3.0 Abstract

This study covers areas within an MSc project that are related to electronic learning portals. It covers in details the process of ranking and evaluating existing e-learning portals such as Blackboard, Moodle, Angel Learning and ATutor which are the leading portals in this field. Also, it covers an investigation in implementation of simple portal features in a range of programming languages. It includes a feasibility study on the use of new technologies to extend the scope of the e-learning portals.

The ranking system is developed to meet international e-learning standards and national standards of the Ministry of Education of the Kingdom of Bahrain. The ranking system was conducted according to the portal interface suitability for targeted audiences, available interfaces languages and ease of use, compatible web servers and databases, programming and scripting languages suitability, supported educational objects, e-learning features and customised daily and semester operations features to meet Kingdom of Bahrain's educational system needs.

As part of the study of programming and scripting languages, new methodology to overcome current limitations of PHP database interfaces has been developed which can act as a solution for multi-database integration in a PHP e-learning portal.

Recent developments of newly born mobile and wireless devices and micro applications technologies require the future development of current e-learning portals. A Personal Computer "PC" based application has been converted to use the latest Wireless Application Protocol "WAP" standards in order to enable mobile devices' micro internet browsers to access its features via their GSM "Global System for Mobile" network providers.

This study includes the development of future e-learning portal characteristics, it highlights the limitations found in current portals and identifies areas in which the Ministry of Education of the Kingdom of Bahrain should invest.

The use of multimedia elements for the delivery of educational materials and advanced learning objects have been investigated and best existing computing solutions using a variety of wired and wireless communications means have been evaluated.

Visions, solutions and recommendations for a variety of problems and limitations in the field of digital and internet learning have been provided to allow better education delivery for all students in the future.

This report is supplemented by video tutorials which compare the ease of use of various e-learning portals carrying out a range of basic tasks.