

Role of Moodle in a Course Management System

Mangala A. Hirwade¹ and O.P. Rajasree²

¹Library and Information Science Department, Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur, Maharashtra, India

²Tulsiramji Gaikwad Patil College of Engineering and Technology, Mohgaon, Wardha Road, Nagpur, Maharashtra, India

Email: hmangala@rediffmail.com

Abstract

Encouraging the implementation of e-Learning in India, reduction in educational budget, competitive threats, changing profile of learner and the vast geographic area are in demand. Content development plays a key role in e-learning. Designing of content with good interactivity is essential for an effective teaching and learning system. Quiz forms the important aspect of evaluation of a student and this has variety of questions to be framed. The basis methodology is to create the category of quiz under which all questions are stored and they can be used selectively by the teacher for various exams. The detailed information of adding courses, category, sub category and activity is being narrated in this paper one by one.

© 2013 New Delhi Publishers. All rights reserved

Keywords: Moodle, Open Courseware, E-learning, Virtual Learning Environment

Introduction

The Library and Information Science (LIS) has the attributes of being a discipline of disciplines. In the present digital era, developments of ICT, has resulted in the emergence of digital information literacy in place of the traditional information literacy skills. As newer technology evolves there is a rush to adopt them. So could be seen in the case of libraries. Informatics is an essential component of current study and practice within the field of library and information science. Digital information literacy training needs to be tackled from the point of view of information professionals as well as learners.

Open Courseware (OCW)

Open Courseware (OCW) is an effort to share Knowledge and make the best educational use of learning materials. Educators from around the world may share the content and the design of their courses, improving them through collaboration. Open Courseware is nothing but the repository of the study and learning materials in digital form in the web, which is open for every user, i.e. Open Access. These repositories envisage to store, index, preserve, distribute and share the digital learning resources with any time access offering interoperability. It ensures faster learning at comparatively reduced cost and gives access to more learning resources.

Besides VLE provides differential access rights for instructors and students and causes production of documentation and statistics on the course in the format required for institutional administration and quality control.[2] All these facilities are capable of being hyperlinked together. In addition, VLE is capable of supporting numerous courses, so that students and instructors in a given institution (and indeed across institutions) experience a consistent interface when moving from one course to another. Virtual learning software packages like Moodle, works toward a student-centered learning solution by helping educators create quality online courses.

Review of Literature

Following sections and subsections presents the thematic review of literature studied for checking the relevance and deciding significance of this topic.

Mohanty & Jain conceived that major forces such as encouraging the implementation of e-Learning in India , reduction in educational budget, competitive threats, changing profile of learner and the vast geographic area are in demand. Further with the rapid advancement in computer & software and convergence of it with electronics communication technology, it is possible to make education more accessible, more flexible and less expensive. It is not a distant dream that pockets of e-learning existing in India will be networked and Virtual University networks will be created.

As per Eswaran & Jegan, Content development plays a key role in e-learning. Designing of content with good interactivity is essential for an effective teaching and learning system. Development of such an interactive content is not an easy task for instructors who lack technical knowledge. It requires a collaborative work among experts from various fields. To overcome this problem, this article suggests the use of patterns in e-learning content development.

According to Steyaert, education is delivered through computers and the internet. This article highlights that while such development is beneficial for some students with functional impairments, it might be excluding others if insufficient attention is paid to accessibility. Both the electronic learning environment (Blackboard, WebCT and the like) as well as the content author need to design for accessibility.

Schwier, examined theoretical and conceptual issues around promoting the growth of virtual learning communities and considers issues around using communication technologies in formal and informal learning environments. Highlights included the theoretical context of community, categories for examining virtual learning communities, emphases of virtual learning communities, ten elements of community and research issues raised by virtual learning communities.

According to C. Bourasa, E-learning was one of the emerging needs of the information age. Access to education is going to become crucial for the success of our information society, and therefore a lot of potential is seen in distance learning and distributed virtual environments. The communicative character of the distributed virtual environments would allow students and staff to meet in social shared spaces and engage in on-line real-time seminars and tutorials. Such technologies may mitigate some of the problems of isolation that distance learning brings. This paper presents work in multi-user distributed virtual environments which are designed and implemented for educational uses in the bounds of the VES project. Furthermore, it presents proposal for the extensions and reconstruction of the current system in order to create a more efficient system, which can be characterized as a learning virtual environment.

According to Chakravarty and Kaur, there were number of initiatives all over the world traced in the field of development of OCW and Learning Object Services. Open Course Ware is an innovative and bold idea. It aims to support learning and teaching programme significantly. Learning material contained in an OCW provides learners an opportunity to gain knowledge beyond their routine classroom environments. These are in the digital form which can be accessed online, thus breaking the barriers of time and distance.

Goba, Agasi, Saul, & Cooksgoba in their reporting argued that Moodle Learning Management System offered the most benefits in terms of the services and features that it offers to its users. Because of its open source nature, Moodle has been improved by the addition of new modules to provide greater functionality. The addition of two such modules, one for enhanced tutorial management that addresses assignment hand in, mark management (etc.) and a second that provides interoperability with 3rd party courseware. In addition, this report documents modification of the Moodle LMS in terms of the requirements, design and integration of a tutorial and interoperability modules into the Moodle LMS.

Bockisch, Freudenburg, & Beyer described the Problem-based learning (PBL) is an established and efficient approach to sustainable teaching. Translation of PBL into the virtual classroom thereby offering novel teaching aspects in the field of Nuclear Medicine. The teaching approach was implemented on a “moodle” platform and consists of 2 modules: complementary seminar teaching materials and a virtual PBL-classroom. Over the course of 4 semesters 539 students have accessed the teaching platform. 21 students had participated in the PBL seminar (module 2). After resolving some minor technical difficulties the virtual seminars have evolved into a forum of intense studies, whereby the participating students have learned to become more independent along the workup of the teaching cases. This was reflected in the results of the intra-group presentations and discussions. Quantitative and qualitative evaluation of our moodle-based PBL platform indicates an increasing level of acceptance and enthusiasm by the students. This has initiated discussions about opening our PBL concept to a wider audience within the university and beyond the Nuclear Medicine specialty.

Moodle

Moodle a short form for Modular Object-Oriented Dynamic Learning Environment is a free source e-learning software platform, also known as a Course Management System, Learning Management System, or Virtual Learning Environment (VLE). Moodle was originally developed by Martin Dougiamas to help educators create online courses with a focus on interaction and collaborative construction of content, and is in continual evolution. The first version of Moodle was released on 20 August 2002.

Feature

Moodle has several features considered typical of an e-learning platform, plus some original innovations (like its filtering system). Moodle is very similar to a learning management system. Moodle can be used in many types of environments such as in education, training and development, and business settings.

Some typical features of Moodle are

- It is an ongoing development project designed to support a social constructionist framework of education.
- It is provided freely as Open source software (under the GNU public Licence). Basically this means Moodle is copyrighted, but that they have additional freedoms. They are allowed to copy, use and modify Moodle provided that user agree to: provide the source to others; not modify or remove the

original license and copyrights, and apply this same license to any derivative work.

- Though it is primarily developed in Linux using Apache, MySQL and PHP, but it works on Windows XP/2000/2003, Solaris 10, Mac OS X and Netware 6 operating systems. It has good online support.

Requirement for Moodle

A. Hardware

The hardware system required for Moodle support are as follows

Disk space: 160MB free (min) and more free space to store teaching material.

Memory: 256MB (min), 1GB (recommended).

B. Software

The software required for Moodle down loading and operation are as follows

Web server software: Most people use Apache, but Moodle should work fine under any web server that supports PHP, such as IIS on Windows platforms. PHP does impose requirements on versions of web servers, however these are complex and the general advice is to use the newest version possible for chosen web server. PHP scripting language. Database on MySQL

Development of Quiz

The development of Moodle is guided by a particular philosophy of learning, a way of thinking that user may see referred to in shorthand as a “social constructionist pedagogy”(learning is effective only when constructing something for others to experience).

Quiz module in Moodle allows the teacher to design and set quiz tests, consisting of multiple choice, true-false, short answer questions etc. These questions are kept in a categorized database, and being used within courses and even between courses. Quizzes can allow multiple attempts. Each attempt is automatically marked, and the teacher can choose whether to give feedback or to show correct answers. Quiz module includes grading facilities. Researcher is attempting the creation of quiz module using systematic steps in Moodle software is discussed in the coming pages.

Login as Administrator

Open up internet explorer and type <http://localhost/moodle> and login as administrator using secure user name and password as well as valid email address. Multiple log in as administrator accounts is also possible. The page now opened will be configured as administrator account which will have complete control over the site.

Working with Quiz module involves a simple step-by-step process, which includes:

Create a quiz activity on the course home page using the “Add an activity” drop- down list, and set all properties for the Quiz. Properties can include:

- a) An opening and close date for the quiz
- b) A time limit

- c) Whether answers and questions are shuffled when a new attempt is made
- d) Whether more than one attempt is allowed
- e) Whether attempts build on previous attempt
- f) A grading method or curve
- g) How quiz gives feedback
- h) Whether students can view past attempts
- i) A maximum grade given for the quiz
- j) An optional password to access the quiz

Select a category to create the quiz questions in. If no categories exist, click the “Edit categories” button and add a new category. Next from the Create new questions list select a type of question to create. Moodle allows user to import questions from a file or other learning management system such as Blackboard, WebCT and IMS QTI formats.

Once user has added questions to the category, user will publish these question to the Quiz activity. Select each one and click the “<<Add selected to quiz” button. After placing each question in the proper order and optionally assigning a grade value, it is almost ready to complete the Quiz activity. Simply click the “Save this whole quiz” button and the Quiz activity will now be available from the course home page.

To start building a category of questions, either select an existing category or create a new one as indicated. Once selected the option from the Category drop-down list, the screen will refresh and display any existing questions that have been created under the category for it was selected . Moodle gives the options at this point as to how questions are created and added to the category:

- Import questions from file: this imports existing questions from file systems Moodle recognizes (AON, Blackboard, Course Test Management, GIFT, IMS/QTI, Missing word format and WebCT).
- Create multiple questions: this feature creates a specified number of random questions. These questions are drawn randomly from the database of pre-existing questions. Now specify the category of the questions it belongs, so Moodle will not accidentally ask questions about Othello when teaching Hamlet!
- Create new question: (most common selection)

When admin create a new question, it is stored in the category user select. It is then always available to add to any quiz at any time. To create a new question, select the type of question from the pull-down menu. User has the option of adding:

1. Multiple choice questions
2. True/False questions
3. A short answer question
4. A numerical question
5. Matching question

6. Description question
7. Random set
8. Random short answer

Quiz module uses a publishing metaphor. A quiz activity is created on the course homepage, which leads to the Editing quiz screen where categories of questions are created first. Once a category is created, questions are populated into the category. Finally, the course creator selects questions from a category to publish to the quiz activity.

Quiz forms the important aspect of evaluation of a student and this has variety of questions to be framed. The basis methodology is to create the category of quiz under which all questions are stored and they can be used selectively by the teacher for various exams. The detailed information of adding courses, category, sub category and activity is being narrated in this chapter one by one.

Adding Activity/course categories

1. Click on Add activity and choose quiz. In the following page type the title and other general information.

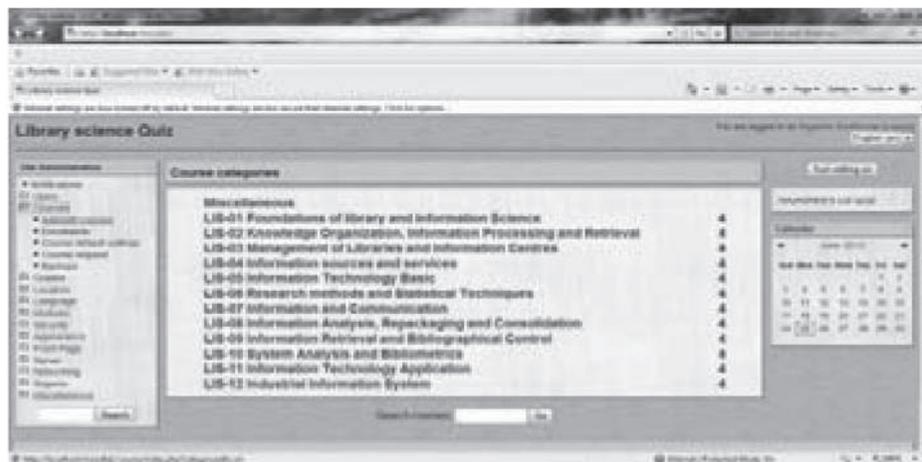


Figure 1: Screen view of quiz module

2. Go to add or Edit courses, so that the corrections or editing is completed as shown in the following figure.
3. Quiz from all the 12 papers (M.Lib I and M Lib. II) of RTM Nagpur University, Nagpur syllabus can be incorporated for preparing the course categories
4. Save the changes after choosing alternatives
5. Click edits categories to give the quiz category.

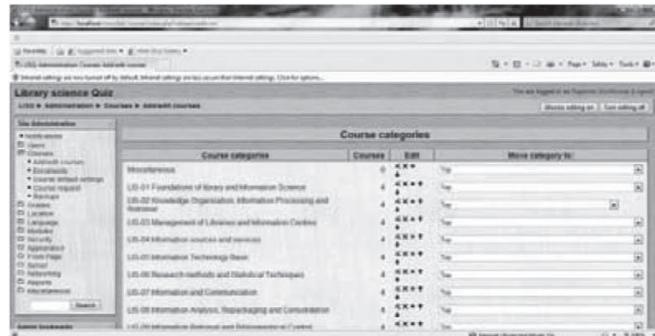


Figure 2: Screen view of course categories

Editing Activity/Resource

To add an activity or resource to the course, a series of editing symbols will appear alongside the link as shown in figure given above. These symbols appear to the right of the “news forum”, added by default as course shell was created.



Figure 3: Screen view of adding new category of courses

It is possible to add many courses in Moodle. In the present study the researcher have selected four courses i.e., Lecture Notes, Videos, Quiz, Glossary. Following figures illustrate the operation.



Figure 4: Screen view of courses

Moodle design tools (editing symbols and HTML editor) used during course creation is shown below after activating the editing on tab. Editing of the course content is very much required to changes in curriculum.



Figure 5.: Screen view of adding quiz

Adding Questions

To add question first create topic outline and then select the question type. Figure 6. showing the selection of Question type in the respective boxes. In Moodle there is several type of built in questions. The type of questions belongs to Calculate, Descriptive, Essay, Matching, Embedded answers, Multiple choice, Short answer, Numerical, Random Short answer matching, True/False etc. In present study only Multiple Choice, Matching, True/False type of questions are being selected for quiz. The illustration is given in the following figure.

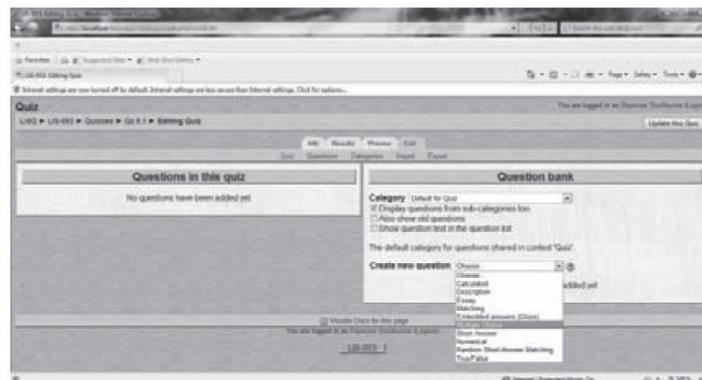


Figure 6.: Screen view of selecting multiple choice question

Construction of Multiple Choice Questions

Select the Multiple Choice in 'Create new question' Menu. In this there are several types of entries like category, question name, question text etc.. First type the Question No. and text of the question in the respective boxes.

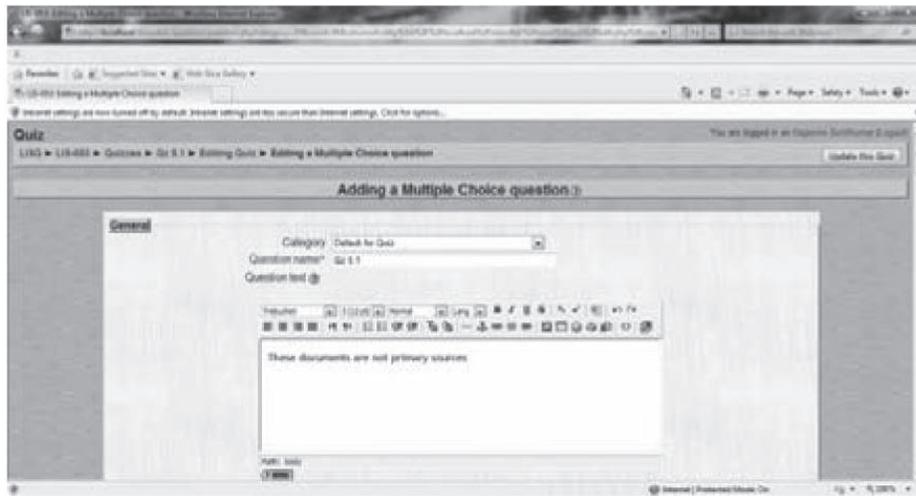


Figure 7.: Screen view of adding multiple choice question

Give the choices in their respective text boxes and give their response a student should get if attempts that question (this is optional). One correct choice shall carry 100 points for the grade.

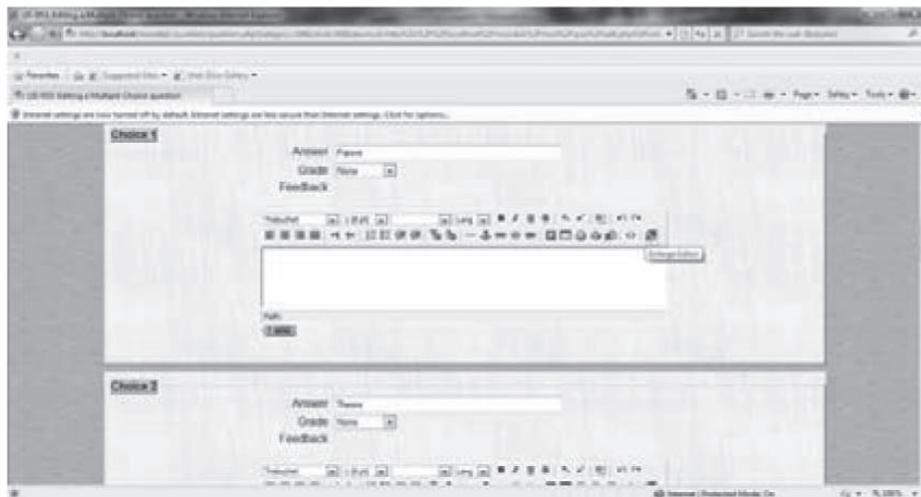


Figure 8.: Screen view of choice entry in multiple choice question

Author has to select the grade in the respective correct answer. Correct answer grade should be 100%. After finishing editing and entering the choice select the 'save changes' button to save the changes.

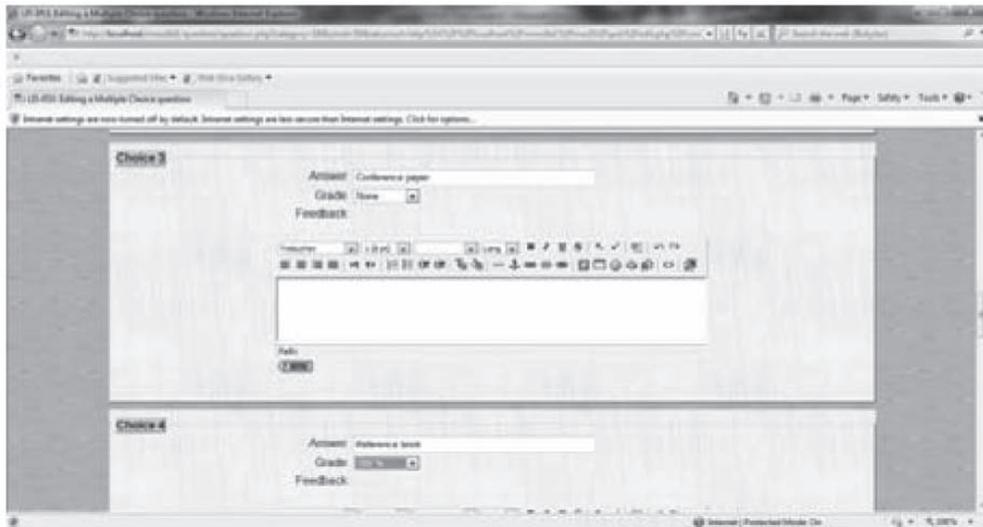


Figure 9.: Screen view of grade entry in the multiple choice question

Adding Matching questions

Select the Matching in 'Create new question' Menu. In this there are several types of entries like category, question name, question text etc.. First type the Question No. and text of the question in the respective boxes. The scheme is illustrated in the figure given below.

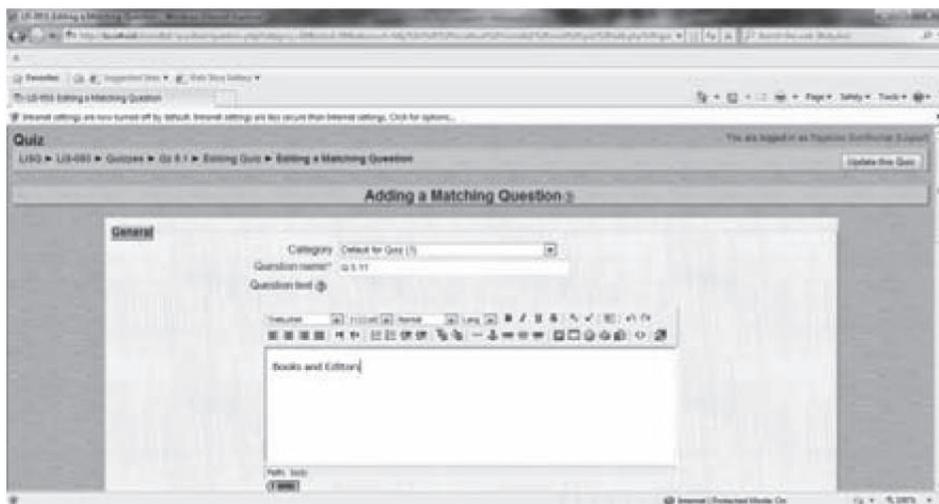


Figure 10.: Screen view of adding matching question

User has to select at least two matching pairs for these types of questions. Matching question and the answer was entered in the respective box. The figure 11. being shown is used to demonstrate the process.



Figure 11: Screen view of adding questions in matching questions

Adding True/False questions

Select the True/False in 'Create new question' Menu. There are several types of entries like category, question name, question text etc. Type the Question No. and text of the question in the respective box. The process of adding True/False questions is demonstrated in the following figure.

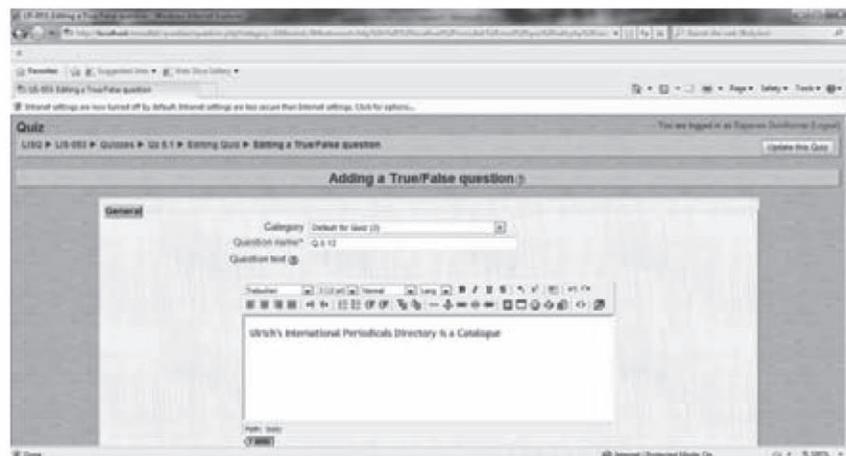


Figure 12.: Screen view of adding True or False questions



Figure 13.: Screen view of adding True or False option

Provide the correct answer in the respective box. If it is true then select ‘true’ and if it is false select ‘false’ in the respective box.

To post the selected questions for the quiz, choose the category and the researcher obtained all the added questions in the bottom. Tick the desired questions to be posted to the students by activating the “action box” and pressing “add to quiz” button as described in the figures given below.

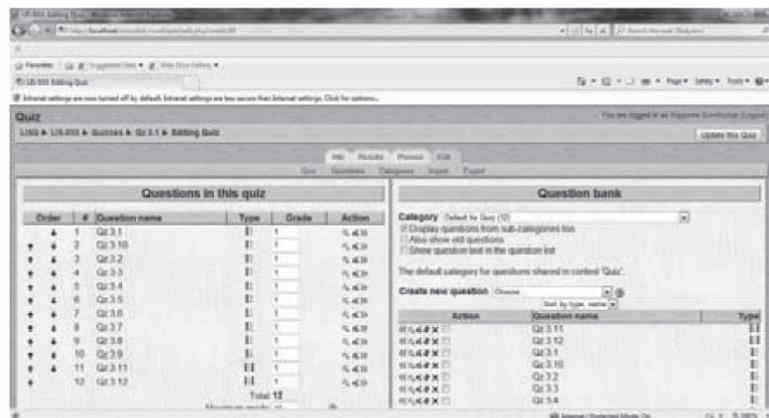


Figure 14.: Screen view of editing question bank

When the student chooses to take the quiz, a question is served to him along with options as below for attempting the answer.

When Quizzes is selected from the Activities block, a list of all course quizzes appears allowing the teacher to select a specific quiz and view student results. Simply click the link on the right side of a quiz in the list to see student results.

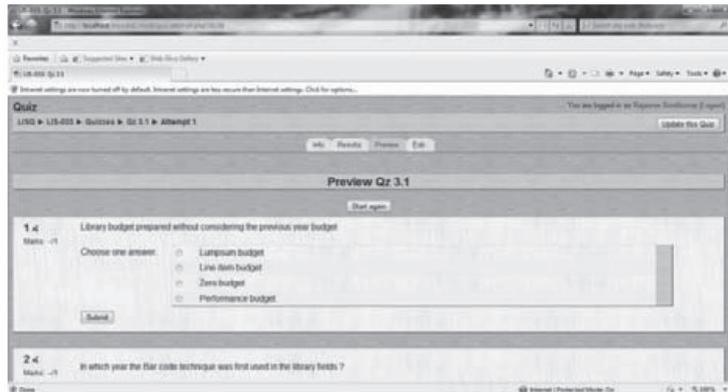


Figure 15.: Screen view of Preview of quiz

Results can be view in different ways, including:

- Overview
- Re-grade attempts
- Detail statistics
- Simple statistics

Grades

Grades feature displays the grades and scales applied for Forums, Quizzes, Assignments, Lessons, Journals, Workshops and SCORM activities that students have completed, submitted or posted. User can easily download grades in Excel or text format for inclusion in a grade book, and can select which course on the site which are enrolled in as a teacher to view grades.

Adding new User

For adding new user go to User menu at the left side of the screen and open it. After that click on Account menu and select on Add New User. Fill the user Name, New password, First Name, Surname, and Email-address etc.

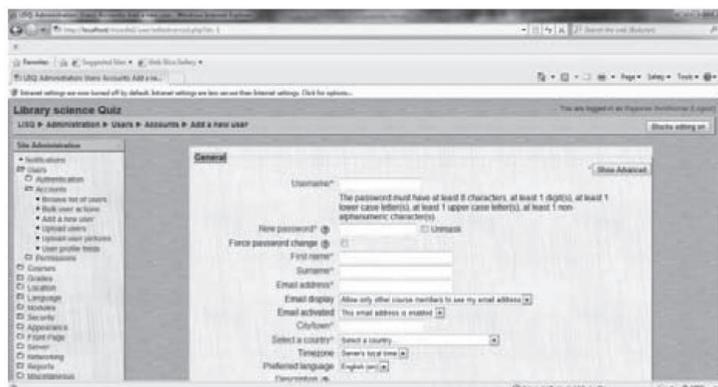


Figure 16: Screen view of creation of new user account

Leave other fields blank and click update profile. To see whether the user is created, click on the course number mentioned on top of top left side and click on Accounts-browse list of users. Figure 4.20 is displaying the created users list.

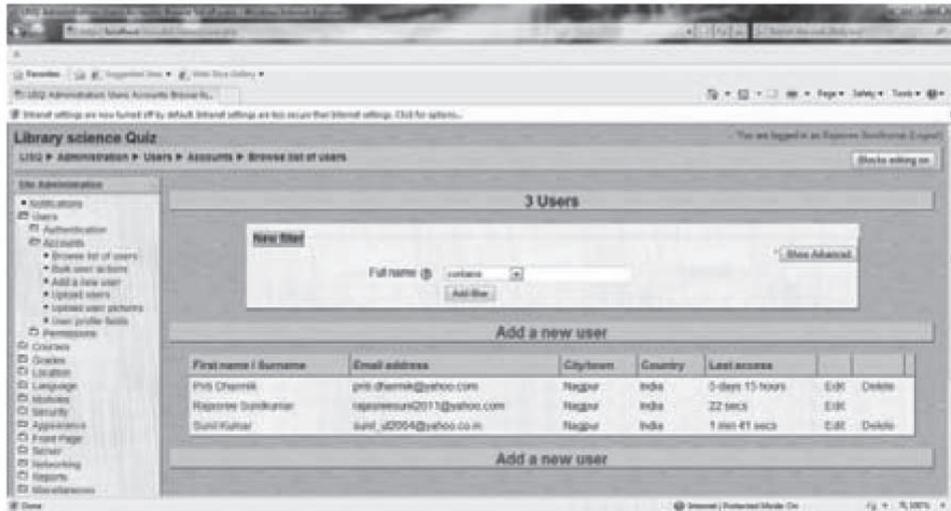


Figure 17: Screen view of list of users

As many as user or student can be enrolled for attempting the questioners (Figure 17) and the editing of questions become very easy and timing for opening the question bank and closing and other settings can be incorporated in Moodle. The process involved for the design and developing is quiet interesting and worth the value the researchers contribution.

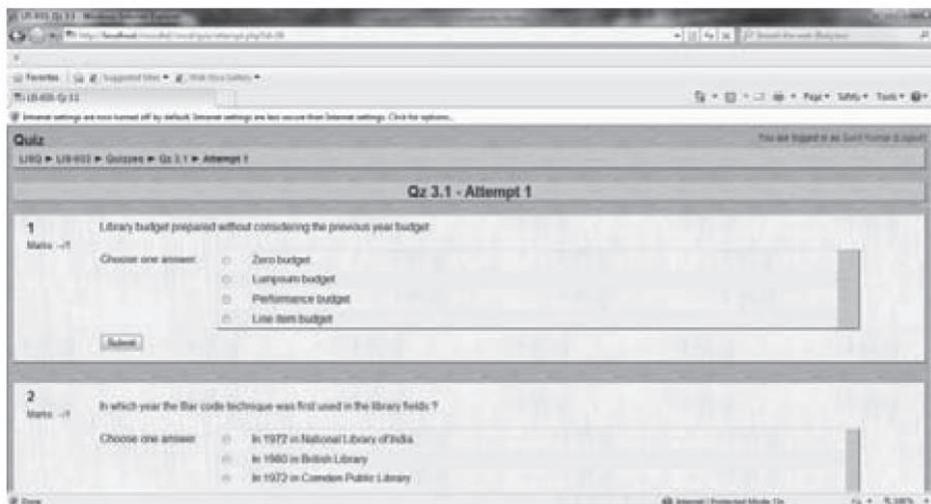


Figure 18: Screen view of User attempting question in online Moodle quiz .

Conclusion

In the present study an attempt is being made to develop Library and Information Science (LIS) quiz in open courseware i.e. Moodle. Moodle help educators create online courses with a focus on interaction and collaborative construction of content. Open courseware is nothing but the repository of the study and learning materials in digital form in the web, which is open for every user. E-learning is being one of the emerging needs of the information age. Encouraging the implementation of e-Learning in India, reduction in educational budget, competitive threats, changing profile of learner and the vast geographic area are the important factors increase the demand for online open courseware. These activities are economical, efficient and access to everyone ranging from students to teachers and even educationists. The editing and correction of course and activities are possible in online mode. The detailed information of adding courses, category, sub category, activity and grading is being explained in this article one by one.

Quiz module in Moodle allows the teacher to design and set quiz tests, consisting of multiple choice, true-false, short answer questions etc. Quiz forms the important aspect of evaluation of a student and this has variety of questions to be framed. The basis methodology is to create the category of quiz under which all questions are stored and they can be used selectively by the teacher for various exams and it is in continual evolution. Moodle is being used in many types of environments such as in education, training and development, and business settings. Present study will form the basis for further research and help the researchers world over.

References

- Chakraborty, R., and Kaur, S. 2008. OpenCourseware: Learning Beyond Classroom. Twenty First Century Publications.
- Appleton, L. 2005. Using electronic textbooks: promoting, placing and embedding. *lectronic Library*, 54-63.
- Mohanty, B., and Jain, R. 2009. Virtual University: Ways to Make it Real. *Open Access to Textual and Multimedia Content: Bridging the Digital Divide*.
- Eswaran, C., and Jegan, T. 2004. Patterns for e-learning content development. *J. of Interactive Learning Res.*, 117-133.
- Steyaert, J. 2005. Web-based higher education: the inclusion/exclusion paradox. *J. of Tech. in Human Services*, pp.67-78.
- Schwier, R.A. 2001. Catalysts, Emphases, and Elements of Virtual Learning Communities: Implications for Research and Practice. *Quarterly Review of Distance Education*, 5-18.
- Bourasa, C.A.P. 2001. e-Learning through distributed virtual environments. *J. of Network and Computer App.*, 175-199.
- Chakraborty, R., and Kaur, S. 2008. OpenCourseware: Learning Beyond Classroom. (pp. 111-119). Twenty First Century Publications.
- Goba, S., Agasi, N., Saul, G., and Cooksgoba, D. *Online Course Material Interoperability and Tutorial Module for Moodle*. Cape Town: Technical Report CS04-24-00.
- Bockisch, A., Freudenburg, L., and Beyer, T. 2010. An approach towards problem-based learning in virtual space. *GMS Z Med Ausbild*.