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Analysis of Moodle Features to Build Moodle-Lite

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Abstract
Moodle is one of the LMS (Learning Management System) applications used to build E-Learning. Moodle is quite popular compared to other LMS because it provides several main advantages, namely free, feature rich and large community support. Even so, Moodle has some problems that are still being improved, like a user-friendly interface. This problem will be felt by ordinary users. In addition, the number of Moodle features both main features and additional features (plugins) causes Moodle's complexity to be even higher. In fact, sometimes users only use a number of features to help their work. Therefore, this study proposes a simple design of Moodle-Lite but more effective to the users. The basic foundation of Moodle-Lite design lies in two aspect, how often a feature is used and being talked by Moodle users. The first aspect is obtained by looking at the result in data survey from features that are often used. The second aspect is obtained through the analysis of a feature that is often discussed in Moodle Forum (MD). Furthermore, the best features obtained from both aspects will be made into Moodle-Lite features. The final results obtained six main features, namely: Quiz, Assignment, Feedback, Forum, Lesson, and Scorm.

Keywords: *Moodle, features, Moodle-Lite*

Introduction

The development of information technology has changed the learning and teaching process [1]. One of the IT products that is often used in education is e-learning. Today, e-learning is growing rapidly because it is supported by the concept "lifelong learning". Furthermore, ease of access in this digital era makes teaching and learning process easier. E-learning has several advantages that can overcome the weaknesses of conventional learning such as could eliminates geographical boundaries that affect many things such as financial problems, risks, and loss of time. E-learning also always adapts along with the alteration of the time and space and becoming more flexible [2]. One e-learning's application that is quite popular is Moodle [3] because Moodle is an open source, rich in features and supported by very large community. Moodle offered many features that can be used by its users. But those features are not always have positive impact on users, especially lay users. furthermore, not all features are used by users. Unfortunately, there is no simple version from Moodle or Moodle-Lite which only uses features that are often used by users. Thus, to make Moodle become minimalistic, can be done by surveying over users and note down what features they often use. After that, based on the survey, Moodle-Lite can be made. There is an additional way beside using the survey, that is by analyze the results of the discussion in the forum that discuss Moodle. The results of the analysis will be used as an input to make Moodle-Lite.

Furthermore, this paper is organized as follows, Section 2 contain research that related to the analysis of Moodle features. Section 3 contain a brief description about Moodle. Section 4 contain research methodology that used. Section 5 contain the discussion and analysis results. Last section contain conclusion and future work.

Related Works

The research from [4] is main references and inspiration for this study. They analyzed Moodle's features based on the results of a survey of teachers from 30 universities. The survey they conducted was related to features that are often used. There are 16 features which are then divided into two, namely: (1) Twelves features related to learning activities; and (2) Four features related to learning resources. Measurement is done subjectively and qualitatively using a Qualitative Weight and Sum (QWS) approach. Their evaluation's result provide information that Moodle is often be used to provide lecture materials, schedule lectures, conduct assessments, create activities, gather lecture feedback and communicate between lecture participants. While the assignment features, quizzes and workshops are very rarely used.

Research Method

The collection of Moodle's features is done in two ways, namely: (1) Taking features derived from the survey results [4]. This method is a short way to obtain features without reducing the quality of the data. This is because these features have been studied scientifically and have been proven; and (2) Taking features from Moodle Forum (MD) by calculating how many threads and the number of the generated posts.

FEATURES ANALYSIS

Moodle has four types of users, namely: admin, manager, teacher and student. Each user has a special feature. This study only discuss the main features that often interact with teacher and student. There are two modules that contain these features, namely the Activitiy module and Resources module. Table 1 provides features information which in both modules.

Table 1. Moodle features from Activity and Resources modules.

Module	Features
ACTIVITY	Assignment, Chat, Choice, Database, External tool, Feedback, Forum, Glossary, Lesson, Quiz, SCROM Package, Survey, Wiki, and Workshop
RESOURCES	Book, File, Folder, IMS Content Package, Label, Page, and URL

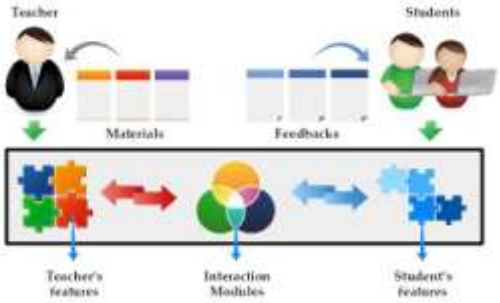

Figure 1. Proposed architecture for Moodle Lite.

Proposed Architecture

The results from the analysis in Moodle feature will be used as a reference to create Moodle- Lite. Design of Moodle-Lite architecture itself can be seen in Figure 1. Generally, there are five components that compose the architecture, namely: (1) Teacher as a supplier of material; (2) Students who provide feedback from the material provided; (3) Specific features for the teacher; (4) Features for students; and (5) Interaction Modules that contain modules as a bridge of interaction between teacher and student.

RESULTS AND DISCUSSION

Results from Survey Data

Table 2 and Table 3 are the results from the representation to the work done by [4]. In Table 2 there are 12 features for the module Activity with the percentage of usage. From these trials, information was obtained that there are 5 features that are often used, namely: Lesson, Quiz, Forum, Assignment, and Feedback. The most often used feature is the Feedback feature 96.66%. While the feature that is rarely used is the Scorm feature of 46.66%. Figure 2 provides a bar graph of the twelve features in Table 2. Percentages are sorted from lowest to highest. In the graph it can be seen that there are 5 features that have percentage above 80%. Furthermore, these five features are considered the best features.

Table 2. Moodle features usage from Activity module.

Features	Usage (%)	Features	Usage (%)
Assignment	88,66	Lesson	83,33
Choice	73,33	Quiz	83,33
Database	70,00	Scorm	46,66
Feedback	96,66	Survey	66,66
Forum	83,33	Wiki	73,33
Glossary	73,33	Workshop	73,33

Table 3 contains 6 features derived from the Resources module and accompanied by the percentage of its usage. The feature that most to be used is File, that is 100%. While the features with rarely used are the Book, that is 76.66%. In Figure 3 can be seen the representation of Table 3 into the bar graph. In the graph, it can be seen that there are 4 features with a percentage above 80%, namely: Page, Folder, URL, and File. Therefore, these four features will be considered as the best features. Based on the previous data processing results, 9 features are considered to be frequently used by Moodle users, namely: Lesson, Quiz, Forum, Assignment, and Feedback, Page, Folder, URL, and File. Furthermore, all these features will be collaborated with features derived from MF analysis results.

Table 3. Moodle features usage from Resources module.

Features	Usage (%)	Features	Usage (%)
Book	76,66	Label	76,66
File	100	Page	90
Folder	90,00	URL	93,33

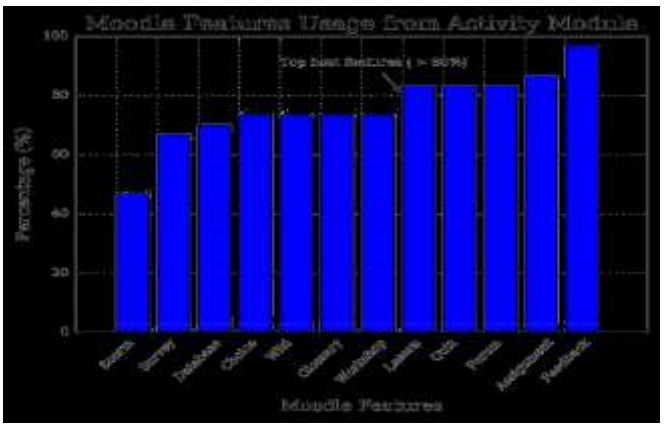

Figure 2. Moodle features usage from Activity Module.

Results from Moodle Forum (MF) Analysis

Moodle Forum (MF) will display 100 threads for each display and sorted by the active time of the thread. In a while, we only count the number of posts on the first page and assume that the other pages have similar number of posts. We thread to be like this because we want to see in general about the features that are being actively discussed. Based on the Table 4 it can be seen that MF is quite active with a total number of threads is 368, total posts is 3,942, so the amount for all is 114,177. The data is enough to prove that Moodle is strongly supported by the user community.

Figure 4 gives a graph about all the total posts in every feature sorted in ascending. In the graph, it can be seen that the feature with the most total post is the Quiz feature (53.856) while the least is the Survey feature (306). Thus can be obtained three features with the gratest total posts (above 10,000) , namely: Assignment, SCORM, and Quiz. If this result is sliced with the previous survey results, then the Assignment and Quiz features are included in features that are often used and discussed by Moodle users. Interestingly, from these two results there are two contradictory features, namely Feedback and SCORM.

CONCLUSION AND FUTURE WORKS

This article is about analyzing Moodle features that are often used and discussed by Moodle users. Moodle provides many features but not all features are used by users. Therefore, this study proposes a simple and effective version of the Moodle design called Moodle-Lite. The beginning stage of Moodle-Lite design is to evaluate the features that often be used and discussed by Moodle users. Those both aspects become the basic foundation to build Moodle-Lite. The first aspect is obtained by looking at the survey features that often used by [4]. While the second aspect is obtained by analyzing how often these features are discussed at MF. From these two aspects we can.
show that the best six features to be used as Moodle-Lite features, namely: Quiz, Assignment, Feedback, Forum, Lesson, and SCORM.

Table 4. Moodle features usage from Activity module.

Features	Sum of Thread	Sum of Post	Total
Assignment	41	244	10.004
Book	7	303	2.121
Chat	7	149	1.043
Choice	3	229	687
Database	14	390	5.460
Feedback	8	187	1.496
Forum	39	151	5.889
Glossary	10	278	2.780
Lesson	20	249	4.980
Quiz	135	399	53.865
SCORM	43	339	14.577
Survey	2	153	306
Wiki	15	271	4.065
Workshop	8	337	2.696
Resources Types	16	263	4.208

Show that the best six features to be used as Moodle-Lite features, namely: Quiz, Assignment, Feedback, Forum, Lesson, and SCORM.

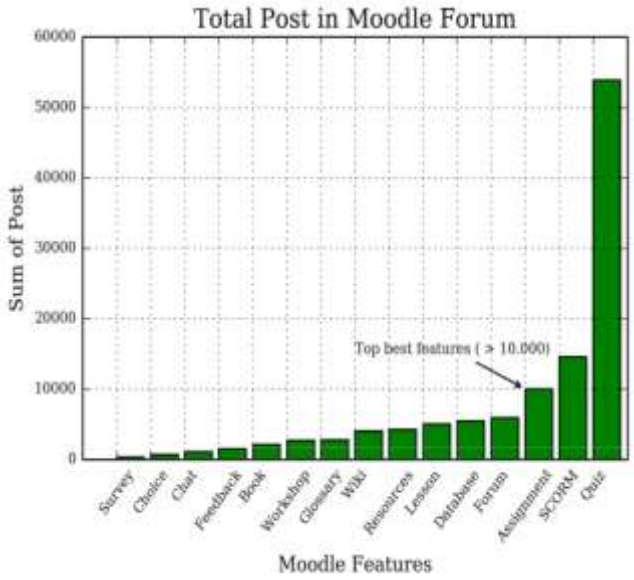

Figure 3. Total post of features in Moodle Forum.

The next research will make Moodle-Lite which contains this six features. Moodle's weaknesses related to the user interface will be solved using Responsive Web Design (RWD) technology so that the Moodle-Lite display will be user-friendly.

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