

Main Project: Enhancing Teaching and Learning through Assessment

Sub-project: Database Development and Analysis of Different Assessment Methods for a Web-Based Delivery Subject

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Introduction/Background

The knowledge of basic land surveying techniques is not only important for students studying surveying, but also equally important for students in other disciplines of the construction field such as civil engineering and building technology. Currently, LSGI is the serving department for teaching basic surveying principles and techniques for different courses offered by other FCLU departments, i.e. BSE, BRE and CSE departments. In response to the PolyU's directive on the web-based teaching and learning development, a web-based learning delivery subject on basic surveying, intended to serve as a faculty based subject for all FCLU students, is under development by LSGI. It is anticipated that the system will be fully developed in 2005. One of the key elements in this system is the self-assessment tool containing multiple choice questions at different levels of difficulty. Through this tool students will be advised automatically their strengths and weaknesses of the subject area and level of understanding. Other assessment methods will also be designed and incorporated into the system. Since web-based learning and assessment of the land surveying subject is a new trial, the effectiveness of different assessment methods and reliability of the self-assessment system need to be evaluated.

Aims and Objectives

1. To design and develop a database for recording the performance of students in relation to adoption of different web-based learning materials and self-assessment methods.
2. To design a method for comparing assessment results of conventional and on-line delivery teaching and learning.
3. To evaluate if the web-based learning and assessment can effectively align with objectives laid down in the subject syllabus.
4. Based on the assessment results of conventional teaching and on-line delivery. to analyze the consistency of student performance.

Methodology

Since the on-line "Surveying" is unlikely to be implemented before 2005, the currently available subject "Surveying I" will be adopted for data collection and evaluation in this project. Two out of the four topics in the syllabus will be chosen for on-line delivery, and conventional teaching will be adopted for another two topics. The aims and objective of the subject, teaching and learning

methodologies, and assessment approaches will be conveyed clearly to students at the beginning of the term. Same assessment treatments as described below will be used for the all four topics.

1. Shortly after a sub-topic has been taught, students will be assessed with multiple choice questions and questions that only require point-form answers in order to test students' basic understanding of the study areas.
2. The class will then be divided into groups whereas group discussions in relation to the multiple choice questions will be carried out and individual student will be assessed based on their conceptual understanding. and reasoning. Individual student's strengths and weaknesses will be recorded for analysis.
3. Student feedback on the usefulness of teaching methodology and assessment in helping them achieving the aims and objectives stipulated in the subject syllabus will be collected.

Students' assessment results and related information will be recorded in the database and the evaluation and analysis will continue for at least two years. Some correlations between different attributes in the database which may not be obvious will be analyzed with a data mining tool. The evaluation results and findings will be presented to departmental colleagues, and in a suitable conference.

Schedule of Activities

This project will be divided into two phases as follows:

Phase 1 (September 2003 - December 2003)

1. Design of oral interview questions in line with the multiple choice questions.
2. Design of student feedback questionnaires.
3. Database design and development.
4. Collection of evaluation information for database establishment such as assessment results and feedback questionnaire.

Phase 2 (January 2004 – September 2004)

1. Analysis of assessment outcomes.
2. Preparation of a paper on the research outcomes.
3. Based on student feedbacks to refine teaching/on-line delivery materials
4. Refinement of questions and feedback questionnaires