iTV Guidelines

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iTV DEFINITION AND SERVICES

Technology advances ceaselessly, often in the direction of improving existing equipment. Television, for example, has benefited greatly from the emergence and/or transformations that have occurred in a variety of devices, communication platforms, and ways and methods of transmission.

The appearance of computers that store data digitally, the growth of the Internet, which is accessible anytime, anyplace, to anybody (Rosenberg, 2001) and, finally, the appearance of transmission methods that allow for communication in two directions, have led to a new paradigm: interactive television (iTV). iTV, which is a result of the combination of digital television and Internet technology (Nielsen, 1997) in order to deliver a mix of programming, with restricted or open Web access (Chandrashekar, 2001), allows the viewer to interact with an application that is delivered via a digital network simultaneously with the traditional TV signal (Perera, 2002). This means that a concurrent transmission occurs: Namely, the standard program or traditional television broadcast occurs along with the application with interactive elements (Bernardo, 2002). In order to decode the digital information, that is, the abovementioned applications, with interactive elements, a digital adapter must be used by the viewer. This is the so-called set-top box. In order to allow the viewer to interact with the application, a return channel is also needed. The return channel allows the viewer feedback to reach the TV operator.

Several types of services are possible through iTV's principally interactive programs, which offer the possibility of interacting electronically with a normal TV program while it is being broadcast. Other services also include the following:

- Enhanced TV services such as EPGs (electronic programming guides)
- Special services through TV that are made available via the so-called TV sites, namely, weather services, TV shopping, TV banking, games, educational services (t-learning, which is learning through interactive digital TV; Port, 2004), and interactive games amongst others
- Internet browsing and the use of e-mail (Bernardo, 2002; Chambel, 2003)

Different services imply different types and levels of interactivity, which means that iTV may be defined in a multitude of ways (Gill & Perera, 2003). However, what is important to underline is that television and interactivity are "coming together fast" (Bennett, 2004) and, as a nascent phenomenon, iTV is trying to "find its feet, lacking compatibility, interoperability and solid guidelines" (Gill & Perera, 2003, pp. 83-89).

In terms of research areas, the establishment of "solid guidelines" is probably one of the most urgent priorities since so far the largest investments have been in the technological area. For example, a very expensive and time-consuming system developed by Sportvision Inc., USA, (http://www.sportvision.com) for hockey games worked fine in technological terms but "manages to offend even hockey fans with its lack of subtlety" (Television, 2003, pp. 32-35). For Jana Bennett, director of BBC Television, one of the most successful digital iTV operators in Europe that had more than 7.2 million users by the end of 2003 (Quico, 2004), the "biggest challenge ahead will be creative rather than technical. What's needed now is a creative revolution every bit as ambitious as the technical one we have seen" (Bennett, 2004).

Several researchers argue the need of new and personalized services embodying good design (Bennett, 2004; Chorianopoulos, 2003; Damásio, Quico, & Ferreira, 2004; Eronen, 2003; Gill & Perera, 2003; Port, 2004; Prata & Lopes, 2004; Quico, 2004), usability (Gill & Perera, 2003), and subtlety (Television, 2003). These characteristics will be impossible to achieve without specific iTV guidelines based on scientific principles. Thus, we conclude that the next important steps to be taken can be

summarized in one sentence: Research must lead to solid guidelines that can be applied in developing creative new personalized services to meet viewers' needs.

iTV GUIDELINES: FINDING THE WAY

In order to produce good iTV interfaces, namely, TV sites and interactive program applications, some specific guidelines need to be followed. However, iTV interface design is still in an embryonic phase (Bernardo, 2003) and, as it is a very recent phenomenon, no specific iTV guidelines have been defined and accepted worldwide. Since iTV uses Internet technology, designers decided to start by focusing their attention on the accepted worldwide Web-site guidelines. However, as the output devices to be used are completely different (the PC [personal computer] versus TV), these Web-site guidelines need to be greatly modified before being applied. Unfortunately, a considerable number of TV sites have already been designed by Web (or ex-Web) designers who were not capable of adapting the above-mentioned guidelines. The result has been poor and inadequate interfaces (Bernardo).

iTV GUIDELINES: TV VS. PC

As previously mentioned, the best starting point for researching new iTV guidelines may be to focus on Web-site guidelines and, after comparing the specific output devices that are going to be used, adapting them. The comparison of the two devices (TV and PC) is a complex and time-consuming process. Since the process does not fall within the scope of this work, only the main aspects are presented.

A brief TV-PC comparison in technical terms allows us to note the following:

- When referring to the TV set, we use the word viewer, and when referring to the PC, we use the word user (Prata, Guimarães, & Kommers, 2004).
- TV implies a broadcast transmission while the PC implies a one-to-one transmission (Bernardo, 2003).
- The TV screen is very different from a traditional PC screen principally in that it has a lower resolution (Bernardo, 2003).
- TV interaction is assured via a TV remote control instead of a mouse, which means that the interface needs to be dramatically adapted for this new and very limited navigational device. The use of remote control implies sequential navigation, whereas interaction with the PC is by means of a mouse, which is much more flexible than a remote control (Bernardo, 2003).
- With TV, all viewers have the same return channel. Thus, content produced for a specific bandwidth will be compatible with the entire audience. Amongst PC users, there are different connection speeds: analogical lines, ISDN (Integrated Services Digital Network), and high-debit connections. This means that each user may achieve a different result (Bernardo, 2003).
- The TV screen has a fixed resolution that viewers are unable to change and that depends on the TV system being used (The PAL [Phase Alternation Line] system used in Portugal, for example, has a resolution of 672x504, which means that the content area must be 640x472 pixels.) The PC screen has a variable resolution that the user is able to change: 1024x768, 800x600, 480x640, and so forth (Bernardo, 2003).
- The TV set easily allows the use of video (the most powerful communication medium) while the PC is still far from handling it easily (Bernardo, 2003; Prata et al., 2004).
- Watching TV is a social activity, and thus, since it is a group phenomenon, it is associated with group interaction (Bernardo, 2003; Masthoff & Luckin, 2002). The PC typically implies individual interaction (Bernardo, 2003).
- On TV, sound and images are of high quality and in real time while, through a PC, sound and images are of lower quality and take some time to arrive (This is an environment where the download time is a variable to be considered.) (Bernardo, 2003)
- Horizontal scrolling is not possible with a TV. At the PC, although not recommended, horizontal scrolling is allowed (Hartley, 1999; Lynch & Horton, 1999; Nielsen, 2000).