

IEBMC 2017
8th International Economics and Business Management
Conference

**FACTORS INFLUENCING THE EFFECTIVENESS OF BLENDED
LEARNING AMONG STUDENTS IN UNITEN, MUADZAM**

Sharina Mohd Salleh (a)*

*Corresponding author

(a) Department of Accounting, Universiti Tenaga Nasional, Muadzam Shah 26700, Malaysia,
Sharina@uniten.edu.my, 09 455 2020

Abstract

E-learning had become an efficient way of learning among education institutions. It combines online delivery with classroom interactions and live instructions among students through group of learners. The purpose of this study is to examine the factors influencing the effectiveness of blended learning among students in University Tenaga Nasional, Sultan Haji Ahmad Shah Campus in Muadzam Shah. The respondents chosen are from all courses offered in UNITEN. The questionnaire is used as an instrument to collect data from respondents that consist of two aspects; (1) teaching method and, (2) class environment. Blended Learning Framework perspective is an integration of face to face learning and online learning, to improve the learning experience. It can be enhanced through the innovation of information and communications technology. As a result, UNITEN student displayed higher understanding with blended learning method, thus blended learning method is an effective way to be used for teaching and learning process.

© 2018 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Blended learning, class environment, teaching methods.

1. Introduction

E-learning has become a method of teaching and learning in higher learning institutions. It combines online delivery with classroom interactions and live instructions from lecturers to group of students. According to Dzakiria, A.Wahab, and Rahman (2012), most educational content become more meaningful when delivered through combination of online discussions and face-to-face meetings. The lecturers need to incorporate technology that blend well with the learning condition to increase students' involvement in class (Balakrishnan & Puteh, 2014). Thus, there are positive cognitive results derived from blended learning among the students (Wu & Patel, 2016).

E-learning has been implemented in Malaysia by higher learning institutions as an alternative approach to ensure the effectiveness of teaching and learning process (Haron, Abbas, & Rahman, 2012). However, previous study shown that academicians are apprehensive to comprehend blended learning in their teaching methods (Haron et al., 2012). Therefore, further studies needs to be done in order to investigate the factors influencing the effectiveness of blended learning.

This paper begins with a review of extant literature on blended learning followed by the development of the hypothesis of the study. Then, it continues with research methodology that discusses the methods used to conduct this research, samples selection and data collection in order to analyse the variables selected. Next, the paper will discuss on data analysis and findings followed by a thorough discussion on the data analysis and the result of this research. The final section of the paper is conclusions drawn from this study. The paper also outlines the limitations of the study and future research to be further explored on this particular subject

2. Problem Statement

The main issues that arises in term of the effectiveness implementation of blended learning are whether this particular teaching style able to enhance students' performance and, whether both students and lecturers are able to adapt with the fully implementation of blended learning in teaching and learning process. Hence, this study aims to examine factors influencing the effectiveness of blended learning among students in University of Tenaga Nasional (UNITEN), Sultan Haji Ahmad Shah Campus, Muadzam Shah, Pahang.

3. Literature Review

3.1. Blended learning

Blended learning is defined as learner-centred education, self-guided, flexible and multi-modal approach to learn (Ma'arop & Embi, 2016). Blended learning is determined as the combination of traditional eye-to-eye and distance learning (Kazu & Demirkol, 2014). It has unique characteristic as one learning program used two modes of deliveries to optimise learning outcome and cost of delivery (Akkoyunlu & Soylu, 2006).

Blended learning provides benefit to both lecturers and students (Kalantarrashidi, Mohammadpour, & Sahraei, 2015). Online learning programs enable lecturer who are unable to attend face to face learning to correspond with their teaching process. Hence, the content of study is efficiently delivered. It also provides access to the students in classes even when the lecturers are not available, (Means, Toyama,

Murphy, & Baki, 2013). Students are also capable to balance their workloads and complete their assessment suitable in time and locations (Abd Ghani, Raja Hussin, & Abd Khalid, 2015). Blended learning is implemented in order to improve discipline, raises connection and flexibility, as well as to enhance cost effectiveness (Bower, Dalgarno, Kennedy, Lee, & Kenney, 2015).

3.2. Class environment

Class environment is the main component in teaching and learning. They are categorised into; (i) physical setting and (ii) physiological environment. Physical settings such as classroom size, structure of classroom and multimedia have been provided for the purpose of learning. On the other hand, physiological environment can be classified as communication among students and lecturers, participation rates and lecturer support (Baker, 2010).

Class environment is the support provided by the administrators. It involved non academics staff to ensure the class environment is ready for teaching and learning process. Technical support such as facilities availabilities like computer and Wi-Fi also important to enhance the effectiveness of blended learning, (Wong, Hamzah, & Hamzah, 2014). Flexibility has been added in traditional face to face learning processes throughout blended learning (Thi Thai, Wever, & Valcke, 2017). Blended learning has the facilities to fit the essential of times (Kazu & Demirkol, 2014). The implementation of technology need to be considered to ensure it meets the need of users (Bawaneh, 2011).

3.3. Teaching methods.

Most students use that blended learning in their education are familiar with both traditional methods and online learning system (Makhdoom, Khosshal, Algaidi, Heissam, & Zolaly, 2013). Both lecturers and students were trained and familiar with blended learning system. The lecturers as tutor have access to all groups of students to monitor their progress. Blended learning also implements students-centred approach that put the student at the centre in learning and teaching method (Balakrishnan & Puteh, 2014). The lecturers act as facilitators who monitors the students' improvements in term of their communication skills and collaboration in group activities.

Blended learning able to improve learning skills where students gain knowledge from direct experience rather than follow instructions or being spoon-feed (Nah, Chone, Teck Heng, Marimuthu, & Foo Terng, 2015). Likewise, social media account is used as a medium in delivering blended learning activities. The learning and teaching process occurred in social media group also involved both lecturers and students. This shows that education is not as rigid with book and assignment. By applying flexibility in teaching methods, students able to enjoy teaching and learning process.

3.4. Hypothesis development.

3.4.1. Class environment.

Previous study shows positive relationship between class environment and blended learning as the student interact in group with each other in teaching and learning process (Comey, 2009). According to Smith (2011) cooperative learning shows positive relationship for the students, as it build the responsibility of the members in groups, which the cooperative learning drives the students to work in group and take

interest with a specific end goal to tackle issue together. Students are also content using online learning rather than face-to-face learning (Kalantarrashidi et al., 2015). Students are able to understand due to balance of technology where the allocation of online learning is 50% while face-to-face learning is another 50% (Kalantarrashidi et al., 2015). Bucholz and Sheffler (2009) stated that class environment can improve student's ability to learn and feel comfortable as well as being a good member in class. However, Means et al., (2013) stated that a number of people in a group might influence their performance due to lack of focus by lecturer. The finding is consistent with Pat (2009), that also discovered, classroom is a must have facilities for lecturers and students; however the classroom physical setting does not have significant relationship towards the class environment. Thus, the first hypothesis proposed is:

H₁: There is a significant relationship between class environment and the effectiveness of blended learning.

3.4.2. Teaching methods.

In this study, blended learning could be applied for all subjects as it is flexible to be used. Alshwiah (2009) stated that majority of the students enjoyed participating Web Communication Technology as it enhanced the students' interest, motivation and achievement. Therefore, it reflects on the performance of students as the students able to acquire good result. According to Abd Rahman, Hussein, and Aluwi (2015) the interaction in online course or face-to-face learning are studies for various purposes including the vigorousness of discussion, the readiness of the student to share ideas, and participation in collaborative activities. Wu and Patel (2016) also stated that students will acquire new knowledge through a mixed method learning and provide them with a good opportunity and able to understand their own ability skills. Stroup, Pickard, and Kahler (2012) also found significant impact on delivering lecture when it being integrated with technology available in face-to-face learning course. However, Akkoyunlu, and Soylyu (2006) found negative relationship, whereby some student face difficulties in adapting with the new method as it changed from fully traditional learning to blended learning (web-based style). Jeffrey, Milne, and Suddaby (2014) also argued that lecturers were found to be less positive about the learning benefits of an online leaning component which show that the lecturers are reluctant to engage with technology. Therefore, the second hypothesis proposed is:

H₂: There is a significant relationship between teaching method and the effectiveness of blended learning.

4. Research Questions

The questions identified in this study are as follows:

- Does class environment provide enhancements towards the effectiveness of blended learning?
- Does teaching method complements the effectiveness of blended learning?

5. Purpose of the Study

This study is beneficial for the university in order to encourage mixture of technology and, chalk and board methods in class to attract student's interest. This enhance flexibility to study which is preferred by the Millennials generation. Lecturers are free to conduct lecture anytime anywhere they want and students are free to learn anytime they want. Hence, it is education without boundaries.

University will need financial assistances from the government and investors to encompass this methods in their teaching and learning program as it needs technology equipment for a long run implementation. This also create additional employment option as those equipment need maintenances by the professional technical teams. Thus, blended learning open a new way to reach out to other stakeholders of the Universities.

6. Research Methods

6.1. Sample selection and data collection.

This research population are focusing on the private university students who uses blended learning as their learning style. We chose University Tenaga Nasional, Sultan Haji Ahmad Shah Campus (UNITEN KSHAS) as our targeted population as UNITEN KSHAS has incorporated blended learning in their teaching and learning processes. Moreover, the students are also familiar with this teaching style as well.

This research uses simple random sampling as the type of studies. Simple random sampling is a subset of a statistical population in which each member of the subset has an equal probability being chosen. The group of population in this study are undergraduate students from all courses in UNITEN KSHAS. There are 2765 students in UNITEN, KSHAS. However, only 200 questionnaires manage to be distributed to the respondents and 9 questionnaires need to be excluded due to incomplete data. The questionnaires were distributed to all degree students from 1st year until 4th year. This is to ensure that respondents had equal chances to answer the questionnaires survey.

The method of data collection for this study is survey research method. The purpose of survey research is to gather the data from students by utilising the questionnaire from several main source articles. There are four sections in the questionnaire; Section A which been modified from Finley (2017), on demographic information such as gender, age, year of studies, courses and experience of using blended learning. Section B and C was adopted from Larsen (2012) and it relates to the class environment and teaching methods that influence the effectiveness of blended learning. In section D, the respondent need to answer five questions on effectiveness of blended learning based on their learning experience.

In this study, the independent variables are class environment and teaching method, and the dependent variable is the effectiveness of blended learning. The internal data used to measure class environment, teaching method and the effectiveness of blended learning among the UNITEN KSHAS's students is based on Likert scale.

7. Findings

7.1. Descriptive analysis result

Descriptive analysis is used for all demographic variables. It shows the respondents characteristics based on gender, age, year of studies, courses, and experience using blended learning. By measuring a large numbers of people, descriptive analysis will help this research to simplify in a practical way.

7.1.1. Gender.

Table 01 indicates that most of the respondent who participated in answering the questionnaires are females with 121 (63.4%), followed by male respondents at 70 (36.6%). According to registrar of UNITEN, the total number of student that registered is 2,765 which most of them are female.

Table 01. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	70	36.6	36.6	36.6
	Female	121	63.4	63.4	100.0
	Total	191	100.0	100.0	

7.1.2. Age.

Table 02 shows that majority of the respondents are within 21-23 years old range with total number of 150 (78.5%), followed by 17-20 years old at 33 respondents (17.3%), and lastly 24 and above with only 8 respondents (4.2%). This is due to the average age, to pursue bachelor degree is around the age of 21-23 which directly from foundation, matriculation and STPM. However, at the age of 17-20, it is basically for the student who are in the 1st year and 2nd year. While for the age of 24 and above, might slightly due to the student who had delayed their study.

Table 02. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	17-20	33	17.3	17.3	17.3
	21-23	150	78.5	78.5	95.8
	24 and above	8	4.2	4.2	100.0
	Total	191	100.0	100.0	

7.1.3. Year of studies.

For years of study, based from Table 03, it can be concluded that the highest number of respondents are in their second year, with 83 respondents (43.5%). Second highest are respondents in their third year with 74 respondents (38.7). The third highest are respondents in fourth year with 31 respondents (16.2%), followed by respondents with the least number which is year one students, with only 3 respondents (1.6%). This indicates that most students in year 2 and 3 in UNITEN are taught using blended learning style.

Table 03. Years of studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Year 1	3	1.6	1.6	1.6
	Year 2	83	43.5	43.5	45.0
	Year 3	74	38.7	38.7	83.8
	Year 4	31	16.2	16.2	100.0
	Total	191	100.0	100.0	

7.1.4. Course.

From Table 04, it shows that this study covered all four (4) courses available in UNITEN KSHAS namely accounting at 50 respondents (26.2%), finance and economics covers 44 respondents (23.0%), marketing and entrepreneur at 49 respondents (25.7%) and lastly, management and human resource at 48 respondents (25.1%). Based on the results above, accounting students are the most active responded to answer the questionnaire. According to registrar of UNITEN KSHAS, as among the total of 2,765 of students registered, most of them are from accounting courses and followed by others.

Table 04. Courses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Accounting	50	26.2	26.2	26.2
	Finance & Economic	44	23.0	23.0	49.2
	Marketing & Entrepreneur	49	25.7	25.7	74.9
	Management & HR	48	25.1	25.1	100.0
	Total	191	100.0	100.0	

7.1.5. Effective of blended learning.

The table 5 shows that, out of 191 respondents, 99 respondents (51.85) answered “yes” which shows that they have experience in using blended learning, and the rest with 92 respondents (48.2%) answered “no”. This is due to, as stated in the questionnaire, the examples provided are Moodle, Online learning, Video conferencing and others, students tends to be more familiar on answering “yes” because they are currently accessing Moodle on getting their learning materials. However, some other courses are also familiar with the online learning or video conferencing especially for Marketing & Entrepreneur’s courses.

Table 05. Effective of blended learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	99	51.8	51.8	51.8
	No	92	48.2	48.2	100.0
	Total	191	100.0	100.0	

7.2. Reliability of the result.

Reliability of the questionnaire for both dependent and independent variables are measures using SPSS, the Cronbach’s Alpha was obtained and presented in the tables below. The Cronbach’s Alpha is reliability coefficient that indicates how well the items in a set are positively correlated to one another (Sekaran & Bougie, 2013).

Table 06 below shows that Cronbach’s Alpha coefficient high internal consistency, where for each variable, the Cronbach Alpha range 0.804 to 0.879. Overall, the variables are considered as good with the variables α value more than 0.6. Thus, no question was deleted due to acceptable value of Cronbach’s Alpha.

Table 06. Reliability analysis

Variable	Cronbach's Alpha, α	Number of Item
Class environment	0.816	9
Teaching method	0.879	9
Effectiveness of blended learning	0.804	5

7.3. Normality test result.

The sampling frequency is tested for normality. The normality of the sample is construed from the values of the Kolmogorov and Saphiro-Wilk. If the p-value is less than the alpha level of 0.05, then data is not from a normally distributed population and the other way around in case it is greater than five percent. Details of the normality test findings are shown in table 7 below:

Table 07. Normality test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Class environment	.078	191	.007	.988	191	.094
Teaching method	.122	191	.000	.979	191	.005
Effectiveness blended learning	.083	191	.003	.969	191	.000

a. Lilliefors Significance Correction

From Table 7, the overall results show that the distribution of the sample is not normally distributed. Thus, a non- parametric test will be used to test the relationship between the variable.

7.4. Correlation analysis result.

Correlation analysis was conducted to test relationship between the class environment, and teaching method with effectiveness of blended learning. As the collected samples are not normally distributed, non-parametric statistic technique; Spearman's Rho Correlation is employed to examine the relationship between the independent variables and the dependent variable. Table 8 below are the result:

Table 08. Spearman's rho correlation

			Class environment	Teaching method	Effectiveness blended learning
Spearman's Rho	Class environment	Correlation Coefficient	1.000		
		Sig. (2-tailed)	.		
	Teaching method	Correlation Coefficient	.624**	1.000	
		Sig. (2-tailed)	.000	.	
	Effectiveness blended learning	Correlation Coefficient	.656**	.644**	1.000
		Sig. (2-tailed)	.000	.000	.

** . Correlation is significant at the 0.01 level (2-tailed).

The result of this research shows that the independent variable has a positive relationship with dependent variable. From Table 8, it shows that the correlation result for class environment is 0.656 significant at 0.01 levels. It implies that there is a significant positive relationship between class environment and effectiveness of blended learning. Thus, hypothesis 1 is accepted. The findings are similar with previous findings by Bucholz and Sheffler (2009) where class environment can improve student's ability to learn and feel comfortable as well as being a good member of the class. Similarly, Comey (2009) stated that, students can interact more during the process of learning as they could form a great group as blended style has been employed. Smith (2011) added that, good class environment leads to cooperative learning in which the students work in a group and has an interest to settle their work accordingly. Other studies also mentioned that students are more satisfied and happy by using online learning rather than face-to-face learning (Kalantarrashidi et al, 2015).

From Table 08, the result for teaching method correlation coefficient is 0.644 at 0.01 significant levels. Based on the result, hypothesis 2 is accepted. The finding is similar with previous research by Alshwiah (2009) who reflects the performance of student through blended style which leads to good results. Wu and Patel (2016) also discovered a positive relationship between the findings, in which the students will be exposed with new knowledge through a mixed method learning and they will be provide with a good opportunity and able to understand their own solid skills. Other than that, Abd Rahman et al. (2015) stated the teaching method in blended learning can be done by online course or face-to-face learning for varied purposes including the dynamic of discussion, the readiness of student to share their ideas and participation in collaborative activities.

8. Conclusion

As a conclusion, class environment and teaching methods are consider as effective factors to ensure the effectiveness of blended learning. At any time of period, place or distance, the students can involve in online learning environment (Kazu & Demirkol, 2014). In fact, students can access to the information at any place without being limited by boundaries with blended learning. Blended learning also provides timeless exchange of information and ideas among students which enhance their achievement grades.

Moreover, applying good teaching methods may enhances the students' performances and produce excellent results on their studies. Through the analysis of 191 sample of students who used blended learning as their learning style studies at University Tenaga Nasional, Muadzam Shah, the study proved the effectiveness of blended learning in producing students with better result and improves their responsibilities as well as their independency in learning process.

However, this study has several limitations. First is the lack of cooperation from the respondents in answering the questionnaire. Second, the sample used in this study was focus on one higher learning institution only.

Future research should include more higher learning institutions to enhance the variety of result. Independent variable can be expanded by including types of technology, language skills and others. Blended learning itself is perceived as useful, enjoyable, supportive, flexible and motivator for the students. Hence, this study can be used as a stepping stone to motivate future researchers to explore the subject of

this study, and encourage lecturers-students to moving toward borderless education teaching and learning style.

References

- Abd Ghani, N., Raja Hussin, T. B., & Abd Khalid, H. (2015). Blended learning: implementation of online assessment. *Advanced Journal of Technical and Vocational Education*, 1(1), 139-145.
- Abd Rahman, N., Hussein, N., & Aluwi, A. (2015). Satisfaction on blended learning in a public higher education institution: what factors matter? *Procedia - Social and Behavioral Sciences*, 211, 768 – 775.
- Akkoyunlu, B., & Soylu, M. Y. (2006). A study on students' views on blended learning environment. *Turkish Online Journal of Distance Education-TOJDE*, 7(3), 43-56.
- Alshwiah, A. A. (2009). The effects of a blended learning strategy in teaching vocabulary on peramirical student's achievement, satisfaction and attitude toward English language. Unpublished thesis. *Arabia: Institute of Education Science*.
- Baker, C. (2010). The impact of instructor immediacy and presence for online student affective learning, cognition and motivation. *The Journal of Educators Online*, 7(1), 1-30.
- Balakrishnan, V. D., & Puteh, F. (2014). Blending face-to-face communication and video blogging in acquiring public speaking skills. *Journal of Creative Practices in Language Learning and Teaching (CPLT)*, 2(1), 64-74.
- Bawaneh, S. S. (2011). The effects of blended learning approach on students' performance: evidence from a computerized accounting course. *International Journal of Humanities and Social Science*, 1(6), 64-69.
- Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. J., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environment: outcomes from a cross-case analysis. *Computers & Education*, 86, 1-17.
- Bucholz, J., & Sheffler, J. (2009). Creating a warm and inclusive classroom: planning for all children to feel welcome. *Electronic Journal for Inclusive Education*, 2(4), 1-13.
- Comey, W. L. (2009). *Blended learning and the classroom environment: a comparative analysis of students' perception of the classroom environment across Community College courses taught in traditional face-to-face, online and blended methods*. United States: ProQuest LLC.
- Dzakiria, H., Don @ A Wahab, M., & Dato' Abdul Rahman, H. (2012). *Action research on blended learning transformative potential in higher education-learner's perspectives*. Malaysia: Sciedu Press.
- Finley, R. (2017, June 5). Blended Learning Questionnaire - Summative. Retrieved from <https://www.surveymonkey.com/r/blsummative>
- Haron, H., Abbas, W. F., & Rahman, N. A. (2012). The adoption of blended learning among Malaysian academicians. *Procedia - Social and Behavioral Sciences*, 67, 175–181.
- Jeffrey, L. M., Milne, J., & Suddaby, G. (2014). Blended learning: how teachers balance the blend of online and classroom components. *Journal of Information Technology Education: Research*, 13, 122-140.
- Kalantarrashidi, S. A., Mohammadpour, E., & Sahraei, F. (2015). Effect of blended learning classroom environment on student's satisfaction. *Journal of Education and Training Studies*, 3(5), 225-230.
- Kazu, I. Y., & Demirkol, M. (2014). Effect of blended learning environment model on high school student's academic achievement. *TOJET: The Turkish Online Journal of Educational Technology*, 13(1), 79-87.
- Larsen, L. E. (2012). *Teacher and student perspectives on a blended learning intensive English program writing course*. Ames, Iowa: Copyright © Lars Jacob Ege Larsen.
- Ma'arop, A. H., & Embi, M. A. (2016). Implementation of blended learning in higher learning institutions: a review of the literature. *International Education Studies*, 9(3), 41-52.
- Makhdoom, N., Khosshal, K., Algaidi, S., Heissam, K., & Zolaly, M. (2013). 'Blended learning' as an effective teaching and learning strategy in clinical medicine: a comparative cross-sectional university-based study. *Journal of Taibah University Medical Sciences*, 8(1), 12-17.

- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). *The effectiveness of online and blended learning: a meta-analysis of the empirical literature*. Columbia: Copyright © by Teachers College.
- Nah, E. A., Chone, L. S., Teck Heng, L., Marimuthu, R., & Foo Terng, H. (2015). Blended to satisfaction: factors influencing student satisfaction in a language classroom. *ESTEEM Academic Journal*, 11(2), 55-79.
- Pat, W. (2009). The study of classroom physical appearance effects on Khon Kaen University English students learning outcome. *Asian International Journal of Social Science*, 16(4), 724-735.
- Sekaran, U., & Bougie, R. (2013). *Research methods for business: a skill-building approach, 6th edition*. United States: Wiley.
- Smith, K. A. (2011). *Cooperative learning: lessons and insights from thirty years of championing a research-based innovative practice*. Rapid City.
- Stroup, M. D., Pickard, M. M., & Kahler, K. E. (2012). Testing the effectiveness of lecture capture technology using prior GPA as a performance indicator. *Teacher-Scholar: The Journal of the State Comprehensive University*, 4(5), 43-54.
- Thi Thai, N., Wever, B. D., & Valcke, M. (2017). The impact of a flipped classroom design on learning performance in higher education: looking for the best "blend" of lectures and guiding questions with feedback. *Computers & Education*, 107, 113-126.
- Wong, K.-T., Hamzah, M. G., & Hamzah, M. (2014). Factors driving the use of moodle: an empirical study on Malaysian practising teachers' perspective. *Journal of Research, Policy & Practice of Teachers & Teacher Education*, 4(2), 15-23.
- Wu, E., & Patel, S. (2016). Teaching mixed methods research through blended learning: implications from a case in Hong Kong. *Journal of Educational Enquiry*, 15(1), 15-25.