

# A Roadmap for Configuring Moodle with MLE-Moodle and MyMLE

Lakshmi Kurup, Ajay Arunachalam

**Abstract—** Today the combination of wireless technology and mobile computing is resulting in escalating transformations of the educational world. The Mobile Learning Engine enables you to learn wherever you want to learn, whenever you want to learn and whatever you want to learn. If you are at home or at school in front of your PC it would make no sense to use a mobile phone for learning. That's why the MLE is integrated with an eLearning system. With MLE-Moodle you can realize custom mobile learning scenarios: for field-trips, where students should fill out quizzes or upload images/videos/audio reports or written reports in a forum create location based learning scenarios with mobile tagging or integrated GPS make quick surveys or quizzes in the classroom with the mobile phones and see the results instantly. The other part of the paper deals with offline utilization of Learning engine with an extended version of the MLE-Editor plugin called MyMLE. "MyMLE" is for all the people who want to use mobile Learning but do not want (or simply cannot) use MLE-Moodle of the necessity of a web-server in order to run MLE-Moodle and not everyone has a web-server. It allows you to create learning content and to pack multiple learning-objects to a special MLE-phone client. This MLE phone client has no network access and is only a viewer for your learning-objects. So we can create our own learning objects and use them on the phone. This paper focuses on the configuration of M-Learning management tools like MLE-Moodle and MyMLE in collaboration with the existing e-learning system Moodle. After the practical research, it is illustrated that this platform can effectively facilitate the information communications and sharing among teacher-students. Currently we have tested our applications on Java-enabled phones and Blackberry.

**Index Terms—** Moodle, VLE, MyMLE, LMS, ICT

## I. INTRODUCTION

M-Learning technologies can potentially deliver education at significantly reduced costs by leveraging the relatively cheap mobile infrastructure available throughout the world. Mobile devices also have a strong appeal among the students that can be exploited to provide flexible learning opportunities regardless of the time or the location of learners. Research has proved that mobile learning is

successful in enhancing learning and promoting both individualized and collaborative learning[3]. Yet, mobile learning was not successful in making the transition from the experimental and pilot studies phase to the large scale and common use phase. MLE-Moodle and MyMLE is a mobile Learning (M-Learning) system, designed for mobile Phones. It is realized as a plug-in for the open-source Learning Management System (LMS) Moodle.[1]

## II. IMPORTANCE OF MOODLE

Moodle is a software package for producing Internet based courses and web sites. It's an ongoing development project designed to support a social constructionist framework of education.

Moodle is provided freely as Open Source software (under the GNU Public License). Moodle (abbreviation for Modular Object-Oriented Dynamic Learning Environment) is a free and open-source e-learning software platform, also known as a Course Management System, Learning Management System, or Virtual Learning Environment (VLE)[1]. Moodle has several features typical of an e-learning platform, plus some original innovations (like its filtering system). Moodle is very similar to a learning management system, but it has many more standard features. Moodle can be used in many types of environments such as in education, training and development, and business settings. Developers can extend Moodle's modular construction by creating plugins for specific new functionality. Moodle's infrastructure supports many types of plug-ins [2].

- Activities (including word and math games)
- Resource types
- Question types (multiple choices, true and false, fill in the blank, etc)
- Data field types (for the database activity)
- Graphical themes
- Authentication methods (can require Username and password accessibility)
- Enrollment methods
- Content filters

We are summarizing the steps to configure moodle in Section III and thin Section IV and V we have detailed out the steps to configure stps to configure

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### III. STEPS TO CONFIGURE MOODLE

#### a. Preparing your Server

Moodle is meant to be run on a server. It requires Apache2, the PHP scripting language, and a database (either MySQL or PostgreSQL). We preferred MySQL. A LAMP server (Linux, Apache2, MySQL, PHP) can easily be installed from the command-line interface:

- `sudo taskset install lamp-server`

#### b. Installing Ubuntu[4].

#### c. Installing the packages

#### d. Installing the security updates

#### e. Installing the security updates

#### f. Installing Apache and PHP5

#### g. Install MySQL

#### h. Installing Moodle

#### i. Allow access to your Moodle across LAN

This moodle install will only work from the local host. To make it accessible from other hosts you must edit the file

`etc/apache2/conf.d/moodle.`

#### j. Now restart apache by typing

`sudo /etc/init.d/apache2 restart` in the terminal. You should now be able to access the moodle from other hosts by doing `http://<address of your moodle host>/moodle.`

#### k. Upgrading Moodle 1.8 to the latest version

### IV. REQUIREMENTS TO PREPARE YOUR MLE-MOODLE SERVER

MLE-Moodle is an extension to Moodle, so you need to install Moodle 1.9.x first. Therefore the requirements of Moodle are the requirements of MLE- Moodle too

- Moodle 1.9.x
- PHP 4.3.0
- Database: MySQL 4.1.16 or Postgres 8.0 or MSSQL 9.0 or Oracle 9.

#### A. Setting up Moodle Courses

So after you have finished the installation of Moodle, you should create at least one course. So as the Admin do the following [5]:

- In the "Site Administration" panel click on "Courses" and "Add/edit courses"
- Click on the "Add a new course"
- Select a Full name like "mLearning Testing course" and a short name like "mLearn"
- On the next page (assigning roles) add yourself as a teacher can click on your "mLearning Testing course" and add learning content. You can do this

by pressing the "Turn editing on"-button which, so you can access thcourse

If you want you is loacted at the upper right. Afterwards you can add resources and learning-activities.

#### B. Installing MLE-Moodle Files

Now we are ready to turn Moodle to a mLearning system.

- Download the MLE-Moodle installation package.
- Extract the content and upload this content(the content of a folder named "moodle" in the ZIP file!) to the moodle root- folder on your web-server.
- To check if you were successful, go to the "blocks" folder in the Moodle root-folder. You should see a new folder called "mle".

#### C. Finishing the Installing

Now visit your Moodle web-server with your web- browser and log-in as the admin.

- In the "Site Administration" panel click on "Notifications".
- After the page has finished loading click on the "Continue" button at the bottom of the page. Click on the "Save" button if you are asked.
- In the "Site Administration" panel click on "Modules" - MLE Moodle
- Check that "Enable MLE-Moodle" is activated.
- Select the Mobile community course you created earlier and activate mobile communities
- Click on save

#### D. Enabling Mobile Access

- Log in as Admin
- Search for a new block called "blocks" and select "Mobile Access"
- Move the new "Mobile Access"-block where you want it to be
- In the new "Mobile access" block click on the last URL for the mobile browser access to open the page in your browser patient the first access to MLE-Moodle needs some time

Now you should see the MLE-Moodle front page, as you would see it on the mobile phone browser. If you click on the "Download"-button in the "Mobile access" block (back on the start-page of Moodle), you will be redirected to a download-server where you can download the mobile phone application which is already pre-configured for your MLE-Moodle server[5].

### V. CONFIGURATION OF MLE-MOODLE IN NORMAL JAVA BASED PHONES

#### A. Configuring the browser access

- As Admin go to "Modules" - "MLE" - "MLE Browser Access" and type the url as **`http://yourdomain.com/moodle/blocks/mle/browser.php`**

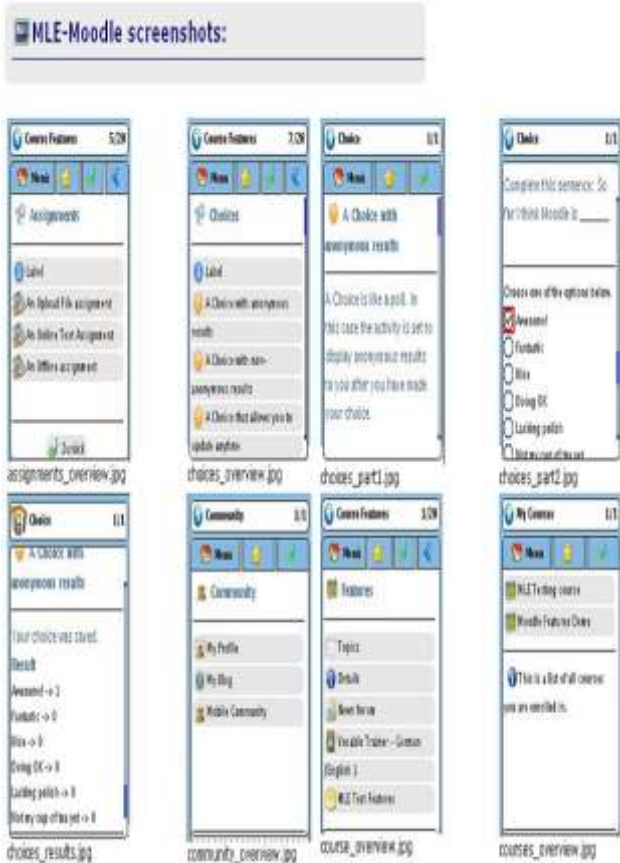
#### B. Configuring Mobile Application MLE client)

- As Admin go to "Modules" - "MLE" - "MLE Client: Installation".

If you do not want to use the mobile client, you can turn it off here, by deactivating the access

**C. Configuring your internal download server**

To host the installation files on your own server, you must download the installation files first  
 The installation files are packed in a ZIP file [5].



**FIG 1: Snapshot of MLE-Moodle**



**FIG 2: Menu page of MLE-Moodle**

**VI.CONFIGURATION OF MLE-MOODLE**

**A. Setting up Moodle courses:**

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**B. Installing MLE-Moodle files:**

Now we are ready to turn Moodle to a mLearning system[5].

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- Extract the content and upload this content (the content of a folder named "moodle" in the ZIP file) to the moodle root- folder on your web-server.
- To check if you were successful, go to the "blocks" folder in the Moodle root-folder. You should see a new folder called "mle".

**C. Finishing the installing:**

Now visit your Moodle web-server with your web-browser and log-in as the admin.

- In the "Site Administration" panel click on "Notifications"
- After the page has finished loading click on the "Continue" button at the bottom of the page. Click on the "Save" button if you are asked.
- In the "Site Administration" panel click on "Modules" - "MLE" - "MLE Moodle Config"
- Check that "Enable MLE-Moodle" is activated.
- Select the Mobile community course you created earlier and activate mobile communities
- Click on save

**D. Enabling Mobile access:**

- Log in as Admin
- Go to the front page and click on the button "Turn editing on" (upper right)
- Search for a new block called "blocks" and select "Mobile Access"
- Move the new "Mobile Access"-block where you want it to be
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- Be patient the first access to MLE-Moodle needs some time

Now you should see the MLE-Moodle front page, as you would see it on the mobile phone browser. If you click on the "Download"-button in the "Mobile access" block (back on the start-page of Moodle), you will be redirected to a download-server where you can download the

mobile phone application which is already pre-configured for your MLE-Moodle server[6].

## VII. INTRODUCTION TO MYMLE

MLE-Moodle is realized as a plugin for the open-source Learning Management System (LMS) Moodle. Just copy the MLE-Moodle files to your Moodle-installation and your eLearning system is now a mLearning system too. So with MLE-Moodle you can **enhance** your eLearning system to mobile Learning, and can learn either with your **mobile phone** (mLearning) or with your **PC / Notebook** (eLearning).

### A. Setting up of MyMLE

After downloading the MyMLE\_0.7.5\_full\_installer\_(Android+Blackberry).jar double click on it and continue till you finish the setup. Following are the screenshots of the MyMLE Application[6].



Fig 3: Loading of your MLE engine

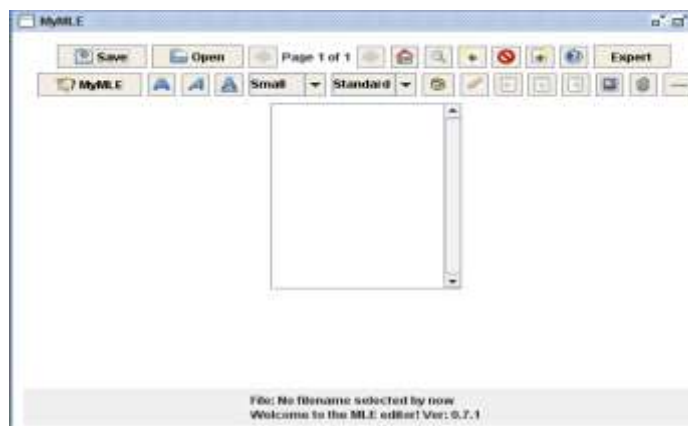


Fig 4: Opening MyMLE Application

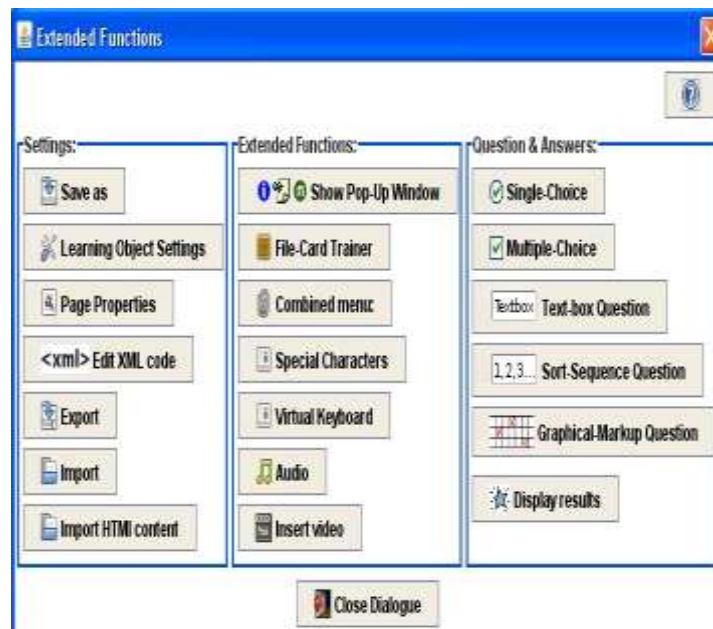


Fig 5: Extended Functions of MyMLE

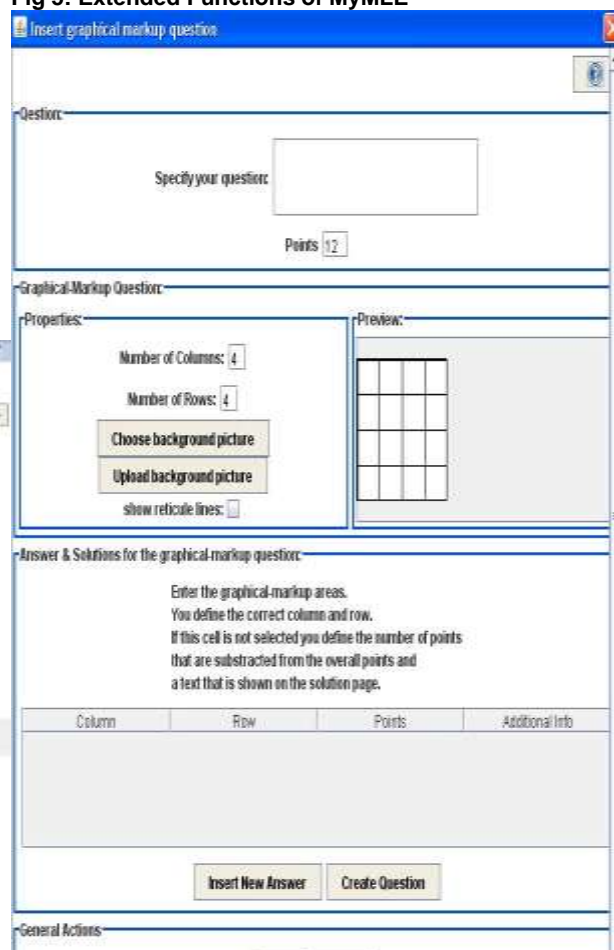


Fig 6: Snapshot for graphical Mark up Questions

## VIII. CONFIGURATION OF MYMLE IN BLACKBERRY PHONES

On most phones it is enough to simply transfer the JAR file to the phone (over cable-, infrared- or bluetooth-connection) and the installation will start automatically on the phone.

In this paper as part of our future work, we have installed M MyMle in Blackberry phones. BlackBerry OS is a proprietary mobile operating system, developed by Research In Motion for its BlackBerry line of smartphone handheld devices. While some BlackBerry devices are based on C++, many new ones support the Java 2 Platform, Micro Edition (J2ME), primarily because Java technology makes developing applications so much easier. Its platform-independence eliminates many porting woes and its automatic garbage collection lets developers concentrate on application logic rather than memory management. RIM's support for J2ME includes development of its own Java virtual machine (JVM), which supports the Connected Limited Device Configuration (CLDC) and the Mobile Information Device Profile (MIDP). BlackBerry devices also come with additional BlackBerry-specific APIs, however, that enable developers to create applications that have the BlackBerry-native look and feel, and are more sophisticated than standard MIDlets developed using MIDP [7].

#### A. Steps in setting up MyMIE jar file onto Blackberry phones

- Download and Install BlackBerry Java Development Environment (JDE)

The BlackBerry Java Development Environment (JDE) is an integrated development environment (IDE) that provides a complete set of tools and APIs for you to develop Java applications that run on BlackBerry devices. JDE requires the Java 2 SDK to run. It comes with a BlackBerry simulator for testing.

- Download and install Java 1.4.2 SDK
- Copy the jad & jar files in question to the /bin/ directory of your RIM JDE installation.

From the command line (make sure you are in the RIM JDE installation directory, on my system it is "C:\Program Files\Research In Motion\BlackBerry JDE 3.7\bin") type:

- Run Existing MIDlets on the BlackBerry

To run a standard MIDlet on a Java-enabled BlackBerry device, first to convert the .jad and .jar files to the .cod format, using the rapc command-line tool that comes with RIM's JDE. The rapc is found in the bin directory of your JDE installation[8]. This command converts a MIDlet named Blackberry mle:

```
rapc import="c:\program files\research in  
motion\blackberry JDE 3.7\lib\net_rim_api.jar"  
codename=$your_app -midlet jad=$your_app.jad  
$your_app.jar
```

where \$your\_app is the name of the MIDlet you're trying to convert, \$your\_app.jad is the name of the MIDlet descriptor and \$your\_app.jar is the name of the MIDlet jar file. If all goes well you'll see a couple files produced: \$your\_app.debug (which you can discard) and \$your\_app.cod, which is the whole point of this operation.

Once you have that, move to:

- With your Blackberry connected to your computer via USB and from the command line (again make sure you're in the RIM JDE installation directory) type:

```
javaload -usb load $your_app.cod
```

- At this point you should see the J2ME application in your home screen. Once the application is loaded into the BlackBerry, it just runs as if it were a native application .

#### IX. CONCLUSION & FUTURE WORK

The increased use of ICT will force educational bodies to include ICT in the education process. The problems arising are the choice of tools and material creation. The Moodle environment with its simplicity and availability helps in this process. This paper focuses on the development of M-Learning management tool in campus-wide environment using the MLE-Moodle as a Learning Management System with authentic & proper security features. Because of the increased use of Blackberry self-evaluating questions as well as remote experiments have been available to students. The proposed system aims to extend the learning activities offered by a MLE-Moodle and MyMLE to support and enhance the ongoing learning process. The proposed system is intended for use by tutors and learners. We have stressed the values guiding our approach that aims to deploy mobile learning using simple in-hand technologies while preserving the personalized experience expected on a mobile device. Further the paper also provides an idea to develop a module to stream your own audio & video files for M-learning system by the users to be implemented in the due course. Currently as a part of our Ongoing Project we are planning to deploy MYMLE for Android phones as a part of our future work. The project developed by us was run in order to evaluate the planning, design and execution of lectures. Positive feedback from students has been received for using these tools as primary tools. Electronic slides, multimedia e-material, the book, exercises project tasks project tasks and self-evaluating questions as well as remote experiments have been available to students. The proposed system aims to extend the learning activities offered by a MLE-Moodle and MyMLE to support and enhance the ongoing learning process. The proposed system is intended for use by tutors and learners. We have stressed the values guiding our approach that aims to deploy mobile learning using simple in-hand technologies while preserving the personalized experience expected on a mobile device. Further the paper also provides an idea to develop a module to stream your own audio & video files for M-learning system by the users to be implemented in the due course. Currently as a part of our Ongoing Project we are planning to deploy MYMLE for Android phones as a part of future work.

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