

---

# iDV: a new look into iTV & interactivity

## **Guy Wood-Bradley**

Deakin University  
221 Burwood Highway,  
Burwood, VIC, 3125  
AUSTRALIA  
guy.wood-bradley@deakin.edu.au

## **Professor Kathy Blashki**

Deakin University  
221 Burwood Highway,  
Burwood, VIC, 3125  
AUSTRALIA  
katherine.blashki@deakin.edu.au

## **Abstract**

The authors argue that the successful introduction of an interactive visual medium, currently referred to in terms reliant on the conceptual framework of television, is dependant on the introduction of an entirely different paradigmatic framework for the discussion, design and implementation of interactive visual media. The following discussion explores both the formulation of the conceptual framework.

## **Keywords**

iTV, usability, affective usability, new media, interactivity

## **ACM Classification Keywords**

H.5.2 User Interfaces: Interaction styles

## **Introduction**

The development of the iDV framework is the result of the authors' increasing awareness of the inadequacy of iTV as it is currently conceptually realised. The authors argue that efforts to converge the interactivity styles of old media, such as television, with that of the emerging new media forms, are rife with difficulties. Television is traditionally perceived as a passive and non-interactive medium requiring little input from the viewer. The introduction of an expectation that the viewer *interacts* with the television immediately transforms their role to that of *user*. The expectation of interaction with the

television set and engagement with the additional 'benefits' (a subjective term in relation to iTV and the use of features) thus shifts the focus from the medium to the user, altering both their function and expectations. The conceptual development of iDV will explore the social and affective usability elements required to ensure the satisfaction of both the functional and emotional needs of the viewer are now transformed into the user. In proffering such a conceptual framework, the authors' intend to facilitate the growth of user-centred media, where the technology evolves according to societal demands, rather than attempting to prod, push and pull existing technology into a form that vaguely resembles society's needs.

### **Background**

The conceptual and functional structure of iTV encompasses a variety of areas traditional television is ill-equipped to manage [7]. The authors will explore some of the mechanisms for maintaining the balance between encouraging users to exploit the myriad of opportunities offered by this interactive technology in terms of learning, recreational and entertainment activities, as well as ensuring that any interactions are supported by intuitive and functional interface design. This approach significantly diverges from current research in which the development of iTV focuses primarily on the usability of the Electronic Program Guide (EPG), like the research published by Bonnici [1] or the system overall [5]. Areas like the development of new iTV applications [6] and incorporating touch into the iTV experience [9] have also been researched. The authors suggest that interaction with visual media could be so much more engaging for the viewer than simple channel surfing and that developers should be

exploiting the technologies available to produce interfaces which enable such interactive style.

Rigorous and extensive research on iTV exists, notably numerous works by Chorianopoulos, *Chorianopoulos, K & Spinellis, D 2004, Hedman, A 2002, Lekakos, G., Chorianopoulos, K., Spinellis, D. 2003*, however a survey of this existing research, reveals potential for further work on the design and of interfaces that actively encourage user interaction. Other research [3] has focused on personalising the iTV experience in advertising by the development of iMEDIA. Such developments however have not sought to ameliorate the inherently passive nature of iTV.

### **What is iDV – An Outline**

The authors intend to introduce a new paradigm in which the medium, in this case television, is no longer the focal point, but rather the interactivity and engagement a user has with technologies such as iTV takes precedence. The television set is currently the sole output device encompassed within the iTV paradigm, thus this research is premised on the potential to transform the future of interactive media with the introduction of iDV. iDV, "Interactive Digital Vision", represents 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. By invoking the term iDV the authors include a variety of digital media including that which is currently understood as iTV. Such a transformation of the current offerings encompassed by the term iTV is necessary as the inevitable contrasts and comparisons drawn between the "old" and "new" media is not only inappropriate but also ineffectual due to each medium's their unique and distinctive

characteristics. This research proffers a completely novel vision whilst acknowledging the contextual importance and significance of previous research in particular that of Chorianoopoulos and Eronen. In addition, this research intends to include the development of identifiable functions and applications for the range of communication technologies appropriate for iDV implementation.

The introduction of digital and iTV now sees the PC and TV converging whereby their design could be considered the same. iTV now presents a serious new challenge to designers, producers and the HCI community. Fundamentally, interacting with the TV is different to that of a PC. This variation and to describe the difference in activities has been dubbed 'lean-forward' and 'lean-back' with viewers becoming "users". A PC environment generally involves a one-on-one relationship between the user and the machine. The user is in close proximity to the screen and interacts with the PC to achieve set goals. However, a TV environment supports a many-to-one relationship between social groups and the machine and may not contain specific goals.

#### **iDV Development – Research Relevance**

iTV is not targeted at a PC-savvy group, but the general public. A key problem therefore for designers is moving from goal-based to goal-less interaction meaning simplicity and transparency operations are essential. The restrictions imposed by a remote control compounds this problem further. To influence enjoyment, users must be satisfied (aesthetic design elements) while designers also need to maintain the user's engagement with iTV. In ensuring the success of iTV designers will need to accommodate the user

expectations viewing, the storytelling, whilst still allowing for the inevitable interruptions to the narrative 'flow' and interaction [10].

To assist in the development of iTV screens, the BBC has produced an "Interactive Style Guide" [4]. This document details the design of menu screens, the importance of ensuring consistency amongst the various screens and the importance of quality navigation design and control. This guide does not cover the methods that could be adopted to assist in motivating users to interact and engage with the interface.

Through a series of user studies, a conceptual framework will be devised that will unveil what functionality users would actively use in interactive services (iDV). Additional research upon the finalisation of the framework from other researchers may aid in the development and implementation of a successful iDV rollout.

#### **Some Building Blocks for iDV**

Whilst audiences utilise iTV for numerous services such as those previously mentioned: shopping (t-commerce), gambling and participation in populist and popular programs such as *Big Brother* and *Who Wants to Be a Millionaire*, recent research suggests iTV may function also in an educational environment [8].

Dubbed as the first interactive television show, *Winky Dink and You* was created for children. The interaction was created through the use of a special plastic sheet that could be purchased and attached to the TV. The plastic screen was held onto the screen by friction created when a child rubbed the screen with a special

cloth. The aim for the children watching was to save the cartoon characters when they found themselves in trouble by drawing on the sheet with purpose-made crayons (achieve goals) [2]. Winky Dink signifies the starting point of interactive television and can be used to compare with where the technology is at today; users call their television sets into action to view program guides, change camera angles, etc; the development of iDV will determine if users fully appreciate and value these sorts of services or whether significant changes need to be made.

### Conclusion

iDV is but a name given to the necessary paradigmatic shift required for interactive digital media, such as iTV. Research that classifies viewers as users when dealing with interactive media or vision demonstrates a clear misunderstanding of the goals of the viewer; they do not have clear sets of goals, unlike their computer-user counterparts. The research ideas presented in this paper aim at putting iTV as it is currently referred to today as an example of one technology that needs to properly facilitate the interaction and emotional needs of the user. Further works by the authors will detail the iDV framework, findings from user studies and how this will influence interactivity in new media devices. To convert users accustomed to passive interaction to interactive interaction is a significant challenge, and one if done successfully, may change the new media landscape as we know it today

### Acknowledgements

I would like to thank my supervisor, Professor Kathy Blashki and the reviewers for their valuable input and contributions into this paper.

### References

- [1] Bonnici, S., *Which Channel Is That On? A Design Model for Electronic Programme Guides*, in *Proceedings of the 1st European Conference on Interactive Television: from Viewers to Actors?* 2003, University of Brighton: Brighton, UK.
- [2] Carey, J., *Winky Dink to Stargazer: Five Decades of Interactive Television*, in *i-TV '96*. 1996: Edinburgh.
- [3] Chorianopoulos, K., G. Lekakos, and D. Spinellis, *Intelligent User Interfaces in the Living Room: Usability Design for Personalized Television Applications*, in *Proceedings of the 2003 international conference on Intelligent user interfaces*. 2003, ACM Press.
- [4] Cohen, V., *BBCi - Interactive Television Style Guide*. 2002, British Broadcasting Corporation. p. 54.
- [5] Eronen, L. and P. Vuorimaa, *User interfaces for digital television: a navigator case study*, in *Proceedings of the Working Conference on Advanced Visual Interfaces*. 2000, ACM Press: Palermo, Italy.
- [6] French, T. and M. Springett, *Developing novel iTV applications: a user centric analysis*, in *Proceedings of the 1st European Conference on Interactive Television: from Viewers to Actors?* 2003, University of Brighton: Brighton, UK.
- [7] Gawlinkski, M., *Interactive television production*. 1st ed. 2003, Oxford, England: Focal Press.
- [8] Lytras, M., et al. *Interactive Television and e-Learning Convergence: Examining the Potential of t-Learning*. in *Proceedings of the European Conference on eLearning*. 2002. Uxbridge, UK: Academic Conferences Limited.
- [9] O'Modhrain, S. and I. Oakley, *Touch TV: Adding Feeling to Broadcast Media*, in *Proceedings of the 1st European Conference on Interactive Television: from Viewers to Actors?* 2003, University of Brighton: Brighton, UK.
- [10] Winter, G. and J. Hooper, *Designing for TV based interactivity*, in *Interfaces*. 2000. p. 12.