

# Applying Edmodo to Serve an Online Distance Learning System for Undergraduate Students in Nong Lam University, Vietnam

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## ABSTRACT

*Distance learning has become highly popular during the recent years also in developing countries. Through technological advancements institutions are able to offer new education or training possibilities, for instance, to rural areas. Adopting distance learning in university education is a prevailing trend. However, contextual factors need to be considered when designing online courses regarding the application of meaningful technology, time of learning and persons-in-charge. In this paper, we analyse the real-life experience of applying Edmodo, a powerful online distance learning system, to undergraduate students in the Department of Information Technology (DIT), Nong Lam University, Ho Chi Minh City, Vietnam (NLU). We draw attention to pedagogy for online distance learning and practical statistics information. Active changes and promising results have been shown when Edmodo has been used in various courses with several hundreds of students. Based on our experience, we will also recommend improvements to the Edmodo tool.*

**Keywords:** distance learning, Edmodo, Vietnam

## 1. INTRODUCTION

Vietnam is a developing country with a major contribution with its real gross domestic product (GDP) coming from agriculture, forestry and fishery (Hai, 2011). In recent years, with improvements in computer and telecommunication technologies in the country, almost all of the cities and provinces have been

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powered by Internet and telecommunication (Dung, 2009). Today, in NLU (Nong Lam University)<sup>1</sup>, 100% of students are equipped with personal computers (PCs), emails and cell-phones. In the DIT<sup>2</sup> (Faculty of Information Technology) at NLU, students are equipped with libraries, e-books and Internet.

Generally, in Vietnam, the quality of teaching and learning need to be improved at all levels of the educational system, especially at university level. NLU is a multi-disciplinary university with more than 15 different departments and faculties. Some departments such as Department of Forestry, Department of Agriculture, Department of Mechanical Engineering and Department of Natural Resource and Environment have made several contributions in human resource training and research in Vietnam. However, the 11-year old DIT has not created a considerable contribution to the development of the country from this perspective. In NLU, Information and Communication Technologies (ICT) are proposed to create the connection for multidisciplinary applied researches of other departments. Recently, however, DIT has not created much contribution. We have provided undergraduate training for several students and created human resource on ICT for the northern part of Vietnam. But we have few projects or related activities in researches and multidisciplinary studies. Therefore, there is a need to expand the activities in applying ICT to support teaching and learning processes.

One of the main activities in DIT is to apply educational technologies to everyday learning for undergraduate students. From the process, lectures should be able to inherit and improve works created in previous semesters. The need is to create a Learning Management System (LMS) to work beside the current email-list and file servers, which do not provide enough efficient services to teachers and students. Besides applying LMS to provide new online learning services, the aim is to use social network and media solutions as well as mobile technologies to enhance networking and interactions. All these techniques are aimed to improve educational quality in the DIT.

Individual lecturers have been contributing to enrich educational methods and enhancing quality of teaching and learning in DIT. Traditionally, the students, especially those new to the university education system, do not provide teaching improvement feedback to their lecturers. The lecturers have not been able update the outdated documents and text books quickly. Moreover, the students-teacher ratio in DIT is 100/1, which does not enable effective teaching and learning. Due to all sorts of disabling factors, the teaching and learning at the undergraduate level has not been efficient in the last ten years of our DIT history.

Therefore, there is a need to propose fresh online communication solutions and methods in order to support interaction between students and faculty members. After investigating a number of distance learning systems, we proposed a number

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<sup>1</sup> The NLU Website: <http://en.hcmuaf.edu.vn/>

<sup>2</sup> The DIT Website: <http://fit.hcmuaf.edu.vn/?lng=en>

of activities to help improve lecturers' and students' interaction. In addition to email, Skype and other instant connectivity, an efficient learning management system is recommended. Moreover, large number of students are required to use the system, to encourage sharing and interaction. The paper is written after the above idea is applied in a one year period, with more than 500 students participating with different lecturers and courses where the Edmodo learning management system has been used.

The rest of the paper is organised as follows. Section 2 presents an investigation of existing learning management systems and their properties. In Section 3, we discuss works involved with the practical application of Edmodo - the chosen suitable solution in our environment and result archiving for a number of courses. Section 4 discusses disadvantages found during practical usage and some recommendations from us. Finally, Section 5 concludes the paper with some future directions pointed out.

## **THE ONLINE LEARNING MANAGEMENT SYSTEM**

### **Overview of Learning Management System**

A *Learning Management System (LMS)* is a software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content (Ryann, 2009). We concentrate on online LMS, which means the application has a web-based interface. From the perspective of an educator or administrator, LMS is a tool to help logging into a single place without having to use several different services.

Over the past ten years, several LMSs have been introduced (Victor, 2012). Table 1 shows a number of available LMSs with the given information. In Table 1, information of number-of-users, licence, year-founded and Alexa rank are given. All of this information is important in selecting a LMS to be used in the university. From our perceptive, licence and Alexa rank are the two most important pieces of information in terms of future improvement and high-stability (Peter & Shane, 2013). Therefore, the table is ordered based on the Alexa rank. The rank is calculated based on the web traffic reporting, traffic data, global rankings and other information on 30 million websites, and its website is visited by over 10 million people monthly.

**Table 1:** List of common LMSs

Index	LMS Name	Users	Licence	Founded	↓ Alexa rank (Alexa, 2012)
1	Blackboard Learn	N/A	R&D open source	2000	1,872
2	Moodle	1,182,100	GPLv3+	2005	5,072
3	Edmodo	7,000,000	Free	2008	11,900
4	Cengage Learning	N/A	Commercial	2007	14,621
5	Desire2Learn	N/A	Free Trial	1999	22,146
6	Instructure	N/A	Free	2008	24,665
7	EDU 2.0	640,000	Free	2006	60,033
8	Schoology	20,000	Free Sign Up	2009	79,708
9	JoomlaLMS	N/A	Commercial	2006	94,078
10	Knewton	N/A	Licensed	1999	104,803
11	Sakai	N/A	Open	N/A	152,763
12	Sclipo	N/A	Commercial	2006	187,983
13	Haiku	N/A	Free	2006	269,643
14	HotChalk	500,000 teachers	Free	2004	372,820
15	SharePoint LMS	N/A	Commercial	2007	1,166,031
16	OpenClass	N/A	Open	N/A	1,364,558
17	Itslearning	N/A	Free Demo	2000	1,790,389
18	Adobe Connect	N/A	N/A	N/A	2,324,729

From Table 1, the following abilities of LMSs decide performance of the solution:

- Centralise and automate administration
- Use self-service and self-guided services
- Assemble and deliver learning content rapidly
- Consolidate training initiatives on a scalable web-based platform
- Support portability and standards
- Personalise content and enable knowledge reuse

Of these, the two solutions that are most suitable to apply in DIT are Edmodo and Moodle. The solutions are easy to use, free to set up and operate, and are supported by the community (several collegial users). The following sub-sections give more information of comparison among them.

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## Moodle versus Edmodo

Edmodo (Edmodo, 2012) and Moodle (Moodle, 2012) are commonly recommended by teachers in the Internet community. In order to choose the most suitable tool for DIT, we compared the platforms. Table 2 shows the comparison of the main features of Moodle and Edmodo.

**Table 2:** Nonlinear Model Results

<b>Moodle</b>	<b>Edmodo</b>
several functions	less functions
hard holding, need install	simple, no install
need server, need support or pay hosting	no server, no hosting
interface less friendly	interface intuitive
monolithic, traditional LMS	social learning platform
less media richness	more media richness

In more detail, pedagogical supports from Edmodo and Moodle are investigated, such as media richness, social presence, social affordance and transactional distance. Even though all of these features can be built and found in Moodle, we discovered that they are more or less stronger and easier to be recognised in Edmodo.

### Media Richness

Media richness includes media to enable faster communication and to enable users for better understanding ambiguous messages (Dennis & Kinney, 1998). Four factors impacting media richness are transmitting multiple cues, providing immediate feedback, providing variety in language and facilitating a person focus. Edmodo is a media rich platform (Edmodo, 2012). Therefore it is an efficient choice for learning with enriched media courses.

### Social Presence

Social presence is the degree to which one is perceived as real in mediated communication, and will determine the way in which individuals interact (Gunawardena, 1995). Social presence support learners to understand their roles in the community, project them online, and form relationships with others by projecting their personalities. Edmodo, with the User Interface similar to Facebook, encourages this sense of social presence by groups, Q&A, opinion polls and so on. On the contrary, Moodle projected learners to data and function oriented User Interface, which is less prevailing over Edmodo.

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## Social Affordances

Social affordances encourage unplanned interactions, thereby could increase the potential social presence. Unlike Facebook and Moodle, Edmodo is lacking chatting function, which cannot provide more social opportunities. However, students can easily send message to teachers, to other students or to groups.

## Transactional Distance

Transactional distance is the psychological space of misunderstanding between the behaviours of teachers and those of the other students (Moore & Kearsley, 1996). In term of flexible learning, Edmodo allows transaction for flexibility, compared with Moodle. Moreover, Edmodo also enables interaction through social opportunities and construct meaning based on multiple sources. Therefore, the course with Edmodo seems to have low transactional distance.

## Choosing Edmodo for the courses

After reviewing attributes of the above two solutions, we found Edmodo to be more appropriate in our environment. The reasons originated from low internet-bandwidth in Vietnam. Moreover, we intentionally plan to promote the idea to other universities, with much less support from administration, hosting and the like. As the result, we applied Edmodo to the courses. Information of the courses is listed in Table 3.

**Table 3:** Number of students in each group

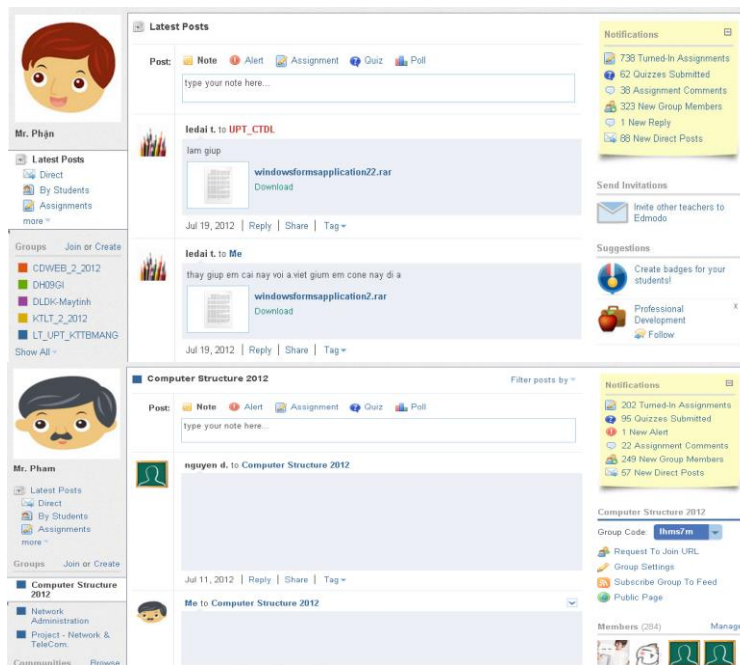
Index	Course Name	Lecturer	No of students
1	Web Programming	Le Van Phan	95
2	Web Geography Information System	Le Van Phan	18
3	Measurement and Control	Le Van Phan	38
4	Programming Techniques	Le Van Phan	59
5	Network Techniques and Devices	Le Van Phan	29
6	Computer Structure and Organisation	Pham Cong Thien	240
7	Network Administration	Pham Cong Thien	31
8	Preliminary Thesis	Pham Cong Thien	26
<b>Total:</b>			<b>536 students</b>

All the courses listed in Table 3 were handled within one semester. As the lecturers of the courses, the authors ensure that all of the course materials including lecture notes, notices, quizzes, homework, questions and answers (Q&A), and course evaluation results are set to be online on Edmodo. Statistical results of the courses will be given in the following section.

## EDMODO FOR THE UNDERGRADUATE STUDENTS

### Statistics Information of Applying Edmodo in DIT - NLU

We applied Edmodo to courses for undergraduate students in the Spring Semester 2012. The authors are also the lecturers of the courses. During the lecture time, the authors noticed to all other lecturers and students in DIT to encourage them paying more attention to our experiment. Other members in DIT are invited to apply, discuss and share their data about Edmodo related information.



**Figure 1:** Screenshots of classes lectured during the experiments.

Figure 1 shows screenshots of online courses lectured by the authors. The figure shows practical information of the courses with high number of attending students, multiple posts, several assignments and assignments commissions, high number of Q&A and feedback messages. The students in DIT were persuaded to use the tool and create positive comments on the application.

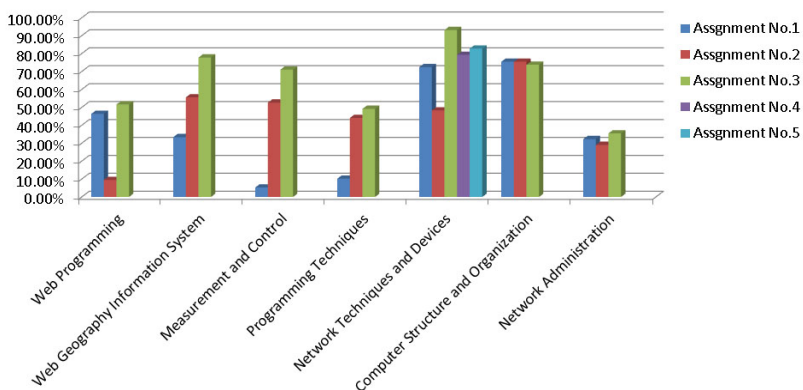
Moreover, all students attending the courses were required to register an account in Edmodo, send messages, submit assignments and share their ideas to the group that they belong to. Each Edmodo group was divided based on the course name.

The numbers of students in each group are listed in Table 4. The course names are listed in short format, which are the same names as in Table 3.

For easy visualisation, percentage of turned-in assignment information is given in Figure 2 and Figure 3. The figures shows high percentages of attendances and submissions over all courses of different lectures. This information shows promising information that the students are willing to join online tool if they can find enough interesting aspects, regarding the course information and activities. Moreover, the information also proves that online LMSs should be used to enhance interaction with this high rate of students over lecture (100/1), our current existing situation in DIT-NLU.

**Table 4:** Number of assignments turned-in in each group

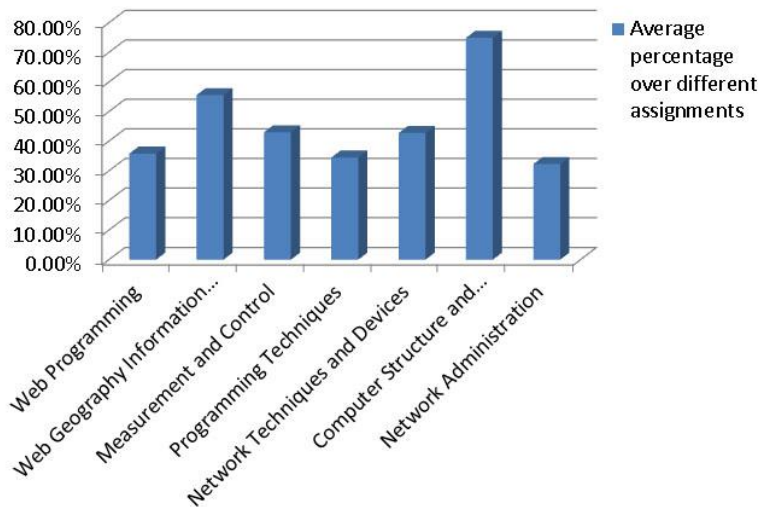
Course Name	Assignment t 1	Assignment t 2	Assignment t 3	Assignment t 4	Assignment t 5	Number of students
Course 1	44	9	49	N/A	N/A	95
Course 2	6	10	14	N/A	N/A	18
Course 3	2	20	27	N/A	N/A	38
Course 4	6	26	29	N/A	N/A	59
Course 5	21	14	27	23	24	29
Course 6	181	181	177	150	N/A	240
Course 7	10	9	11	N/A	N/A	31
Course 8	N/A	N/A	N/A	N/A	N/A	26
<b>Total:</b>						<b>536 students</b>



**Figure 2:** Statistical information about percentages of turned-in assignments in different courses.



This figure is the the visualised image for information given in Table 4.



**Figure 3:** Average percentage of turned-in assignments

## Evaluation using Opinion Polls

To evaluate the satisfaction of students, we conducted a number of opinion polls. Statistical information is given in Figure 4 and Figure 5. In Figure 4, we produced questions that required quantitative information related to their experience of Edmodo. The students were asked to provide their number of messages sent in one course. This information shows the interaction and feedback that the students gave in the online course. On the other hand, in Figure 5, the students were asked to provide their opinions (Yes / No / Not sure) to explain their own point of view.

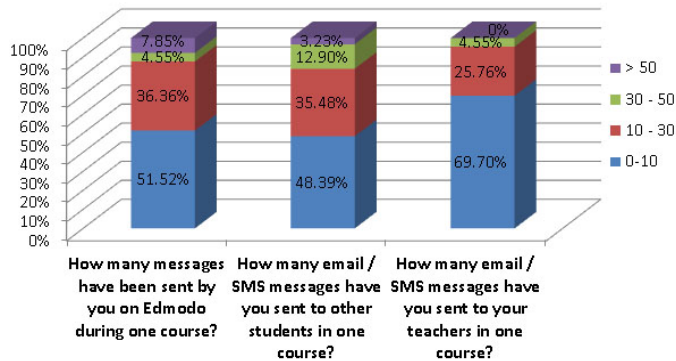
The question list is given in Table 4. The questions are designed for student satisfaction and how to enhance online LMS in the future. The numerical information presented in Figures 4 and 5 shows that the percentage of positive feedback is promising, compared with traditional methods of studying. Moreover, applying Edmodo, with social network-based user interface, creates promising feedback from a large number of students.

Therefore, based on results of opinion polls, we have promising and interesting new results in applying Edmodo into teaching and learning of undergraduate students in DIT - NLU. Almost all students found themselves more interested and happy to have this tool in their courses. The students are not reluctant to become acquainted with the online interface of Edmodo. We are confident that Edmodo can be used in future courses, as well as informing other lecturers and students. The scope will not only in DIT, but also in other departments in NLU.

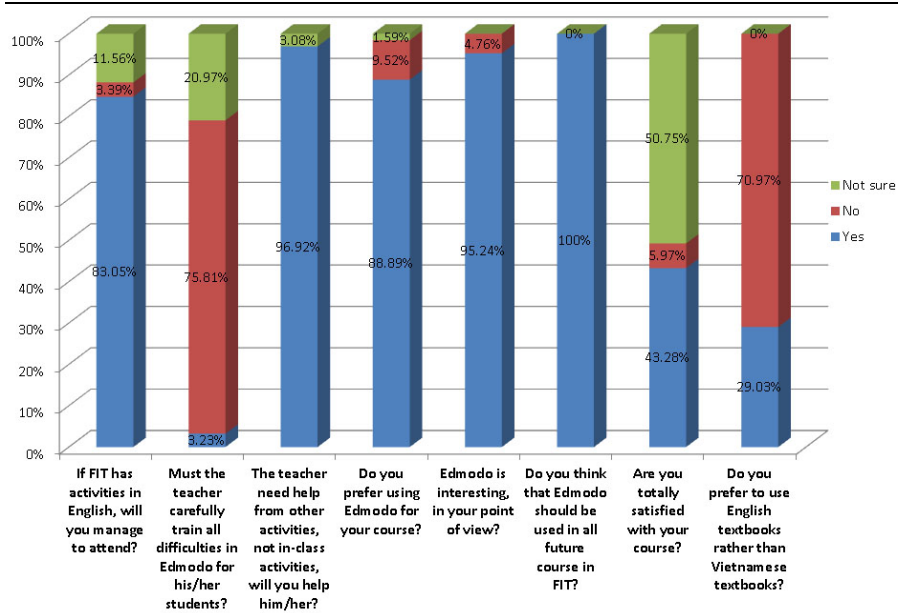
Moreover we hope to develop the tool becoming an LMS with powerful features by giving our recommendations.

**Table 4: Question List**

<b>Id</b>	<b>Question contents</b>	<b>Question types</b>
1	How many messages have been sent by you on Edmodo during one course?	Quantitative
2	How many emails / SMS messages have you sent to other students in one course?	Quantitative
3	How many emails / SMS message have you sent to your lecturer in one course?	Quantitative
4	If FIT have activities in English, will you manage to attend?	Yes/No/Not sure
5	Must the teacher carefully train all difficulties in Edmodo for his/her student?	Yes/No/Not sure
6	The teacher need help from other activities, not in-class activities, will you manage to help him / her?	Yes/No/Not sure
7	Do you prefer using Edmodo for your course?	Yes/No/Not sure
8	Is Edmodo interesting, from your point of view?	Yes/No/Not sure
9	Do you think that Edmodo should be used in all future courses in FIT?	Yes/No/Not sure
10	Are you totally satisfied with your course?	Yes/No/Not sure
11	Do you prefer to use English textbooks to Vietnamese textbooks?	Yes/No/Not sure



**Figure 4: Opinion poll to archive quantity information**



**Figure 5:** Result of opinion polls using the format Yes / No / Not sure

Within the above result, beside the need to flexibly alter the LMS, Edmodo proves to answer all basic requirement to be used in DIT-NLU. The tool can obviously also be widely and productively used in other departments and in other universities.

The difficulties and how-to overcome activities of Edmodo in our courses over one year conducting the tool online will be described in the following section.

### **Difficulties and how to overcome them**

The Internet bandwidth inside NLU is very low to accommodate the Internet use of more than 20.000 students. Therefore, it is a challenge to provide stable Internet connection for all those who are using an online tool. To overcome the problem, we requested the Network Administration Team to provide high speed Wi-Fi freely in the university campus and dormitory. After updating this condition, lectures and students are better equipped to attend the online courses.

Another aspect is that freshmen are not educated with basic internet skills. They do not know how to use email, web browsers, uploading and saving a .pdf file from Microsoft Word. The lectures at NLU need to gradually instruct them and help them to while conducting the courses.

The authors also faced difficulties of conducting research and collecting data to perform study in NLU. Several lectures and students in the university are paying attention to pass their course quickly and provide less support for new experiments. However, the authors based the research on their own courses and enhance the ideas by taking advantage from connection in the university. The results are promising because we can invite several students to attend. In addition, in order to apply this idea to other departments, we will face difficulties since several lectures are not yet skilful with information technologies. The lecturers in NLU are generally reluctant to change their everyday teaching activities and try the new online tools, which will consume much of their extra effort. To help solve this, we will invite help from Rector and the Deans of the departments.

The final difficulty, which is also a disadvantage from Edmodo, is the lack of plagiarism detection, aiming to help changing the mindsets of students.

## **Recommendations for Improvement**

Regarding the above difficulties, we propose ideas how Edmodo could be developed in order to serve more efficiently with a large number of students. These recommendations are aimed to minimise the inconvenience of applying Edmodo:

- Improvement to the opinion poll in Edmodo. The most expected ability is to allow several questions in one poll and to provide visual statistics figures.
- Late warning messages should be added clearly at the right top of each assignment page. This message should be easy to observe from the student's (who turned in the assignment) and the lecturer's point of view.
- To have off-line assignment collection function for the lecturers.
- Emails and phone numbers should be located more easily in order to support quick sending of instant messages.
- Implement an ability to check plagiarism. A teacher should be able to generate a report of assignment statistics.
- Besides the learning environment, lecturers are to create feedback on applying the course using Edmodo to a collaboration space, which is easy to be referred by Edmodo developers and other lecturers.
- The university and department should also apply online tools for other departments, enhancing collaboration among lecturers and students.

Above all, promising results experienced are early steps of our progress. The goal is to enhance the number of people paying attention to the topic.

## **Edmodo Apps Development**

Besides the above recommendation, one possible approach is to develop applications and plug into Edmodo platform (Build Edmodo Apps, 2013). Regarding this idea, Edmodo API and development kit are required to follow. The app will be more convincing on handheld platform. We have started some beginning step for Apps development, and will archive some practical result in future researches.

## **CONCLUSION**

Thanks to the development of information technologies, the ability to possess mobile phone and PC with Internet, SMS is becoming very easy, even for novices in NLU - Vietnam. Therefore, application to improve teaching and learning quality on this infrastructure is a practical trend with high possibilities. The statistical information shows a good level of satisfaction and level of interest among the students. Edmodo can potentially be used in different courses with different lecturers, and in different departments.

On the other hand, it is time consuming to expand the number of courses using online tools. The lecturers are not willing to change their everyday working activities and explore the possibilities of the new technologies, which will consume much of their effort. They are reluctant to try and change, if the technology has not been used by several people. Due to this difficulty, we have not successfully introduced Edmodo to several colleagues during recent years.

For the future, we would like to use SMS as a distance learning tool. The idea originated from Suhonen & Laine (2008), and requires SMS integration to Edmodo. Moreover, from Quan & Nguyen (2010), automatic software verification can be applied to improve interaction between students and lecturers, in terms of homework performance. The distance learning will certainly become more powerful with the above add-in functions.

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