IRM PRESS
701 E. Chocolate Avenue, Suite 200, Hershey PA 17033-1240, USA
Tel: 717/533-8845; Fax 717/533-8661; URL-http://www.irm-press.com
ITB10759

Chapter 13

Adaptive Hypermedia for Personalised TV

Judith Masthoff, University of Brighton, UK

Lyn Pemberton, University of Brighton, UK

Abstract

Adaptive hypermedia techniques have until now been applied mainly to Web pages populated by text and images. In this chapter, we explore how these techniques can be extended to time-based media, particularly in the domain of interactive television. Using illustrative examples from the UK television industry, we discuss the range of TV-based interactivity. Concentrating on enhancements to the digital broadcast stream, we discuss the relevance of the techniques compiled by Brusilovsky (2001) when applied to situations where the dominant media are not text and stills, but video and audio.

Introduction

The advent of digital television has brought new opportunities for viewers to interact with their televisions by "allowing viewers to access additional information about the programme they are watching, select different camera views of a sports event, play games, access enhanced teletext services, access the Internet and send e-mails" (BBC, 2003). Interactivity is set to expand, as programme makers take advantage of its creative capabilities, broadcasters recognise it as a mechanism for creating new funding streams,

and governments seek to expand their channels of communication with citizens. More households are adopting digital television: in the UK alone, digital television is expected to be in use by 15 million subscriber homes by 2005 (UK Government, 2001). Interactive television can be seen as the extension of interactivity with computers into the broadcast television world. Digital interactivity opens the way for adaptivity, which has the potential to benefit a range of viewer types. However, it seems likely that simply applying the adaptivity techniques familiar from the desktop domain to interactive television (iTV) will not work for a variety of reasons. These include the nature of the audience, their relationship with the television medium, technical issues of speed and bandwidth, and more pragmatic concerns about cost. In this chapter we explore the potential for adaptivity offered by iTV, showing how it might be operationalised in and around the broadcast television stream in a range of genres.

Unlike the personal computer, which was a new piece of technology bringing little "baggage" in terms of expected behaviours, the television is already rich in cultural resonances, which we need to understand if we are successfully to make use of the medium in new ways. One important difference is the nature of the audience for iTV as opposed to that for the PC. Televisions are found in almost all homes in the Western world, ensuring a reach well beyond that of the personal computer. The potential user population for adaptive iTV is therefore much broader than that for PC-based applications. While this difference in user population opens up the possibility of delivering the benefits of personalisation to a wider audience, it does suggest that new approaches may be needed.

For many households, the television set is the literal and metaphorical focus for family life, with a rich set of accompanying behaviours. Numerous television researchers have painted a rich picture of people watching programmes in company, watching while engaged in other tasks, using television as ambient atmosphere provision, channel hopping, and generally seeing television as oriented to leisure rather than task performance (Ling & Thrane, 2002; Lull, 1988; Moores, 1996). This is often characterised as a "leaning back" attitude to media consumption, as opposed to the active, engaged model of "leaning forward' to interact with a PC. Ling and Thrane, in their interview study of Norwegian viewers, suggest that television has "a limited potential to engage the individual," finding its niche as a means of relaxation or even as background noise, used for generating ambience rather than for paying attention to specific content. One of their participants goes so far as to say: "I don't watch TV to like, learn anything." This is also reflected in research into attitudes to digital television amongst UK viewers (Oftel, 2001), suggesting it may be dangerous to assume a willing mass audience for formal "work-like" provision via television.

In contrast to the use of PCs, television viewing is largely a family or social activity (Barwise & Ehrenberg, 1988). According to a large research study in the UK (Livingstone & Bovill, 1999), television is the medium most often shared with family. This tendency towards viewing television in company suggests that individual-based adaptation familiar from PC-based research might not apply.

A final major difference between use contexts for PC and television arises from the broadcast nature of television as opposed to the time-independent nature of most computer-based material. In countries with a limited number of major television channels,