CS HONOURS 2009 RESEARCH PROPOSAL

Developing a Web Based Learning Environment to Support Previously Disadvantaged Schools in South Africa

By Rouan Wilsenach

Supervisors:

Dr Hannah Thinyane
and Ingrid Siebörger

Problem Statement

- Shortage of qualified teachers and quality teaching materials
- Computers being deployed in some schools
- Opportunity for the use of ICT as an educational aid

Basic project idea

- Develop a prototype online learning environment
- Teachers contribute lessons
- Secondary school learners access this information and use it to aid their learning

Intended Approach

1. Background research into historical and current uses of ICT in education
2. Research into effective e-learning approaches and structures
3. Develop prototype web application using Google Web Toolkit
4. Obtain results from the use of prototype

Design:
Why an online system?

- As opposed to a Windows application
- Easy access (incl. mobile access)
- No installation hassles
- Centralizes information
- Allows for easy collection of usage statistics and user progress info

Design:
Why a web application?

- As opposed to an ordinary web site
- More powerful functionality
- Better communication with data layer
- AJAX avoids browser refreshes
- JavaScript allows for more interactive learning experience

The Google Web Toolkit

- Code AJAX front end in Java
- Cross-compiled into JavaScript
- Full featured Java debugging
- Avoid browser quirks
- Facilitates modular design
- New technology
- Used in industry

Structure

- Material divided into learning areas
- Each learning area has own structure
- Each learner has own profile & home page
  - Facebook
  - Allows learner to track own progress
- Each lesson has outcomes
- Incorporate interactive exercises

Assessment

- Must be able to assess whether the website is benefiting learners
- Short tests on material covered
  - Linked to lesson outcomes
- Allow learners to rate the content
- Usage statistics
- Interview teachers and learners who used the website

Questions and comments.