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Citation for published version:

Borwarrginn, P & Tate, A 2014, An Investigation into Students' Perceptions and Lecturers' Perceptions of a Virtual Learning Environment. in EDULEARN14 Proceedings. IATED, pp. 1548-1554.

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

EDULEARN14 Proceedings

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AN INVESTIGATION INTO STUDENTS' PERCEPTIONS AND LECTURERS' PERCEPTIONS OF A VIRTUAL LEARNING ENVIRONMENT

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Abstract

Virtual Learning Environments (VLEs) are widely used in both distance learning and for on-campus learning, providing supporting tools which allow students to access learning materials, activities and assignments. This study is part of the lead author's PhD research on an intelligent learning environment that investigates current uses and issues of learning environments and information technologies that students use in their learning activities.

This study aims:

- To understand classroom style and student behaviour.
- To capture any issue or problems such as student engagement, performance, motivation and learning activities.
- To capture current uses of an online learning environments that students use in their learning.
- To evaluate satisfaction with the current use of an online learning environment.
- To be able to use these data as a base for student experiences with learning environments and IT support in learning activities, requirements and issues relevant to the project.

This paper discusses the results of an empirical study in which data was collected using a self-administered questionnaire from 227 computer science undergraduates and 11 lecturers in the University in Thailand. They currently use Moodle as their virtual learning environment called "ICT eLearning System" as a supplement to classrooms. Survey results suggest that there are some potential improvements to the current system. As this is the first phase of the PhD research, the next phase includes using these results as orientation data for the design and implementation of an improved intelligent virtual learning environment.

Keywords: VLE, Moodle, educational technology, perception.

1 INTRODUCTION AND MOTIVATION

In recent years, the growth of learning technologies has rapidly increased. The use of these technologies has been developed among schools and universities to support both students and teachers. Virtual Learning Environments (VLEs) are an example of using technologies to help students learn. VLEs are widely used in both distance learning and for on-campus learning providing supporting tools which allow students to access learning materials, activities and assignments. Most VLEs offer web-based learning that allow users access over the Internet via a web browser. VLEs provide facilities for educators to create courses and learning objects which allow students to access and interact with them.

This study is part of the lead author's PhD research on an intelligent learning environment that investigates current uses and issues of learning environments, and information technologies that students use in their learning activities.

This study aims:

- To understand classroom style and student behaviour.
- To capture any issue or problems such as student engagement, performance, motivation and learning activities, etc.
- To capture current uses of an online learning environments that students use in their learning.

- To evaluate satisfaction with the current use of an online learning environment.
- To be able to use these data as a base to establish background studies of student experiences with learning environments and IT support in learning activities, requirements, and issues of the project.

In this paper, we describe the data collect process. We then show results of an empirical study in which was collect from students and lecturers in the University in Thailand.

This paper discusses the results of an empirical study in which data was collected using a self-administered questionnaire from 227 computer science undergraduates and 11 lecturers in the University in Thailand. They currently use Moodle as their virtual learning environment called “ICT eLearning System” as a supplement to classrooms. Survey results suggest that there are some potential improvements to the current system. As this is the first phase of the PhD research, the next phase includes using these results as orientation data for the design and implementation of an improved intelligent virtual learning environment.

2 VIRTUAL LEARNING ENVIRONMENTS

Virtual Learning Environments (VLEs) can be viewed as web-based integrated learning platforms. VLEs allow virtual access to learning contents, classes and other resources. According to [6], “some computer-based learning environments are relatively open systems, allowing interactions and encounters with other participants, resources, and representations”. Furthermore, VLEs can be identified with the following features [4]:

- *A virtual learning environment is a designed information space.*
- *A virtual learning environment is a social space: educational interactions occur in the environment, turning spaces into places.*
- *The virtual space is explicitly represented: the representation of this information/social space can vary from text to 3D immersive worlds.*
- *Students are not only active, but also actors*
- *Virtual learning environments are not restricted to distance education: they also enrich classroom activities.*
- *Virtual learning environments integrate heterogeneous technologies and multiple pedagogical approaches.*
- *Most virtual environments overlap with physical environments.*

There are several VLEs currently being used – both commercial and open source platforms. Moodle is a well-known open source platform that has been used by many institutions. Blackboard Learn is a well-known commercial learning platform.

2.1 Moodle

Moodle [1] is an open source course management system (CMS), also known as a Learning Management System (LMS), a Virtual Learning Environment (VLE) or a learning platform, designed to provide educators, administrators and learners with a *single robust, secure and integrated system* to create personalised learning environments. Moodle stands for a Modular Object-Oriented Dynamic Learning Environment and is a web-based application that provides the tools for teachers to create dynamic websites and online classrooms for students. This will enable students to learn by themselves via accessing Moodle such as reading lecture materials and doing exercises. It allows teachers to create activities (e.g., assignments, quizzes, wikis and forums) and resources (e.g., files, videos and webpages). According to its web site, Moodle claims to be designed to support a social construction in terms of educational psychology, which is composed of constructivism, constructionism, social constructivism, and connected and separate. These theories of learning will be explained in a later section. With the combination of web technologies and educational psychology, Moodle became a well-known tool for supporting online learning environments. According to its on-line statistics, there are 64,417 currently active sites that have registered their use from 235 countries.

2.2 Blackboard

Blackboard [2] is a commercial virtual learning environment and course management system developed by Blackboard Inc. It provides similar functions to Moodle. Teachers can include resources and activities such as lecture notes, readings, assignment submission, and discussion forum. There are some comparison studies for user experience and technical features between Moodle and Blackboard (see [3], [5])

3 DATA COLLECTION

We collected data using a self-administered questionnaire from first year to third year undergraduates and lecturers in the Faculty of Information and Communication Technology, Mahidol University, Thailand. The faculty currently provides the virtual learning environment called "ICT eLearning system" which is implemented using Moodle platform as a supplement traditional classroom learning, which allows students to access learning materials, submit assignment and check announcement.

The questionnaire consists of questions about student learning styles and online learning environments. The survey was conducted in November 2012 by giving a questionnaire paper to students and lecturers after their lectures. We had 277 questionnaires submitted from students that correspond to a response rate of 40.67% and 11 questionnaires submitted from lecturers that correspond to a response rate of 44%.

4 RESULTS AND DISCUSSION

In this section, we discuss results from the survey by dividing the response to each question and answer from both students and lecturers. Fig. 1 shows that 63.64% of lecturers described students' learning behaviour as collaborative learning. On the other hand, students' answers showed that they described themselves as engaging in both individual learning and collaborative learning. There are different results from Fig.2. Lecturers trended to view their class as mixed between student-centred and teacher-centred learning. However, students answered that student-centred learning was the closer description than teacher-centred learning.

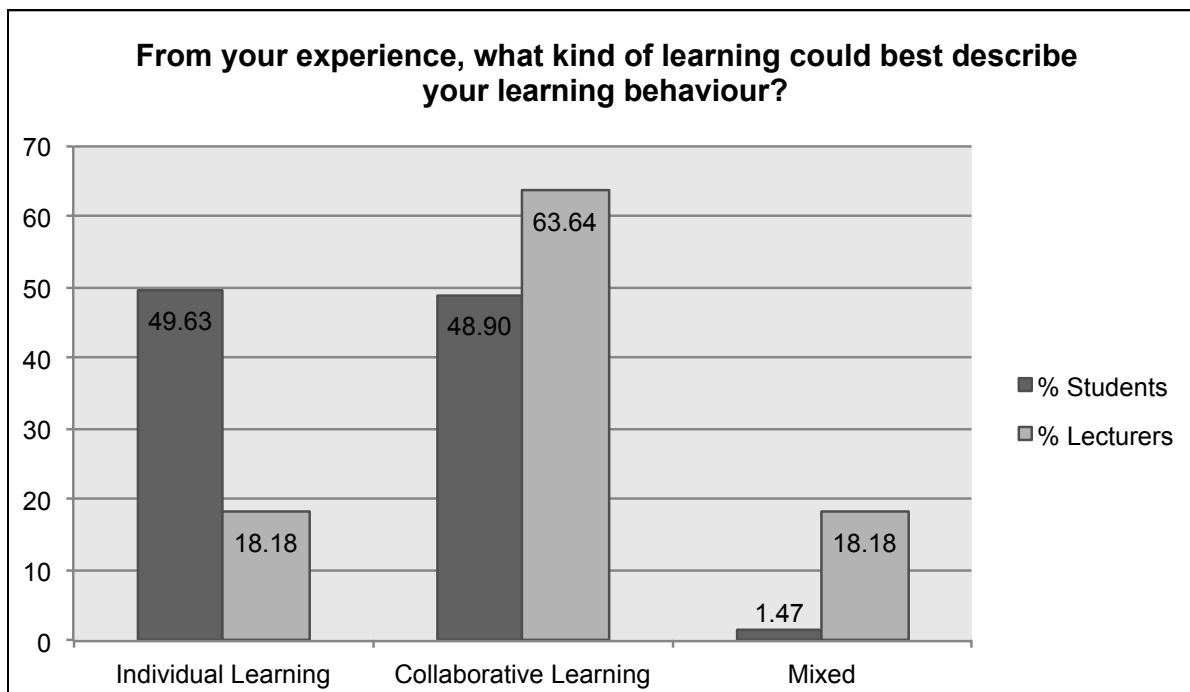


Fig. 1. From your experience, what kind of learning could best describe your learning behaviour?

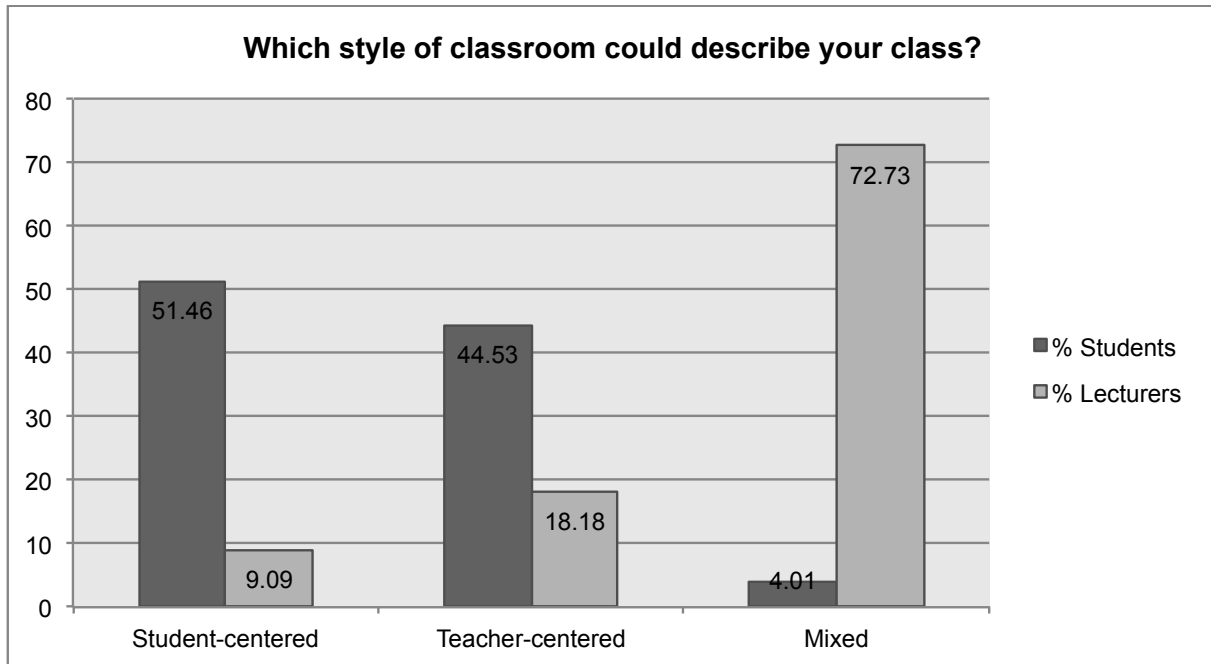


Fig. 2. Which style of classroom could describe your class?

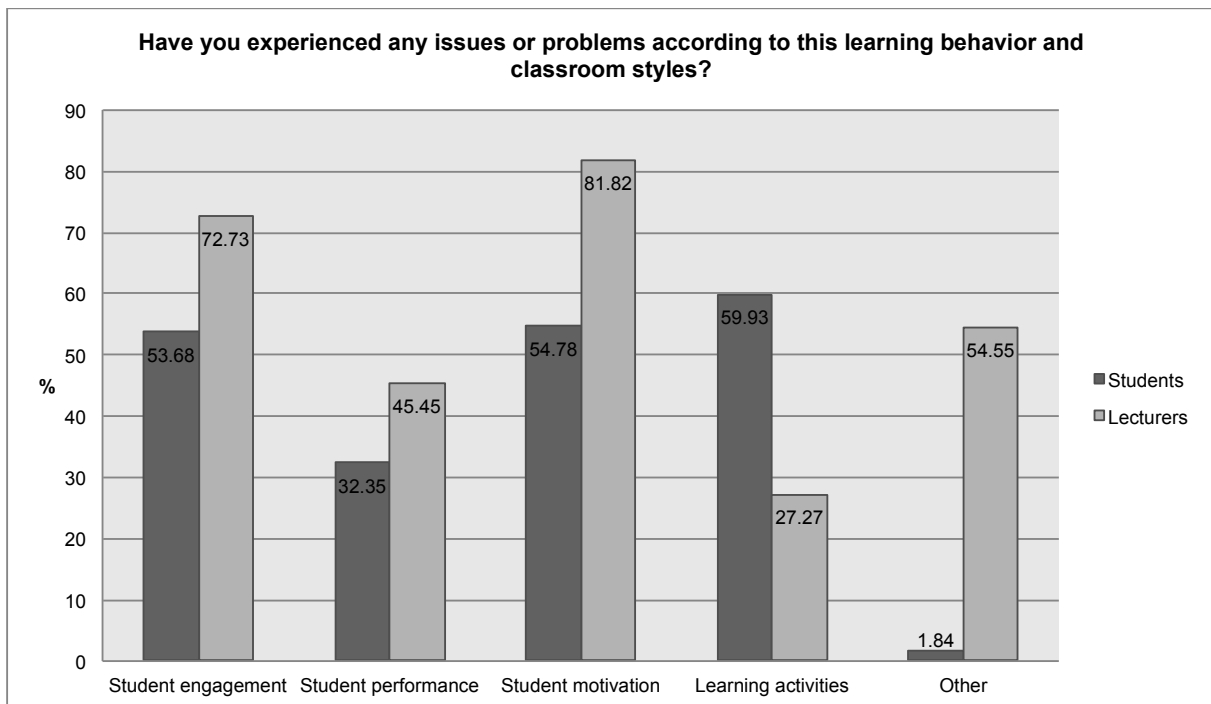


Fig. 3. Have you experienced any issues or problems according to this learning behaviour and the classroom style?

We asked both students and lecturers about their experiences of issues or problems according to the learning behaviour and the classroom style. The question allows them to choose more than one answer. In terms of student engagement, we give examples such as class/tutorial attendance and students' participation. Learning activities would include teaching, group discussion, uses of information technology. The result is shown in Fig. 3. Participants were asked to give more details regarding their answer from the question of Fig.3. Their answers were because of different backgrounds, profiles and knowledge about learning styles and subjects and concerned lack of resources for teaching which cause issues in student engagement and student performance.

Before moving into the next section, participants were asked about their experience of using the virtual learning environment. 100% of the lecturers and 89% of the students have an experience of using the virtual learning environment. Therefore, Fig.4 and Fig.5 show the frequency of use of different features of VLEs from both experienced lecturers and students. For both charts, we can see associations between activities from lecturers and students. The highly used features by the lecturers are upload course materials, set up assignment, create course announcement with these associations with answers from the students. This might imply that if lecturers perform more tasks in VLEs these would encourage students to participate in the system.

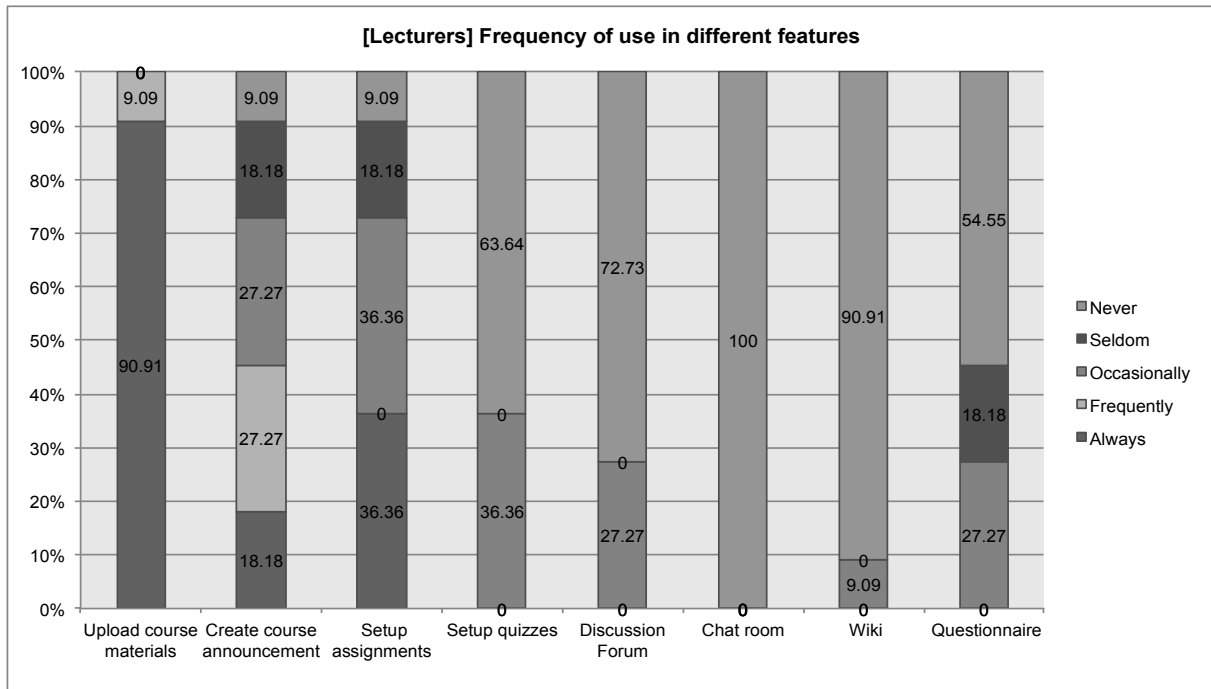


Fig.4. Frequency of use in different features from lecturers.

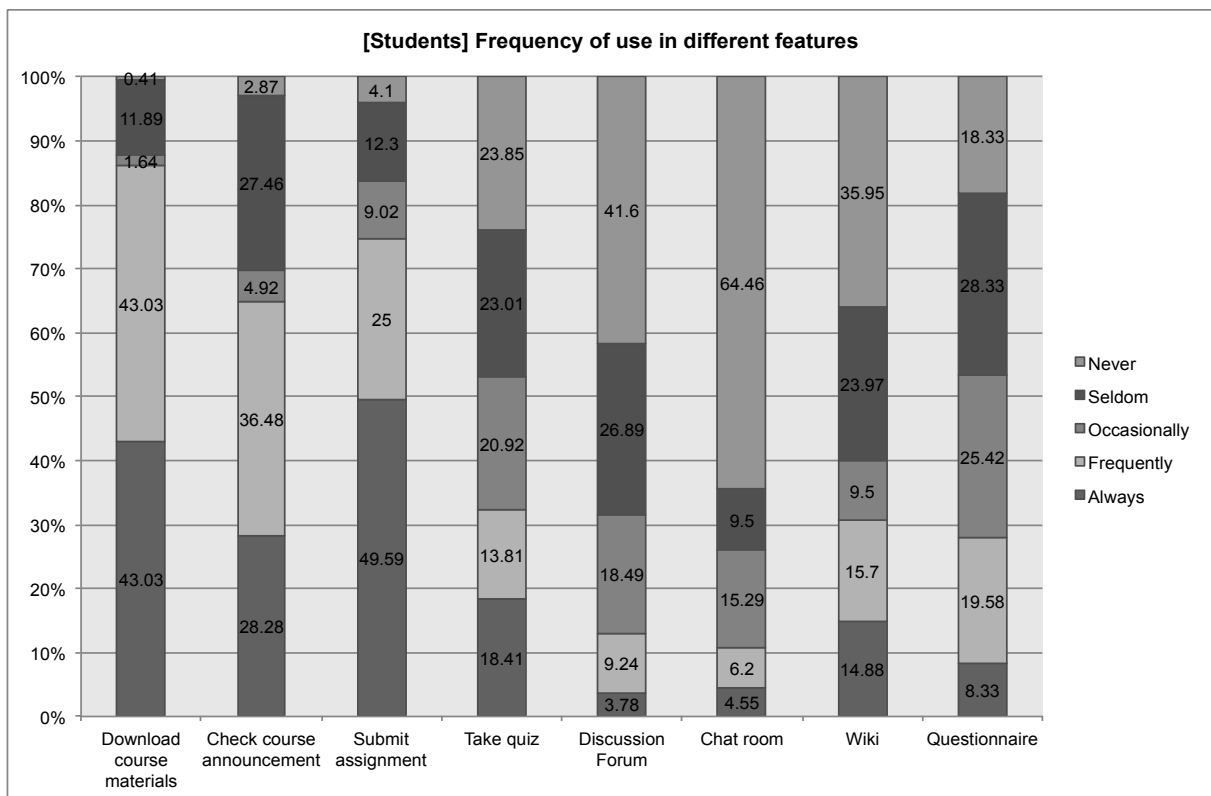


Fig.5 Frequency of use in different features from students.

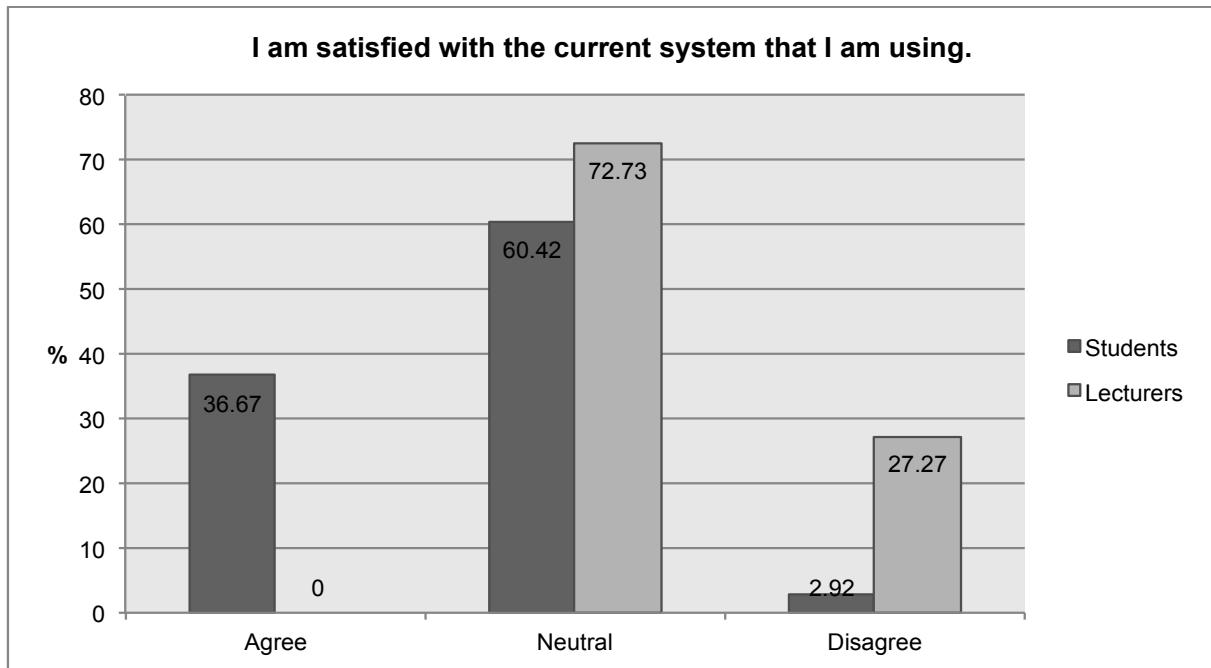


Fig. 6. I am satisfied with the current system that I am using.

In the final section of the questionnaire, participants were asked to rate their satisfaction with the current system that they are using and the results are shown in Fig. 6. Although most students and lecturers rated neutral, they are some suggestions in term of improvement in the narrative response section if a new system was provided. The suggestions are listed below:

- Interactive lesson that allows the teacher to incorporate formative assessment into the course materials.
- Web-dynamic module for observing student's assignment, performance, and ease up the grading process
- More customisation on look-and-feel of class page by providing a set of templates and some adjustable parts.
- More interactive features.
- More functions for supporting collaborative tasks.

5 CONSLUSIONS

The goal of this survey is to capture students' perceptions and lecturers' perceptions of their current uses of and issues with learning environments and information technologies that students use in their learning activities. This provides background data of students' experiences with learning environments and IT support in learning activities, requirements, and issues relevant to a project which aims to improve the facilities in VLE.

Survey results suggest that there are some potential improvements to the current virtual learning environments and systems. As this is the first phase of the PhD research, the next phase includes using these results as orientation data for the design and implementation of an improved intelligent virtual learning environment.

6 ACKNOWLEDGEMENTS

We would like to thank all participants in the survey and the Faculty of Information and Communication Technology, Mahidol University, Thailand for allowing us to conduct the survey. The University of Edinburgh and research sponsors are authorised to reproduce and distribute reprints and online copies for their purposes notwithstanding any copyright annotation hereon. The views and conclusions contained herein are those of the authors and should not be interpreted as necessarily representing the official policies or endorsements, either expressed or implied, of other parties.

REFERENCES

- [1] Moodle. Available at http://docs.moodle.org/27/en/About_Moodle (accessed May 2014)
- [2] Blackboard. Available at <http://www.blackboard.com/> (accessed May 2014)
- [3] Bri, D., Garcia, M., Coll, H., Lloret, J. (2009). A study of virtual learning environments. WSEAS Transactions on Advances in Engineering Education 6, pp. 33–43.
- [4] Dillenbourg, P., Schneider, D., Synteta, P. (2002). Virtual Learning Environments. Proceedings of the 3rd Hellenic Conference "Information & Communication Technologies in Education", pp. 3–18.
- [5] Machado, M., Tao, E. (2007). Blackboard vs. moodle: Comparing user experience of learning management systems. Frontiers In Education Conference - Global Engineering: Knowledge Without Borders, Opportunities Without Passports, 2007. FIE '07. 37th Annual, pp. S4J–7–S4J–12.
- [6] Wilson, B.G. (1996). Constructivist Learning Environments: Case Studies in Instructional Design. Educational Technology.