| 暫定 | ベンチマークを用いた教育のための技術エンハンチェーション

# Virtual classroom for technology-enhanced teaching and learning

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Virtual Classroom for Technology-Enhanced Teaching and Learning

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**Motivation**

**Massive Open Online Courses (MOOCs)**:
- 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**:
- Trajectory of student engagement to their learning is in doubt

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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

- 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

- 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

- 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)
A web-browsing-based virtual class by adopting various open source software, i.e. no cost in implementation

WOU Virtual Classroom = Moodle + Apache OpenMeetings
Course presentation is not limited to the limited geographical coverage location.

Virtual classroom is recordable and replayable after the scheduled date-time.
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

- 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
WawasanLearn: A testing platform of virtual classroom.
The Apache OpenMeetings plug-in at the WawasanLearn.
Adding a session of virtual classroom at the WawasanLearn.
Configurable Apache OpenMeetings at the WawasanLearn.

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The details configuration of the Apache OpenMeetings at the WawasanLearn.
Previewing the recorded sessions in Apache OpenMeetings.
Proposed model
Finding and Discussion

- 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
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

Conclusion

- 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
Future Work

- 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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