

# A New Framework for Interactive Entertainment Technologies

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## INTRODUCTION

The relative infancy of digital television technology (and as a correlative, iTV, or, interactive television) in Australia offers an excellent opportunity for the examination of potential issues regarding the acceptance and take-up of new technologies. This work will explore the design and development of a new paradigm for digital interactive television (DiTV) being interactive digital vision (iDV) in which the television is no longer the focal point, but rather, the possibilities for potential interactivity and engagement with such technologies. The premise of this research is firmly founded in the acknowledgement of the specific elements required to provide a truly interactive experience. These fundamental elements are referred to as the “3 E’s”: engagement, enrichment, and entertainment.

## BACKGROUND

Significant research has been published relating to iTV, human computer interaction (HCI), and usability concerns. Prominent researchers, Chorianopoulos & Spinellis (Chorianopoulos & Spinellis, 2004) discuss a task-oriented experiment where humans interact with a system to achieve a particular goal. Usability evaluation techniques employed within this study measured successful task completion, efficiency, and error-rate parameters that correlated positively with user satisfaction. The researchers also focused on providing a pleasurable user experience and evoking consumer emotion. To measure the user experience and their emotions, a measuring instrument was used premised on the research of Hassenzahl (2001). This tool is freely available, and features an easy-to-understand verbal scale. Finally, to assist in determining if the participants

had a fulfilling TV experience, subjective evaluations of the entertainment value were required. The researcher’s main objective was to evaluate user preferences for an iTV application that offers clip-skipping and an animated character to present information. It was designed to address two main concerns with interface design: navigating local video storage through video clip track-skipping, and providing related information through alternative presentation styles. Ultimately, consumer preferences indicated acceptance of dynamic advertisements when they chose to skip a clip.

Other studies examined key elements of iTV, such as interactivity and how it might be defined. Gansing (2003) investigated the relationship between narration and interaction styles to determine the controls which provided the most engaging interaction. A number of case studies were presented, with each one highlighting different interactive productions, such as adventure games. While Gansing analysed various case studies, no experimental research was conducted to test the research hypothesis. However, Bais, Cosmas, Dosch, Engelsberg, Erk, Hansen et al. (2002) integrated aspects of MPEG-4 and MPEG-7 into a purpose-built custom TV interface. A total of 10 usability walkthroughs were administered and video recorded using the live system. The researchers produced three different scenarios and mixed up the tasks, some being generic in nature, while others focused on specific aspects of iTV, such as the electronic program guide (EPG). One conclusion drawn from this research was the imminent convergence of broadcast and Internet media. Similarly, iTV is experiencing convergence issues. Guidelines are now being produced that are similar to those of the BBC, in an effort to produce quality iTV programs and interfaces.

Interface designers traditionally envisage their role as designing tools to assist the user in the execution of

tasks. Currently, available interface experiences have resulted in a user population who perceive the interface as merely a way of interacting with the tool rather than considering any social or emotional concerns. Over the last 10 years, over 70 experimental studies (Picard, Wexelblat, Nass, & Breazeal, 2002) have indicated that users do not respond to interactive software as mere tools, but rather that they bring social rules and learned behaviours with them. This background supports them in guiding their interactions and attitudes towards the system. Interfaces also elicit a wide range of emotions from users; users may also send out social or emotional responses without realising they are doing so. The latter may occur when designers do not attempt to elicit such responses and even when the user is presented with a basic interface; neither of which references any social or emotional aspects. Such literature has influenced that of the authors own research.

The research explores current understanding and opinions from a select group of Gen Y participants on the technology currently available in Australia. “Gen Y,” those born between 1982 and 2000 (McCrindle, 2003) (these dates differ depending on the research from 1979 to 1994), are deemed to be a technological savvy generation, having grown up immersed in “new” media technologies and culture such as the computer, Internet, globalisation, mobile telephony, and a wide range of everyday objects. Further, the research has attempted to determine existing usage and familiarity with currently available iTV. While the participants recruited were specifically selected for their assumed technical proficiency and their particular generational demographic, the results suggest that despite the presumption of familiarity and proficiency with technology, even the “digital native” Generation Y were struggling to envisage a technology beyond that which was already moulding their current viewing habits.

The focus on Gen Y, the authors presumed, would be ideal candidates for testing the uses of iTV as this generation would embrace the precepts of the new technology. However, this study indicated and revealed generalised indifference and apathy. Perhaps the answer lies in that which McCrindle (2006) alludes to: this generation has been bombarded with the special effects and hypermania of the technological “revolution.” iTV in its present form just doesn’t “cut it” with this generation; they have access to the most advanced technologies and readily negotiate, modify, and adapt it

to meet their own needs. There is no compelling reason for them to use iTV when it is neither as interactive nor as social as the other technologies they utilise for entertainment. Such findings consequently raise concerns for the results that might be expected from older generations; if the technologically-savvy Gen Y participants (the “net-gen”) struggle to embrace this technology, it could be reasonably assumed that further apathy and disinterest might be expected from Gen X and the Baby Boomers.

Interactive digital vision (iDV) which represents a new paradigm and the potential for a digital system that accommodates genuine user agency, that is, the ability to control and determine the level, structure, and function of user engagement, will adhere rigorously to affective usability principles and to the “3 E’s” previously mentioned on the assumption that the development of iDV within these parameters will ensure longevity in the industry. It is anticipated that iDV will support true agency and removes the burden from the viewer or user. This research is premised on recognition that current frameworks for conceptualising TV and interactivity are neither effective nor successful, and hence the proposal of a new interactive paradigm. Furthermore, the research endeavours to gather opinions on the characteristics of this new framework due to its revolutionary stature. In addition, the framework will consider both the efficiency, effectiveness, and emotional needs of the user or viewer.

## **INTERACTIVE MEDIA “LEAN-FORWARD” VS. “LEAN-BACK”**

With the introduction of DiTV, the PC and TV are facing inevitable convergence, thus presenting a new challenge to designers, producers, and the HCI community. Fundamentally, interaction with a TV comprises a different set of behavioural and physical responses to that of a PC. To describe this difference in activities researchers have used the terms “lean-forward” and “lean-back” and viewers are designated as “users.” These terms generally imply that when a viewer is watching a television program, they are in one of two states: either passive in nature (aside from cognitive processes) “leaning back” or conversely, performing a complex task in front of the screen, and thus highly engaged and immersed in the task. This state with high levels of interactivity is

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