



AN INNOVATIVE LEARNING APPROACH: INTEGRATE PEER-TO-PEER LEARNING INTO BLENDED LEARNING

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ABSTRACT

Small group discussions or collaborative and cooperative learning are used within university programs to enhance students' learning outcomes and develop particular graduate attributes. Through peer-to-peer learning approach, students in small groups collaborate with others, taking responsibility for their own learning and deepening their understanding of the learning content. Face-to-face lectures are inflexible to our postgraduate students. To solve this universal problem, blending learning which combines traditional face-to-face classroom methods with online teaching is a solution. The purpose of this study is to conduct an innovative learning approach of the blended learning model: adapting peer-to-peer learning through discussion in the classroom environment and online discussion board. Postgraduates who studied Information Systems course were selected for this pilot study. At the end of the course, a survey was conducted to evaluate this approach. Most students agree that this approach can enhance their communication skills and interconnection with other students.

Keywords: blending learning, peer-to-peer learning, collaborative classroom, online discussion board.

INTRODUCTION

Patterson (2007) states that at the time there were about 4.5 million Gen Y Australians who were born between 1979 and 1990, they were empowered with technologies such as mobile phones, Internet, pay TV and laptops. About three-quarters of Gen Ys regularly use the Internet. This group is the most education-minded generation compared to the past decades. Edwards (2011) describes Gen Y as *a declining attention span and the need for ongoing stimulation, and rather than developing social skills through communicating face to face, they are used to hiding behind the technology*. This is exactly our students' age group. It comes to our attention that engaging students in their learning is a great challenge for academics. For the past decades, there was a constant trend in higher education, with the teaching moving from an "instructor centred" to a "learner centred". Instructors are designers of learning environments in which students are active participants in the learning process (Barr & Tagg, 1995; Kuh, 2003; Krause & Coates, 2008). Bobbitt, Inks, Kemp and Mayo (2000) found that marketing students who worked in peer groups possibly had a better understanding of concepts and be more effective decision makers. Wilson (2005) claimed that teams, i.e. students working with their peers, were much more likely to reach superior decisions than individual students left to their own knowledge. Students can enhance their learning through peers or team work. Some studies on peer assessment suggested that peer assessment approach would also improve students' engagement (Sivan, 2000; Pope, 2001; Wheater, 2005; van der Meer & Scott, 2009; Weaver & Esposto, 2011). Nowadays, the advancement of information technology encourages university wide diffusion of e-learning environments (Selwyn, 2003; Birch & Burnett, 2009). Blended learning provides online and face-to-face learning environments for students (Ackerman, 2008; Bleed, 2001; Bonk, 2005; Boyle, Bradley, Jones & Pickard, 2003; Garrison & Kanuke, 2004;



Graham, 2005; Osguthorpe & Graham, 2003; Singh, 2003). For the past decade, online learning environments placed emphasis on the interactions of human and learning materials while face to face learning environments tended to place priority on the human to human interaction. Blended learning represents part of the ongoing convergence of these two exemplary learning environments (Granham, 2005; Becker & Jokivira, 2007). Students share their knowledge in virtual environment (Chen, 2009). Combining face-to-face to online learning appears to be an established trend to embrace our students.

Online discussion board is a communication tool provided by the Blackboard, a learning management system. During the discussion process, students with leadership skills may stimulate a high level of discussion group interaction. Ellis, Goodyear, Prosser and O'Hara (2006) suggested that the design of online and face to face discussion tasks was essential in developing students' deeper understanding of the content through discussion. Chen and Chiu (2006) and Hou, Chang and Sung (2007) state that peer assessed online discussions promote students' critical thinking and knowledge construction. Online discussion forums encourage students to take a more active and central role in their learning (Harris & Sandor, 2007). My students are expected to attend face-to-face classes at our Melbourne campus. In this paper I refer face-to-face and online learning environment as 'blended learning'. This study will focus on information exchange and knowledge construction through peer-to-peer learning and this took place both in the class and students participated into the online discussion board which comprises as a blended learning mode.

METHODOLOGY

A class of master of business administration students who took the information systems course was selected for conduction of this pilot study. For this group, there were three hours face-to-face class each week and twelve weeks per semester. Attendance of the class was not compulsory. Most students were busy with their part-time jobs; and so they could not come to the class regularly. Students however could download the lecture materials from the Blackboard. This resulted the attendance rate was not very high in some classes, particularly when the class was close to the due date of assignments submission. Since students may choose not to attend classes, we combine face-to-face and online learning. To motivate students' learning, peer-to-peer learning approach was adopted in both face-to-face and online environment. In the first tutorial, students were divided into groups of four. Students chose their peer group members and a colour identity for their group. The group names were as common as "blue", "black", "gold", "red", "green" or "grey" or an interesting name as "awesome", i.e. RGB 255,32,82. The group lasted for the whole semester. In the tutorial class, each group sat together in a collaborative learning room. Tutorial activities were group based. Students were given tutorial questions or projects in the class for discussion. Through discussions and the performance of group projects in the class, students achieved the set goals by learning through their peers. During the peers' activities in the class, the tutor provided feedback to their discussions or projects. In order to provide more opportunities for students who could not attend classes to learn from their peers, the tutor also organised the discussion topics online. Hence absentees would still be able to discuss the topics with their peers. Each week the tutor would assess their discussions and chose the best group in term of overall performance and praised at the Blackboard as "the star of the week". Through these arrangements of learning environments, both face-to-face and online, students could actively participate in the learning. At the end of the



semester, a survey was conducted with these students. The result findings and discussions were listed in the following section.

FINDINGS AND DISCUSSIONS

This was a pilot test of using peer-to-peer learning in the blended learning mode. A batch of master of business administration students who studied Information Systems course was selected for this study. All 32 students who enrolled with this information Systems unit selected as they were more familiar with the use of technology both in the classes and in the online environment. The classes were held in the collaborative classroom and the survey was conducted in the tutorial at the end of the semester. Since attendance to the class was not compulsory, only 29 students attended the class and so 29 questionnaires were received. Among these 29 information systems students, 9 were female and 20 were male students. There were 14 commencing students, i.e. new students just joined the University, and 25 continuing students. The survey was anonymous and divided into three sections. These include students’ perceptions on peer-to-peer (P2P) learning approach; the collaborative classroom and the online discussion board. While the collaborative classroom is set up for face-to-face teaching, online discussion board is for students to interact with their peer group to deepen their knowledge in some identified topics through the discussion. Integrating face-to-face and online learning together provides a good combination for blended learning. The responses were presented on a 5-point Likert scale; 1 meaning “strongly disagree” and 5 indicating students “strongly agree”.

Peer-to-peer Learning Approach

The results of students’ perceptions on the peer-to-peer learning approach are listed in Table 1 below.

Table 1 Students’ perceptions on the peer-to-peer learning approach

| | All students | | Commencing students | Continuing students |
|--|--------------|--------------------|---------------------|---------------------|
| | Mean | Standard Deviation | Mean | Mean |
| P2P is very helpful with my study in this unit | 3.86 | 0.76 | 3.85 | 3.87 |
| P2P has been very effective in achieving my goal for this unit | 3.57 | 0.92 | 3.62 | 3.53 |
| P2P helps me obtain a clear understanding for this unit | 3.50 | 0.92 | 3.54 | 3.47 |
| P2P helps me develop study and learning strategies | 3.64 | 0.83 | 3.69 | 3.60 |
| P2P helps me develop communications skills | 4.00 | 0.86 | 4.00 | 4.00 |
| P2P helps develop skills of working in team | 3.96 | 0.84 | 4.00 | 3.93 |
| P2P helps me make connections with other students | 4.00 | 0.82 | 4.15 | 3.87 |
| P2P helps me develop friendship with team members even after my graduation | 3.82 | 0.82 | 3.92 | 3.73 |



Both commencing students and continuing students have a very similar response, 3.8, about the statement that P2P is very helpful with their study. Students agreed that P2P approach had been very effective in achieving their goals; helping them to have a clear understanding of the unit and in developing learning strategies. Students were in favour of P2P learning in the aspect of developing their communication skills and working in team skills. It is interesting to know that commencing students indicate that P2P help them make connections with other students than those continuing students, i.e. 4.15 and 3.87 for commencing and continuing students respectively. Commencing students have a stronger belief that P2P helps them develop friendship with team members even after the graduation, i.e. 3.92 and 3.73 respectively.

Collaborative Classroom

In order to enhance the face-to-face learning environment, tutorial classes were held in the collaborative classroom. This type of classroom was new to the University. Instead of students sitting on their own, a large table was set up for each group. Two laptop computers were provided to each group for their use to search necessary information during the class. Two intelligent whiteboards were set up in the classroom. Students' discussions written on the intelligent whiteboards could be saved as a file and sent to students by email for their reference or study. The result of students' perceptions on the collaborative classroom is listed in Table 2.

Table 2 Students' perceptions on the collaborative classroom

| The collaborative classroom ... | All students | | Commencing students | Continuing students |
|--|--------------|--------------------|---------------------|---------------------|
| | Mean | Standard Deviation | Mean | Mean |
| can enhance my learning | 3.59 | 0.98 | 3.64 | 3.53 |
| is suitable for group discussion | 4.14 | 0.88 | 4.21 | 4.07 |
| is suitable for P2P learning | 4.10 | 1.01 | 4.21 | 4.00 |
| I prefer holding tutorial classes in the collaborative classroom to normal classroom | 3.62 | 1.18 | 3.64 | 3.60 |

The results indicate that collaborative classroom can provide the environment for peer-to-peer learning in particularly to group discussion. It is interesting to see that the results of commencing and continuing students are very similar. While the mean of 3.62 indicated that students do not have a strong desire to have the classes in the collaborative classroom, it must be noted that the cost of setting up a collaborative classroom is much higher than a normal classroom. University may need to evaluate the cost and benefit for establishing collaborative classrooms.

Online Discussion Board

We do not encourage students to skip classes. However, in reality, Gen Y students were busy with their personal commitments and occasionally they had to be absent from the class. To encourage them to learn the materials and to help them engage in their learning, online



discussion board was set up for students to discuss the topics online. The survey result of students' perceptions on the online discussion board is listed below.

Table 3 Students' perceptions on the online discussion board

| The online discussion board used in this unit ... | All students | | Commencing students | Continuing students |
|--|--------------|--------------------|---------------------|---------------------|
| | Mean | Standard Deviation | Mean | Mean |
| improves my interactivity in lectures | 3.79 | 1.10 | 3.62 | 3.93 |
| provides me with real-time feedback to evaluate my understanding of the unit | 3.86 | 0.89 | 3.85 | 3.87 |
| provides me feedback to identify areas for further improvement | 3.86 | 0.85 | 3.85 | 3.87 |
| helps lectures to personalise the lectures to suit my comprehension capability | 3.68 | 1.16 | 3.77 | 3.60 |
| provides me opportunity to discuss the contents with other group members | 4.07 | 0.98 | 4.08 | 4.07 |

The results indicate that students agree that online discussion board may help them narrow the gap of their interactivity in lectures; provide feedback to evaluate their understanding of the topic and help them identify areas for further improvement. Students believed that using online discussion board would provide them opportunities to discuss the contents with other group members.

CONCLUSION

Nowadays, engaging with our Gen Y students is a real challenge. Compulsory class attendance and instructor-centred teaching approach has gradually become inappropriate for this generation. Allowing some flexibility and freedom to our students are therefore essential, and hence blended learning approach is a trend of learning mode in this decade. The purpose of this study is to employ peer-to-peer learning approach in both face-to-face and online environments for enhancing students' information exchange and knowledge construction. Through peer-to-peer discussion both in the class and online environment, we can see improving students' learning initiatives with the encouragement from their peers. The results also indicated that most students agree that this approach can enhance their communication skills and interconnection with other students. In addition, the survey finds that collaborative classroom can provide an environment for students' group discussion. It is interesting to know that students were not in strong favour of having the class in the collaborative classroom, despite the fact that the cost of setting up this type of classroom was very high. Survey results also indicate that real-time response and feedback from tutors on the online discussion board can be further improved by responding to students in prompt and efficient ways.

Online discussion board can assist students with self-paced learning in their own time. Despite the extra time and effort of the staff involved, the author believes that this study should continue in coming semesters. With increasingly rich forms of elearning, there is a great need for longitudinal studies on forms of collaborative learning (Luppisini, 2007). The author therefore plans a project to follow from this initial study. This will require building and evaluations of online tools, e.g. online discussion board, online assessment and peer chat online, designed to



support and sustain peer-to-peer learning process. A longitudinal study will apply on the online discussion board, which will assist students with knowledge construction and formulation of ideas through discussion and collaboration. Peer to peer learning will be encouraged to lead and facilitate discussions so as to reduce the need for intervention by a tutor (Nisbet, 2004) and students will learn from their peers through their actively participation in their discussions.

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