# Perceived Ease of Use and Acceptance of Blended Learning amongst Junior Secondary School Students in Biu Education Zone, Borno State, Nigeria

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**Abstract: The purpose of this study was to assess students' perceived ease of use and acceptance of blended learning environments among junior secondary school students in Biu Education Zone, Borno State, Nigeria. Three research questions and three null hypotheses were formulated to guide the study. A descriptive survey research design was adopted for the study. The population of the study was 22,968 which comprised of 14929 male students and 8039 female students in 14 Government Secondary Schools in Biu Education Zone, Borno State. The study adopted purposive sampling technique to select two intact classes of 90 students. Instrument used for data collection was structured questionnaire titled: Students Perceived Acceptance of Blended Learning (SPABL) developed by the researchers. The instrument was validated by three experts and a reliability of 0.81 was obtained using Cronbach Alpha reliability method. Mean statistic was used to answer the research questions while regression analysis was used to test the null hypotheses of the study at 0.05 level of significance. Finding of the study revealed that the students are satisfied with blended learning and found it easy to use; the perceived acceptance of blended learning was high; and constraints that affect students' proper use of blended learning include computer illiteracy of students and lecturers and inadequate technological resources. Based on the findings, the following recommendations were made: teachers teaching basic technology subject should expose the students to various modes of blended supported learning management system to promote student-centered instructional approach; Government should organize ICT training for teachers from time-to-time to update and get acquainted with latest technological innovations like blended learning.**

**Keywords**: **Blended Learning, Perceived, Ease of Use, Acceptance, Secondary School**

## 1. Introduction

Traditional context of learning is experiencing a radical change. Teaching and learning are no longer restricted to traditional classrooms (Wang, Wang, & Shee, 2007). Teaching with the use of computers and

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computer applications is becoming ever more popular.

Electronic learning (e-learning), referring to the use of electronic devices for learning, including the delivery of content via electronic media such as internet, audio or video, satellite broadcast, interactive TV, CD-ROM, and so on, has become one of the most significant developments in the information systems industry (Liaw, Huang, & Chen, 2007). The rapid expansion of the internet as a delivery platform, combined with the trends towards location-independent education and individualization, has motivated universities to invest their resources on developing online programs (Ozkan, & Koseler, 2005).

Blended learning on the other hand, refers to an integrated environment, which combines the advantages of e-learning and traditional classroom teaching (Bonk & Graham, 2005). Generally, blended learning means any combination of learning delivery methods, including most often face-to-face instruction with asynchronous and/or synchronous computer technologies (Brush, 2008). Blended learning – in its simplest form, is the thoughtful integration of online and face-to-face-instruction is being used with increased frequency around the world (Garrison & Kanuka, 2004; Huang & Chen, 2007). Thousands of corporate training programs, institutions of higher education and schools now participate in blended learning instructions (Drysdale, Graham, Halverson & Spring, 2013). Although blended-learning environments are popular, there is minimal research on learners' perceived ease of use and acceptance toward these kinds of learning environments.

## 2. Purpose of the Study

The purpose of this study was to assess students' perceived ease of use and acceptance of blended learning environments among secondary school students. The specific objectives are to:

1. determine the perceived ease of use of blended learning among students in Biu Education Zone, Borno State
2. determine the students' perceived acceptance level of using blended learning strategy in teaching/learning of Basic Technology in Biu Education Zone, Borno State
3. determine the factors that affect proper use of blended learning in teaching Basic Technology among students' in Biu Education Zone, Borno State

## 3. Research Questions

4. Do students perceived blended learning easy to use among students in Biu Education Zone, Borno State?
5. What are the students' perceived acceptance level of using blended learning strategy in teaching Basic Technology Biu Education Zone, Borno State?
6. What are the factors that affect proper use of blended learning in teaching Basic Technology among students' in Biu Education Zone, Borno State?

## 4. Research Hypothesis

Ho: There is no significant relationship between ease of use, facilitating condition, performance expectancy and students' acceptance of blended learning in Biu Education Zone, Borno State.

## 5. Methodology

The study adopted descriptive survey research design in which the opinions of students that study basic science and technology in a blended learning environment were sampled. The population consists of all the junior secondary two (JSS1I) students offering basic technology in Government own secondary schools numbering 22,968 in 14 secondary schools in Biu education zone, Borno State. This population consists of 14,929(65 %) male students and 8,039 (35%) female students (Borno State Ministry of Education, Maiduguri, 2017). Two intact class with a sample size of 93 were obtained through purposive sampling technique. Two topics in basic technology namely, energy-based technology appliances and transmission and utilization of electricity were taught using blended teaching method.

Questionnaire tagged: "Students Perceived Acceptance of Blended Learning (SPABL) developed by the researchers was used as instrument for data collection. The instrument consisted of three sections (Section A - C). Section A answered research question 1: students perceived ease of use of blended learning. Section B answered research question 2: students perceived level of acceptance of blended learning strategy while Section C answered research question 3: factors that affects proper integration of blended learning in teaching basic technology among JSS students. The three sections of the instrument were treated on a 5-point rating scale of Strongly Agreed (SA) = 5, Agreed (A) = 4, Undecided (U) = 3, Disagreed (D) = 2, Strongly Disagreed (SD) = 1. The instrument was subjected to face validation by three validates in the Department of Technology Education, Modibbo Adama University, Yola and trial tested on 30 JSS II students in Government College Maiduguri which is not part of the study area. Result of the trial test was analyzed using Cronbach Alpha formula and a reliability coefficient of 0.81 was obtained. Data collected for the study were analyzed using statistical package for social sciences (SPSS) version 22 for windows and Mean statistic was used to answer the research questions while regression analysis was used to test the null hypothesis of the study at 0.05 levels of significance. The decision taken on each item was based on the consideration that any item with mean value equal to or greater than 3.50 was considered "Agreed" and any item with mean value less than 3.50 was considered "Disagreed".

## 6. Results

Results of the study were presented based on research questions and hypothesis.

### 6.1 Research Question 1

What is the perceived ease of use of blended learning among students in Biu Education Zone, Borno State?

Table 1: Mean and Standard Deviation of the Respondent on the perceived ease of use of blended learning among students in Biu Education Zone, Borno State

| S/N | Item Statements | $\bar{X}$ | SD | Remark |
|---|---|---|---|---|
| 9 | Logging into the learning management system was easy | 3.74 | 1.19 | Agree |
| 10 | Locating the subject content on Moodle was easy | 3.73 | 1.34 | Agree |
| 11 | Submitting homework/assignment on Moodle was easy | 2.52 | 1.05 | Disagree |
| 12 | It eases learner participation during the course of study | 4.09 | 1.42 | Agree |
| 13 | Communicating with teacher on Moodle was easy | 4.03 | 1.12 | Agree |
| 14 | Communicating with peers on Moodle was easy | 3.91 | 1.23 | Agree |
| 15 | Easy to learn the topics using blended learning strategy | 3.78 | 1.44 | Agree |
| 16 | Easy to visualize important concepts | 3.75 | 1.41 | Agree |
| 17 | online resources were well organized | 4.00 | 1.25 | Agree |
| 18 | The online resource was well structured in a clear and understandable manner | 4.01 | 1.14 | Agree |
| | Grand Mean | 3.62 | 1.01 | Agree |

Table 1 showed the learners' perceived ease of use blended learning environment. Learners became skilled at logging into the learning management system ($\bar{X}$=3.74) and it was easy for them to locate subject content ($\bar{X}$=3.73). They effectively used the communication tools to communicate with teacher ($\bar{X}$=4.03) and with peers ($\bar{X}$=3.91). They reported that the online resources were well organized ($\bar{X}$=4.00) as well as well structured in a clear and understandable manner ($\bar{X}$=4.01). They reported that using Moodle helped them to visualize important concepts easy ($\bar{X}$=3.75) but find it not easy in submitting homework/assignment ($\bar{X}$=2.52). In summary, the grand mean of learners' perceived ease of use of blended learning stood at ($\bar{X}$= 3.61, SD= 1.01). Students found blended learning platform easy to use and were satisfied with the blended learning method.

### 6.2 Research Question 2

What are the students' perceived acceptance levels in using blended learning strategy in teaching Basic Technology Biu Education Zone, Borno State?

Table 2: Mean and standard deviation of the respondent on the perceived acceptance level of blended learning strategy in teaching basic technology among students in Biu Education Zone, Borno State

| S/N | Item Statements | $\bar{X}$ | SD | Remark |
|---|---|---|---|---|
| 19 | I will choose to study basic technology with blended learning system if it is allowed in the future | 4.09 | 1.09 | Agree |
| 20 | I will actually use blended study system if blended learning activity starts now | 3.90 | 1.26 | Agree |
| 21 | 1 will use blended learn because it gives the opportunity of taking courses within and outside the country through teaching via the Internet | 3.92 | 1.30 | Agree |
| 22 | I am willing to use blended learning because I can use what I learnt in new situations | 3.91 | 1.30 | Agree |
| 23 | I am willing to use exercises on the blended learning platform | 4.04 | 1.10 | Agree |
| 24 | I am willing to use course materials available on the blended learning feature | 3.61 | 1.14 | Agree |
| 25 | I am willing to use assignment as a blended learning feature | 3.98 | 1.13 | Disagree |
| 26 | I am willing to use discussion forum as a blended learning feature | 3.80 | 1.21 | Agree |
| | Grand Mean | 3.90 | | Accepted |

Table 2 showed that the respondents expressed their willingness to replace traditional lecture method with blended learning if it is allowed in the future ($\bar{X}$=4.09), use blended study system if blended learning activity starts now ($\bar{X}$=3.90), use course materials available on the blended learning feature ($\bar{X}$=3.61). The willingness to use course materials available on the blended learning feature ($\bar{X}$=3.61), assignment ($\bar{X}$=3.98), discussion forum ($\bar{X}$=3.80). Students also confirmed that this form of teaching makes education acquisition more available for all including those from regions distant from the school. The respondents saw the opportunity of taking courses within and outside the country through teaching via the blended learning features ($\bar{X}$=3.52) and conceded that such form of knowledge acquisition is attractive since it allows easier contact with teachers and thus making the learning process convenient due to the large availability of varied sources of information. Overall, the students' level of acceptance of blended learning was high since the grand mean of the students' level of acceptance of blended learning stood at ($\bar{X}$=3.92). Meaning that the students are willing to replace traditional teaching tools with blended learning solutions.

### 6.3 Research Question 3

What are the factors that affect proper use of blended learning in teaching Basic Science and Technology among students' in Biu Education Zone, Borno State?

Table 3: Mean and Standard Deviation of the Respondent on factors that affect proper use of blended learning in teaching basic science and technology among students' in Biu Education Zone, Borno State

| S/N | Item Statements | $\bar{X}$ | SD | Remark |
|---|---|---|---|---|
| 1 | Computer illiteracy of students and lecturers | 3.97 | 1.15 | Agree |
| 2 | Inadequate technological resources | 3.87 | 1.14 | Agree |
| 3 | No structures in place for technical and system support | 3.83 | 1.13 | Agree |
| 4 | Lack of support from leadership for change management | 3.54 | 1.36 | Agree |
| 5 | Lack of a policy that promotes e-learning within teaching and learning | 3.80 | 1.21 | Agree |
| 6 | Lack of quality management processes to enhance blended learning | 3.78 | 1.21 | Agree |
| 7 | Poor internet connectivity | 3.88 | 1.35 | Agree |
| 8 | Inadequate funding | 3.54 | 1.38 | Agree |
| | Grand Mean | 3.78 | 1.24 | Agree |

The result in Table 3 showed the responses of the respondents on the factors that affects proper usage of blended learning in the classroom. The students agree to all the items enumerated to affect their use of blended learning in the classroom because the entire item mean was above the cut-off point of 3.50 and the grand mean also stood at 3.78. The mean responses ranges from 3.54 – 3.97. Computer literacy of students being the most ($\bar{X}$ =3.97) factor that affect student's use of blended learning in the classroom followed by poor internet connectivity ($\bar{X}$ =3.88) to inadequate technological resources ($\bar{X}$ =3.87) and the least is Lack of support from leadership for change management ($\bar{X}$ =3.54). The result further shows that the standard deviation among the respondents ranges from 1.13 to 1.38. This means that respondents' views were not widely deviated from each other.

**6.4 Hypothesis**

There is no significant relationship between ease of use, facilitating condition, performance expectancy and students' acceptance of blended learning in Biu Education Zone, Borno State

Table 4: Regression of constructs

| Model | Unstandardized Coefficient | | Standardized Coefficient | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| 1 (Constant) | 1.023 | 0.522 | | 1.240 | 0.082 |
| Ease of Use | 0.305 | 0.46 | 0.327 | 3.422 | 0.001 |
| Performance Expectancy | 0.733 | 0.721 | 0.437 | 6.910 | 0.000 |
| Facilitating Conditions | 0.632 | 0.521 | 0.324 | 12.820 | 0.000 |

Table 4 showed regression analysis that was carried out to test the research hypothesis. Ease of use, performance expectancy and facilitating conditions were significant with coefficients less than 0.05. This implies all the three constructs explain the intention to adopt blended learning among basic technology students in Biu Education Zone, Borno State. There was a significant relationship between performance expectancy, facilitating conditions, ease of use and blended learning acceptance therefore all the three hypotheses were accepted.

**7. Discussion of Findings**

Finding of the study revealed that students are satisfied with blended learning and found it easy to use. The grand mean of learners' perceived ease of use of blended learning (items 10, 11, 13- 19) stood at ($\bar{X}$= 3.61, SD= 1.01). This mean that the students find it easy and were satisfied with the blended learning strategy but except for item 12($\bar{X}$=3.44, SD=1.21) indicating that the only aspect where student's find it difficult was in the submission of homework/assignment on the Moodle. In general, the students found the use of blended learning environment easy. Access to technology is one of the most important factors influencing student satisfaction. Not only should the equipment be reliable but also the students should be familiar with its usage. Blended learning environment employed by Moodle, which is a learning platform designed to provide educators and learners with a single robust, secure, and integrated system to create personalized learning environments. Students hence perceived Moodle to be user-friendly. Also contributing to this positive perception was the fact that the majority of the students had good computer skills to start with. It is important to emphasize here that when online environments designed in a way that is, feasible and easy to use, learners will be encouraged to be engaged in the activities and eventually learn better.

The corresponding research hypothesis established the relationship between perceived ease of use of blended learning and blended learning acceptance. The result of the regression in table 4 indicated that ease of use of blended learning (Effort expectancy) construct is a predictor of intention to use blended learning. Therefore, the hypothesis that stated that perceived ease of use has no positive effect on blended learning acceptance was rejected. According to Davis (1986), perceived ease of use influences in a significant way the attitude of an individual through two main mechanisms: self-efficacy and instrumentality. Self-efficacy is a concept developed by Bailey and Martin (2013) who explains that the more a system is easy to use, the greater should be the user's sense of efficacy. Moreover, a tool that is easy to use will make the user feel that he has a control over what he is doing. Efficacy is one of the main factors underlying intrinsic motivation (Bailey & Martins, 2013) and it is what illustrates here the direct link between perceived ease of use and perceived acceptance. Perceived ease of use can also contribute in an instrumental way in improving a person's performance. Because the user will have to deploy less effort with a tool that is easy to use, he will be able to spare efforts to accomplish other tasks

The second research question states, "What are the students' perceived acceptance levels in using blended learning strategy in teaching Basic Technology Biu Education Zone, Borno State? Result of the study here revealed high perceived acceptance of blended learning which is in line with the findings of (Venkatesh, 2003; Okocha, Eyiolorunshe, & Oguntayo, 2016). They discovered that that majority of students are more interested in course-related reading and course materials features of blended learning. Students also, perceive course materials to provide high benefits on performance. Interestingly students are not interested

in collaborating with colleagues and discussing with lecturers on blended learning platforms. The study affirmed that students consider blended learning useful in their academic pursuits and with supporting features being available will invariably lead to the acceptance of the technology. Technology Acceptance Model postulates that the use of an information system or technology is determined by the behavioural intention, but on the other hand, the behavioural intention is determined by the person's acceptance towards the use of the system and also by his perception of its utility. The acceptance of an individual is not the only factor that determines his use of a system but is also based on the impact which it may have on his performance. Therefore, even if an employee does not welcome an information system, the probability that he will use it is high if he perceives that the system will improve his performance

The corresponding research hypothesis found out the effect of performance expectancy (academic achievement) on the blended learning acceptance by the students. The regression results in table 4 revealed that performance expectancy is significant with coefficients less than 0.05. This means that there was a significant relationship between performance expectancy and behavioural intention to adopt blended learning. Therefore, the hypothesis that stated that performance expectancy has no positive effect on blended learning acceptance was rejected. Performance expectancy had a significance of 0.000. It is therefore the strong predictor of intention to adopt blended learning. The result which stated that performance expectancy as a strong motivating factor for the use of technology corroborate the findings of (Venkatesh, 2003; Okocha, Eyiolorunshe & Oguntayo, 2016). In the same vein, the study is also in consistent with those reported by authors who have tested the suitability of blended learning in the general educational context (Hsu, 2012). Regarding the predictive power of performance expectancy, other authors have found that this construct is the best predictor of acceptance to use a specific technology (Chang, et al. 2014). However, this is variance with the studies conducted by other authors (Wang, 2011), who reported performance expectancy was not the best predictor of the acceptance to use blended learning.

Finding of the study also revealed some constraints that affect students' proper use of blended learning. These constraints include computer illiteracy of students and lecturers, inadequate technological resources, non-structures in place for technical and system support, poor internet connectivity, lack of support from leadership for change management, Lack of a policy that promotes e-learning within teaching and learning, lack of quality management processes to enhance blended learning and inadequate funding. The mean response ranges from 3.50 – 3.80. Computer illiteracy of students being the most (3.80) factor that affect student's use of blended learning in the classroom, followed by inadequate funding (3.75) to poor internet connectivity being the least factor (3.50). This result agrees with Ezekoka (2015) which in his study found that students at times feel lonely and isolated when using blended learning. The author went further to add technophobia, lack of computer operating skills by students, high cost of information and communication technologies, poor internet connectivity and the fact that blended learning requires that students devote more time to their studies were amongst the factors that affect proper use of blended learning in teaching and learning. Similarly, Lukman and Krajnc (2012) who found out that, obstacles to the successful integration of blended learning in teaching and learning of science are: inadequate technical personnel, insecurity and poverty, poor network connectivity, inadequate avoidable computer equipment, epileptic power supply, lack of maintenance culture, and lack of competence, confidence, and accessibility to technology-based tools by the students and teachers. This study was carried out in Nigeria where internet services are still poor, ICTs are expensive, and many students fear the use of new technologies. According

to Akgunduz and Akinoglu (2016), although blended learning provides pervasive access to information, this may be invasive to learners' personal lives. For some students the online component results in more time being devoted to study and less time to personal concerns.

The corresponding research hypothesis established the relationship between factors that affect proper use of blended leaning (Facilitating Conditions) and perceived blended learning acceptance. Table 4 showed that facilitating conditions are good predictors of blended leaning acceptance. This mean that students support for blended learning, school policies, internet bandwidth size and speed as well as knowledge amongst others are important in predicting adoption of blended learning by the students. These results concurred with the findings of (Okocha, Eyiolorunshe, & Oguntayo, 2016; Venkatesh, 2003) who found in their individual studies that facilitating conditions influenced adoption of blended learning.

## 8. Conclusion

In a nutshell, facilitating conditions, ease of use of blended learning (effort expectancy) and performance expectancy are predictors of the intention to use blended learning in secondary schools. Implying that as blended learning is perceived as more advantageous to learning, making it more efficient and of higher quality, students believe that it is easy to use, fun, enjoyable, and entertaining, the more likely the user will intend to use it.

## 9. Recommendations

- Teachers teaching basic technology subject should expose the students to various modes of blended supported learning management system to promote student-centered instructional approach, students 'autonomy to knowledge acquisition, and student-self-discovery learning
- Government should organize ICT training for teachers from time-to-time to update and get acquainted with latest technological innovations like blended learning. This will enable them to develop, modify and maintain latest online learning technologies like, blended learning within the secondary school system.
- Government and appropriate school 'authorities should embrace and support the use of blended learning platform in secondary schools as this could enhance students 'performance in various subjects

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