

Virtual classroom for technology-enhanced teaching and learning

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Virtual Classroom for Technology-Enhanced Teaching and Learning

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December 2015

Preliminaries

Literature Review

Proposed model

Conclusion

Massive Open Online Courses (MOOCs) ¹:

- Reducing the direct contact between teacher and learner after the changing of inter-activity
- Course presentation, either using video or broadcasting, is an adjunct and it is not the core content

Issue of 'clicking or learning?' in MOOC ²:

- Trajectory of student engagement to their learning is in doubt

¹P. McAndrew and E. Scanlon (2013), "Open learning at a distance: Lessons for struggling MOOCs," *Science*, vol. 342, no. 6165, pp. 1450-1451, 2013.

²J. Reich (2015), "Rebooting MOOC research," *Science*, vol. 347, no. 6217, pp. 34-35, 2015.

Preliminaries

Research Focus, Problem & Objective

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Research Scope

- As a complement to the MOOC research
- To adopt web-browsing technologies for creating a virtual classroom
 - Meeting up remote participation, e.g. teachers and learners

Research Question

- How to track student learning's engagement in MOOC under the reduction of direct contact between teacher and learners?

Research Aim

- To visualize the engagement of students in their learning

Literature Review

Moodle for teaching and learning

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- As a tool to enhance face-to-face courses, knowledge sharing and supervised activities (Martn-Blas & Serrano-Fernndez, 2009)
- As a tool for evaluating the students' performance (Jia et al., 2012)
- As a tool for promoting students participation, improving motivation, competence and performance (Novo-Corti et al., 2013)
- As a course-design personalization tool in the student-oriented planning (Caputi & Garrido, 2015)

Literature Review

Apache OpenMeetings for teaching and learning

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- As a tool for collaborating worldwide laboratories (Santos et al., 2011)
- As a tool for peers in sharing applications, files, delivering presentations (Christova & Mihai, 2011)
- As a tool for studying the situational theory, i.e. by removing obstacles and improving anticipation for the success of online learning (Kruger-Ross & Waters, 2013)
- As a tool for records oral presentations pertaining different techniques of diagnosis in nursing studies (Pereira et al., 2014)
- As a tool for technology-enhanced learning in social sciences (Mihai, 2014)

Literature Review

Virtual classroom for teaching and learning

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- For an empirical study of language and transmigrate positions in understanding global learning spaces (Dahlberg & Bagga-Gupta, 2014)
- For learning and teaching among Serbian students in improving communication with peers (Milosevic et al., 2015)
- For a collaboration works in determining how young children engage in the process of 'being together' (Burnett, 2015)
- For a study of declarative knowledge acquisition in US Army (Webster, 2015)
- training for Ebola preparedness Sierra Leone (Sansom, 2015)

Proposed model

WOU Virtual Classroom

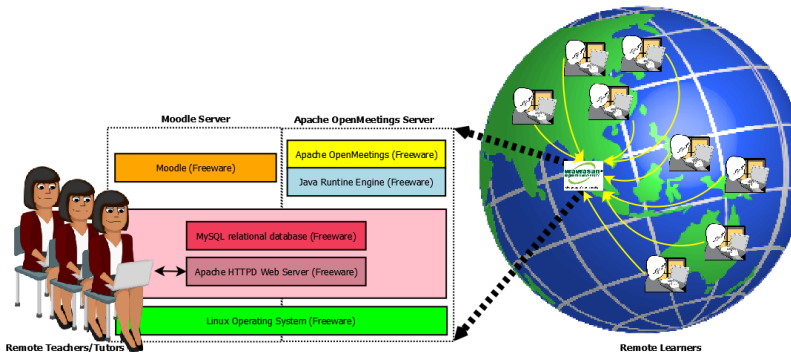
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- A web-browsing-based virtual class by adopting various open source software, i.e. no cost in implementation
- WOU Virtual Classroom
= Moodle + Apache OpenMeetings



Proposed model

WOU Virtual Classroom

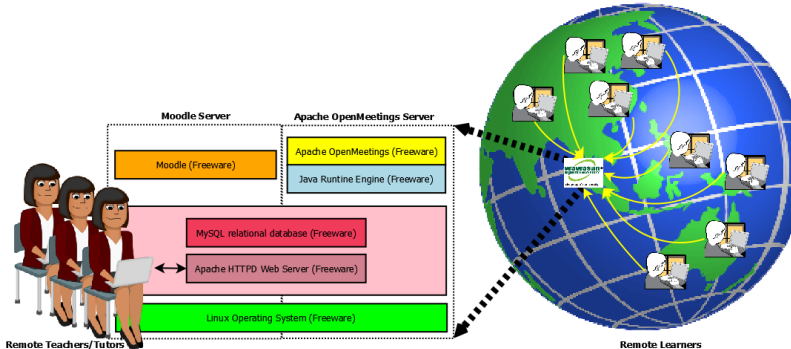
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- Course presentation is not limit to the limited geographical coverage location
- Virtual classroom is recordable and replay after the scheduled date-time



Proposed model

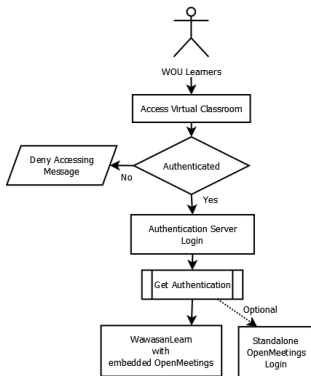
WOU Virtual Classroom

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- With considering the advantages of existing network infrastructure in WOU
- Existing authentication server and student portal are adopted
- It is an expansion of WOU distance learning model using WawasanLearn

Proposed model

Experimental Platform

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- Experiments were conducted in Ubuntu with the Moodle
- A sample course was created in the testing platform
- Teacher has the ability to add/drop the WOU virtual classroom, i.e. integration of Moodle and Apache OpenMeetings is required.
- Teacher and learners interaction occurs remotely, i.e. outside of WOU building, via the Internet

Proposed model

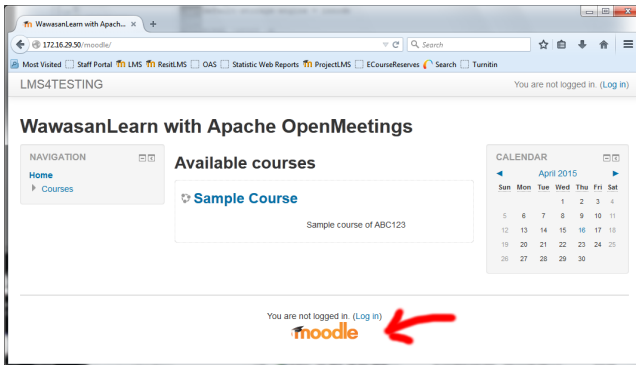
Experimental Platform

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WawasanLearn: A testing platform of virtual classroom.

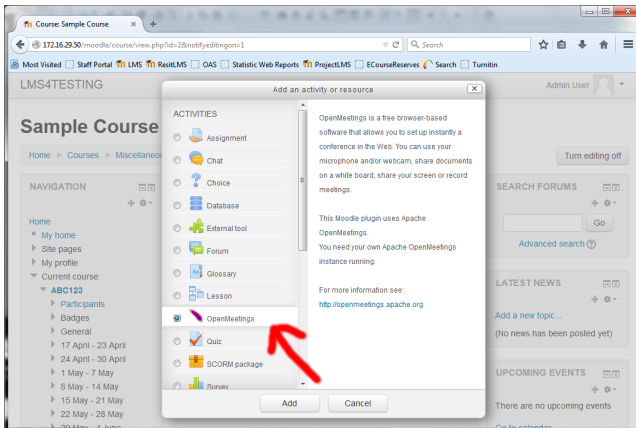
Proposed model Experimental Platform

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The Apache OpenMeetings plug-in at the WawasanLearn.

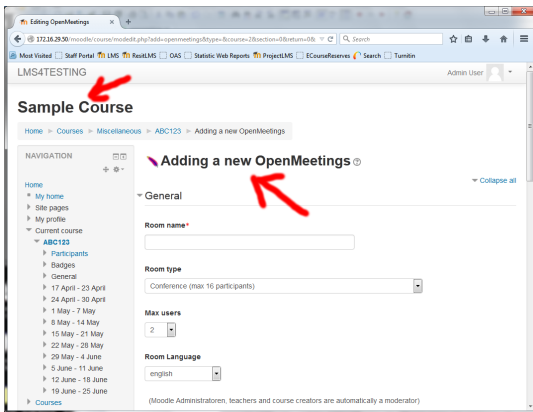
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Adding a session of virtual classroom at the WawasanLearn.

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The screenshot shows the 'WawasanLearn with Apache OpenMeetings' administration interface. The sidebar on the left contains 'NAVIGATION' and 'ADMINISTRATION' sections. The main area displays a table of 'Activities' with columns for Activity module, Activities, Version, Hide/Show, Settings, and Uninstall. A red arrow points to the 'OpenMeetings' row in the table.

Activity module	Activities	Version	Hide/Show	Settings	Uninstall
Assignment	0	2014111001		Settings	
Assignment 2.2 (Disabled)	0	2014111000	gr	Settings	Uninstall
Book	0	2014111000		Settings	Uninstall
Chat	0	2014111000		Settings	Uninstall
Choice	0	2014111000		Settings	Uninstall
Database	0	2014111000		Settings	
Feedback	0	2014111000	gr	Settings	
Folder	0	2014111000		Settings	Uninstall
Forum	1	2014111000		Settings	
Glossary	0	2014111000		Settings	
IMS content package	0	2014111000		Settings	Uninstall
Label	0	2014111000		Settings	Uninstall
Lesson	0	2014111003		Settings	Uninstall
External tool	0	2014111000		Settings	Uninstall
OpenMeetings	0	2015020701		Settings	Uninstall
Page	0	2015111000		Settings	Uninstall

Configurable Apache OpenMeetings at the
WawasanLearn.

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The screenshot displays the configuration interface for the Apache OpenMeetings module within the WawasanLearn system. The page title is "WawasanLearn with Apache OpenMeetings". The breadcrumb navigation shows the path: Home > Site administration > Plugins > Activity modules > OpenMeetings. The left sidebar contains navigation and administration menus. The main content area is titled "OpenMeetings" and contains the following configuration fields:

- OpenMeetings Server Host or IP:** 172.16.29.34 (Default: localhost)
- OpenMeetings Server Port:** 5080 (Default: 5080)
- OpenMeetings Admin User:** admin (Default: admin)
- OpenMeetings Admin User Password:** [masked] (Unmask button)
- Module Key:** moodle (Default: moodle)
- OpenMeetings webapp name:** openmeetings (Default: openmeetings)
- Protocol:** http (Default: http)

Advanced settings are also provided for the module key and webapp name, explaining their use in constructing URLs for multiple instances.

The details configuration of the Apache OpenMeetings at the WawasanLearn.

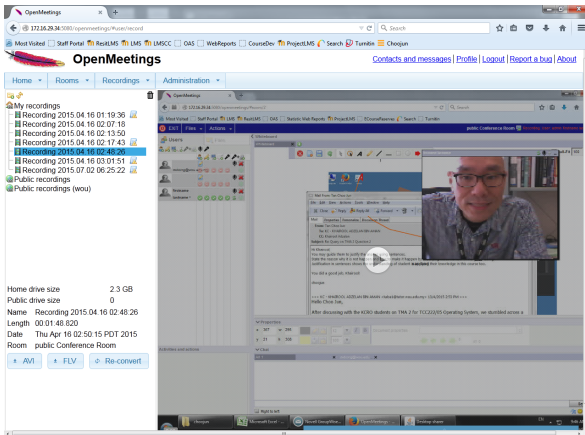
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Previewing the recorded sessions in Apache OpenMeetings.

Proposed model

Finding and Discussion

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- It is a long-term strategy to attract the worldwide online learners
- It is a student-centered learning model, i.e. serves individual learning styles and train students become more resourceful learners
- An indirect contact between teacher and learners in online mode

Proposed model

Finding and Discussion

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- Our model suggest a solution for the highlighted issue 'watching without learning' by Reich ³ - a real-time assessments by teacher during the online course delivering
- Technologies are not standardized, in term of interoperability, transparency, platform dependence, security, and cost

³J. Reich (2015), "Rebooting MOOC research," Science, vol. 347, no. 6217, pp. 34-35, 2015.

Conclusion

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- Proposed a WOU virtual classroom based towards to diversify and increase the capacity cum technology of university
- WOU virtual classroom - visualizing the engagement of learners suggests a solution for the highlighted issue 'watching without learning' in published work

Conclusion

Future Work

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- Debug and develop new custom features for WOU virtual classroom
- A feasibility study will be conducted together with the connectivity study in real-world WOU courses.
- User-friendliness and available functionalities are required
- Bandwidth and quality of service will be monitored
- Learning effects and tuning of bandwidth consumption can be identified using optimisation techniques

Thank You

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