# Diversity in education using blended learning in Sarawak

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**Abstract:** One of the objectives of Malaysia Ministry of Education is to provide educational opportunities for all Malaysians. Are education opportunities given fairly to all Malaysians who come from two big regions and divided by the South China Sea? The web infancy era, where the World Wide Web (WWW) is blooming fast, has changed the new millennium teaching and learning process tremendously. Although the online learning can reach to students regardless of their location and backgrounds, human contact is still very important in traditional face-to-face learning. Blended learning course comprising online learning and traditional face-to-face learning components is an effective teaching and learning method, where it combines the best from both worlds. Blended learning courses only started a few years ago in Malaysia higher learning institutions to give everybody equal opportunities to study. The key acceptance of blended learning approach and continuing improvement is students' satisfaction. This study focused on students' satisfaction related to the nine components of blended learning (course content, technical, flexibility, community learning, motivation, sharing, feedback, complementary learning and personalized learning) from two locations: urban and rural areas. The study employed a mixed method consisting of a survey questionnaire distributed first to collect the quantitative data and followed by the interview to refine and explain the data. The population of the study consisted of students who enrolled in the Mathematics Blended Learning Course in Sarawak state in semester July-November, 2007. Census was used in the study. The survey instrument was developed and validated using Rasch model. The semi-structured questionnaire was used in qualitative data collection. The quantitative data was analyzed by using SPSS v14.0 whilst the qualitative data was coded by using NVivo software. Results from the quantitative data showed that students were satisfied in all nine components regardless of the location. The grand mean of all components also indicated that respondents were satisfied with blended learning course. This result was supported by the qualitative data.

**Key words:** blended learning; diversity in education; satisfaction; online learning; traditional learning

## 1. Introduction

One of the objectives of Malaysia Ministry of Education is to provide educational opportunities for all

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Malaysians (http://www.moe.gov.my). The land area of Malaysia is 329,750 $km^2$ consisting of two geographical regions which is divided by the South China Sea. Some of the rural areas' schools especially in the state of Sarawak and Sabah take hours and days to reach. With this distribution, do students at the rural areas have the same opportunities as those in urban areas with regard to education? Are teachers willing to serve in those rural areas' schools? Past researches found that there are significant difference in performance and quality of education between rural and urban (Barker, 1985; Hannaway & Talbert, 1993; Lee & McIntire, 1999).

There are various technology-aided teaching and learning methods which have been introduced in this new millennium. Online learning has its own strength (Zenget & Uehlein, 2001). In this environment, students have the opportunities to learn and interact with people in the borderless world (Black, 2001). Students can also access learning opportunities at any time and any place (Kamal Kishore Jain, et al., 2003). Studies found that online learning brings hope to millions of non-traditional students who aspire to be a part of the knowledge economy in the "paper-less" society (Kamal Kishore Jain, et al., 2003) whilst the traditional human contact is also important in the traditional classroom (Islam, 2002). Zenger, et al (2002) reported the strengths and the weaknesses of the online learning and the traditional learning. Since both learning approaches have their own strengths and weaknesses, blended learning was suggested in the literature by combining the best from the two worlds: online learning and traditional face-to-face learning (Black, 2002; Granham & Kaleta, 2002; Welker & Berardino, 2006).

What is blended learning? Welker and Berardino (2005-2006) defined blended learning as "any combined use of electronic learning tools that supplement but do not replace face-to-face learning" (p. 33). Blended learning course which comprises of online learning and traditional face-to-face learning components has been proven as the effective teaching and learning method (Fernando Mortera-Gutiérrez, 2006).

To give everybody equal opportunities to study, blended learning was proposed to be used in Malaysia (Siti Rahayah, et al., 2008). To date, only few Malaysia higher learning institutions such as Open University Malaysia, University Teknologi MARA Sarawak and University Tun Abdul Razak have implemented blended learning. Will this new approach enhance students learning from both urban and rural areas? Is this new approach accepted by the students? According to Iron, et al (2002), the key acceptance of blended learning is end-users satisfaction. Therefore, the study seeks to compare the acceptance level of blended learning mode across location.

## 2. Purpose of the study

The purpose of the study was to compare the satisfaction levels in each of the nine components (course content, technical, flexibility, community learning, motivation, sharing, feedback, complementary learning and personalize learning) in blended learning course for urban and rural group students. The study was also conducted to identify the overall students' satisfaction levels towards blended learning course.

## 3. Methodology

The explanatory design of mixed method was used in this study in which the quantitative data provided a general picture of the study and the interview data refined and explained the result of the quantitative data (Creswell, 2005).

The population of the study was students who enrolled for mathematics blended learning course in Sarawak during semester July-November, 2007 from the three institutions: Open University Malaysia, University of Technology MARA Sarawak and University Tun Abdul Rahman. Census was used in the study. A survey

questionnaire was used in which 170 quantitative data were collected first followed by the semi-structured questionnaire used in qualitative data collection based on 16 students selected randomly.

Two instruments were used to collect quantitative data and qualitative data. The first instrument consisted of 43 items with five rating scale (1 for very unsatisfied to 5 for very satisfied) which was categorized into nine components to measure the satisfaction level of the respondents on the blended learning model. The nine components were course content, technical, flexibility, community learning, motivation, sharing, feedback, complementary learning and personalized learning. The instrument was developed and validated using Rasch model. The second instrument is semi-structured questions where students were asked to give their opinion on satisfaction with the nine components in the blended learning course.

## 4. Data analysis

The quantitative data were analyzed by using the Statistical Package for the Social Science (SPSS) version 14.0. Descriptive statistics of mean scores and standard deviation were analyzed to compare the satisfaction levels' of the blended learning course for rural and urban groups in the study. Grand mean was calculated as the satisfaction index for all the nine components scrutinized in this study. The qualitative data were coded by using NVivo software. The audio data recorded were coded according to the nine components of the blended learning course.

## 5. Results and discussion

There were 170 respondents involved in the quantitative study. 54.9% of the respondents were male and the rest were female. Among the 170 respondents, 34.1% were Malay, 25.9% were Chinese, 17.1% were Bidayuh, 15.3% were Iban, 4.7% were Melanau and 2.9% were Kayan. With regard to the marital status, 27.1% of the respondents were married and 71.5% single. 1.4% of the respondents were widowed or divorced. 105 of the respondents (61.8%) were from urban and 65 of the respondents (38.2%) were from rural area.

The mean satisfaction's level of the course content for urban group was 4.10 with a standard deviation 0.54 while the mean for the rural group was 4.20 with a standard deviation of 0.56 respectively. Overall satisfaction's level was 4.14 with standard deviation of 0.55. This showed that both groups of the students were satisfied with the course content provided in the blended learning course with urban group showing slightly more satisfaction as compared to the rural group. The qualitative data showed that all respondents were satisfied with the course content component regardless of location. They were impressed by the complete materials such as notes, tutorial questions, quizzes, sample of solutions provided in the blended learning course. They revealed that they could read, download and print the course content at anytime. They were also satisfied with the online mathematics examples where step-by-step solutions were provided to enhance their learning. Respondents also gave two suggestions to improve the course content component as stated below:

> I would like to suggest having more notes from our lecturers.
> I would prefer the online examples and the examples use in face-to-face are the same.

The urban group showed mean satisfaction's level of technical component of 4.02 with the standard deviation of 0.52 for urban group, whilst the rural group showed the mean and the standard deviation for satisfaction's level of 4.01 and 0.59 respectively. Overall mean satisfaction's level of technical component was 4.02 with standard

deviation of 0.54. This implied that overall, respondents were satisfied with this component. The urban group showed slightly more satisfaction than the rural group in this component. Qualitative data also showed that students from both group were satisfied with this component. Respondents felt glad to have the chance to learn through blended learning mode. They were impressed by the interface design where the design was very user friendly. They revealed that they could improved their information, communication and technology (ICT) skills in the blended learning mode. However, some respondents complained that the system is not stable and they frequently could not access the web site and this cause is inconvenient to them.

For flexibility component, the mean satisfaction's level and the standard deviation for urban group were 4.35 and 0.53 respectively whilst the mean satisfaction level and the standard deviation for rural group were 4.25 and 0.58 respectively. The overall mean satisfaction's level and the standard deviation were 4.31 and 0.55 respectively. Quantitative data showed that urban group was slightly more satisfied than rural group. Overall, respondents were satisfied with this component. Qualitative data also showed that respondents from both groups were satisfied with flexibility component. Respondents revealed that the blended learning course was flexible in term of learning location, learning time and learning process. They said:

> I can chat with my friend at any place, can e-mail them and ask question at any time.
> We can repeat recorded lesson as many times as we like until we can understand the concept well.
> ... flexibility in the teaching and learning approaches. More open rather than following the rigid conventional methods of teaching and learning.

For community learning component, respondents expressed satisfaction with the overall mean satisfaction's level of 4.57 and the standard deviation of 0.52. The mean satisfaction's level and the standard deviation of community learning component for urban group were 4.59 and 0.50 respectively whilst the mean satisfaction level and the standard deviation for rural group were 4.55 and 0.54 respectively. This implied that respondents were satisfied in both groups, with mean satisfaction's level for rural group was slightly higher as compared to the rural group. Qualitative data also supported the quantitative data in this component. Respondents revealed that they could interact with more friends and facilitators at anytime. They also had more time to chat and exchange their idea and thinking with others.

The mean satisfaction's level of motivation component for urban group was 4.03 with the standard deviation of 0.57. The mean satisfaction's level and the standard deviation for rural group were 4.23 and 0.56 respectively. The overall satisfaction level was 4.11 with standard deviation of 0.57. This implied that students were satisfied with this component. Result also showed that rural group was slightly more satisfied than urban group in this component. Respondents revealed that they were perfectly comfortable with the system and they felt excited, enthusiastic and enjoyed themselves in the blended learning course. Respondents also suggested:

> It will be very interesting if we can add in animation in the solution.
> If possible, add in some more music because music motivates us to learn.

For sharing component, respondents expressed satisfaction with the overall mean satisfaction's level of 4.12 with the standard deviation of 0.56. The mean satisfaction's level and the standard deviation of sharing component for urban group were 4.11 and 0.52 respectively whilst the mean satisfaction's level and the standard deviation for rural group were 4.13 and 0.62 respectively. The result showed that both groups were satisfied with this component and rural group was slightly more satisfaction than the rural group. Qualitative data also indicated that students were satisfied with this component. They expressed that they could share learning materials, experiences,

thinking and even personal problems with their peers at anytime.

The mean satisfaction level of feedback component was 4.14 with the standard deviation of 0.54 for urban group. Whilst for rural group, the mean and the standard deviation were 4.04 and 0.59 respectively. Overall mean of feedback component was 4.10 with standard deviation of 0.56. This implied that overall, respondents were satisfied with this component. The urban group showed slightly more satisfaction than the rural group in this component. Qualitative data also indicated that students were satisfied as respondents were happy with the feedback on their questions, doubts, learning progress and evaluations.

The mean satisfaction's level of complementary learning was 4.02 with the standard deviation of 0.56 for urban group. Whilst for rural group, the mean and the standard deviation were 4.35 and 0.52 respectively. Overall mean of complementary component was 4.15 with standard deviation of 0.54. This implied that overall, respondents were satisfied with this component. The rural group showed slightly more satisfaction than the urban group in this component. Qualitative data also showed that students were satisfied in this component. Respondents indicated that the complement component made their learning perfect because what was lack of in the traditional class would be complemented by the online learning. They also revealed that they were able to choose their own learning style, learning pace and time in the blended learning course. One of the respondents praised the blended learning platform. She said:

> Is a great platform where we incorporate the best from both worlds (face-to-face and online learning). Students will enhance from the best part of the both worlds.

Another respondent commented,

> It is easier for us to understand the concept with the aid of online components. For example, the animation gives us idea on the abstract part and it motivates us to learn.

The overall mean satisfaction's level for personalized component was 4.15 with the standard deviation of 0.54. The mean satisfaction's level and the standard deviation of personalized component for urban group were 4.02 and 0.56 respectively whilst the mean satisfaction's level and the standard deviation for rural group were 4.35 and 0.52 respectively. This implied that respondents were very satisfied from both group with mean satisfaction level for rural group was slightly higher than the rural group. Qualitative data also supported the quantitative data in this component. Respondents revealed that they were able to choose their own learning style and learning approach, and control their own learning pace in the blended learning course.

The grand mean of the overall satisfaction level was 4.22 and the standard deviation was 0.54 for urban group whist the grand mean and the standard deviation for rural group were 4.20 and 0.57 respectively. The overall grand mean of satisfaction's level for all respondents was 4.21 with standard deviation of 0.55. This showed that both urban and rural groups were satisfied with blended learning course. All respondents were satisfied with the blended learning course regardless of their location area.

## 6. Conclusion

The study found that overall, the respondents were satisfied with the blended learning course. They were satisfied with all components in the blended learning course consisting of course content, technical, flexibility, community learning, motivation, sharing, feedback, complementary learning and personalize learning. Since the respondents were from various location of Sarawak which included the rural and the urban areas, their satisfaction

towards blended learning course means that they were given equal chance to study without the time and location constraints. Based on the findings in this study, suggestions from Siti Rahayah, et al (2008) and findings by LING, et al (2008), blended learning courses are recommended to be extended to the secondary school level and further to the primary school level. With that, it is hope that the diversity in education between the rural and the urban schools can be reduced to minimum through blended learning course. With the feedback, the blended learning course can be improved further and the equal educational opportunities can reach to more people especially rural area students.

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