Assessing the Benefits of AJAX in Mobile Learning Systems Design

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STATEMENT OF ACADEMIC INTEGRITY

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.

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Low Risk Notification Statement

This project has been evaluated by peer view and judged to be low risk Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other hat the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Ethics & Equity), telephone 06 350 5249, e-mail Humanethics@massey.ac.nz.

ABSTRACT

Today, mobile technology is rapidly changing our life with increasing numbers of services supported by mobile phones, including mobile Internet access and Web-based mobile learning. The growth of the wireless Internet technology opens new path for people to study in anytime and any location. Using Web-based mobile application to present learning resources for mobile learners is a challenge for developers, because the mobile Internet access performance over GPRS networks is often unacceptably slow. A new Web development model, Ajax, may help to address this problem. Ajax (Asynchronous JavaScript and XML), is a new desktop approach to Web application development that uses client-side scripting to provide a seamless user application experience and reduce traffic between client and server. In this paper, we address the question of whether mobile Ajax provides measurable performance advantages over non-Ajax mobile learning applications. A real-life Web-based mobile learning application performance over a GPRS network study was done based on comparing an Ajax application and an Active Server Pages (ASP) application with identical functionality. Our results suggest that mobile Ajax can reduce the bandwidth requirement by 71%, and cut the server's response time in half. In addition, these performance improvements were noticed by users in our small group usability test.

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