

**THE HONG KONG POLYTECHNIC UNIVERSITY**  
**RESEARCH DEGREE PROPOSAL**

(To be typewritten by the Applicant.)

**1. Project Title:**

Data Mining in Education

**2. Project Objectives: (Purpose of proposed investigation)**

The project investigating a decision making tool for educators to predict students' learning behaviours in order to help teachers implement their new schedule and collaborative learning in web based environment. The knowledge discovery algorithms of this project help educationalists to reform curriculum and select reliable indicators for assessment usage in education system.

**3. Scope and Background of Research:**

(Please identify key issues/problems to be addressed)

We rapidly reach a stage where these kinds of direct comparison are impossible anyway. Computers increasingly afford new possibilities for collaborative learning, which are different in kind from those available in other contexts. Their advent may hopefully not only promote new forms of collaborative activity amongst learners, but also illuminate the nature of our human capabilities as collaborative learners.

Nowadays, using statistics tool is most frequently employed in educational research. As with almost any human (teacher or student) activity involving decision-making, the process is difficult because so many factors have an impact on the outcome. Some education issues cannot be well predictable using traditional method, especially in this new learning "paradigm shift" in Hong Kong. So a knowledge discovery process of data mining will be used in this project.

#### **4. Research Methodology:**

In the research, the browsing behaviours of students are collected in school-based, including some personal information as well. We can follow and monitoring the student learning progress in order to identify the learning problems. After the preliminary analysis browsing behaviours of students, web-based data acquisition techniques for gathering learner information will be used in order to build a data warehouse.

This knowledge discovery system is intended for problems of dimensionality not experienced in the past, and definitely a multidisciplinary approach. It heavily relies on a number of existing methodologies and algorithms, such as fuzzy logic, classification and clustering techniques to extract useful information from noise domains. It uses logic to generate minimal size rule set that is both complete and consistent.

#### **5. Project Significance and Value:**

An important issue is, therefore, how is the hidden information to be revealed in learning process. The project will be valuable to planners and decision makers who need coherent framework for understanding and evaluating students' learning abilities and learning problems in order to improve individual learning or collaborative learning.

In the net-based learning, interactive and synchronous collaboration with a relatively broad communication channel. The real time response for learner is needed in communication-oriented computing learning. The project develops a net-based curriculum offering new and better ways to present learning information for higher achievers or lower achievers, to educate, and to assess.