

Does the Blended Learning and Student Centered Learning Method Increase Student's Performance?

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Abstract

Developments in information technology (IT) have opened a new chapter in the world of education. Many have gain benefits from IT especially lecturers and students. IT reduces the workload of the lecturers in handling and managing the teaching and learning (T&L) process. Students can benefit the IT through its flexibility and rich of applications that are useful for their learning. Blended learning is the outcome of the integration between IT applications and traditional learning method. Blended learning is also referred as e-learning as it applies Internet technology to enable T&L. E-learning is a student-centered learning method that emphasizes student as the main actor in the learning process. This paper discusses the impact of implementation of the blended learning and student-centered learning methods on students' performance. These methods have been applied on a group of student that is taking a technical course. The results were compared with the previous group of students that were experience only the traditional T&L method. The results prove that students who undergo the proposed method have a better performance in term of final exam result.

Keywords: E-Learning, Blended Learning, Student Centered Learning, Student Performance, Teaching & Learning

Introduction

Information technology (IT) is one of the key enabling technologies in teaching and learning (T&L). Information technology can give a positive impact on students, especially in terms of motivation and research and development (R&D) process (Fook & Sidhu, 2007; Razak, 2013). The use of IT makes the assignment, communication and relationships became easier. Internet technology for example, allows students to connect without the limitations of time and geography (Deore, 2012). Through the Internet and applications built on top of it, students can also obtain teaching materials and communicate with the lecturers (Min et al., 2012). Besides students, lecturers also get the same benefits.

The use of IT can also help lecturers who handle large-sized class with the high number of students in one class (Lass et al., 2007). The technology used can assist lecturer to communicate with the students and control the teaching process better. In fact, teaching materials can be managed and shared with students in a more systematic way (Wan-Ishak & Mat-Yamin, 2016).

In addition to the communication and sharing of materials, the study also found that the use of IT will help improve student understanding and mastery of the course of study (Dori & Belcher, 2005; Darling-Hammond et al., 2014). Study by Dori & Belcher (2005) for example, found that students who use IT applications have an understanding of the concept better than those who do not use the application. Dori and Belcher study focuses on teaching the subject of electromagnetism, which through the application of IT student has managed to understand the processes and phenomena very well. In addition, weak and high risk of failing students is also encouraged to study with the support of IT (Darling-Hammond et al., 2014). This is because, IT makes learning more interactive, open a new space for students to explore and produce new knowledge, and benefit to the lecturers to manage the teaching materials and learn new things.

The blend between the IT applications with traditional learning methods are also referred to as blended learning methods (blended learning). This learning method applies Internet technology to enable online learning. This learning method is also referred to as e-learning. Through e-learning, learning can take place anywhere and at any time without physical location limitations (Vincent et al., 2005). Additionally, internet offers vast amount of information that are useful for T&L (Sian et al., 2013), yet students need to employed the best searching strategy (Mat-Yamin & Ramayah, 2012).

E-learning is a student-centered learning method. It is the latest teaching approach that emphasizes student as the main actor in the learning process (Abdullah et al., 2010). Through this concept, students are given the opportunity to explore learning materials and use the time together with the lecturers to better understand the difficult concepts. From the aspect of communication, students become more active. According to Abdullah et al (2010), this method has encouraged students to apply various directions of interaction between teacher and student, and student to student. Active learning will improve and enhance the students' communication skills (Mohd-Zaid & Ariff, 2011; Razak, 2013).

This paper discusses the impact of implementation of the blended learning and student-centered learning methods on students' performance. Students' performance was measured based on their final exam result. This is vital as the exam measured students' performance individually after the learning process. The results were compared with the previous group of students that were experience only the traditional T&L method.

The background of this study is presented in the next section, followed by the methodology. The findings and discussion were presented afterwards. The conclusion and the future work were discussed in the last section.

Background of Study

At the second session of 2014/2015 (A142) BJIB3133 course have been taken by a total of 48 students from the School of Technology Management & Logistics (STML). The results of the final examination paper shows that 81.25% of the students got grade C- and below. Only two students get a grade A. These results show that most of the students are relatively weak and not able to master the course very well. At the second session of 2015/2016 (A152) BJIB3133 has been offered again. Studies have been conducted to improve P & P of BJIB3133 course in A152 sessions using blended learning and student-centred learning methods. This study has two main issues, namely how blended learning and student-centered learning can improve learning technical subjects among STML students?

BJIB3133 is a technically oriented subject and was considered difficult among students, especially when it involves the development of a system using Microsoft Access. Normally, the nature of the assignment is a problem solving, which is to apply the theory presented by lecturers during lecture sessions. This course consists of the coursework marks of 60% and the remaining 40% is for the final exam.

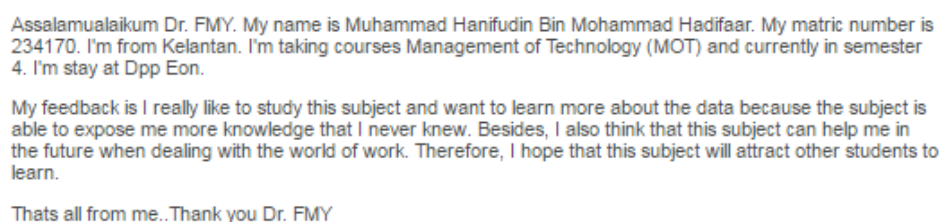
Teaching methods that have been practiced by the lecturer before this is teacher-centered or traditional methods. It is this method that has been used in the session A142. This method is passive where lecturers provide teaching materials and lecture sessions for each course. As a result, learning is carried out in one way due to lack of student involvement. Making it worse, students simply memorize the related procedures and no problem solving skills being applied. This is evident from the tasks given, where students are not able to apply the knowledge acquired during the learning session.

Feedback received from students in the session A142 shows that there are some weaknesses in the learning process. There are students who said that they "do not know where to start" when assignments are given. They take a long time to understand the given project and some of them have given up. There are also students who said that they did not know the method to study the technical subject. This is because while taking other courses, they are only exposed to the problem-oriented theories. Due to these problems, several groups of students were not able to complete the work well within a predetermined time.

Methodology

In conjunction with the students' problem and weakness, a transformation or innovation in the teaching process has been performed to promote active learning. In session A152 blended learning and student centered learning methods have been applied. Through this method, students can master the skills to solve problems better. The e-moderator method has been applied in the class using social networking messenger (WhatsApp) and university learning management system that is Online Learning. While student-centered method involves a number of activities such as brainstorming, project, learning with peers, and forming small groups.

The study involved three phases, namely; initiation of activities, activities during the study and learning transfer activities. In the initial phase of the study, the lecturer gives the explanation on the course syllabus to the students. In this session, the lecturer will inform the teaching methods to be implemented throughout the session. Interaction with students is done through the LMS application that is Online Learning. Students were instructed to convey the perception of the course through the forum tool. The use of English is encouraged among students to help them improve their confidence in using the language. Feedback shows positive results where students try to write a review even though using poor sentences and grammar (Figure 1).



Assalamualaikum Dr. FMY. My name is Muhammad Hanifudin Bin Mohammad Hadifaar. My matric number is 234170. I'm from Kelantan. I'm taking courses Management of Technology (MOT) and currently in semester 4. I'm stay at Dpp Eon.

My feedback is I really like to study this subject and want to learn more about the data because the subject is able to expose me more knowledge that I never knew. Besides, I also think that this subject can help me in the future when dealing with the world of work. Therefore, I hope that this subject will attract other students to learn.

Thats all from me..Thank you Dr. FMY

Figure 1. Example of student's respond

Next, the e-notes were distributed to students in stages starting from the first week to week fourteen. Students are also given the project title for the group work. The instruction and monitoring of groups are also done through Online Learning. In addition, reading materials and additional references is also distributed through the same application. This method makes Online Learning as a course central repository and student reference. This method allows students to refer the announcements, materials and information on the course without any time limit.



Figure 2. A part of e-notes distributed through Online Learning

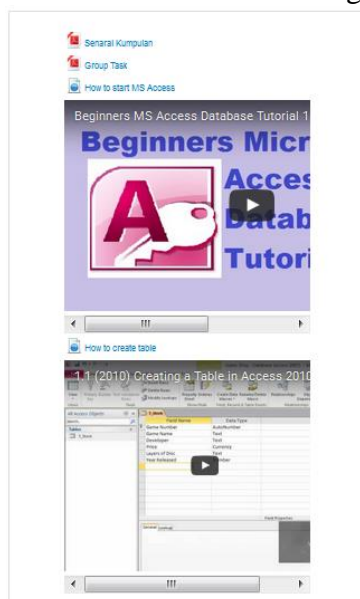


Figure 3. Example of additional references

During the study phase involve three main activities that are: 1) observing how learning and interaction occurred among students, 2) monitor the given project throughout the learning process, and 3) reflection. In this phase, besides communication through Online Learning, WhatsApp application is also activated. WhatsApp is one of Web 2.0 tools that is useful for interactive communication either among individuals or groups. Through this application, students can communicate with the lecturer and friends directly. For instance, if one student is having a problem, he or she can send a message to the WhatsApp group account. Lecturer and friends who are actively online will provide help and support. Besides communication and discussion, this application has also been used to distribute additional materials and monitoring of the project.



Figure 4. WhatsApp Application

In the third phase, students' understanding level of the taken course is evaluated. In this process, students are encouraged to assist their friend who has had problems. Through this activity, students can enhance their understanding on the terms or concepts from the subject. Besides that, students also can sharpen their problem solving skills either as individual or group.

Discussion

After going through 14 weeks of learning session, students were asked to write a reflection on their experience. The following are some of the reflections written by the students.

Student 1 “...we often refer back to what we have been taught by lecturer Dr. Fadilah Binti Mat Yamin. We refer back to our notes while in class as a guide for information. Besides that, we also surf the internet to find out more about Microsoft Access and how to handle it. Not only that, we also ask our friends...”

Student 2 “...first time using Microsoft Access. But, finally we can complete the task...”

Student 3 “Selepas mendapat penerangan dari Dr. Fadilah baru kami faham sedikit kehendak soalan yang dicampur dengan maklumat tambahan dari rakan-rakan yang lain”

Student 4 “...aktiviti atau latihan diselesaikan secara bersama-sama. Oleh itu, para pelajar tidak segan silu bertanya kepada rakan-rakan mahupun Dr FMY...”

Student 5 “...kami tidak faham apa itu query. Namun, kami belajar daripada youtube...”

Student 6 “...getting better understanding in this subject when you give a few task related to database...”

Student 7 “We gain new knowledge from this course. For me, this course help me a lot for my future career...”

Student 8 “...I faced some difficulties ... but I take it positively as new knowledge and new experience...”

Student 9 “... we found this assignment is hard to accomplish as we need to have a good skill in Microsoft Access and need to think outside the box ...finally we have gained some skill in handling Microsoft Access and can see the importance of database management system in daily life.”

Reflection written by the students’ shows that they are interested in the technical course, like BJIB3133 and understand it’s important towards their career. Some students faced difficulties but never give up as they are were given second chance to fix their problem. Moreover the interactive features of the electronic environment give them more freedom to search for the solution. This is in line with Darling-Hammond et al (2014) who suggested that weak students are encouraged to study with IT support.

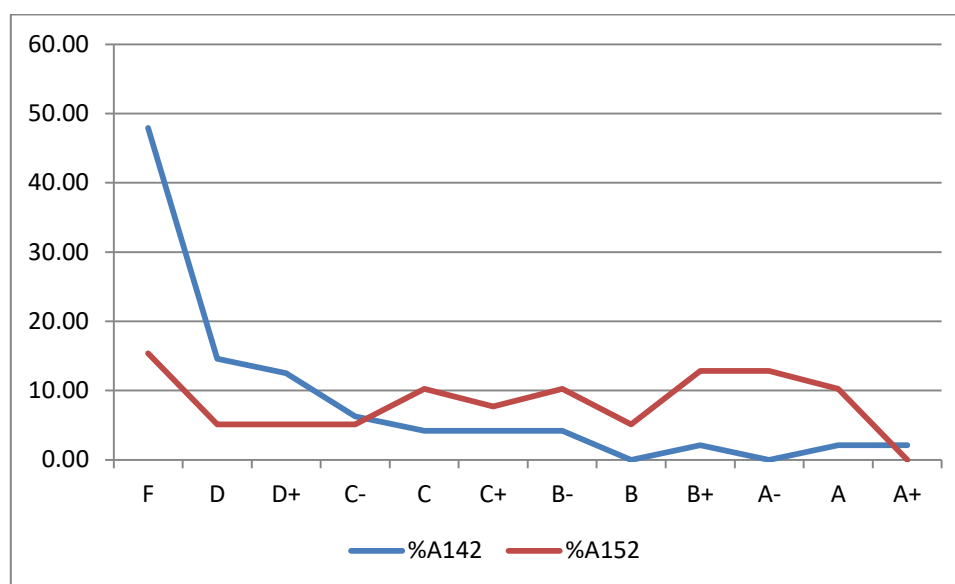
In addition, various IT tools and applications have been used by the students in order to complete this course. For example when they are facing problems at the earliest stage, discussion and communication through Online Learning and WhatsApp helped them to understand and solve the given assignment. Besides that, other Web 2.0 tools such as YouTube has been used as an additional source of reference in conjunction with the materials posted on Online Learning. This proves that Web 2.0 tools have great potential to be used in conjunction to other official e-learning tools (Wan-Ishak et al., 2015). These actions also reflect the related studies such as Abdullah et al (2010), Mohd-Zaid & Ariff (2011) and Razak (2013) that emphasizes students were active when they were in electronic environment.

Table 1 shows a comparison of the results of the final exam for the students who take this course in session A142 and A152. The examination results showed that there are a relatively high increase in grades A, A- and B+ and the reduction of the number of students gained C- and below (Figure 5). These results demonstrate that the approach has been successfully implemented to improve student understanding and mastery of the course.

Table 1.

Comparison of Final Exam Result for A142 and A152 Session

Minimum Marks	Grade	A142		A152		Differences	
		Numbers	Percentage	Numbers	Percentage	Decrease	Increase
0	F	23	47.92	6	15.38	32.53	
34.45	D	7	14.58	2	5.13	9.46	
39.45	D+	6	12.50	2	5.13	7.37	
44.45	C-	3	6.25	2	5.13	1.12	
49.45	C	2	4.17	4	10.26		6.09
54.45	C+	2	4.17	3	7.69		3.53
59.45	B-	2	4.17	4	10.26		6.09
64.45	B	0	0.00	2	5.13		5.13
69.45	B+	1	2.08	5	12.82		10.74
74.45	A-	0	0.00	5	12.82		12.82
79.45	A	1	2.08	4	10.26		8.17
89.45	A+	1	2.08	0	0.00	2.08	
Total		48		39			

*Figure 5. Comparison of Final Exam Result for A142 and A152 Session*

Conclusion

Student-centered learning is a good approach to promote self-reliance and prepare students for the job market. However, this method can cause students "drift" in their world. As a result the students failed to complete the assignment. The role and injection of lecturers as a facilitator during the process of completing the task is the need to help and guide the students towards the right path. Blended learning method is an initiative that is seen to be effective to help students follow and understand the course well. This is because through the application of information technology,

students can use cyberspace to support their learning. In addition, the lecturer can also monitor and interact with students even outside the classroom.

The combination of these two methods allows both lecturer and students, strengthen and increase their knowledge and experience at every learning session. From the perspective of the lecturer, a student-centered method requires extensive preparation, especially in terms of knowledge, skills and creativity. This is to realize the difference in the results obtained by the students.

As a future work, the author plan to execute the research using different methodology such as experimental approach. This approach can be used on the same group of students to study the impact of the implemented teaching strategy as a subsequent to the traditional approach. Further, the study should be expended to several other groups of students to experience the variability of students' skills and knowledge.

Acknowledgement

The authors wish to thank the Research & Innovation Management Center (RIMC), and Universiti Teaching and Learning Center (UTLC), Universiti Utara Malaysia for funding this study under SoTL Grant Scheme.

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