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Short Messaging Service on the Networked Television Environment

A Thesis
Presented to
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ABSTRACT

Television has long been a source of entertainment for the population. Recently, with the advent of interactive television (iTV), new features have been added to the current TV viewing experience to extend its experience in a more interactive way. For instance, subscribers to iTV now have access to information including sports news and information about the weather. They can also play along with their favourite game shows and cast votes. Shopping through TV is now a reality, with phone operators being replaced in favour of handling orders straight through an iTV application.

The iTV feature that this study focuses on is the communication activity between iTV viewers. TV viewers have traditionally communicated during and after TV programmes, using the contents of programmes to fuel discussions and maintain relationships. They might communicate face-to-face if they happen to be watching TV in the same location, or they might use appliances like the telephone as they are geographically distant. People now have the ability to communicate in real time through the TV thanks to iTV technology. This research consists of developing an application called TxtTV that offers this feature of real-time communication through the sending of instant messages.

Evaluation of the new iTV application was carried out by having people try out the application and also trying to communicate using the telephone and mobile phone while viewing a TV program. Usability data was collected then from a survey that asked about how the participants felt about the new application, a quiz on the TV programme contents to test understanding and a survey to measure cognitive workloads.

This data was used to make two investigations into the usability and usefulness of the TxtTV application compared to the telephone and mobile phone. The resulting analysis indicates that TxtTV or communicating in general using text messages through the television is a viable feature that could be important in the development in future iTV applications. A couple of paradoxes do arise and generally indicate that there are usability issues that have to be solved. Yet, the results are encouraging for human-to-human communication while watching TV.

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DECLARATION

I declare that this research study is entirely the product of my own work and that it has not been taken from the work of others. When the work and ideas of others has been used in the study, the work has been properly cited in the text.

This study has been adapted and is being revised in the journal “Computers in Human Behaviour”

A handwritten signature in black ink, appearing to read 'A. M. M.', is written over a horizontal dotted line.

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PREFACE

This thesis is concerned with the development of a new Interactive Television application for communicating between people while they are viewing television programs. The new application is designed to help enhance social interaction between viewers.

The thesis consists of 6 chapters. Chapter 1 introduces the new television environment based on the new technology named Interactive Television (iTV). Chapter 2 provides a background to the study with a description of the human-to-human communication issues in the current TV environment and introduction of a new TV design to address these issues. Following on this, Chapter 3, 4 and 5 intend to describe the experiment carried out to evaluate the new TV environment and outlay the investigations carried out based on the results. Finally, Chapter 6 describes the lesson learnt from this study.

This work took place during 2006 in the Institute of Information and Mathematical Science at Massey University's Albany campus. Dr Hokyoung Ryu supervised the thesis.

Chapter 1 Introduction

When someone arrives home after a day at school or the office, what household appliance might they turn on for some entertainment? It seems that the television is the very common appliance that most people turn on to spend some time. It is convenient and in general, watching TV is not a serious activity for a human to solely engage in. People might tune in to watch the news while they have their evening meal, or to relax and watch a movie at night. They might change the channel to one that plays music for background sound as they go about their other activities at home. Sometimes, there are television programmes which are documentaries on specific areas of interest to the viewer.

Traditionally, a conventional TV is largely an output device. The unique input that a viewer can provide to the TV environment amounts to changing the channel or adjusting the volume. In traditional terms, the viewer cannot interact with any of the TV programmes or interact with any other viewers in a different location through the TV set.

This has recently led to the advent of Interactive Television (iTV). Now, iTV viewers can interact with TV programmes that they are watching. Viewers can choose their contents to watch or play along with studio contestants in a game show, for example. Comparing this with the traditional TV environment, the question of whether or not we might have the same TV viewing experience arises. This establishes the main research theme of this thesis.

Basically, the current iTV technologies focus on delivering additional contents to viewers. For example, there has been a recent development of basic iTV functionality such as the “Red button” on the TV remote for SkyTV™ as shown below in Figure 1.1.

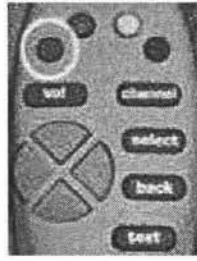


Figure 1.1 The “Red button”

Using this red button, users of BBCi (BBC’s interactive TV service), for instance, have access to features including the latest local, national and international news, and a menu of multiple screens for video updates, all available 24 hours a day and up-to-the-minute sports news and results, plus a choice of coverage with extra live matches and alternative commentaries.

Yet, social interaction has not been paid much attention on the current iTV environment. Recently, this situation is changing with Microsoft developing sending instant messages while watching TV (Gizmodo, 2006). They have also integrated the chatting features into their products, i.e., Windows XP MCE and Xbox 360 Media Extender (Gizmodo, 2006). Still, the viewers are mostly interacting with the TV programmes but not with each other. Using the current iTV technologies is still an isolated TV viewing experience with the TV set, only including an interactive way with the programme viewing.

After all, the technologies for iTV have been advanced for years and the price does not represent a large barrier to adoption. Yet, the uptake of iTV has not been dramatic. A possible explanation for this is that iTV mainly provides human-to-machine interactions, thus making the television just another source of information. One could argue that a

personal computer is more adequate for this purpose already, e.g., TV on Computer.

Another issue that blurs the line between iTV and a personal computer is the fact that the current TV controller has obvious limitations when it comes to entering text because there are only small numbers of buttons. Most iTV products require the viewer to use a keyboard, something that the viewers might find to be big and clumsy.

Following on this, the issue of how to support human-to-human interactions based on the current network environment is an interesting and timely question. Consider the pervasive use of technologies like e-mail and mobile phones even while watching TV. We can then consider extending the TV with iTV technologies to not just be another source of information, but as a way to communicate and connect with other people (Lull, 1980; 1982; 1990). This idea is not new. Even before that, communication is in fact happening now with regards to television programmes. During or after watching TV programmes, one might discuss the contents of the programme with family, friends or colleagues. One would assume that a portion of the communication about TV programmes is retrospective, that is, discussion about the programme contents generally happens after the programme has finished.

This research takes this idea further by proposing to implement communication tools on the TV using iTV technologies and to make the largest portion of the communication real-time, while watching TV programmes.

This study thus addresses how we can apply a networked TV environment to increase social interaction, and especially, human-to-human communication via a future TV environment. Also, and more importantly, usability issues will be identified. The following chapter provides a background to the study with a description of the human-to-

human communication issues in the current TV environment and introduction of a new TV design to address these issues. Following on this, Chapter 3, 4 and 5 intend to describe the experiment carried out to evaluate the new TV environment and outlay the investigations carried out based on the results. Finally, Chapter 6 describes the lesson learnt from this study.