# Virtual versus Face-to-Face Teaching: An Approach in Implementing Blended Learning among First Year BDS Students in UiTM

**Nurhaslina Hasan[1*], Faezah Sabirin[1], Vivi Noryati Ahmad[1]**

[1]Physiology Unit, Center of Preclinical Science Studies,
Faculty of Dentistry, Universiti Teknologi MARA,
40450 Shah Alam,  Selangor, Malaysia
nurhaslina_hasni@salam.uitm.edu.my
[*]Corresponding Author

## ABSTRACT

*Nowadays, any students are well-exposed to digital technology. Since blended learning incorporates digital elements into teaching, this method is thought to be suitable for this todays' generation. The virtual teaching was therefore introduced alongside the face to face teaching to increase students experience and understanding in learning process. This study was designed to compare the effectiveness between virtual and face to face teaching of first year dental (BDS) student on their understanding of Physiology. All 70 BDS students took part in this study. Two modules from their syllabus with five lectures each were selected. In the first module, the five lectures were delivered face to face. In another module, the five lectures were delivered virtually using E-Learning softwares that were displayed in the classroom during lecture times. At completion of all lectures in each module, all students are subjected to answer a quiz containing 100 true/false questions. The data collected were then analysed using SPSS version 22. A short survey was then conducted to gather feedbacks on student acceptance and preference. The mean marks of face to face and virtual teachings were $70.57 \pm 4.80$ and $71.69 \pm 5.61$ respectively. The difference between the two however was not significant. From the survey, the students generally accepted the virtual teaching but preferred the face to face teaching. Therefore the virtual teaching method can be implemented as early as in the first year without worry on jeopardizing their grades. In conclusion, with some betterment on the virtual teaching method such as inclusion of two-way interactions would improve their understanding in learning Physiology thus may help the students in getting better grades.*

## INTRODUCTION

Blended learning is a 'hybrid' of several learning methods including face-to-face (f2f) and virtual learnings. Although pros and cons of these two learning methods have been well discussed (Schreiber et al., 2010), the effectiveness in the implementation of these type of learnings are varied in accordance to several factors (Moazami et al., 2014). McCutcheon et al. (2015) suggested that online learning for teaching clinical skills in nurse education is no less effective than the traditional methods. This could be due to the fact that clinical skills require hands-on and practice rather than learning through watching. On the other hand, Shambavi and Babu (2015) found that blended learning has successfully provides efficient and effective learning experiences in engineering education.

In the syllabus of Bachelor of Dental Surgery (BDS), the first year students are required to pass preclinical science course for them to venture into the clinical year. The preclinical science course is always considered to be challenging as it comprises of various medical science disciplines including physiology and is one of the earliest course taught to the first year students. In the learning process of the course, the understanding and memorizing tones of facts from different disciplines of medical science could be a stressful and tend to be boring if without the intervention of virtual learning in this era of digital technology (Maggio et al. 2012). Thus, incorporating learning and the digital technology is a suitable approach in implementing blended learning to ensure the learning objective is accomplished.

Although blended learning may benefit the students, there is fear that direct implementation of blended learning may jeopardize the students' performance. This worry is particularly addressed to the majority of the student in the first year BDS who are quite young, coming into the programme direct from the matriculation. These students are good in their technology skills, however, it is their ability for self-directed learning for what virtual teaching is required for is a matter of concern (Emily &

Gwendoline, 2014). In addition, the student are so used to the f2f teaching method since early school days up to their matriculation. Making a new teaching method other than f2f to be thought as a big change in their study life. The introduction of virtual teaching in the implementation of blended learning may be considered as a disturbance to their comfort zone in studying (Abbas 2015). Therefore, this study was designed to compare the effectiveness between virtual and f2f teachings of the first year BDS student on their understanding of Physiology and to evaluate their perception towards the implementation of blended learning. The results and conclusions from this study perhaps will give cluess on the key concepts towards improving the quality of teaching and learning in higher education.

## METHOD

We introduced virtual teaching method in the implementation of blended learning to all first year BDS students at Universiti Teknologi MARA (UiTM) cohort 2014/2015. To begin with, two modules from the BDS curriculum that contains five lecture each were selected namely the Cardiovascular and Respiratory Modules. The Cardiovascular Module was conducted using f2f teaching while the Respiratory Module was conducted virtually. For the virtual teaching, all five lectures were recorded using web-based learning software and later played in the classroom. Both f2f and virtual lectures were limited to 1 hour per session each and the materials were available to be downloaded from i-Learn website. At the end of each lecture series, the students were subjected to answer 100 true/false questions in a quiz. The marks obtained in the quizzes were compared and later the students were asked to provide feedback on both teaching methods. The data collected were then analysed using SPSS.

## RESULTS AND DISCUSSION

The results obtained from this study was divided into two sections; the student performance and student perception on f2f and virtual teachings.

## Student Performance

The marks obtained from the quizes following the f2f and virtual teachings were compared. The students scored $70.57 \pm 4.80$ and $71.69 \pm 5.61$ in f2f and virtual teachings respectively. Although it was appeared that the students performed slightly better from virtual compared to the f2f teachings, the difference however was not statistically significant. The difference seen can be contributed by several factor including the learning material itself. According to Schreiber et al (2010), learning process is enhanced when both visual and auditory were stimulated. This principle is applied on both teaching methods. However, the virtual teaching has an upper hand as it offers option to the student to repeat any part of the lecture at any time whenever needed. This may help the student for better understanding. Besides, during f2f session, the capacity of learning in working memory is limited (Schreiber et al, 2010) and this contribute to the downside of this method. The student may not able to capture the important input during the lecture and yet, the lecturer must carry on the lecture to finish the lesson in time.

In addition, a different type of learner may suited differently to another type of learner. Direct interaction with the learning material in virtual teaching benefited the tactile learners in which the students were able to control the learning material such as by pushed it forward, rewind and repeat the recorded lectures. This fact is in agreeable to Rossing et al. (2012) who concluded that the tactile learners gained extra benefits from virtual teaching method.

The disadvantage of this method however, is the limited communication between lecturer and students (Smyth et al., 2012). The communication gap in virtual teaching made the student not to have a ravenue to ask question regarding their doubt and as a consequence demotivated them in studying (Vaughan 2007) and made understanding the subject matter becoming more difficult. Bath and Bourke, (2010) have pointed out that effective communication between staff-student and student-student is crucial for the success in learning. Perhaps with the introduction of live forum discussion in the future may solve the issue and contribute to better student's understanding and help them to improve their performance.

## Student Acceptance & Preference

The students have provided feedbacks through a survey on the implementation of blended learning, the f2f and virtual teachings and their preferences. The gathered data from the survey suggested that although the students accepted the virtual teaching, majority of them (83.89%) still preferred the f2f teaching. This is in particular for the introduction of new topics. The main reason for f2f teaching preference was the direct communication with the lecturers during the lecture session which is in agreeable with Smyth et al. (2012). The direct communication enabled the students to be more focused. They were more alert too in case he/she was called to answer any impromptu questions by the lecturer. It was concerned that some students felt lost with the absence of supervision during virtual teaching session causing them to lose their interest on the subject matter and became demotivated. The similar observations were concluded earlier by Vaughan (2007). Another study on implementation of blended learning which was conducted by the Stanford University revealed that over implementation resulted in only highly motivated students would complete the program. Such condition was later diagnosed as a mismatched between the student's desired learning styles (interactive, social, mentored learning) with the delivery technology (Singh, 2003).

In the context of blended learning, the student perception towards the method of teaching is an important factor (Poon, 2013). Based on this recent study, the students expected that the virtual teaching was supplemented on top of the f2f teaching. They preferred to have the virtual teaching material to be provided for revision purposes rather than as a first hand lecture. This scenario may be due to the experience of purely f2f teachings during the past, prior to the BDS program. In implementing blended learning, the f2f and virtual teachings are complements to each other. In fact, Hockly (2011) has explained that the effectiveness of technology usage in learning was not determined or favoured by age. It is time that is needed, for any change to be accepted thoroughly. In the beginning of implementing blended learning in teaching the preclinical science course, perhaps, selection of only certain topics to be covered virtually is hoped will provide some times for the system; the lecturers and students especially to adapt and thus allowed a smooth gradual transition. In order to supplement the teachings, there are also tutorial slots allocated in the curriculum for discussion in which the students are free to express their concern or to clear their doubts.

195

## CONCLUSION

The success of blended learning is influenced by many factors. The combination of f2f and virtual teachings exposed the students to new learning material and increased their learning experience. The introduction of virtual teaching did not jeopardized their academic performance instead, may be a helpful element for a better one. Although the students preferred f2f teaching, the virtual teaching can be an alternative whenever needed. Besides, a good quality learning materials from virtual teaching may change a students' perception towards blended learning and later contributed to the betterment in their academic performance.

## REFERENCES

Abbas, L. (2015). Applying Blended Learning to English Communication Courses 101 and 102 at BZU/ Palestine (Case Study). *Palestinian Journal of Open Education*, 5(9), 31-64.

Bath, D & Bourke, J. (2010). Getting Started with Blended Learning. GIHE Griffith Institute for Higher Education. Griffith University, Australia. http://www.griffith.edu.au/__data/assets/pdf_file/0004/267178/Getting_started_with_blended_learning_guide.pdf. Accessed 15 April 2015.

Emily, W.T.P. & Gwendoline, Q.C.L. (2014). Are My Adult Learners Ready For E-Learning?. *Association of Southeast Asian Institutions of Higher Learning (ASAIHL) Conference.*

Hockly, N. (2011). The Digital Generation. *ELT Journal*, *65*(3), 322-325.

Maggio, M. P., Hariton-Gross, K., & Gluch, J. (2012). The Use Of Independent, Interactive Media For Education In Dental Morphology. *Journal Of Dental Education*, *76*(11), 1497-1511.

McCutcheon, K., Lohan, M., Traynor, M., & Martin, D. (2015). A Systematic Review Evaluating The Impact Of Online Or Blended Learning Vs. Face-To-Face Learning Of Clinical Skills In Undergraduate Nurse Education. *Journal of advanced nursing*, *71*(2), 255-270.

Moazami, F., Bahrampour, E., Azar, M. R., Jahedi, F., & Moattari, M. (2014). Comparing Two Methods Of Education (Virtual Versus Traditional) On Learning Of Iranian Dental Students: A Post-Test Only Design Study. *BMC Medical Education*,*14*(1), 45.

Poon, J. (2013). Blended Learning: An Institutional Approach For Enhancing Students' Learning Experiences. *Journal of online learning and teaching*, *9*(2), 271-288.

Rossing, J. P., Miller, W. M., Cecil, A. K., & Stamper, S. E. (2012). iLearning: The Future of Higher Education? Student Perceptions on Learning with Mobile Tablets. *Journal of the Scholarship of Teaching and Learning*, *12*(2), 1-26.

Schreiber, B. E., Fukuta, J., & Gordon, F. (2010). Live Lecture Versus Video Podcast In Undergraduate Medical Education: A Randomised Controlled Trial. *BMC Medical Education*, *10*(1), 68.

Shambhavi, B. R., & Babu, K. M. (2015). Blended Learning, An Integrated Learning Solution in Undergraduate Engineering Education: A Case Study.*Journal of Engineering Education Transformations*, 311-314.

Singh, H. (2003). Building Effective Blended Learning Programs.*Educational Technology, 43*(6), 51-54.

Smyth, S., Houghton, C., Cooney, A., & Casey, D. (2012). Students' Experiences Of Blended Learning Across A Range Of Postgraduate Programmes. *Nurse Education Today, 32*(4), 464-468.

Vaughan, N. D. (2007). Perspectives On Blended Learning In Higher Education. *International Journal on E-Learning, 6*(1), 81-94.