Designing iTV Based Crossmedia Personalized Informal Learning Contexts

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ABSTRACT

Crossmedia systems are becoming increasingly popular. The trends in convergence, integration and co-existence of various media technologies create new opportunities for the generalization of formal and informal learning practices, which are becoming more relevant considering the importance of lifelong learning. Video is a very rich medium to support learning, and TV is a privileged way to access it. By itself, broadcast TV provides limited support to learning processes. But, through structure and interaction, iTV can open the door to flexible environments that can access video and integrate it with different media, accessible from different devices, adequate to support different cognitive modes and learning processes in several learning contexts. In spite of the valuable potential of crossmedia systems to create rich and flexible environments, the design of these systems faces some challenges that may affect their effective use. This paper addresses the effective design of crossmedia personalized informal learning contexts from iTV, through the e-iTV system case study, designed to illustrate and explore this paradigm based on cognitive and affective aspects that influence user experience.

Categories and Subject Descriptors

H.5.2 [Information Interfaces and Presentation]: User Interfaces - *Evaluation/methodology, Graphical User Interfaces (GUI), Interaction Styles, Prototyping, User-Centered Design.*

General Terms

Design, Experimentation, Human Factors.

Keywords

Crossmedia, Design, Learning, HCI, iTV, Interaction, Video.

1. INTRODUCTION

Increasingly, interactive systems are becoming less restricted to a single media technology. In fact, the proliferation of new devices able to support human activities across a range of contextual

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settings [38], just like it happens in 'real life', is one of the main motivations for media integration. We are therefore witnessing the growth of a new generation of systems which are no longer limited to one single media technology, such as mobile devices, computers or interactive television (iTV) but that include many of them. These systems are particularly interesting in what concerns the opportunities they create in terms of communication, entertainment, learning, and other activities [3]. In terms of learning support, these systems are particularly promising due to the emerging era of lifelong learning where informal learning will become as important as formal learning [3], calling for flexible environments.

There are many advantages in crossmedia systems but there are also aspects that affect their efficient use. Most users still feel more comfortable with the typical end-user computing environment. In fact, users need to acquire practices in order to manage several devices [32]. This requires additional effort and, there are often tradeoffs between effort and benefit [38]. Some of the proposed systems failed because too much effort was put into technical details leaving behind crossmedia conceptual questions such as: interaction design, cognitive aspects, usability, affectivity, user experience, contextualization, continuity, media technology, or device, characteristics, etc. The handling of these dimensions was our main motivation. More than a high-tech solution or service, our main concern was to focus on these conceptual questions to study and understand this emerging paradigm which success requires, not only technological solutions, but sustainable models and pedagogical solutions, where research has not been exhaustive [38,35].

The designed e-iTV system generates web content as additional information to video in response to learning opportunities. Video was chosen as the departure media due to its richness, specific cognitive, affective and entertainment features, and also for being a dominant media component in the crossmedia domain [4,5]. TV, and in particular iTV, was chosen since it is still the preferred medium in order to deliver and access video. In spite of being a traditionally active or hot medium, inducing a passive or cold attitude in the viewers [24], TV may conduct viewers into different cognitive states, more experiential or more reflective, in seconds, when at some point in time, the TV program creates the need to learn more about a specific topic that caught our attention. We may prefer to remain in the dominant experiential mode of TV watching and follow a route to additional information at a later time and possibly through a different device, when we may engage in a more reflective cognitive mode, or explore it right away. As stated by [4,30] the medium is not neutral. Broadcast TV by