

# Current Status of e-Learning and Its Challenges at Institutions of Higher Education in Bhutan

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Royal University of Bhutan and its ten constituent colleges launched a Moodle-based e-Learning system or VLE (Virtual Learning Environment) in 2011, with funding from World Bank and expertise from the University of Colombo School of Computing. In this report, we describe the current status, problems, and challenges on the e-Learning system. Also, we report the results of the questionnaire to students and tutors at College of Science and Technology which is one of the ten constituent colleges. The results show that the e-Learning system is useful for uploading teaching materials and assignments. However, a slow network connection decreases effectiveness of the e-Learning system.

## 1. Introduction

At present, open-source e-Learning systems are becoming popular in institutions of higher education. For example, Sakai CLE (Collaboration and Learning Environment) is used by over 350 organizations [1]. Also, Moodle (Modular Object-Oriented Dynamic Learning Environment) has been used on over 72,000 registered sites and the number of registered users is about 64 million [2].

In Bhutan, Royal University of Bhutan (RUB) and its ten constituent colleges are running as institutions of higher education. Each college had used an e-Learning system independently until 2011. For example, College of Science and Technology (CST), one of the ten constituent colleges, had used Dokeos as an e-Learning system [3]. However, all colleges launched a Moodle-based e-Learning system or Virtual Learning Environment (VLE) in 2011. This e-Learning project was carried out with funding from World Bank and expertise from the University of Colombo School of Computing (UCSC) [4].

In this report, we describe the current status, problems on the VLE. Also, we report the results of the questionnaire to students and tutors at CST.

## 2. RUB Virtual Learning Environment

The RUB has a vision to implement Information Technology as fundamental tools to facilitate and enhance the teaching and learning culture. The University is shifting traditional mode of educational system to technology driven teaching / learning.

Each college of RUB has its own VLE established to incorporate study programmed and courses offered. Before starting to use the VLE, both tutors and students took a training to make use of Moodle several days.

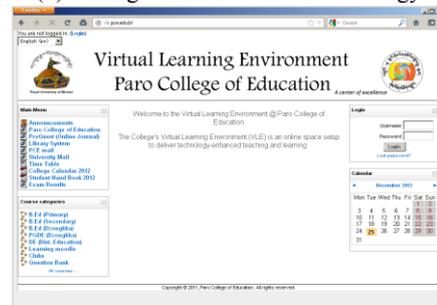
At present, these VLEs are not connected with each other such as Moodle Networking. Each VLE is independent. The front-page of the VLE is customized by each college as shown in Fig. 1 [5][6][7][8].



(a) Sherubtse College



(b) College of Science and Technology



(c) Paro College of Education



(d) Samtse College of Education

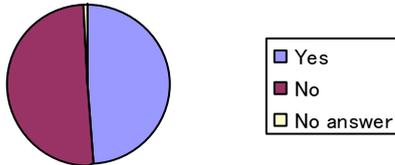
Figure 1 Front-Page of VLE.

† College of Science and Technology, Royal University of Bhutan

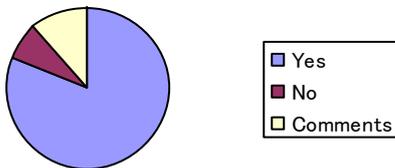
### 3. Evaluation at CST

After using the VLE one semester (half a year), we evaluated the VLE by questionnaires at CST. 144 users responded to the questionnaires. We did not distinguish the respondents between tutors and students. Answers of the main questionnaires are as follows.

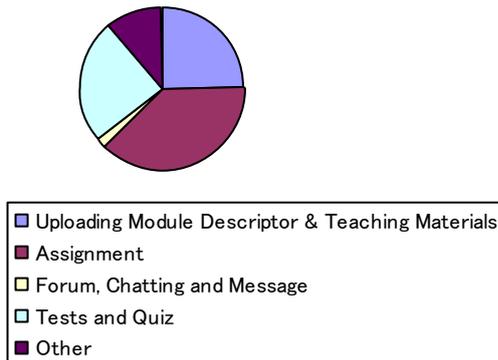
Q 1. Have you use any e-learning/LMS/VLE system in teaching or learning before?



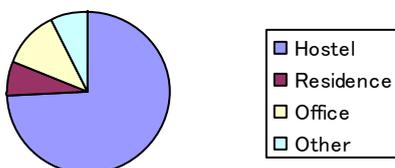
Q 2. Are you using VLE system in this semester?



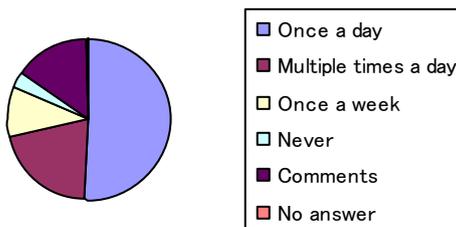
Q 3. What did you use VLE system extensively for?



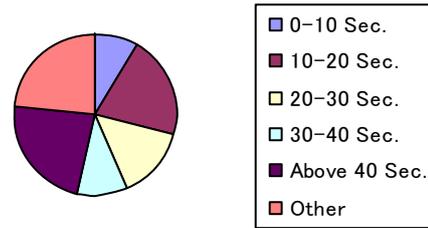
Q 4. Where did you access VLE?



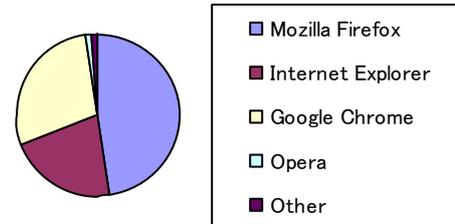
Q 5. How often do you use/access VLE?



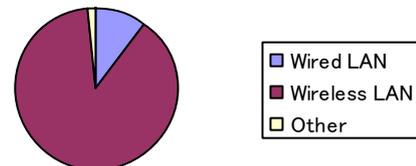
Q 6. How long does your browser take to load the VLE page?



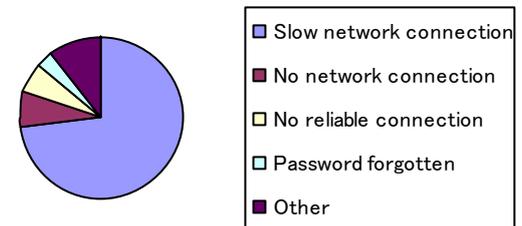
Q 7. Which browser do you use to access?



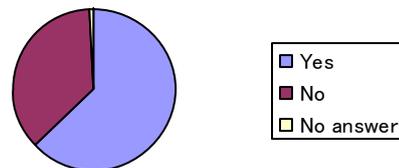
Q 8. What kind of network connection do you have?



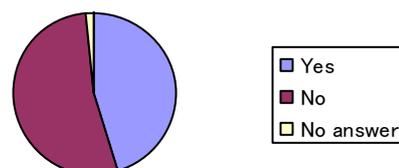
Q 9. What are reasons for not being able to use VLE effectively?



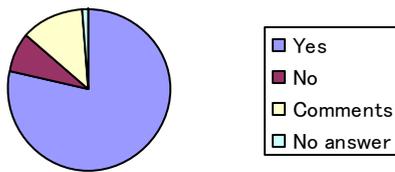
Q 10. Did you attend the VLE usage training?



Q 11. Do you need VLE usage training?



Q 12. Is present VLE system meets your requirement in teaching & learning assessment?



#### 4. Consideration

We analyze the results of the questionnaires in Sec. 2 as follows.

- The answers of Q 1 say that half of the respondents have an experience to use e-Learning system before. The reason is that CST had implemented Dokeos LMS before launching the VLE.
- According to the answers of Q 5, over 80 % of the respondents access the VLE at least once a day.
- A slow network connection decreases effectiveness of VLE according to answers of Q 9. This problem is characteristic in Bhutan.
- According to the answers of Q 12, 90 % of the respondents feel that the VLE complies with their requirements in teaching & learning.

Also, the annual report of RUB indicated the following comments after the monitoring of VLE use during the first year of its use [4].

- All colleges are generally satisfied with the VLE and use in enhancing teaching/learning in their colleges. This comment is coincident with the answers of Q 12 in Sec. 2.
- Besides English, Dzongkha is an official language in Bhutan. Rendering Dzongkha fonts does not work well. It is mostly due to choice of incompatible browsers.
- Connectivity is unstable or low in accessing VLE, which agrees with the answers of Q 9 in Sec. 2.
- Teaching staff needs more training to make use of the full capabilities of the VLE.

As the above-mentioned, the slow network connection is a problem to use the VLE. However, users are generally satisfied with it to teach and learn. Therefore, 80 % of the respondents access it at least once a day.

#### 5. Concluding Remarks

In this report, we described the Moodle-based VLE launched by RUB and its ten constituent colleges in 2011. In order to use the VLE more effectively, bandwidth needs to be high. Also, each VLE is independent among ten constituent colleges at present. If these VLEs are connected together for Single Sign On integration by the use of Moodle Networking, they will become more functional.

#### Reference

- 1) Sakai Project: Collaboration and learning - for educators by educators, <http://sakaiproject.org>
- 2) Moodle.org: Moodle Statistics, <http://moodle.org/stats>
- 3) Dokeos, <http://www.dokeos.com/>
- 4) Annual Report, Royal University of Bhutan (2011), [http://www.rub.edu.bt/images/key-documents/annual-reports/annual\\_report\\_2011.pdf](http://www.rub.edu.bt/images/key-documents/annual-reports/annual_report_2011.pdf)
- 5) Sherubtse College Virtual Learning Environment, <http://vle.sherubtse.edu.bt/>
- 6) Virtual Learning Environment @ CST, <http://vle.cst.edu.bt/>
- 7) PCE Virtual Learning Environment, <http://vle.pce.edu.bt/>
- 8) Samtse College of Education, <http://vle.sce.edu.bt/>