Case Study - Moodle as Quiz Engine

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Abstract— **In Academic, Examination is important aspect to evaluate student performance, along with that it is also very time consuming that we cannot evaluate student on every chapter / topic. In this paper, our focus in using Moodle as Quiz engine to evaluate student performance on every topic. Using Moodle as quiz engine has advantages like repeated examination can be conducted in quick succession and without spending much time. Our study shows Moodle is finest option for quiz activity.**

Keywords— **Moodle, Quiz Engine, Academic Evaluation System, Question Activity, Quiz Report**

I. INTRODUCTION

In Academics, teachers usually conduct exams to test student's performance. But assessing manual paper is tedious and time consuming and boring activity. Due to these same reasons many institutes conduct examination once or twice per semester but due to that system fails because till end of semester we do not have any performance idea. And if we conduct examination it is so time consuming that our other important task suffers for that. The other approach could be to shift examination system for online examination.

Today's education system is looking like web that is spreading itself in the society. If education is given in interesting ways, then students do not get bored. Like; taking online Quiz, submit online assignments, View Online attendance Report, View result of quiz etc. Online examination should allow setting quiz of all types (like, MCQ, Short, Match), conducting exam reports etc.

Some of the problems faced by manual examination systems are delays in result processing; filling poses a problem, filtering of records are not easy. Maintenance of the system is also very difficult and takes lot of time and effort. Most of above issues can be resolved by online examination.

II. BASIC REQUIREMENT OF IDEAL QUIZ SYSTEM

The Quiz activity allows to design and set quizzes that consisting variety of question types, like MCQ, matching, true-false, short answer type's questions. Ideal quiz system should have following module.

1. Generation of Question set (MCQ, Matching, True-False, Short answer type Question)
2. Load questions regarding to the particular course, put it in specific category
3. Set time limit (in minutes) for quiz
4. An opening and closing date for the quiz
5. Set opening time and closing time of quiz
6. Display questions per page (unlimited or Up to some specific number)
7. Whether answers and questions are shuffled when a new attempt is made
8. Whether more than one attempt is allowed or not
9. Storing this question into the database, so whenever teacher wants, he can use it.
10. Import and Export Questions.
11. Categorized quiz and takes care for if student pass one level then only he will allow for attempt the next level of quiz.
12. A grading method or curve (Graph)
13. Generating quiz reports
14. How quiz gives feedback
15. A maximum grade given for the quiz
16. An optional password to access the quiz

III. MOODLE INTRODUCTION

Moodle is free software that allows you to create powerful, flexible, and engaging online learning experiences [5]. The word Moodle was originally an acronym for Modular Object-Oriented Dynamic Learning Environment. Moodle is a global development project designed to support a constructionist framework of education. It can be run on Windows and Mac operating systems and many flavors of Linux. Moodle provides various activities that help education system like course creation, enrollment, assignment and quiz. Our focus in this paper is to use Moodle quiz activity for conducting exam.

Moodle – Activities and resources

Whenever we add a different activity or resource to Moodle course, an icon will appear in this block representing the specific Moodle "module" (e.g. Forum, Journal, Assignment etc.). Moodle contains some activities like Assignments, Forums, Chat, Choice, Quizzes, Attendance module, Surveys etc. [2]

1. Adding an Assignment
2. Grading Assignment
3. Adding a Forum
4. Adding a Chat room
5. Lesson Module/Adding Lesson
6. Add a Choice (Poll)
7. Adding Quizzes
8. Add an Attendance Module
9. Taking Attendance
10. Add a course
11. Adding a Survey

Quiz activity

The Quiz activity module of Moodle allows the instructor to design and set quizzes consisting of a large variety of Question types, among them multiple choices, true-false, and short answer questions. These questions are kept in the course Question bank and can be re-used within courses. You can create quizzes with different question types, randomly generated quizzes from pools of questions, allow students to have repeated attempts at a question or retake quizzes multiple times.

When Teacher adds a quiz activity to Moodle course, he can set the rule for how the students will interact with the quiz, set timing of quiz, set time delays between attempts, an opening and close date for quiz etc.
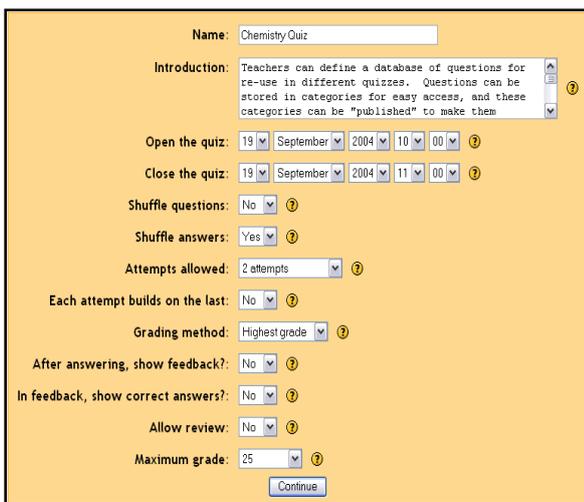
Fig. 1 create quiz and adjust settings.
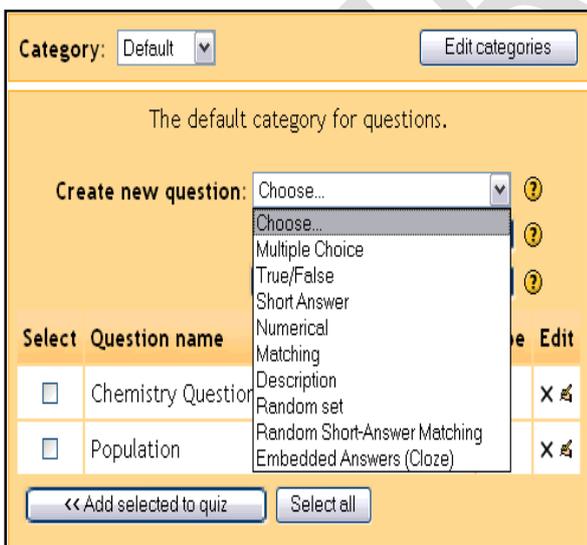
Fig. 2 Create questions

Quiz activity has several another properties like how quiz gives feedback, grading methods, assign category to quiz etc.

Moodle allows to import questions from a specific file format like XML format, hot potatoes etc.

How to Create a Quiz on Moodle

Creating a Quiz on Moodle is a two-step process. First, questions need to be created in the questions bank. Two, a Quiz needs to be created which will load the selected questions from the bank.

Let's begin with the first task of creating the questions.
1. Turn editing on.
2. Add an activity.
3. Select Quiz, from the available options.
4. Select add.
5. Go to Questions under Administration.
6. It is a good idea to group your questions so that it's easier to keep track of which questions should be used for what quiz. To do so, create Categories to group the questions.
7. Go to the Categories tab.
8. Create category, click Add Category.
9. Let's create the questions now. Go to the Questions Tab.
10. Choose your Category to place your question.
11. From the Create a new question drop down, select the question format. Most popular formats are Multiple Choice, True/False, Essay and Numerical.
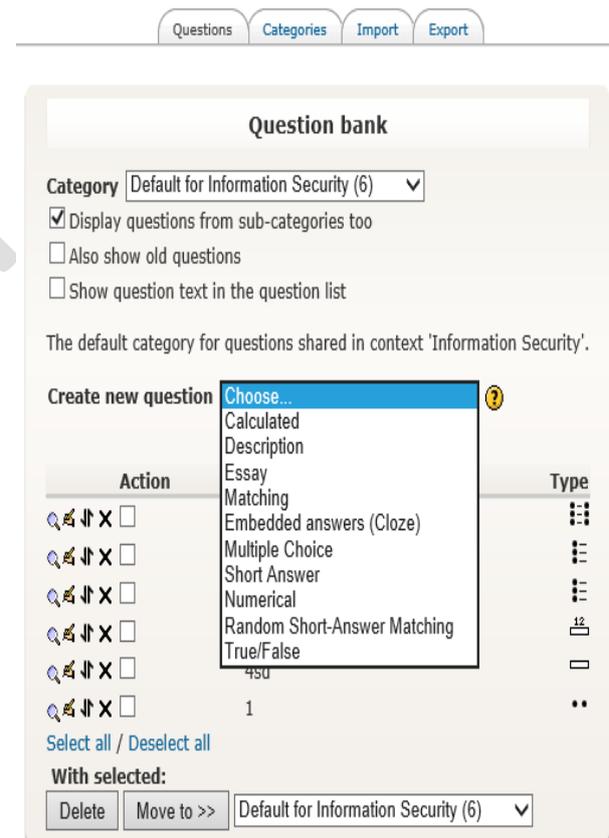
Fig.3 Creating Questions

Creating the Quiz
1. Add an activity. Select "Quiz" from activity.
2. Apply settings. Some of the useful settings are:

Timing – Assign when the quiz will open and close. Also assign a time limit.

Display – Questions per page, Shuffle questions, Shuffle within questions (For multiple choice questions, make sure you don't have choices written 'All of the above').

Attempts – Set the number of attempts for quiz

Grades – used for display of grades

Review options – Generally, instructors uncheck all boxes for the first two columns and only allow display of answers, feedback and scores after the quiz is closed. For this to work, make sure you have a closing date/time assigned for the quiz.

Fig.4 Review of quiz in given situation

Once you have the settings complete, click on 'Save and Display' to add questions.

3. Pick and choose the questions. Add to the Quiz by clicking on '<<' you can also add Random questions. Choose how many random questions you would like to pull in from the category pool and then click add.
4. Update Maximum grade then click save changes.
5. Select Preview tab to preview. [2]

Importing and Exporting Questions

Importing Questions

Moodle has a number of different formats that can be used to import questions into Quiz activity. These include some proprietary quiz software formats, as well as text files and Moodle formats.

Import question formats from the import tab.

- Click on the Import question link between the pages.
- Select the file type
- Use the browse function to find the file on your
- Import the selected file.
- Determine the file to import
  - o Import from file upload. Use the browse function to import a file from your computer. Use the "Upload this file" button to import the questions.

- o Import from file already in course files. A pop-up window will take you to the course files start page. Use the "Import from this file" button.

Export questions

- Questions may be exported from the Quiz Activity in any one of 3 formats:
  - o GIFT format
  - o Moodle XML format
  - o XHTML format

In addition, questions may be exported into Word format using a contributed plugin, Word table format. These can then be easily used to create paper tests.

Fig.5 Export questions to file

Quiz Report

Reporting is important part of any quiz system. Reporting should have important feature like Grade Report, Responses report, statistics report etc. We can also get to the quiz reports where we see a summary of the number of attempts that have been made like "Attempts: 1". That link also goes to the reports. [6]

"Navigation > Course > Quiz name > Results" this will open a submenu that offers reports on:

- Grades report
- Responses report
- Statistics report

Grade reports show all the students' quiz attempts, with the overall grade, and the grade for each question. There are links to review all the details of a student's attempt, just as the student would see it.

Response Report shows the responses the students gave, rather than the marks they earned. It is also possible to show the question text or the right answer, to compare with the student's response. This is helpful when the question is randomized.

Fig.6 Graded attempts for each student

IV.   TESTING AND RESULT

We conducted several test examinations at our institute, and after that we get some feedback from students is shown in below figure.

Feedback Analysis:
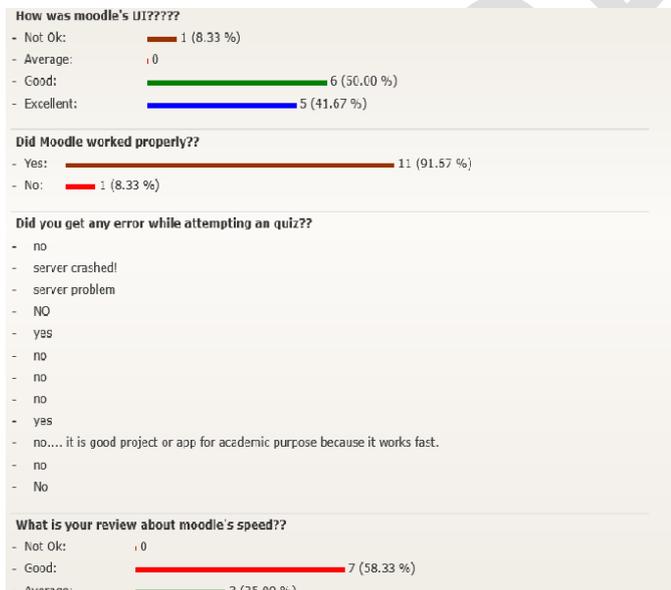
Fig. 7 Feedback Analysis

Feedback Report: More than 70 % of student liked this type of exam. More than 80% of student found exam interface easy and user friendly. There was only 2-3 errors of connection and that is also related to network problem not Moodle problem.

V.   CONCLUSION

Overall, we found Moodle quiz activity provides an effective, fairly easy-to-use way of testing students. Tests created and delivered via Quiz have the added benefit of being easy to create. Quiz can be used over and over again. Quiz also has the ability to do all kinds of things that most instructors need, including: setting test dates and times; altering page length; including a variety of item formats; shuffling items and responses; setting security levels; creating test groups; giving a variety of feedback and results; and even providing basic data analysis tools. Using Quiz, we are able to design and alter tests quickly and easily if required.

REFERENCES

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[4] Moodle Quiz   https://kb.wisc.edu/moodle/page.php?id=32584
[5] Export Question on Moodle http://docs.moodle.org/24/en/Export_questions
[6] 6. Quiz Report http://docs.moodle.org/24/en/Quiz_reports