

Chapter 32

Problem with Multi-Video Format M-Learning Applications

Michael O. Adeyeye

Cape Peninsula University of Technology, South Africa

Adebola G. Musa

Tshwane University of Technology, South Africa

Adèle Botha

University of South Africa, South Africa

ABSTRACT

The browser war is far from over, and the HTML5 <video> tag has not improved video access despite its promises to work without specifying a plug-in. This chapter discusses m-learning with respect to video. It outlines the m-learning paradigm in conjunction with the technical aspects of video display in browsers, when varying media formats are used. The <video> tag used in this work renders videos from two sources with different MIME types. Feeds from the video sources, namely YouTube and UCT Matterhorn, are pulled by a Website that acts as a content aggregator. The content aggregator presents the various user-generated contents and lectures from the two repositories to both lecturers and students as a single source. By leveraging on HTML5, CSS3, and JavaScript, the application should render uniform video display and gather comments among various students, who use various personal mobile devices. Results show that a uniform display cannot be achieved when developing an application for personal mobile devices.

2. INTRODUCTION

This chapter outlines the experiences of students during an m-learning interaction, most notably when it requires watching a video on a variety of personally owned devices. The dual nature of the user experience as consisting of the affordances

supplied by the technology and the requirements of the domain within goal driven interactions informs the chapter.

To explore the affordances supplied by the technology, the study presents the technical details of a work carried out at the University of Cape Town (UCT) to provide a single website for the

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various T&L (Teaching and Learning) contents on the Internet. The staff and students of the UCT currently have two repositories to publish the recordings of their classes on the Internet. They are YouTube and the UCT Matterhorn websites.

A large number of video files originating from the UCT exist on YouTube under different tags, and they include recordings of various classes. Both students and lecturers use the repository to share information and distribute contents. User-generated contents on YouTube (such as <http://www.youtube.com/rss/tag/uct.rss>) are displayed in one format, called “the flash format”. The files are accessible on browsers with support for flash. The duration of the media contents vary from seconds to hours, and they include sport activities, DIY (Do-It-Yourself) and lectures.

On the other hand, the UCT Matterhorn is the UCT implementation of the OpenCast Project. The OpenCast project is a community project that aims at presenting videos in an interactive manner. It is capable of presenting recorded presentations and videos in multiple formats and views. It is accessible at <http://media.uct.ac.za/engage/ui>. The formats of video files on the website are Adobe Flash (FLV/SWF), Microsoft AVI (Audio Video Interlace) and MPEG4 (Moving Pictures Expert Group 4).

The requirements of the domain are investigated through m-learning as focus of the education domain. To further narrow the focus, Oinas-Kukkonen and Kurkela (2003) observes that mobile services and applications can be divided into highly goal-driven and entertainment-focused activities. They argue that goal-driven or task orientated services and applications should support directed and timeous interactions whereas entertainment-focused interactions enable the user to pass the time and are less directed (Hassenzahl, 2005; Oinas-Kukkonen, 1999, 2000; Oinas-Kukkonen & Kurkela, 2003). Within the focus outlined previously, goal-driven interactions, as opposed to entertainment-focused interactions, will guide the chapter.

The chapter presents, in the following section, the requirements of the domain as a discussion on m-learning. This is followed by an outline of the affordances of the technology, as a case study for content aggregation for UCT m-learning, a narrative on the browser war and a discussion of the design considerations and implementation. The deployment of the technology affordances is subsequently deliberated and we shape and present the research challenges before the conclusions are drawn.

2. M-LEARNING AS A DOMAIN REQUIREMENT

Enhancing a mobile user experience in an m-learning interaction entails the consideration of the attributes and affordances of the technology and the requirements of the pedagogy interaction. The attributes and affordances of the technology are investigated in subsequent sections while the m-learning interaction as domain requirement is further subject to the requirements of pedagogy interaction. These requirements form the focus of the investigation in the rest of this section.

M-learning has, at its foundation, learning as the central concern of a mobile technology enhanced educational experience. The specifics of realizing the educational goal, the actual operationalization and the evaluation of the educational goal are beyond the scope of this narrative. This section is, however concerned with the enablement of the educational goal through the m-learning interaction as experienced by the learner as a mobile user. As such, with due respect to the unique and personal nature of learning, the diversity of ways in which learning can be achieved is acknowledged.

The exploration that is documented in this section, aims to give an overview of the literature in order to articulate the domain requirements. Multiple perspectives are provided for the general use of technology in education in order to contextualize the particular use of mobile technology

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