

**THE IMPACT OF FLEXIBLE AND BLENDED LEARNING ON STUDENT
PERFORMANCE IN A COMPUTER APPLICATION COURSE (DBC 2012) :
CASE STUDY IN POLYTECHNIC MERLIMAU, MELAKA.**

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Abstract

The aims of the study is to determine the attitude and performance resulting student from blended learning in a Computer Application course for first-year students. In 2015, key foundational content was packaged into an interactive online module for students to access prior to coming to class; class time was dedicated to active-learning exercises. Students who accessed all online module segments participated in more in class clicker questions and performed better on the examination. The majority of the 52 respondents agreed or strongly agreed that foundational content learned prior to class, applied activities during class, make education more interactive and can increase student's motivation to learn. This study highlights the importance of implementing flexible and blended learning approaches in improving academic performance in teaching and learning practice in Technical and Vocational Education and Training (TVET) for all. It was also suggested that could improve both the quality and the perception and status of TVET.

Keywords: blended learning, active learning,

1. Introduction

Research and development is an important initiative to access the progress of the country as indicated by many thinkers. The progress of science is the starting point of individual development based on the concept of the appropriate high-need industry and corporate parties in preparation for the vision 2020. Under the Ministry of Higher Education of the polytechnic is a higher education center energy produced many semi-professional. Therefore, as a semi-professional power generators, teaching and technical basis for holistic learning is very important in creating individuals not only understand but also act as a source of global energy needs increase value for the world market as the country needs now.

2. Background

Teaching and effective learning is very important. Tech methodology is the main agent effective to have an impact on the acceptance of students of technical knowledge (science). As former Prime Minister Tun Dr. Mahathir Mohamad in 1991, said "create a society that is progressive science, inventive and forward-looking to the future, a society that is not only able to take advantage of today's technology but also a contributor to the formation of scientific and technological civilization of the future."

To ensure that the teaching and learning process meets the technical capabilities of students to acquire knowledge, skills and values contained in the technical

sciences, the flexible blended learning approach focused on students as much feedback statement said polytechnic graduates face the inability effectively during the process of study at a higher level or the world of work. On the matter of flexible blended learning methods applied by the lecturers so that acceptance by the students a more holistic, comprehensive and effective.

3. Statement of the problem

Researchers want to make a study to obtain a clear picture of the attitude and performance resulting from blended learning student in a computer application course for first-year students.

The aim of this study was to determine the effectiveness of teaching and learning based on flexible and blended learning on student performance in a computer application course. Thus it can develop a curriculum that can be applied by instructors appropriate to the level of skills among technical students in polytechnics through teaching and learning techniques relevant to the needs of the labor market. This ensures the future graduates highly competitive resulting in market globally. Hence, the objectives are :

- i. Identify the effectiveness flexible and blended learning on student performance in a computer application course.
- ii. Knowing students' acceptance the lecturer teaching techniques in computer applications courses.
- iii. Determine the lecturers teaching methods and learning more relevant and effective for the course computer application.

4.1 Research Questions

According to a statement of the problem and the purpose of the study, the question to be answered by the study are:

The extent of adoption and impact flexible and blended learning approach to teaching students computer applications courses.

4.2 Limitation

Researcher is focusing on students in a computer application course for first year students in Polytechnics Merlimau only. There is a possibility that the respondent is not honest in the response to the questionnaire thus can affect the overall results of the test.

5. Highlight Review

Highlights of the study were related to research on topics related to the study. In this chapter, the researcher can explain some of the views of scholars who conducted research on the relationship. Results of these may help researchers to continue a more comprehensive understanding.

5.1 Definition of Blended Learning

The rapid growth of science and technology causes massive changes and improvement to be applied in language teaching process. One of the results of the development of science and technology is internet. Internet enables human to do a lot of activities without limitation of time and spaces. People are able to do their job even if they are not present at their work place. Internet also can be applied in many ways in education process. One of them is called blended learning.

A blended learning approach is being used in on-campus courses which include hard copy study materials, face-to-face sessions and communication via email, coupled with the more recent internet based message boards and other online resources. Therefore, this study concentrates on students who have access to face-to-face classroom sessions in the form of lectures and tutorials and also have access to written materials such as textbooks and summaries of topics, and may also have access to resources provided online through, for example, subject specific websites. Definitions of exactly what this blended learning entails varies depending on different views (Whitelock and Jeffs, 2003), but the common elements include a combination of face-to-face sessions and the use of technology with an emphasis on the use of the internet (Kerres and Witt, 2003). Also, this combination of teaching approach according to Stacey and Gerbic (2007), where a variety of online resources are provided in addition to face-to-face contact, has been referred to as representing a blended learning approach.

According to University of Wolverhampton (2010), blended learning is an approach to learning and teaching which combines and aligns learning undertaken in face-to-face sessions with learning opportunities created online (Hartoyo, 2012: 100).

Whitelock and Jelfs (2003) opened a journal special issue on this topic with 3 definitions:

1. The integrated combination of traditional learning with web-based online approaches;
2. The combination of media and tools employed in an e-learning environment;
3. The combination of a number of pedagogic approaches, irrespective of learning technology use (Hartoyo, 2012: 102).

Blended and flexible learning, is a design approach that examines the relationships between flexible learning opportunities, in order to optimise student engagement and equivalence in learning outcomes regardless of mode of study. (Keppell, 2010):

Flexible learning can occur anywhere, anyhow, anyway. However flexible learning in itself is complex, and not as simple as this definition implies. The interaction of four components - technology, pedagogy, implementation strategies, organisational framework - can lead to learner-centred experiences when they are well integrated (Collis & Moonen, 2001). Also there are five dimensions which can impact: time; content of the course; entry requirements; instructional approaches and resources; delivery and logistics - each with several aspects (Casey & Wilson, 2005).

The term blended learning is often used to describe courses where a mix of delivery and learning options are used. However, a definition is problematic and it is probably wise to consider not only how media and technologies are mixed with traditional forms of delivery, but also how aspects such as pedagogies, contexts and theories of learning are mixed or 'blended' Oliver and Trigwell (2005). For example, face-to-face classes may be combined with online learning and mobile learning as shown in the diagram. In this way, resources can be provided in various ways using media such as videos, audio, e-books etc, and participants can use different tools to communicate with each other and the teacher, and to interact with the learning environment.

Computer conferencing (e.g., Skype or Adobe Connect) or video conferencing may be used for real-time interactions, and discussion forums for asynchronous interactions. The online learning environment may be contained in an institutional learning management system (e.g., Moodle) and password protected, or, it might be open and use web 2.0 tools and approaches for social networked learning. The options for learning can be flexible on a continuum ranging from Fixed to More Flexible, according to the five dimensions of flexibility: Time, Content, Entry Requirements, Instructional approach and resources and Delivery and Logistics.

The design and flexibility of the learning environment is usually dependent on many factors. For example:

- the philosophy of the teacher;
- capability of the teacher and students (includes skills and confidence);
- organisational (and governmental) priorities;
- trends in education;
- accessible technologies; and subjects offered.



Figure 1: Blended Learning Method

5.2 The advantages of blended learning

The advantages of blended learning are it provides the advantages of both traditional and distance learning method. From the point of traditional teaching method, it gives both teacher and students a lot of interactions during classroom session. Teacher will have his or her whole time to teach, observe, evaluate, and give feedback to the students. Teaching activities will become more intense and effective due to the massive interaction between teacher and the students.

For the students, the traditional teaching method gives them many opportunities to learn, observe, asking more explanation and receive feedback from the teacher. The intense interaction between students and teachers will create a constructive

environment for students' improvements. Not only the interaction between teacher and students, but also the interaction between students is encouraged in traditional face-to-face teaching method. Students will be able to learn and share their knowledge with others. That kind of cooperative learning process will increase students' rate of improvement, not only their cognitive, but also their affective and psychomotoric abilities. From the point of distance learning in blended learning method, it provides more flexibility for both teacher and students in conducting the teaching learning process.

First, the teacher will have more flexibility in delivering learning materials. Teacher does not have to deliver all the materials in classroom session. Teacher may deliver a part of the materials in classroom sessions, and other may be delivered by encouraging student to learn by themselves through web or other references on the internet.

Second, blended learning will provide teacher with much more flexibility and freedom in administering assessment. Teacher may conduct online task submission, quizzes, or even final test in the end of the semester. This kind of assessment will do both teacher and students good. Teacher will have much more time to evaluate and grade students' performance, and the students are able to finish their tasks from wherever they are without coming to the classroom.

6. Methodology

6.1 Design Review

The study was conducted by qualitative descriptive through questions to the 52 respondents among the first year students (Diploma in Business Studies) in the course of Computer Applications. Qualitative research can describe the thought process, evaluate the emotional and deepen the steps involved in the process of teaching and learning at the same time reflect the real situation prevailing in the world of education (LeCompte, Wendy and Judith, 1992).

6.2 Research Instrument

The study was conducted using questionnaires to gather the required information. There are two domains that were studied:

- i. Students perception of flexible and blended learning for computer applications course.

- ii. The impact of flexible and blended learning for students computer application course.

7. Analysis of Findings

The aim of this study is to obtain accurate data regarding attitudes towards the course of Computer Applications are taught to fulfill the implementation of flexible and blended learning model in teaching and learning at the higher institutions in a technical field. A major aspect of the study is related to:

- i. Respondents Background
- ii. The impact of flexible and blended learning for students computer application course.

The following is a table of analysis for each question contained in the questionnaire that was distributed to the students.

1. I am satisfied and motivated with the teaching and learning of this course.	
Strongly Disagree	0
Disagree	7
Less Agree	0
Agree	0
Strongly Agree	45

Figure 7.1 : Flexible and blended learning effect on students by question 1

Based on the table 7.1, 45 students strongly agreed that they are satisfied and motivated to learn this course with blended learning methods. While 7 students did not agree with blended learning methods.

2. I find it easier to get information on the course.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	5
Strongly Agree	47

Figure 7.2 : Flexible and blended learning effect on students by question 2

Table 7.2 shows that a total of 47 students strongly agree that they are easier to get information about this course with blended learning methods.

3. The courses have been successful in changing the way I think and enhance my imagination.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	9
Strongly Agree	43

Figure 7.3 : Flexible and blended learning effect on students by question 3

It was found that 43 students strongly agreed that the courses with blended learning methods have been successful in changing the way they think and enhance their imagination.

4. This course will help me to settle the question of training / tutorial that quickly and accurately.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	6
Strongly Agree	46

Figure 7.4 : Flexible and blended learning effect on students by question 4

Table 7.4 shows that a total of 46 students strongly agree that this course will help them to settle the question of training/tutorial that quickly and accurately with blended learning methods.

5. The content of the course more attractive, interactive and easy to understand.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	4
Strongly Agree	48

Figure 7.5 : Flexible and blended learning effect on students by question 5

Table 7.5 shows that 92.3% of all students strongly agree that the content of the course more attractive, interactive and easy to understand with blended learning methods.

6. Lecturer courses in creative and innovative teaching.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	7
Strongly Agree	45

Figure 7.6 : Flexible and blended learning effect on students by question 6

It was found that 45 students strongly agreed that the lecturer courses in creative and innovative teaching in blended methods.

7. The use of the technology because it helps me to learn this course better.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	4
Strongly Agree	48

Figure 7.7 : Flexible and blended learning effect on students by question 7

Table 7.7 shows that a total of 48 students strongly agree he use of the technology helps them to learn this course better with blended learning methods.

8. I'd like to respond to the question of lecturer.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	7
Strongly Agree	45

Figure 7.8 : Flexible and blended learning effect on students by question 8

Based on the table 7.8 shows that 45 students strongly agree that they like to respond to the question of lecturer with this blended learning methods.

9. Demonstration of the lecturers on the course facilitate my understanding.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	9
Strongly Agree	43

Figure 7.9 : Flexible and blended learning effect on students by question 9

Table 7.9 shows that a total of 43 students strongly agree that demonstration of the lecturers on the course facilitate my understanding.

10. I was able to solve the problem in training / tutorial to better quality teaching and learning effects on the course.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	5
Strongly Agree	47

Figure 7.10 : Flexible and blended learning effect on students by question 10

Based on the table 7.10 shows that 47 students strongly agree that they were able to solve the problem in training / tutorial to better quality teaching and learning effects on the course with this blended learning methods.

11. The use of e-learning such as internet and 'blended notes' in a fun and effective learning.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	3
Strongly Agree	49

Figure 7.11 : Flexible and blended learning effect on students by question 11

Table 7.11 shows that 94.23% of all students strongly agree that the use of e-learning such as internet and 'blended notes' in a fun and effective learning with this blended learning methods.

12. I have always given the opportunity to submit ideas during the process of learning through courses on the online forum.	
Strongly Disagree	0
Disagree	0
Less Agree	0
Agree	10
Strongly Agree	42

Figure 7.12 : Flexible and blended learning effect on students by question 12

It was found that 42 students strongly agreed that they have always given the opportunity to submit ideas during the process of learning through courses on the online forum teaching in blended methods.

8. Discussion, Conclusion

In this study, positive impacts associated with student engagement within a blended-learning environment were demonstrated and the resulting student perceptions were reported.

8.1 Discussion

Through the analysis of respondents performed on the target students, the results were found to be positive as required research questions still need to be repaired again. However, these studies do not reflect a hundred percent result but acceptable as initial platform in reviewing the teaching and learning process as a guide towards a more holistic assessment and is dependent upon the level of target respondents. Hence the proposal, which can be taken for further study :

- i. How blended learning can influence the teaching lecturer in higher education institutions.
- ii. A study conducted on learning tools such as forums, online discussion and the like which can help teaching blended learning.

8.2 Conclusion

The blended-learning approach used in this course was generally well received by the students. Specifically, student responses reflected positively on learning foundational content prior to class and using class time for active learning exercises.

Blended learning provides great advantages in teaching learning process. One of its advantages is the flexibility in administering the course. The teacher may improve the quality of teaching learning process by encouraging students to do some learning activity outside the classroom such as finding additional sources and references on the internet or test.

Beside the flexibility which is provided by blended learning, blended learning itself has potent disadvantages. Blended learning needs massive internet connection in its administration. The recommendation deal with the application of blended learning is institution should prepare the infrastructure first. In term of blended learning it needs stable and adequate internet connection.

Thus it states that the process of learning undertaken by lecturers meet the required targets in line with the mission of fostering transformative learning environment and generate more creative towards student-led.

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