

Investigating the Effects of the Teaching and Learning Process in Using the Blended Learning Approach on the Blended Courses Performance: A Case Study of Universiti Teknologi Mara Cawangan Melaka

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ABSTRACT

The aims of this study was to investigate whether there are positive effects in the teaching and learning process with the blended learning approach by looking at the performances of the blended courses from the lecturers' perspectives. The study was conducted on 81 lecturers teaching diploma and bachelor degree levels in Universiti Teknologi MARA Cawangan Melaka. Lecturers were asked for their perceived responses on the students' level of activeness, either active, less active or inactive, in the blended approach when conducting classes. An independent sample t-test was administered to determine significant differences in the perceived responses on the students' level of activeness in the process of teaching and learning with the blended approach. Lecturers' characteristics; gender group, age group, level of study taught, years of experience using blended learning approach and status of blended course conducted were emphasized. An independent t-test was also

conducted to examine the significant differences in lecturers' perceptions between active and less active users in the blended learning approach. Finally, an Analysis of Variance (ANOVA) was used to investigate the positive effects of actual utilization of the blended approach by looking at the level of activeness for each blended learning component; content, forum and assessment on the performance of the blended courses. Results revealed that male and female lecturers were equally active in the use of blended learning approach. However, younger lecturers were more active but not significant compared to middle age lecturers who have more experience. It was revealed that lecturers teaching bachelor degree were significantly more active using the blended learning approach than those teaching diploma level and lecturers of 3 years and more in teaching experience were significantly more active than those lecturers with teaching experience of less than 3 years by using the blended learning approach. The study had also discovered that lecturers conducting classes with the compulsory blended courses were significantly more active than those lecturers who were teaching not compulsory blended courses in class. Flexibility of the blended learning approach to both lecturers and students showed that blended learning approach was deemed as an effective method compared to traditional face-to-face teaching method. Blended learning approach was seen to boost students' learning outcomes, to stimulate learning interests among students and students were more independent using the blended learning approach were significantly agreed amongst active users compared to less active users in the blended learning approach.

Keywords: *Blended learning approach, Blended course performance, Perceived blended learning level of activeness*

INTRODUCTION

In this millennial era, internet is a global communication network that is very important to many people to accomplish daily tasks or to execute work responsibilities successfully. Without this global communication network, the daily tasks or work responsibilities become slow or dull. The importance of this global networking is deeply felt by educators and students in the classroom teaching and learning activities. According to Singh (2003), blended learning was originally associated with simply linking traditional

classroom activities to e-learning activities. Traditional classroom takes place in a closed system within a confined place whereas e-learning takes place in an open system. In an open system, it extends the boundaries of learning to an open and flexible space where learners decide where and when they want to learn. With the blended learning mode in the teaching method, both lecturers and students do not have to spend their time entirely in classroom solely but they could also be in other places to interact and communicate to complete the teaching and learning process. Lecturers can interact with their students and students can communicate with their lecturers at any places discussing topics of learning without face-to-face interaction provided that they must have access to internet.

In UiTM, trainings using blended learning mode in the process of teaching and learning was run by i-Learn Centre since year 2005 to 2016. However, it was then abolished and replaced by iNED on the 1st of December 2016. Particularly, in UiTMCawangan Melaka (UiTMCM), the methods of teaching and learning using blended learning mode have started since year 2012. Since then, blended learning mode in the teaching and learning process has been increasing every semester in UiTMCM. Improvement of ICT should also be in line to cater to the increasing use of blended learning mode in the process of teaching and learning. Faculties have been given directives for identified courses to be taught using the blended learning approach. Lecturers who are teaching courses which are compulsory to use blended learning mode are required to register with i-Learn Centre through i-Learn portal at the beginning of the semester. This is to facilitate i-Learn portal by tracking a lecturer's level of activeness using the components of blended learning mode for a course. The components consist of content, forum and assessment. With the existing environment in UiTMCM, it is necessary to study if blended learning mode in the teaching and learning process is able to assist in enhancing academic quality or the excellence of the blended courses performance. The main purpose of this study is to investigate whether the blended learning approach in the teaching and learning process helps in improving academic quality or the excellence of blended courses performance.

RESEARCH QUESTIONS

To meet the purpose of study, the following research questions are as stated below:

1. Do lecturers' characteristics (gender, age group, level of study taught, years of blended learning experience and status of blended courses conducted) differ significantly in the level of activeness using the blended learning approach in the teaching and learning process?
2. Do lecturers' perceptions towards blended learning approach differ significantly across the perceived responses of blended level of activeness?
3. Are there significant differences in the blended courses performance between the actual blended learning levels of activeness for each blended learning component?

RESEARCH OBJECTIVES

From the research questions, the following research objectives are formulated:

1. To determine lecturers' characteristics (gender, age group, level of study taught, years of blended learning experience and status of blended courses) that differ significantly in the level of activeness using blended learning approach in the teaching and learning process.
2. To examine significant differences in lecturers' perceptions using blended learning across level of activeness.
3. To investigate significant differences in blended courses performance between actual blended learning levels of activeness for each blended learning component.
4. To give recommendations for effective blended learning environment.

LITERATURE REVIEW

Blended learning arises from the concept of blending and it is not a new concept according to Zhang and Han (2012). Grapragasem, Krishnan and Mansor (2014) stated that blended learning, virtual classroom and e-learning have become the delivery mode of teaching and learning in institutions of higher learning in Malaysia. There are approximately 50% of the courses offered in 11 institutions of higher learning in Malaysia are online courses as reported by Norazah, Mohamed Amin, and Zaidan (2011). Blended learning is perceived as practical, motivating, supportive and flexible for its learners as suggested by Guzer and Caner (2014). UiTM and specifically UiTMCM are also keeping pace with the blended learning approach as one of the delivery mode in the teaching and learning process.

Poon (2013) in her study has highlighted that appropriate resources, suitability of the course, and support from the senior management of the university are the contributing factors to the success of implementing blended learning. She further emphasized that the institutional factor plays a major role to the success of blended learning implementation. Poon (2013) further stated that blended learning approach provides learning flexibility to students. Kintu, Zhu and Kagambe (2017) reported that the students' characteristics and blended learning design features are important factors in the effectiveness of blended learning. In this study, the teaching and learning flexibilities in the blended learning approach to both lecturers and students were investigated from the lecturers' perspectives.

According to Owston, York and Murtha (2013), blended learning may not be functioning well for low achiever students since this instructional approach encourages independent learners. They have suggested that the higher education institutions' administrators should consider offering students an option to either enrolling in a fully face-to-face or blended course. Moreover, Sabri, Isa, Daud and Aziz (2010) revealed that the blended learning approach is not suitable for all courses. They recommended that offering students alternatives or options will benefit students who have registered for difficult courses.

Singh (2003) in his research confirmed that blended learning offers both efficient and effective in delivering learning. To ensure effectiveness

in delivering learning, he suggested a framework that encompasses eight dimensions; institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical. In their study, Zhang and Han (2012) revealed that students hold positive attitudes towards the blended learning approach compared to the traditional face-to-face teaching approach. They further concluded that students prefer new blended learning model compared to the traditional face-to-face learning model as it stimulates students' interest in independent, collaborative learning and finally escalates their confidence in learning. In this study, the researchers have gathered data based on lecturers' perspectives about their students learning outcomes when using the blended learning approach. Norazah et al. (2011) reported that students considered courses taught in the blended learning mode are more interesting. Among lecturers, they agreed that blended learning approach is an effective method in the teaching and learning process and it has benefited the students as confirmed by Norazah et al. (2011). Naemah, Jamal, and Saiful Nizam (2016) suggested that blended learning supports independent learning through analytical, innovation and knowledge enquiry using interactive and motivating teaching approach. Naemah et al.(2016) further added that the blended learning approach can stimulate the development of employability skills for independent learning and enhancing critical thinking skills among graduates.

A study by Effariza, Anis, Farah, Zahiruddin and Abd Halim (2017) found that variables such as intrinsic motivation and system functionality played significant and influential roles in determining the successful implementation of an e-learning system. The study has revealed that infrastructure and technical support play no significant roles in influencing the users' motivation. Wu, Tennyson and Hsia (2010) revealed that computer self-efficacy, performance expectations, system functionality, content feature, interaction, and learning climate are the primary determinants of student learning satisfaction with the blended learning system. Performance expectations are significantly affected by computer self-efficacy, system functionality, content feature and interaction. These factors are to be looked into by universities in planning and implementing a blended e-learning system to enhance students' learning satisfaction. In another study, Effariza et al. (2017) revealed that strong predictors and determinants of satisfaction of the learning management system (LMS) were system functionality, perceived ease of use and attitude to use. They also found that computer self-

efficacy, infrastructure and technical support were found not significantly related to satisfaction of LMS. If an individual believes that he or she can perform some specific performance attainments in computers, then he or she is said to have a capacity of computer self-efficacy.

Besides i-Learn Portal, students should also be exposed to Personal Learning Environment (PLE) as suggested by Jamaliah, Saliza and Rohana (2016). They recommended a hybrid cloud computing environment plus PLE should be created for a better student focused e-learning system. Jamaliah et al. (2016) concluded that the system should be able to support e-learning for students which would enable them to access web services both from i-learn and the internet platform. A study by Aeimi, Abdul Fattah and Eliyas (2017) also confirmed that students' preferences using PLE such as telegram for their learning process is significant to the advancement of learning particularly in optimizing their learning process in using mobile gadgets.

METHODOLOGY

Participants of the Study

This study was conducted in Universiti Teknologi MARA Cawangan Melaka. The population of interest is all 147 lecturers for two semesters (September 2016 – January 2017 and December 2016 – April 2017) who conducted the teaching and learning process using blended learning approach. These lecturers teach either the diploma or bachelor degree students in three campuses of UiTMCM. Using the list of 147 lecturers, samples of 108 lecturers (Krejcie & Morgan, 1970) were selected using simple random sampling technique.

Instrument of the Study

Questionnaires were designed and used as the instrument of the study to investigate lecturers' perceptions towards the teaching and learning activities using blended learning mode by examining their level of activeness in three components of blended learning; content, forum and assessment.

Data Collection

To meet the purpose of the study, both primary and secondary data were collected. The primary data were gathered from the online questionnaires while the secondary data were collected for the actual blended level of activeness of the components in blended learning and the blended courses' performance. The actual blended level of activeness of the components in blended learning were obtained from the i-Learn Centre and also in the March 2017 diploma and December 2016 bachelor degree students' final examination results for the blended courses' performance. Eighty one or 75% participants responded to the on-line questionnaire.

Data Analysis

For analysis of data, SPSS version 23.0 was used. Both descriptive and inferential analysis were employed. Blended learning level of activeness was categorized as inactive, less active and active. This was obtained from the online questionnaire based on lecturers' perceptions. In the present study, lecturers' characteristics such as gender, age group, level of study taught, years of experience using blended learning approach in teaching and learning and status of the blended courses conducted were emphasized. In order to answer research question i), gender was categorized into male and female, the age group of lecturers was recoded into "less than 40 years" as younger lecturers and "40 years and more" as middle age lecturers, years of experience is regrouped into "less than 3 years of blended learning experience" and "3 years and more of blended learning experience" and status of blended courses conducted was categorized into compulsory blended and not compulsory blended. An independent t-test was administered to examine whether there are significant differences in the blended learning level of activeness across gender, across young and middle age lecturers, across years of experience using the blended learning approach in teaching and learning process and across status of blended courses.

In order to answer research question ii), an independent sample t-test was again conducted to determine whether there are significant differences on lecturers' perceptions towards blended learning approach across the blended level of activeness. Lastly, for the third research question, blended courses performance was measured using the final mean score of the

blended courses. Then, using one way analysis of variance (ANOVA), the differences in blended courses achievement between actual levels of activeness in blended learning approach was examined for each blended learning component.

Reliability of Measurement

This study measures the consistency of the research results by conducting a reliability test on lecturers' perceptions towards the approach of blended learning. Internal consistency using Cronbach's alpha that assesses the consistency of the scale used was tested. Cronbach's alpha of at least 0.7 and preferably close to 0.9 is accepted in many researches. For this present study, the reliability test showed that Cronbach's alpha with 10 items was 0.826. This value was acceptable and it shows that the scales of measurement used were consistent.

RESULTS AND DISCUSSIONS

Sample Demographics

The participants consist of 81 academic staff, working in 3 campuses of UiTMCM. Majority of the members of staff were from Alor Gajah Campus. A detailed demographics of the participants is shown in Table 1.

Table 1: Demographics of Participants Demographic Variable Frequency

Demographic Variable		Frequency (N = 81)	Percentage
Gender	Male	19	23.5
	Female	62	76.5
Age	Less than 30 years	2	2.5
	30 years and less than 40 years	50	61.7
	40 years and less than 50 years	22	27.2
	50 years and above	7	8.6
Campus	Alor Gajah Campus	60	74.1
	Bandaraya Melaka Campus	11	13.6
	Jasin Campus	10	12.3
Years of Service	Less than 3 years	6	7.4
	3 years and less than 5 years	9	11.1
	5 years and less than 10 years	36	44.4
	10 years and less than 20 years	22	27.2
	20 years and above	8	9.9
Level of Study Taught	Diploma	58	71.6
	Bachelor Degree	23	28.4
Status of Blended Course Conducted	Compulsory	45	55.6
	Not Compulsory	36	44.4

Table 1 shows the participants comprised of 76.5% females and 23.5% males. Majority of the respondents (61.7%) were of age 30 years and less than 40 years and followed by the age group of 40 years and less than 50 years (27.2%). Majority of the participants were based in Alor Gajah Campus (74.1%), followed by Bandaraya Melaka Campus (13.6%) and Jasin Campus (12.3%). Most of the respondents (44.4%) have been in service for 5 years and less than 10 years, 37.1% in service for 10 years and above and 18.5% in service for less than 5 years. Majority (71.6%) lecturers were teaching the bachelor degree students and 28.4% lecturers were teaching the diploma level students. A proportion of 55.6% participants have responded that the statuses of the blended courses conducted were compulsory and 44.4% said that the blended courses were not compulsory.

Teaching Experience Using Blended Learning Approach

The participants consisted of 75.3% of less than 3 years of experience and 24.7% participants were of 3 years and more experience using the blended learning approach in teaching and learning process. Majority (72.3%) of the lecturers were only teaching oneblended course while 27.7% of lecturers were teaching more than one course.

Blended Learning Level of Activeness

Lecturers were asked for their perceived responses of the blended level of activeness when using blended learning mode of teaching. The blended learning level of activeness as perceived by lecturers were categorized into active, less active and inactive. A proportion of 44.4% of lecturers said that they were active users of the blended learning approach in the teaching and learning process, 40.7% lecturers were less active and 14.8% lecturers were inactive. The three components of the blended learning approach (content, forum and assessment) were tracked by the i-Learn Centre, UiTM Shah Alam.

The actual level of activeness for the blended learning components was obtained from the i-Learn Centre. For highly active users of the blended learning approach, they have to access the content with a hit of 7 times or more, the forum with a hit of 3 times or more and the assessment with a hit of 2 times or more. For the three components of the blended learning approach, an exact percentile of 88.5% lecturers was active in the content, 53.8% were active in the forum and 61.5% were active in the assessment. The blended learning level of activeness for the three components is displayed in Table 2.

Table 2: Actual Blended Learning Component Level of Activeness

Level of Activeness	Usage Frequency of Blended Learning Components		
	Content	Forum	Assessment
Inactive	0	0	0
Low active	1 – 6 times	1 – 2 times	1 time
High active	7 and more times	3 and more times	2 and more times

With the definition of blended learning component of level of activeness shown in Table 2, the results of the study revealed the proportion of component level of activeness as displayed in the following Table 3.

Table 3: Proportion of Component Level of Activeness

Level of Activeness	Component of Blended Learning		
	Content	Forum	Assessment
Inactive	11.5%	46.2%	38.5%
Low active	26.9%	3.8%	7.7%
High active	61.6%	50.0%	53.8%

Majority of the lecturers were highly active in the content, forum and assessment as shown in Table 3. Participants were most highly active (61.6%) in the content component, the assessment component ranks the second highly active (53.8%) and the forum component ranks the third highly active (50%). Most of the participants (46.2%) were inactive in the forum component, 38.5% inactive in the assessment component and 11.5% inactive in the content component. From the results, we can conclude that majority of the lecturers (88.5%) were active (low active and high active) users in the content component, 61.5% were active in the assessment component and 53.8% were active in the forum component.

Lecturers' Perceptions towards Blended Learning Approach

Participants' perceptions towards the effects of blended learning approach on students were determined by the mean score and the standard deviation of the items used. More positive opinions were indicated by the higher mean score. Results showed that lecturers' perceptions towards their involvement in the blended learning activities were not very positive.

**Table 4: Lecturers' Perceptions towards Blended Learning Approach
1- Extremely Disagree, 2- Disagree, 3-Neutral, 4-Agree, 5- Extremely Agree**

Item	Mean Score	Standard Deviation
Blended learning approach is a delivery method in teaching and learning that is flexible to both lecturers and students.	3.90	0.889
Blended learning approach is an effective method in teaching and learning as compared to traditional face-to-face teaching method.	3.23	0.978
Blended learning mode of teaching method is suitable for all courses.	2.56	1.065
Blended approach in teaching and learning could boost students' learning outcomes.	3.27	0.936
Blended learning approach in teaching and learning could stimulate learning interests among students.	3.43	0.978
Teaching materials provided on-line assist students in their learning.	3.93	0.854
Face-to-face lectures are redundant as all teaching materials are provided on-line.	2.42	1.011
Blended learning approach needs more allocation of time for preparation of teaching materials.	3.91	0.825
Students are more independent using blended learning approach.	3.30	1.030
Students are more excellent academically with teaching and learning using blended learning approach.	2.94	0.857

Almost positive opinions were for statements “teaching materials provided on-line assist students in their learning” (mean = 3.93), “blended learning approach needed more allocation of time for preparation of the teaching materials” (mean = 3.91) and “blended learning approach is a delivery method in teaching and learning method that is flexible to both lecturers and students” (mean = 3.90). Less positive opinions were indicated by statements “blended learning approach in teaching and learning could stimulate learning interests among students” mean = 3.43), “students are more independent using blended learning approach” (mean = 3.30), “blended learning approach in teaching and learning could boost students' learning outcomes” (mean = 3.27) and “blended approach is an effective method in teaching and learning as compared to traditional face-to-face teaching method” (mean = 3.23) as shown in Table 4.

66.7% of the lecturers said that the blended approach in the teaching and learning process were flexible to both lecturers and students as agreed by Poon (2013). Only 38% lecturers said that students were more

independent using the blended learning approach in teaching and learning. This result contradicts with the study by Zhang and Han (2012) for which they confirmed that students became more independent when learning using the blended approach. Only 45.6% lecturers have agreed that the blended learning approach was an effective method in the teaching and learning process as compared to the traditional face-to-face teaching method. More than 50% of the participants disagreed that BL mode of teaching method was suitable for all courses. Some courses like the art and design courses were not suitable to be blended because students were required to learn in the studios to complete the practical part of the learning cycle. Lecturers' opinions that courses using communication skills such as public speaking course was also not suitable to be blended since students have to speak publicly as part of their assessment upon completion of the course. The results were consistent with the study by Poon (2013) who concluded that course suitability is an institutional factor that influences the success of blended learning implementation. The result is consistent with the study by Sabri et al (2010) confirmed that not all courses can be blended. Approximately 48% lecturers agreed that the blended approach in teaching and learning process could boost students' learning outcomes and 53% lecturers agreed that the blended learning approach could stimulate learning interests among students. The results are also agreed by Norizah et al (2011).

Research Question 1

Do lecturers' characteristics (gender, age group, level of study taught and years of blended learning experience) differ significantly in the level of activeness using the blended learning approach in the teaching and learning process?

Table 5: Independent Sample t-Test of Blended Learning Level of Activeness across Gender, Age Group and Years of Experience Using Blended Learning(1 – Inactive, 2 – Less Active, 3 – Active)

Lecturer Characteristics	N	Mean	Std. Deviation	t value	df	Significance
Gender						
Male	19	2.42	0.607			
Female	62	2.26	0.745	0.868	79	0.388
Age Group						
< 40 years	52	2.25	0.764			
40 years and above	29	2.38	0.622	-0.779	79	0.439
Level of Study Taught						
Diploma	58	2.16	0.745			
Bachelor Degree	23	2.65	0.487	-2.954	79	0.004*
Years of Experience Using Blended Learning						
< 3 years	61	2.16	0.734			
3 years and more	20	2.70	0.470	-3.058	79	0.003*
Status of Blended Course						
Compulsory	45	2.64	0.484			
Not Compulsory	36	1.86	0.723	5.821	79	0.000*

* Significant at 5% significance level.

Results showed that male lecturers were more active (mean = 2.42) but insignificant ($t(79) = 0.868$; $p > 0.05$) at 5% significance level when using the blended learning approach in the teaching and learning process as compared to the female lecturers (mean = 2.26). This indicates that male and female lecturers were active using the blended learning approach in the teaching and learning process. Perceived responses of blended learning level of activeness was also not significant ($t(79) = -0.779$; $p > 0.05$) between young (mean = 2.25) lecturers and middle age (mean = 2.38) lecturers. Result indicated that there were no differences in the perceived level of activeness when using the blended learning approach in the teaching and learning process across the age groups of lecturers. Regardless of their ages, lecturers were active in conducting classes using the blended learning approach. This is mainly because most of the courses are compulsory to be conducted using blended learning approach.

Lecturers teaching the bachelor degree students were significantly ($t(79) = -2.954$; $p < 0.05$) more active (mean = 2.65) than lecturers teaching the diploma level students (mean = 2.16) using the blended learning approach in the mode of teaching. Lecturers with 3 years and more experience using the blended learning approach in the teaching and

learning process was significantly ($t(79) = -3.058$; $p < 0.05$) more active (mean = 2.70) than lecturers with experience of less than 3 years (mean = 2.16). This finding indicated that years of experience using the blended learning approach in teaching and learning process motivates lecturers to be more active using the approach. The result also implied that with years of experience using the blended learning approach has increased among lecturers, computer competency has also increased. Besides that, 55.6% of the lecturers have responded that the courses they taught were compulsory to be conducted using the blended learning approach. Results also showed that those lecturers with courses compulsory to be conducted using the blended learning approach were more active (mean = 2.64) than lecturers with courses which are not compulsory (mean = 1.86) to be conducted using the blended learning approach and it was found to be significant ($t(79) = 5.821$; $p < 0.05$). The findings are as shown in Table 5.

Research Question 2

Do lecturers' perceptions towards blended learning approach differ significantly across perceived responses of blended level of activeness?

The active users of blended learning agreed more significantly ($t(79) = -4.324$; $p < 0.05$) than less active users that the blended learning approach was a delivery method in the teaching and learning process which was flexible to both lecturers and students. They also agreed significantly ($t(79) = -2.748$; $p < 0.05$) that the blended learning approach was an effective method in teaching and learning as compared to the traditional face-to-face teaching method. However, they disagreed ($t(78) = -1.782$; $p > 0.05$) that the blended learning mode of the teaching method was suitable for all courses. Lecturers who were actively conducting classes using the blended learning mode agreed more significantly ($t(79) = -2.524$; $p < 0.05$) than the less active users that the blended learning approach in the teaching and learning process could boost students' learning outcomes. Besides that, active lecturers using the blended learning approach agreed more significantly ($t(78) = -3.196$; $p < 0.05$) than the less active lecturers that the approach in the teaching and learning process could stimulate the learning interests among students than those less active users using the blended learning approach.

Students were more independent using the blended learning approach and this was significantly ($t(77) = -2.345$; $p < 0.05$) agreed among active lecturers in the blended learning approach. Active and less active lecturers using the blended learning approach ($t(78) = -1.497$; $p > 0.05$) agreed that the teaching materials provided on-line were able to assist students in their learning process. They also disagreed ($t(78) = 0.686$; $p > 0.05$) that face-to-face teaching method were redundant as all teaching materials were provided on-line. Active and less active lecturers agreed ($t(78) = -1.394$; $p > 0.05$) that the blended learning approach needs more allocation of time in terms of preparing teaching materials. Also, they disagreed ($t(79) = -1.641$; $p > 0.05$) that students were more excellent academically by using the blended learning approach in the teaching and learning process.

Research Question 3

Are there significant differences in the blended courses performance between the actual blended learning levels of activeness for each blended learning component?

From Table 6, results reveal that there was no significant difference in the blended courses performance between content level of activeness ($t(17) = -0.438$; $p > 0.05$), forum level of activeness ($t(17) = -0.418$; $p > 0.05$) and assessment level of activeness ($t(17) = 1.095$; $p > 0.05$). The findings were further supported by the fact that 75.3% lecturers have responded that the blended courses were being taught previously using face-to-face method only. 45.9% lecturers have reported that the students' performances had improved while 45.9% responded the results were unchanged and 8.3% lecturers said that the performance were aggravating. Results indicated that the actual activeness of the blended learning components has no positive effects on the blended courses performance.

Table 6: Independent Sample t-Test of Mean Blended Course Performance BL Component Level of Activeness

BL Component	BL Level of Activeness	N	Mean Blended Course Performance	Standard Deviation	t	df	Sig
Content	Inactive	3	65.63	1.097	-	17	0.66
	Active	16	67.50	7.223	0.438	7	
Forum	Inactive	11	66.65	7.768	-	17	0.68
	Active	8	67.97	5.103	0.418	1	
Assessment	Inactive	6	69.65	4.341	1.095	17	0.28
	Active	13	66.08	7.344		9	

CONCLUSIONS AND RECOMMENDATIONS

We therefore concluded that the implementation of blended learning in UiTMCM is successful in terms of lecturers' awareness towards using the blended learning approach in their delivery method in the teaching and learning process. This was supported by the results that the lecturers teaching compulsory blended courses were significantly more active than those lecturers teaching courses that are not compulsory to be conducted using the blended learning approach. This was also proven by the male and female lecturers who were both active using the blended learning approach in their teaching delivery method. Also, it is further proven by the young and middle age lecturers were both active using the blended learning approach as a teaching mode. However, lecturers teaching the bachelor degree students were significantly more active than lecturers teaching the diploma level students using the blended learning approach in delivering their lectures. Nevertheless, lecturers with 3 years and with more experience using the blended learning approach as the mode of teaching were found to be significantly more active compared to those with experience of less than 3 years. The result indicated that years of experience in teaching using the blended learning approach have positive influences on the blended learning level of activeness. The findings also concluded that lecturers that have conducted the compulsory blended courses were significantly more active using the blended learning approach compared to lecturers who have conducted blended courses but the courses are not compulsory to be blended. Therefore, it is concluded that lecturers' characteristics, namely, level of study taught, years of experience using the blended learning approach in teaching and learning and the status of the blended courses conducted play influential roles in determining the blended level of activeness.

In terms of flexibility of the blended learning approach to both lecturers and students, it was proven that the blended learning approach is an effective method as compared to traditional face-to-face teaching method. The blended learning approach could boost students' learning outcomes, stimulate learning interests among students and students were more independent using the blended learning approach was found to be significantly agreed among active users compared to the less active users of blended learning.

However, both the active and the less active lecturers disagreed that the blended learning mode of teaching is suitable for all courses. The active and the less active lecturers also agreed that the teaching materials provided on-line can assist students in their learning process; blended learning approach needs more allocation of time in the preparation of the teaching materials. In fact, these lecturers do not agree that students are more excellent academically by using the blended learning approach in the teaching and learning process.

Participants were most highly active (61.6%) in the content component and most of the participants (46.2%) were inactive in the forum component. It is concluded that the majority of lecturers (88.5%) are active (low active and high active) users in the content component, 61.5% are active in the assessment component and 53.8% are active in the forum component. Results revealed that the actual blended learning components level of activeness in the teaching and learning process have no positive effects on the blended courses performances. This indicated that regardless of the actual blended learning component level of activeness of lecturers, students similarly are able to perform well in the blended courses.

It is highly recommended that for the blended learning process to be effective as a teaching delivery method, factors such as appropriate resources, suitability of courses, computer competency to lecturers and students, workload management and friendly ICT environment are to be vitally looked into. In terms of appropriate resources, lecturers should be allowed to employ other methods or applications that would help them to prepare more interesting and interactive teaching materials. To students also, they should be given support to enhance their creativities and be given the rights to use other medium to deliver their ideas as suggested by Jamaliah,

Saliza and Rohana (2016). The i-Learn Portal can be improved by having additional components such as “online chat group” and “scoring board” so that the instructors and students can know their activeness status when using the blended learning approach. It is recommended that an application in mobile phone, rather than the through on-line, to be introduced to make the i-Learn interface more user friendly.

The blended learning approach is suitable for search and delivery of cognitive information while face-to-face teaching method is essential in consultation session for learning outcomes that involves psychomotor skills. Thus, suitability of courses is important as not all courses can be blended. If the courses are wrongly chosen to be blended, then it might end up in ineffective mode of teaching that would result in the failure of the learning outcome. For effectiveness in the blended learning approach also, computer competencies are important for both the instructors and students. Both lecturers and students must be highly trained and skilled in using computers and internet so that they can be fast learners and effective users of the blended learning approach. Workload management is another important factor to look at the effectiveness of the blended learning approach. Time is a critical factor to make sure that the time allocated for the preparation of materials for blended courses is sufficient. Time for the blended session of a course must be accurately managed as part of the completion of the syllabus in the allocated time given.

Finally, to look at the effectiveness of the blended learning mode of teaching, the ICT (computers and internet) environment must be user friendly in terms of readiness, stability and easily accessible. The interruption and instability of this environment would demotivate both lecturers and students to use the blended learning approach. For lecturers and students, this will affect their level of activeness to use the blended learning approach as the mode of teaching.

REFERENCES

- AeimiRuzanna, A.H., Abdul Fattah, A.G. & Mohandas, E. S. (2017). *Perception of the Use of LMS/i-Learn Portal and Telegram*. International Journal on E-Learning and Higher Education pp 25-36.
- Effariza, H., Anis S. K., Farah M. Z, Zahiruddin, F. A. Hassan & Abd Halim, S. (2017). *The Relationship between System Characteristics and User Motivation toward the Use of an e-Learning System among Engineering Students of Universiti Malaya*. International Journal on E-Learning and Higher Education pp 96-111.
- Effariza, H., Anis S. K., Farah M. Z, Zahiruddin, F. A. Hassan & Abd Halim, S. (2017). *e- Learning at Universiti Malaya: Determinants of Satisfaction of Use among Engineering Students*. International Journal on E-Learning and Higher Education pp 112-124.
- Singh, H. (2003). *Building Effective Blended Learning Programs*. Issue of Educational Technology, 43(6), pp. 51-54. Retrieved 9 August 2017 http://asianvu.com/digitallibrary/elearning/blended-learning-by_Singh.pdf.
- Grapragasem, S., Krishnan, A., & Azlin Norhaini, M. (2014). *Current Trends in Malaysian Higher Education and the Effect on Education Policy and Practice: An Overview*. International Journal of Higher Education Vol. 3, No. 1; 2014
- Guzer, R., & Caner, H. (2014). *The Past, Present and Future of Blended Learning: An In Depth Analysis of Literature*. Proceeding of 5th World Conference on Educational Sciences - WCES 2013(pp. 4596- 4603). Italy: Sapienza University of Rome.
- Jamaliah, M.T., Saliza, R., Rohana, R. (2016). *Investigating a Student Focused e- Learning System in Higher Education: A Case Study of Diploma Students*. International Journal on E-Learning and Higher Education, 6, 1 –

- Krejcie, R.V. & Morgan, D.W. (1970). *Determining Sample Size for Research Activities*. Educational and Psychological Measurement, 30, 607-610.
- Kintu, M.J., Zhu, C. & Kagambe, E. (2017). *Blended Learning Effectiveness: The Relationship between Student Characteristics, Design Features and Outcomes*. International Journal of Educational Technology in Higher Education 201714:7 <https://doi.org/10.1186/s41239-017-0043-4>
- Naemah, A. W., Jamal, O. & Saiful Nizam, W. (2016). *Blended Learning In Higher Education: An Overview*. E-Academia Journal UiTMT5(2) <http://journaleacademiauitmt.edu.my/>
- Norazah, M.N., Mohamed Amin, E., & Zaidan, A.B. (2011). In M.A. Embi (Eds.). *E-Learning in Malaysian Higher Education Institutions: Status, Trend & Challenges*. Malaysia: Ministry of Higher Education, pp. 81-98.
- Owston, R., York, D., & Murtha, S. (2013). *Student Perceptions And Achievement In A University Blended Learning Strategic Initiative*. Journal of Internet and Higher Education, 18, 38-46.
- Poon, J. (2013). *Blended Learning: An Institutional Approach for Enhancing Students' Learning Experiences*. MERLOT Journal of Online Learning and Teaching,9(2). Retrieved 8 August 2017 http://jolt.merlot.org/vol9no2/poon_0613.pdf.
- Sabri, N. M., Isa, N., Daud, N. M. N. & Aziz, A. A. (2010). *Lecturers' Experiences in Implementing Blended Learning Using i-Learn*. Proceeding of International Conference on Science and Social Research, pp. 580-585. Kuala Lumpur, Malaysia: Universiti Teknologi MARA.
- Singh, H. (2003). *Building Effective Blended Learning Programs*. Issue of Educational Technology, 43(6), pp. 51-54. Retrieved 9 August 2017 http://asianvu.com/digitallibrary/elearning/blended-learning-by_Singh.pdf.
- Wu, J.H., Robert D. T. & Hsia, T.L. (2010). *A Study of Student Satisfaction in a Blended ELearning System Environment*. Computers & Education Volume 55, Number1, August 2010 ISSN 0360-1315.

Zhang, W., Han, C. (2012). *A Case Study of the Application of a Blended Learning Approach to Web-based College English Teaching Platform in a Medical University in Eastern China*. *Theory and Practice in Language Studies*, 2(9), pp. 1961-1970. Retrieved <https://pdfs.semanticscholar.org/34d0/c5777889411a39a1d5b7690fdbc5ceab8632.Pdf>

