artículo da cuenta de los principales resultados de una investigación que describe las opciones de interactividad de los sitios web de los canales de televisión y evalúa, mediante el uso de un test de usabilidad, las interfaces de contenido televisivo ofrecidas por la televisión de pago en Chile. Las pruebas demostraron que tanto la presentación de los contenidos como el diseño de interacción están lejos de una experiencia de usuario positiva.

***Palabras clave**: TV digital, interactividad, diseño de interfaces, usabilidad, experiencia de usuario.*

•How to cite:

Fernández, F. (2014). Descripción y análisis de la interactividad asociada al contenido televisivo en Chile: sitios web y TV de pago. *Cuadernos.info*, 35, 147-158. doi: 10.7764/cdi.35.607

INTRODUCTION

In Chile the process of adopting and implementing digital terrestrial television (DTT) has been discussed for years, first regarding transmission standard and, later on, a new regulation of the sector. At both times, the dominant focus of the debate was the technical capacities of the various standards (quality of image and sound and efficient use of the radio spectrum) and the possibility of entry of new actors to the television industry. However, other equally relevant dimensions of analysis were pushed aside, bearing in mind the prominence that audiences have gained in the choice of content and interaction with it (Fernández & Goldenberg, 2008). One of such dimensions is the opportunity for providing new services and interactive content, a possibility that arises due to the digitalization of the television signal. This is an aspect that has not been addressed in depth in Chile, but has a significant degree of research and development in countries where DTT has been implemented, as can be seen in the work of Cesar, Bulterman and Jensen (2008). The dominant technical look on digitalization of television broadcasts of free reception is reflected in the law on Digital Television recently enacted in Chile, in may 2014, which lacks a convergent gaze on audiovisual content and its interaction with audiences across multiple platforms and available strategies.

THEORETICAL FRAMEWORK

DIGITAL TERRESTRIAL TELEVISION

In the last two decades, television has diversified the platforms used for the distribution of its content. Thus, in addition to the broadcast of Hertzian television, which is the most consumed in Chile[1], it has also other audiovisual platforms, such as cable television, direct to home satellite television, IP television, the content via web (YouTube, Vimeo, Joost and content that networks post online) and services from *Over the Top TV* such as *Netflix* and connected TV or *Smart TV* (Fernández 2013). In particular, the debate on the transition to digital terrestrial television has opened the doors in Chile to a territory of convergent, digital and interactive content.

Digital terrestrial television differs from the traditional analog one, not only because of the technical aspects of the transmission, but by the better use of the radio spectrum, which allows the transmission of a greater amount of information in the same space. As a result, the possibility of having a greater number of channels in the same space where there was only one before exists, as well as a better quality of image and sound, and new services and content based on interactivity with the viewer. The latter constitute what is known as *interactive television*.

INTERACTIVITY AND TELEVISION

One of the first challenges posed by interactive television is to define what it is. In recent decades, countless applications have summoned the term "interactive" on television. Thus, they have qualified as such the increase of available channels for the viewer as well as the control of different angles of the camera in the coverage of certain events, including the *on demand* content, content customization and recording in the decoder (*personal video recording*, such as *TIVO* in the United States, or the services of digital recording of some companies of Chilean pay TV). This great diversity of applications turned the term "interactive television" into a wildcard, whose meaning may be unclear both for the audience and for the industry. For this reason, there is a need to establish an agreed definition on what is interactivity in television. In this sense, "interactivity" will be understood as the active participation of the user in determining the direction of the content flow (Jensen, 2005, p. 105). Thus, interactive television (iTV) can be defined as services that combine traditional television broadcasting with improvements and extensions that add value to the audiovisual content and allows viewers a more active attitude in its consumption. There is not necessarily a correlation between iTV and digitally transmitted television (digital television or DTV), because some iTV services have been available for analog television, before the digitization of media, as is the case of "Teletext" in Europe, an information service (news, information on public services, etc.) that has been available for more than thirty years (Zabaleta, 2003). What the digitization of television has done is expand the potential for services and interactive content on TV (Jensen, 2005).

The experiences of interactive television services in Chile have been few and limited. An interesting example was *Hugo*, a children's show on National Television (Televisión Nacional, TVN) in the second half of the 1990s (Fernández & Goldenberg, 2008).

In this program, the children called by phone to participate in a video game, whose main character, Hugo, was controlled using the buttons on the phone. In the last decade interactivity has taken other forms. The first, and quite massive one, was the use of Short Message Service (SMS) through mobile phones to vote for participants, for example, in programs of *reality* television. Although the viewer did not directly control what happened, the massive votes decided the outcome of the program, referring to what is known as people interactivity (Prado & Franquet, 2006). Since digital cable and satellite television services require a *set-top box* to have a channel of return within the same telecommunications platform, Chilean pay TV companies began to offer services with added value, many of which can be mentioned as examples of interactive television content: electronic program guides (*EPG*, its acronym in English), which allow to explore the calendar of programs; video on demand services; and set-top boxes with hard drives and digital recording service (PVR).

USABILITY OF INTERACTIVE SYSTEMS

Television channels in broadcast Chilean TV and around the world have found an interesting channel for distribution of content content via web, with the added value of interactivity with their audience, i.e., the possibility of having a two-way channel of information. Despite many differences, all television channels in Chile have their websites. The more developed ones in terms of quantity of resources are those of stations with higher ratings. The manner in which the interactive content on these channels is displayed can be studied using proven methodologies to measure how effective websites are. Jakob Nielsen (2000) is one of the main promoters of a methodology to measure how "usable" is a website. The term "usable" refers to the measurement of the quality of the user experience when interacting with a product or system. A key concept in this is the user-centered design, which together with usability has collected international ISO standards[2].

In particular, Nielsen (2005) defines ten general principles for the design of user interfaces:

- Visibility of system status.
- Consistency between the system and the real world.
- User control and freedom.
- Consistency and standards.
- Error prevention.
- Recognition rather than recall
- Flexibility and efficiency of use.
- Aesthetic and minimalist design.
- Help users recognize, diagnose, and recover from errors.
- Help and documentation.

Nielsen's studies can also be embedded in what is known as human computer interaction (HCI). Its background can be seen in the studies of ergonomics, which aims to study the physical characteristics of machines and systems and how both can affect user performance. Now, within the framework of the HCI, studies on usability, as posed by Nielsen, should take into account the phenomenon known as web 2.0, characterized by the generation of content on the part of the user and the use of social networks like *Facebook*, *Twitter* and other Internet services, insofar as they are used by Chilean television channels for content, in what is known as a transmedia storytelling (Jenkins, 2005; Scolari, 2013; Julio, Fernández & Sarmiento, 2014). Cesar, Bulterman and Jensen (2008) refer precisely to the more active user regarding content when studying television associated with the use of mobile devices, such as second screens, and categorize the activity of users in controlling, enriching, sharing and transferring information.

METHODOLOGY

Notwithstanding that some Chilean television channels are exploring options of connected TV or Smart TV interactivity (Fernández, 2013; Julio, Fernández & Sarmiento, 2014), most of the interactive content is circumscribed to free-to air television web sites and interfaces to access pay-TV services. Therefore, for this research, the interactive content considered was of the four networks with free-to air television channels, that hold 90% of the audience altogether. Regarding pay-TV, or television by subscription, although the largest number of subscribers in the country have cable TV, the growth of the audience in recent years is due to the increase in subscribers of direct-to-home satellite TV (Julio, Fernández & Sarmiento, 2014), which in turn present more complete interactivity options in higher-

priced subscription modalities (called Premium). For these reasons, the DirecTV satellite television platform was chosen for this study.

Following the general principles posed by Nielsen (2005), a test was elaborated to observe the behavior of the user when operating a digital television platform, testing features, and their knowledge and use of the interactive offer. Regarding the composition of the sample, two groups were considered: one whose attribute was to not have contracted, in the home or in the workplace, a pay TV service during the last five years up to the time of application of the test; and another whose attribute would be a user of any pay television service in the past five years. The test, which lasted approximately 45 minutes, was individually applied to six users of pay-per-view TV with different levels of skill and competency of using technology, and three non-users. For the sample size the reasons indicated by Nielsen and Mölich (1990) were considered, as they claim that the results of a test of evaluation of interfaces do not vary much above five people. The design of the space where the test was applied was similar to being in an average home, with a chair, a side table and the TV as the main element of the room. The distance from the screen depended on how well, or not, the user could read the information from the satellite television platform interface. In any case, it was a 42 inches, full HD (1080 lines) LCD TV. The design of the questions followed the pattern of the test of usability applied to web sites, which includes giving a series of tasks or actions to be done through the interface; in this case, using the remote control (*hardware* interface) and the information that appears on the screen (*software* interface). In particular, the test had six parts: a) age and educational level of respondents; (b) use of television and Internet; (c) degree of knowledge and use of digital services and pay television services; (d) usability test; (e) evaluation of interactive applications of the platform tested by users; (f) open-ended questions. Regarding specifically the usability test, activities that were asked to be done by the users corresponded to the three main options of interactivity presented by the platform, which could be either achieved, moderately, achieved or not achieved: i) search for previously defined channels (Electronic Program Guide or EPG); (ii) recording of a program (Personal Video Recorder, or PVR); (iii) request for a program (Video on Demand or VOD); (iv) choice of a game within the game channel.

Concerning free-to-air television reception, as stated above, Chile has not explored the interactivity options associated with the selected transmission standard, ISDB-Tb. Hence it was decided to analyze the offer four channels of free-to-air television give their audiences and the general public online: www.canal13.cl, www.chilevision.cl, www.mega.cl, www.tvn.cl. Of each one of them, the public selected the most successful programs, in terms of rating and recognition during 2011. The review and analysis were performed by researchers and were based on a description of the site from the main categories of content (which are on the horizontal bar of the site under the *header* of the page) and the type of built-in interactivity in this. It was taken into account the grouping of the participation of the user in the three degrees of interactivity posed by Moreno (2002): selective, in which interactivity is reduced to select among options delivered; transformative, that the person, as well as select, can transform the content proposed through the introduction of elements identified by the user; and constructive, in that the user may build new proposals. The review and analysis considered the description of interactive features built on the site of the television program when it was a content that depended on the choice of the person to any of the degrees described above. Among the first features, it boasts participation in social networks, whose offer, then, is the same currently available free-to-air television web sites.

RESULTS AND ANALYSIS

USABILITY TEST ON DIGITAL SATELLITE TELEVISION

The results of the usability test applied to nine people, separated into two groups, as they were or not users of paid digital television, are summarized in Table 1.

Results are diverse, even though only seven activities were not successful of a total of 36. It is interesting to note the behavior of Pay TV User 6, who failed two of the tasks in the test. To do the task, the users had five minutes, which in some cases, as indicated in the table, were exceeded. This corresponded to the first and the second person tested, who insisted on the task until

Table 1. Summary of results of Usability Test of Pay TV

Surveyed	(a) Channel Search	b) Recording	(c) VOD	d) Games
Pay TV User 1	The search presents complexity due to the acronyms of the channels. In addition, the categorization in the EPG delayed the task. Task time: 13' 10 ".	Correctly used the recorder as well as the *playlist* recordings. However, he recorded another program.	Arrives to it via the menu. Time: 3' 07 ''	Uses a channel filter to get to the games, until reaching *Game Show* in 5' 25 ". The user makes an observation: a key that serves direct access is needed.
	Achieved	Achieved	Achieved	Achieved
Pay TV User 2	Performs the search through the Guide. User also indicated confusion by the acronym of the channel. Time: 13' 59 "	Uses the menu to access the option. Manages to record, but not reproduce what is saved. Time: 4' 38 ''	Completes the task without major problems and within the established time.	Use the Guide to access, but due to the number of channels, is confused. Fails the task in the established time.
	Not achieved	Moderately successful	Achieved	Not achieved
Pay TV User 3	Uses the Guide and, in addition, access the theme menu. Complains, however, of the acronym of the channels.	Achieves recording, but the recording stops during the exercise.	Performs the task correctly, accessed from the menu.	Performs the theme search, but what is requested in the test does not appear as. After that, uses search. It finally finds it, but complains of the location.
	Achieved	Achieved	Achieved	Achieved
Pay TV User 4	Does not access directly to the Guide. Cannot find some channels, complaining for the acronyms.	Recorded using the REC button. Used correctly the play buttons and watched the recording.	Manages to get the job done.	Reaches the channel and plays without any problems.
	Moderately successful	Achieved	Achieved	Achieved
Pay TV User 5	Does not access immediately to the Guide, by pressing menu.	Records using the corresponding buttons.	Manages to buy the movie, but when buying it, something happens in the system.	Searches for the channel from the Guide, reaching it and fulfilling the task.
	Achieved	Achieved	Achieved	Achieved

Encuestado/a	a) Búsqueda de canales	b) Grabación	c) VOD	d) Juegos
Pay TV User 6	Does not access the Guide, performs the search from favorite channels. The task is not fulfilled	At the beginning, the surveyed complains of the configuration of the control. Manages to find the requested channel, recording, but erring on the playback options.	Browsing through menu, reaches the VOD Channel, but by some confusion with a button, does not enter the purchase option. After some attempts, manages to access the shopping menu, but it fails the task.	Tries to do some *channel surfing* (*zapping*) to search for the channel, but cannot find it. Does not fulfill the task.
	Not achieved	Achieved	Moderately successful	Not achieved
Non Pay TV User 1	Finds the Guide, and succeeds in *zapping*, but cannot find all the channels	When finding the channel to record, used the *REC* button. Later presses the yellow button to access recording, skipping the *Select* option,	Managas to distinguish the channel, but does not recognize the purchase options, without being able to get the task done	Finds the channel through the menu. In this exercise, the user already markedly uses the arrows and the *Select* button, fulfilling the task.
	Not achieved	Moderately successful	Not achieved	Achieved
Non Pay TV User 2	Access quickly to the Guide and, in addition, manages to access the theme menu.	Uses the *REC* and *Select* buttons. Looks for the recording through of the Guide, but does not get it to play back. Does not fulfill the task.	Gets to the channel and choose a film, but fails to access the purchase menu (does access the client service menu, which does not correspond to the task).	Uses the Guide to reach the channel. Access and plays, although complaining because one of the games has instructions in English, while others are in Spanish.
	Achieved	Moderately successful	Moderately successful	Achieved
Non Pay TV User 3	Finds the Guide quickly, but only moves with it to search for channels.	Uses the *REC* button to record, but had difficulties tuning to another channel while recording. Managed to play back the recording, but in more time than expected.	Reached DirecTV *on demand*, but does not buy a program.	Reached the channel through the Guide, using the option "Variety Channels".
	Moderately successful	Achieved	Moderately successful	Not achieved

Source: Own Elaboration

achieving it. While in the table the activity is scored as successful, it was out of time. The exercise with best results was choosing the video games channel and select one of the available ones. Meanwhile, the activity that got the most disparate results was the channel search. The users had a list of seven channels they had to tune to, a seemingly simple task, but that was complicated by the acronym of the channels, which did not match the actual names and, in the opinion of the people tested, complicated the search due to the large number of channels available to those who did not use the Guide on screen.

Other aspects that are highlighted from the application of the usability test are the following:

- People who were not Pay TV users that had better results in fulfilling the tasks correspond to regular Internet users. One of them used the search box on the cable platform to find the games channel, writing the word "games" with the remote control.
- Confirming an action by a word that indicated what a button of the remote control did allowed that all persons tested could achieve successfully or moderately successfully the task of recording (PVR). Once completed the test, when asked why, the participants all agreed the "R" from the word "Rec" in a button on the remote control indicated that it was useful to start recording. The absence of a word that referred to "play back" of the recorded program could be a determining factor for those who did not complete the task.
- The time to complete the task is essential, as well as the memory to remember the steps. Some pay TV users participants, once finished the test, said they had never used several of the buttons that they pressed on the remote control, or had never made the selections done on the screen, and that they probably would forget how to do it.

According to usability criteria indicated by Nielsen, the following are observations of what is interesting to highlight, as they manifested themselves during the test application:

- **Visibility of system status:** there are aspects that are well made, as the "R" button on the remote control to start recording; however, others are not, such as the letters assigned to each television station. This point is crucial in consumption, both as it applies to the identity of the channel on the display of the channel list on the TV screen.
- **Consistency between the system and the real world:** for those users who are familiar with Internet and digital consumption on computers, the action of content search is considered in the platform. However, the achievement in some cases of the task of VOD and PVR (for the playback of the recorded material) indicates that learning the use of VHS by part of the public or other ways of accessing content on demand is not taken advantage of.
- **Consistency and standards:** within the comments, the assertion that the payment platform used in the test did not have the same reference system handled at home.
- **Recognition rather than recall:** recognition was given on two occasions: with the R button on the remote control to start recording, and the inclusion of the "Search" option in platform. The rest of the actions required the memorization of steps to achieve the requested objective. Expressions like "Ah, now I learned how" or "Now I know" refer to that remembrance of each step of the process to achieve something on the platform.
- **Flexibility and efficiency of use:** two users discovered that a same task could be achieved by means of two different paths, and asked which of them they had to follow.
- **Help and documentation:** none of the users went to the "Help" menu or sought any instructions on-screen of the pay television system.

FREE-TO-AIR TELEVISION AND INTERACTIVE AUDIOVISUAL CONTENT ONLINE

The analysis of the web sites of selected television programs was carried out from a description of their structure, their choice of interaction with the content and the use of social networks, like *Facebook* and *Twitter*.

Los 80 [*The 80's*] (http://los80.13.cl/, Canal 13 [Channel 13])

Five prominent buttons appear on the menu of the site: *Title page* (*Home*), *Episodes*, *Exclusives*, *Your 80's* and *Send your memories*. They lead to multimedia content (text, image, and video), but interactivity is just selective. The option to enter a new narrative on the site

is given by the button to *Facebook* and Twitter. In this sense, transformative interactivity is left at hands of external resources to the site and TV channel. Following this same pattern, in the *Exclusives* section, the user can join via *Twitter* one application called *Twibbon* (http://twibbon.com/join/Los80), where they have the option to upload their own photos of the 1980's.

Yingo (http://www.chilevision.cl/home/index.php, Chilevisión)

This television program is aimed at teenagers and on its web site highlights the wide thematic range that offers on the cover. The content emphasis is on the text, images and videos showing segments of the program; hence the participation of the user is basically selective. More options are obtained through a blog, where download of images is available and the option to play a kind of *Memory* game, where you have to turn over cards and find matching pairs. Unlike other TV channels, Chilevision opted to develop a social network, called Mitiu, so there is no association with *Facebook* accounts or Twitter.

Morandé con compañía (Morandé and Company) (http://www.mega.cl/programas/mcc/, Mega)

As in previous cases, this program hosted by Kike Morandé and Luis Jara has a website that features links to content primarily in video format. Some of them show sections of the program, which can be commented by the user, as if it were a blog. The possibility of sharing the content is given by links to *Facebook* and Twitter. The site does not present any type of interactivity that is non-selective type, so linearity in the delivery of audiovisual information cannot be broken and there is no impact of the user in it.

La Familia de al lado (*The Family next door*) (http://tvn.cl/teleseries/lafamiliadeallado/2010/, Televisión Nacional de Chile [National Television of Chile], TVN)

TVN's telenovela's *La Familia de al lado's* web site does not have a main menu, so the navigation structure of the page is different from the previous cases. The first thing that stands out on the page is the presence of three links that lead to three exclusive contents developed for the website. The first of these *links* is called "*La ventana de Borja*" ["Borja's Window"]. This space is defined as a *web series* associated with the content of the soap opera. However, the URL of the site classified the space as a blog: http://www.tvn.cl/blogs/laventanadeborja/contenidos.aspx

Borja is a neighbor who spies on the main characters of the soap opera, and periodically uploads videos through his webcam, outlining his theories about the events that occur in the fiction's story. Each of Borja's videos includes the option to share it via *Facebook*, send them via e-mail and use Twitter, as well as comment through a *Facebook* account. However, the most notable feature is the game *El intruso* [The intruder]. It works like a video game in first person, in which the user can roam the house of the characters of the television series and discover who committed a crime. The player is the "intruder" and, every few steps, you can move by choosing from options that appear on screen. It also allows the user to collect clues and thus solve the mystery posed by the plot of the telenovela. Functionally, the game operates fairly well, but a good broadband and video card are needed to make it work correctly. Nonetheless the transformative interaction posed in the design of this page associated with a television program, the participation of the user in the game does not change what happens in the telenovela. It is two contents that run parallel paths and share information, but the website and the TV show do not influence each other.

In terms of quality of interactivity, concepts already cited of control, enrichment, share and transfer were applied (Cesar, Bulterman & Jansen, 2008). Thus, in the websites of Chilean television channels the following are present: control (through a selection mode), enrichment (through comments on blogs) and sharing (social networks). Transfer, defined as the action of manipulating the contents sent back (by the user or uploaded to other platforms for redistribution), is something that was not present. In any case, after the application of these criteria, it is observed that it is necessary to introduce a scale that allows not only to determine the presence of these attributes in the action of the users, but also to effectively measure its level, to make a more detailed comparison between the existing offer.

DISCUSSION AND CONCLUSIONS

Analyzing the results of the tests applied to pay television, it is observed, firstly, that the "Age" variable, added to the fact of being or not a Pay-Tv user, makes it difficult to accomplish all the tasks. Also, the

performance of non-users is lower than the one of users. However, certain tasks introduce variables that were not considered, such as the design of Pay-Tv platform. It is the case of the channel navigation interface in the EPG, which does not have the full name of each station, but an acronym of three or four letters (NATG for National Geographic, for example). Those who are not familiar with this system of abbreviations used by television channels cannot search for them by name and are required to do *zapping* and use the transmission images as reference. The concept of familiarity in the design of the interface of the studied paid platform - familiarity understood as the recognition that the user makes of elements of reference systems used in its daily life - could also be seen during the test in the task of recording a program. Those who managed to accomplish this task acknowledged the letter R on the remote control and associated it with the abbreviation REC ("record"). However, the option to play back what was recorded was not sufficiently clear on the remote control or in the graphic interface of the platform. This is an area that is necessary to investigate: design the required interaction by the system to execute the action of record and playback, and then create an interface that takes advantage of elements that are familiar to the user.

In terms of the analysis of the interactivity offered by Chilean television on their programs' websites, when the elements of revision described in the methodology are applied, it emphasizes the absence of options where the user can participate to intervene the plot or some element that affects the program broadcasted on television. In the analysis, interactivity is reflected mostly in participating through comments of videos uploaded by the different programs to the web. However, there are few spaces, for example, so users can upload their own videos or modify existing ones (*Yingo* presents a section to upload videos). There is also no audiovisual content available for downloading (videos) and only some programs allow you to download *wallpapers* or pictures.

In general, both revisions - conducting usability tests and analysis of availability of interactive audiovisual content presented by the Chilean free-to air television channels on their websites - yielded results that point to corroborate one of the hypothesis of the research that gives rise to this article, and that indicates that the World Wide Web is one of the main platforms used for interactivity with television content in Chile.

Based on its offer of audiovisual interactive content, the first result of the analysis is that TV channels are beginning to consider interactivity as an important concept to keep the proximity with the public, although it still presents itself at its most basic levels. According to Moreno (2002), interactivity from the point of view of user action is seen in the possibilities of selecting, transforming and building. In this sense, when making a typology from the characteristics of this offer, it emphasizes how basically selective it is, i.e., it offers the user mainly only the option of selecting between alternatives shown from *links*.

Notwithstanding the above, there are some programs that took some extra steps. These contents correspond to the following genre: series, telenovelas, contests, live shows and live interviews. Of the analyzed cases, all offer the option of sharing content through social networks (mainly *Facebook* and Twitter, although Mega offered other options, such as MySpace, Delicio.us, Google Buzz, while Chilevisión developed its own social network, intended for a young audience to promote all its programs and artists, www.mitiu.com). The highest level of interactivity of all reviewed sites corresponded to the TVN soap opera *La familia de al lado*, whose website has interesting applications that go above and beyond mere selection from the user, even though the interaction does not modify the soap opera plot and the participation of the user is parallel to it.

Now, in terms of interactivity presented by some programs of the main Chilean television channels, it stands out the fact that it is left at the hands of external agents such as *Facebook* and Twitter, taking advantage of the familiarity and behaviors already learned by the audience. In the context of developing interactive content for DTV through the Ginga[3] platform, using the most popular social networks cannot be put aside. If this hybridization were made, we would be facing what is called *Widget TV*, which would be superimposing a layer of interactivity to television broadcasting through the implementation of programs or applications that beckon data found on Internet and displaying it on screen. In this case, there would not be a modification of the content delivered by the television channel, much less a change in the linearity of the plot and the delivery of audiovisual content, as it would be closer to the game described in the case of "*La ventana de Borja*".

In addition to the results presented in this article, the usability test was not only to evaluate

the interaction with the *hardware* in which content unfolds (TV and remote control), but it also was a useful tool to identify gaps and errors in the design of interactive communication that a system has with the person who is the user. On the other hand, it can be acknowledge that the websites of the analyzed programs from Chilean television channels have started to make way for interactive options with the audiovisual content. However, it is necessary to move towards a more transformative and even constructive participation on the user's part so that they have a better experience with interactive content consumption, integrating what is shown on TV and what is done on the web.

Finally, in the supply of interactive audiovisual content there is an interesting field of action to create interfaces that incorporate elements familiar to users. Although digital media literacy presents a correlation with success in tasks that involve interactivity in television consumption, there is a space to innovate with the incorporation of familiar elements on interfaces that are better known by the users through previous processes of interaction. Similarly, since television stations are already delivering some interactivity through their websites, it is necessary to take it into account in the future design of interactive digital television platforms. In this sense, Internet connectivity and applications associated with social networking are a starting point.

FOOTNOTES

1. According to data reported by Time Ibope from the people meter measurement system. The population of the universe measured is equivalent to 46 % of urban Chile. Cf. July 2005

2. For example, the standard 13407:1999 " Human-centered design processes for interactive systems " and ISO 9241-11 on "Ergonomics of human-system interaction – Part 171: Guidance on software accessibility", among others.

3. The standard transmission of terrestrial digital television in Chile is the Brazilian adaptation of the Japanese standard, the acronym is ISDB -Tb . This standard uses the middleware for interactive content in the Ginga -NCL TV (See http://www.ginga.org.br/en)

REFERENCES

Castells, M. (1996). *La era de la información. Vol. 1: La sociedad red [The information age. Vol. 1: The Network Society]*. Madrid: Alianza.

Castells, M. (2001). *La Galaxia Internet [The Internet Galaxy]*. Madrid: Areté.

Cesar, P., Bulterman, D. & Jensen, J. (2008). Usages of the secondary screen in an interactivetelevision enviroment: control, enrich, share and transfertelevision content. In M. Tscheligi, M. Obrist & A. Lugmayr, A. (Eds.), *EuroITV 2008*. LNCS 5066 (pp. 168-177). Berlin-Heidelberg: Springer-Verlag.

Comisión Económica para América Latina y el Caribe (CEPAL). (2003, July). *Los caminos hacia una sociedad de la información en América Latina y el Caribe [Roads towards Information Society in Latin America and the Caribbean]*. Document prepared by J. Katz & M. Hilbert. Libros de la Cepal 72. Santiago de Chile: Author. In http://www.virtualeduca.org/documentos/2012/cepal_72%282003%29.pdf

CNTV, Consejo Nacional de Televisión (2006). *Estudio estadístico de televisión abierta 2000-2006 [Statistical study of broadcast televisión 2000-2006]*. In http://www.cntv.cl/prontus_cntv/site/artic/20110322/asocfile/20110322142647/estadistico2006.pdf

CNTV, Consejo Nacional de Televisión (2008). *VI Encuesta Nacional de Televisión 2008: Resultados nacionales y regionales [National Television Survey: National and regional results]*. In http://www.cntv.cl/prontus_cntv/site/artic/20110318/asocfile/20110318142208/entv2008resultadosregionales.pdf.

Eronen, L. (2003). User centered research for interactive television. In *Proceedings of the 2003 European Conference on Interactive Television: From Viewers to Actors* (pp. 5-12) (April 2-4, Brighton, UK), University of Brighton. In http://lib.tkk.fi/Diss/2004/isbn9512273225/article7.pdf

Fernández, F. (2005). Brecha de inclusión digital en Chile: Los desafíos de una nueva alfabetización [Digital divide and digital inclusion in Chile: the challenges of a new literacy]. *Comunicar, 24*, 77-84.

Fernández, F. & Goldenberg, S. (2008). Aplicaciones interactivas para la televisión digital en Chile [Interactive Applications for Digital Television in Chile]. *Cuadernos de Información*, (22), 6-17. doi: 10.7764/cdi.22.86

Future Exploration Network (2006, July). *Future of Media Report*. In http://futureexploration.net/images/Future_of_Media_Report2006.pdf

Gawlinski, M. (2003). *Producción de televisión interactiva [Interactive television production]*. Londres: Focal Press.

Godon, M., Handekyn, K., Vanparijs, F. & Coppens, T. (2005). Enabling rich communication with community support for television. In *Proceedings of the 43rd European Telecommunications Congress* (pp. 11-15). Ghent, Belgium (September 8-11, 2004).

Gomes Soares, L. F. & Lemos Souza Filho, G. (2007). Interactive television in Brazil: System software and the digital divide. In *Adjunct Proceedings of the European Conference on Interactive Television* (EurolTV 2007), (pp. 41-43). Amsterdam, Netherlands. In http://www.telemidia.puc-rio.br/sites/telemidia.puc-rio.br/files/2007_05_lfgs.pdf

Jenkins, H. (2005). *Convergence Culture*. Barcelona: Paidós.

Jensen, J. (2005). Interactive content, applications and services. In A. Brown & R. G. Picard, *Digital terrestrial television in Europe* (pp. 101-131). London: Lawrence Erlbaum Associates.

Jens, F. J. (2005). Interactive television: new genres, new format, new content. *Proceedings of the Second Australasian Conference on Interactive Entertainment* (pp. 89-96). Sydney, Australia: Creativity & Cognition Studios Press.

Julio, P. (2005). Los últimos cambios en el people meter: un rating más nacional y menos segmentado [People meter´s latest changes: An increasingly more national and less segmented rating]. *Cuadernos de Información,* (18), 112-121. doi: 10.7764/cdi.18.151

Julio P., Fernández, F. & Sarmiento, J. P. (2014). CHILE: television as a mural for history. In M. I. Vassallo de Lopes & G.Orozco, *Yearbook 2014: Transmedia Production Strategies in Television Fiction* (pp. 161-195). Porto Alegre: Editora Sulina-Globo.

Lu, K. (2005). *Interactive design principles for interactive television*. Master thesis, Georgia Institute of Technology, Atlanta (USA).

Lugmayr, A., Niiranen, S. & Kalli, S. (2004). *Digital interactive TV and metadata: Future broadcast multimedia*. Berlin / New York: Springer.

Molnár, S. (2003). *The explanation frame of the digital divide*. Budapest: BME-UNESCO Information Society Research Institute, Technical University of Budapest. In http://www.academia.edu/1308255/The_explanation_frame_of_the_digital_divide

Moreno, I. (2002). *Musas y nuevas tecnologías [Muses and new technologies]*. Barcelona: Paidós.

Murray, J. (1999). *Hamlet en la holocubierta [Hamlet on the Holodeck]*. Barcelona: Paidós.

Nielsen, J. (2000). *Designing web usability*. Indianapolis, IN: New Riders.

Nielsen, J. (2005). *Ten Usability Heuristics*. In http://tfa.stanford.edu/download/TenUsabilityHeuristics.pdf

Norman, D. (2000). *El ordenador invisible [The invisible computer]*. Barcelona: Paidós.

Owen, B., (1999). *The Internet challenge to television*. Cambridge, MA: Harvard University Press.

Pagani, M. (2003). *Multimedia and Interactive Digital TV: Managing the Opportunities Created by Digital Convergence*. Hershey, PA / London: Irm Press.

Palmer, S. (2006). *Television disrupted: The transition from network to networked TV*. Amsterdam / Boston: Focal Press.

Prado, E. & Franquet R. (2006). Televisió interactiva. Simbiosi tecnològica i sistemes d'interacció amb la televisió [Interactive television. Technological symbiosis and interaction on TV]. *Quaderns del CAC*, extraordinary number (March). In http://www.cac.cat/pfw_files/cma/recerca/quaderns_cac/tvi.pdf

Raad, A. M. (2003). Reflexiones sobre la participación en una cultura digital [Reflections about participation in a digital culture]. In R. Araya (Ed.), *América Latina Punto gov. Casos y tendencias en gobierno electrónico [Latin America dot gov. Cases and trends in e-government]* (pp. 209-224). Santiago: Flacso-Chile / AICD / OEA. In https://www.flacso.org.ec/biblio/catalog/resGet.php?resId=13277.

Scolari, C. (2013). *Narrativas transmedia [Transmedia narratives]*. Barcelona: Deusto.

Taylor, P., Traxler, J. & Attewell, J. (2006). *Interactive digital TV for learning: the kickstart TV pilot project*. London: Learning and Skills Network.

Tózsa, I. & Budai, B. B. (2006). *M-Government – T-Government: Latest technological trends in public administration*. Budapest: Adamas Studio.

Zabaleta, I. (2003). *Tecnología de la información audiovisual [Audiovisual information technology]*. Barcelona: Bosch.

ABOUT THE AUTHOR:

Francisco Fernández Medina, Periodista de la Pontificia Universidad Católica de Chile, Doctor en Ciencias de la Información de la Universidad Autónoma de Barcelona. Profesor asistente de la Facultad de Comunicaciones de la Pontificia Universidad Católica de Chile. Jefe de Programa Diplomado en Desarrollo y Gestión de Contenidos Digitales UC.