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EXPERIENCE DESIGN AND SOUND DESIGN: DYNAMIC AUDIO APPLICATION GUIDE

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1 Context

In a survey of 7,705 college students in the United States, the Project Bar-BQ (2008) pointed out the key statistics of Generation Y (born between 1980 and 1990): 97% have a computer; 97% have downloaded music and other media using file-sharing networks; 94% have a mobile phone; 76% use instant messaging and social networking sites programs; 60% have some sort of music device and / or portable video. The study was able to show the relevance of IHC devices, pointed to an upward curve towards the future generations.

Stuart (1996) pointed out that the use of technological resources in hypermedia is only restricted the visual modality. According to the author, little is invested in audio[1], an element that brings quality to content, facilitates the accessibility of information and makes them more attractive. In addition to its low cost of production, distribution and use, the audio constitutes a powerful and persuasive tool, especially when acts integrated with other communication tools.

Ten years after, according to the study Susini et al (2006), there was no significant progress in relation to the sound. The author points that in the design field there is an overvaluation of visual communication, and because of its limitations, products and services can often performs erratically when other sensory properties make it relevant, as in the case of sound and tactile information. While the tactile and haptic[2] process

[1] The term audio comes from the Latin *audio*, first person of this verb *audire*, which means to listen, so audio means listening. In a broader sense, it refers to all wave phenomena occurring in the spectrum of audible frequencies, i.e. between 20Hz and 20kHz. In the acoustic domain an audio wave generates sound waves and is known as "sound".

[2] The haptic adjective means "relative to the touch", "synonymous with tactile," and comes from the Greek *hap-tikós,ê, ón* "itself to touch, sensitive to the touch." It is the tactile optical counterpart (for visual) and acoustic (for the hearing). Source: Fonte: Dicionário Houaiss da Língua Portuguesa. Objetiva, 2001.

requirements are beginning gradually to enter in the design processes, the sound and its cognitive functions remain a largely unexplored territory.

Rocchesso et al (2008) indicate that this overemphasis on visual displays has limited the development of interactive systems that are able to make better use of the auditory modality. Therefore, *non-musical sounds* have been accepted as by-products of technology, rather than being exploited by their intrinsic value. As a result, people have experienced an acoustically polluted world since the industrial revolution.

Due to the scarcity of standardized and applied knowledge about the sound in hypermedia design, this study presents the Dynamic Audio Application Guide (DAAG), that aims to systematize the process of creating, producing and implementation of sounds in interactive systems, thus underlining the important role played by sound in the processes of immersion and interaction.

2 Method

Garret (2011) coloca que o som desempenha um importante papel na experiência de muitos tipos de produtos, podendo ser utilizado não somente para informar o usuário, mas também para atribuir um determinado senso de personalidade a um produto. Apesar de coerente, tal abordagem pode ser considerada incipiente para que um adequado desenvolvimento do áudio em plataformas interativas possa se concretizar, tendo em vista a necessidade da formalização e sistematização de um grupo de informações mais objetivas e específicas sobre o tema. A proposta do guia vem de encontro com tal necessidade, visando suprir esta lacuna conceitual existente entre o design de som e o design da experiência do usuário nos processos de desenvolvimento de interfaces.

Garrett (2011) states that the sound plays an important role in the experience of many kinds of products, and that audio can be used not only for informing the user, but also to assign a particular sense of personality to the product itself. Though consistent, this approach can be considered incipient for a proper development of audio in interactive platforms, given the need to formalize and systematize a group of more objective and specific information about the subject. The guide aims to meet this need, in order to fill this conceptual gap existing between the sound design and the interface design.

The guide intends to initiate the development of a formal understanding of the principles that constitute the application of audio in interactive systems. In line with the plans of the user experience proposed by Garret (2011), the GAAD prized by the didactization of its components, comprising an information block system, each belonging to a layer of user experience levels:

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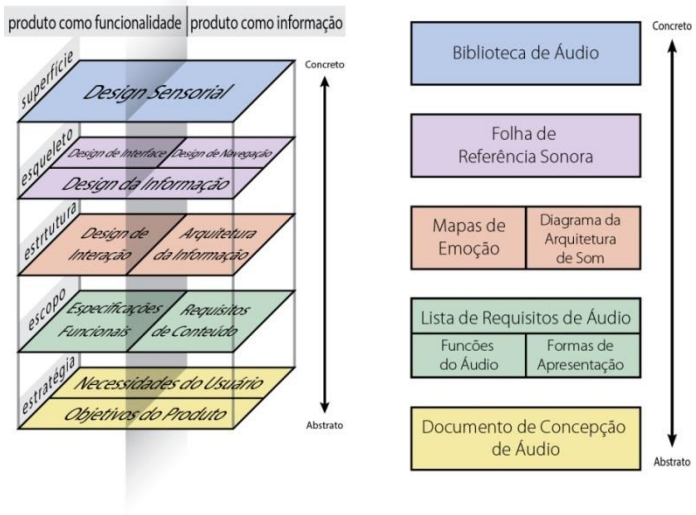

Figure 1: left, User Experience Plans, Garret (2011), on the right, Dynamic Audio Application Guide.

From its guidelines and procedures aimed to an efficient implementation of sound resources in interactive environments, the GAAD intends to systematize and simplify the process of creating, producing and implementing sound in hypermedia. Through the making and distribution of the guide, is intended to highlight the important role played by sound in immersion and interactions processes.

As this is a study with a relative density, was not pertinent here demonstrate here the steps that contains the guide, in details. However, the steps are shown in the further article that comes with this extended paper.

3 Results and Conclusions

It appears that it is possible to propose new hypotheses and new solutions for the development of increasingly rich hypermedia, closer to the user's cognitive model. However, it is essential to fill the gap in the sound design subject. As this is a relatively new area in the academic field, this is not yet sufficiently able to develop solid theories without the basic and substantial empirical research, which will examine the practice of audio production in interactive environments. The fact that the studies on dynamic audio is a recent effort means that many empirical evidence have not been sufficiently met or researched, and available content is still very dispersed.

In this sense, this study can contribute to the improvement of the methods used in the development of hypermedia, presenting relevant design solutions involving the application of sound. By presenting new action possibilities to the hypermedia designer,

the Dynamic Audio Application Guide enables the development of a relevant starting point for a solid and progressive development of sound in interfaces.

But more research is needed to develop and test methods of sound interaction in order to improve the effectiveness of information that is transmitted by the sound through interfaces. It is necessary to move forward with the discussion about the roles played by the dynamic audio objects, systems and interactive environments, such as highlight the need for a new hypermedia design pedagogy, that point the important role played by sound in interactive systems projects.

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