

## PERCEIVED USEFULNESS AND PERCEIVED EASE OF BLOG UTILIZATION FOR TEACHING AMONG PRE-SERVICE BIOLOGY TEACHERS IN KANO STATE NIGERIA

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### Abstract

*This study was carried out to investigate perceived usefulness and ease of Blog utilization for teaching among pre-service biology teachers in Kano State Nigeria. Descriptive survey design was used. 120 pre-service biology teachers were used as research sample. Two research questions guided the study and two correspondent hypotheses were formulated and tested at 0.05 level of significance. 20 items questionnaire was used as instrument for data collection. The questionnaire was validated by educational technology experts. Pilot study was carried out on biology pre-service teachers and reliability coefficient of 0.85 was obtained using Crombach Alpha. Data collected was analyzed using t-test. Findings revealed that there was no significant difference in the perceived usefulness of pre-service teachers on the use of Blog in teaching of Biology. Furthermore, it was revealed that there was no significant difference on the perceived ease of use of pre-service teachers on the use of blog in teaching of biology. Based on these findings, it was recommended among others that Stakeholders of colleges of education should as a matter of urgent provides necessary ICT devices that can accommodate blog site for the teaching of biology in the colleges. There is a need for in-house training and periodic orientation on the use of blog site for the teaching of biology in the colleges. There is a need for an enabling policy on the use of blog site, especially with pedagogical application in the teaching and learning of biology.*

**Keywords:** Blog, Perceived usefulness, Perceived ease of use, Pre-service teachers, Utilization

### Introduction

The digital technology has transformed every area of human discipline. The revolution did not sphere education, rather, it has brought a radical change into how knowledge is created, generated, communicated, stored and used. Historically speaking, the two terms Education and Technology can be traced back to the earliest time when crude materials like stones, leaves, animal skin and paintings on walls were used as method of sharing knowledge, (Nsofor & Bello, 2015). Information and Communication Technology is important in increasing knowledge and conducting research. It is important also, to usesocial networking sites such as blog in teaching. A Blog can be described as a very simple webpage where entries or posts are organized in reverse chronological order which is usually open to the public and many are free to create. It is generally the work of one author but group blogs are not uncommon. The interactive features of blog allow users to share their learning experiences by posting articles, accepting comments, providing links and getting feedback. There is no need for higher technological skills to develop, update and publish entries while using Blog (Lang, 2005). The integration of blog into pre-service teacher programme would help to produce qualified and competent biology students in various fields of endeavor; to cover areas of specialization like medicine, pharmacy, Nursing, Physiology, Biochemistry, and Biological sciences. The curriculum is designed to produce knowledgeable, highly motivated teachers of biology who will be able to develop in students an appreciation and understanding of biological process and principles. Pre-service teacher

programme is also designed to develop confidence in the biology teacher and enhance his/her ability to adapt to the changing situations in science and technologically oriented society.

However, it has been discovered that teaching and learning activities over the years have become cumbersome and time consuming. Large class size where applicable poses problems in the conventional method of teaching, as majority of the students' attention is never captured at once (Aninweze 2014). Hence, this is resulting to poor feedback and less benefit to students, especially in the higher institutions like colleges of education. Present day students are surrounded by technology and media which have the ability to collaborate and make individual contributions in their curricular activities. More so, they were born into this digital world, so they will need to manifest a range of functional and critical thinking skills related to information, media, technology and education (the partnership for 21<sup>st</sup> century skills, 2004).

Theories on emerging technologies have stated that using blog in the classroom can engage students in discussions, support peer learning and improve students' literacy skills. This is in accordance with Nedeva and Nedev (2010) who discovered that Blogs are highly interactive form of asynchronous communication means, which is ideal for collaboration even across time zones and cultures. For instance, students can be assigned to read and view materials with the hope that they will take all their time to review and think thoroughly before coming to the class. A student who has to take time to write a blog post to the professor and all other students to see, will have more incentive to really take the time to read the material thoroughly. In addition, even the act of reading another students' post and responding with a thoughtful comment will require a greater investments in materials before doing so (Churchill, 2009). The importance of biology in Nigeria curriculum can never be overemphasis as it critically analyse the activities of living things in their environment. Hence, this study sought Pre-service Teachers perceived usefulness and ease of use of Blog in teaching of biology in colleges of education in Kano state. The following variables were investigated, perceived usefulness (PU) and perceived ease of use (PEU) in relation to gender.

In this study perceived usefulness (PU) refers to the extent to which a user believes that using technology will increase or improve his/her job performance. It is derived from the word useful which means capable of being used advantageously. Within an educational context students are reinforced for hard work by prizes, bonuses, applauds and other rewards (Radner 1975). A system high in Perceived usefulness is one for which a pre-service teacher believes in the existence of a positive use-performance relationship.

Perceived ease of use (PEU) is the degree to which a person believes that using a particular technology would be free of effort (Davis, 1989). This follows from the definition of "ease" which means freedom from difficulty or great effort. Effort is finite resource that a person may allocate to the various activities for which he/she is responsible (Radner, and Rothschild, 1975). Moreover, an application perceived to be easier to use than another is more likely to be accepted by users.

The following research works were used to discuss the findings of the present study; Falode (2018) carried out an investigation on pre-service Teachers perceived ease of use, perceived usefulness, attitude and intentions towards utilization of virtual laboratory package in teaching and learning of Nigerian secondary school physics concept. Findings revealed that pre-service physics teachers perceived the virtual laboratory package useful. Michael, Henry,

Franklin and Fidelis (2016) carried out research on effects of perceived ease of use and gender on social media adoption among university students in Ghana. It was discovered that perceived ease of use significantly predicts social media adoption. However, there was no significant difference between males and females on adoption of social media. Soud, Arthur, Taher and Mo'taz (2009) studied the relationship between perceived usefulness, perceived ease of use, perceived information quality, and intention to use e-government. The results show that there was a significant positive relationship between perceived usefulness, perceived information quality and intention to use e-government for gathering information and conducting transactions. Tarja.,Taina, and Asko, (2013) reported that Technology acceptance and its use are assumed to be based on the perceived usefulness and ease of use of the technology. Their findings revealed that gender moderates the effect of subjective norms on intention (significantly stronger for males than for female workers) and the influence of perceived ease of use on attitude (significantly stronger for male than for female workers).

### **Research Questions**

- (i) What is the perceived usefulness of Blog to pre-service teachers in teaching of Biology?
- (ii) What is the perceived ease of use of Blog to pre-service teachers in teaching of Biology?

### **Research Hypotheses**

The following null hypotheses were formulated and tested at 0.05 alpha level of significance:

HO<sub>1</sub>: There is no significant difference in the perceived usefulness of Blog in teaching of Biology by pre-service teachers.

HO<sub>2</sub>: There is no significant difference in the perceived ease of using Blog by pre-service teachers.

### **Methodology**

The research design adopted was descriptive survey design. Survey design was suitable for this study because questionnaire was used in data collection. The population of the Study comprises of 26,305 pre-service teachers from three (3) public colleges of education in Kano State. The schools are; Federal College of Education (Technical) Bichi, Kano, Federal College of Education, Kano and Saadatu Rimi College of Education, Kumbotso, Kano. The sample for this study consists of 120 pre-service teachers that were randomly selected using cluster sampling method to have equal representation from each school. The research instrument used was Pre-service Teachers Blog Questionnaire (PSTBQ) that was in two parts, part A was the data of the respondents and part B is divided into two sections. Section one is purposely designed to elicit response from the respondent on perceived usefulness and section two is on perceived ease of using blog in teaching of biology. The instrument consist of (20) items, ten in each section which was subjected to both face and content validity by experts from Department of Educational Technology, Federal University of Technology Minna and one lecturer from Saadatu Rimi College of Education, Kumbotso Kano. Pilottestwas carried out on the instrument using 50 pre-service biology teachers and crombach Alpha was used to get reliability coefficient of 0.85. In collecting the data, the researcher visited the sampled colleges of education to seek permission from the school authorities through the letter of introduction, which helped the researcher to get maximum co-operation. The researcher distributed the questionnaires to the selected sampled schools with the help of research assistant. The questionnaire was collected back immediately after they have been completed by the respondents. Four- point modified Likert scale type was used, strongly agree (SA) was awarded 4 points, Agree (A) awarded 3

points, Disagree (D) awarded 2 points and Strongly Disagree (SD) awarded 1 point. A mean of 2.5 was used as acceptable mean for decision. Data collected from the administration of research instruments was analyzed using descriptive statistics of mean and standard deviation to answer research questions and inferential statistics of t-test for testing the hypotheses.

## Results

In this section, Table 1 and 2 are presented with their interpretations which provide answers to the research questions raised.

**Research Question One:** What is the perceived usefulness of Blog to pre-service teachers in teaching of Biology?

**Table 1: Mean and standard deviation on perceived usefulness of pre-service teacher on the use of Blog in teaching of Biology**

S/N		N	SA	A	DA	SD	Mean	SD	Decision
1	Blog site is a useful tool in teaching and learning.	120	23	79	11	7	2.98	0.72	Agreed
2	Blog site is useful in keeping students record.	120	38	53	24	5	3.03	0.83	Agreed
3	Blog site is useful in students interaction	120	27	78	9	6	3.05	0.71	Agreed
4	I might go on to do something related to development Instruction through blog site	120	15	14	88	3	2.34	0.73	Disagreed
5	Even when it gets hard, I can study with the use of Blog site.	120	32	70	10	8	3.05	0.79	Agreed
6	Learning through blog site is important for getting a Job in the education media outfit.	120	62	39	11	8	3.29	0.89	Agreed
7	I think I could cope with a harder Concepts in Biology when learning through Blog site	120	43	57	12	8	3.13	0.85	Agreed
8	I can choose a career connected to Blog site designer	120	39	57	17	7	3.07	0.84	Agreed
9	I find Biology very interesting	120	54	55	6	5	3.32	0.76	Agreed
10	Everybody will need to know Biology in their adult Life through Blog site.	120	73	28	6	13	3.34	0.99	Agreed
<b>Average mean= 3.36</b>							<b>Decision mean= 2.5</b>		

Table 1 shows the mean and standard deviation of pre-service teachers on the perceived usefulness towards the use of blog in teaching of biology. The table revealed that the mean to each of the statement is above 2.5 except item number four which disagree. Also the average mean of 3.36 to all the items is above the decision mean of 2.5. This implies that pre-service teachers have perceived usefulness toward the use of blog in teaching of biology.

**Research Question Two:** What is the perceived ease of use of Blog to pre-service teachers in teaching of Biology?

**Table 2: Mean and Standard Deviation on perceived ease of use of pre-service teacher toward use of Blog in teaching of Biology**

S/N		N	SA	A	DA	SD	Mean	SD	Decision
1	I perceived Learning of Biology ease through blog site.	120	75	27	10	8	3.41	0.90	Agreed
2	Learning to use Blog site will be easy for me.	120	41	71	3	5	3.23	0.69	Agreed
3	I will find it easy to receive and submit my assignment through Blog site.	120	83	23	8	6	3.53	0.83	Agreed
4	It will be easier for to be skillful in ICT when using Blog Site.	120	50	54	8	8	3.22	0.84	Agreed
5	Learning to upload instruction through Blog site would be easy for me.	120	89	17	9	5	3.58	0.81	Agreed
6	I would find it flexible to interact academic activities with my mate using Blog site.	120	48	63	5	4	3.29	0.70	Agreed
7	I would find it easy to download instruction bit by bit on Blog site.	120	51	44	15	10	3.13	0.93	Agreed
8	I will find it easy to ask my lecturers questions anytime on Blog site.	120	61	39	9	11	3.25	0.95	Agreed
9	I find it easy to do group assignment through Blog site.	120	83	24	5	8	3.52	0.86	Agreed
10	To create Blog site is very easy	120	56	47	9	8	3.26	0.86	Agreed
<b>Average mean = 3.34</b>									

Decision mean = 2.5

Table 2, shows the mean and standard deviation of pre-service teachers on the perceived ease of use of blog in teaching of biology. The table revealed that the mean to each of the statement is above 2.5. Also the average mean of 3.34 to all the items is above the decision mean of 2.5. This implies that pre-service teachers have perceived ease of using blog in teaching of biology. Hypothesis 1: There is no significant difference in the perceived usefulness of Blog by pre-service teachers in teaching of Biology.

**Table 3: t-test table of perceived usefulness of pre-service teachers towards the use of blog in teaching of biology**

Gender	N	df	Mean	SD	t-value	p-value
Male	50	118	30.980	2.721	1.391	0.167 <sup>NS</sup>
Female	70		30.328	2.381		

NS: Not Significant at 0.05

Table 3 shows the t-test result of the analysis of pre-service teachers on the perceived usefulness towards use of blog in teaching of biology. The table shows that,  $t(118) = 1.391$ ,  $p > 0.05$ . This implies that there is no significant difference on the perceived usefulness of pre-service teachers toward use of blog in teaching of biology. Therefore hypothesis one is not rejected.

**Hypothesis Two:** There is no significant difference in the perceived ease of use of Blog between pre-service teachers in teaching of Biology.

**Table 4: t-test table of perceived ease of use of pre-service teachers on the use of blog in teaching of biology**

Gender	N	df	Mean	SD	t-value	p-value
Male	50	118	33.5600	2.83678	0.492 <sup>NS</sup>	0.623
Female	70		33.3143	2.59063		

Not Significant at 0.05

Table 4 shows the t-test result of pre-service teachers on the perceived ease of using blog in teaching of biology. The Table shows that,  $t(118) = 0.492$ ,  $p > 0.05$ . This implies that there is no significant difference on the perceived ease of using blog by pre-service teachers in teaching of biology. Therefore hypothesis two is accepted.

### Discussion

Findings on the perceived usefulness of blog by pre-service biology teachers in teaching of Biology revealed that respondents perceived blog as a useful tool in teaching of biology. This implies that pre-service teacher have perceived usefulness toward the use of blog in teaching of biology. This is in line with Michael, Henry, Franklin and Fidelis, (2016) whose research on effects of perceived usefulness and gender on social media adoption among university students in Ghana revealed that, perceived usefulness significantly predict social media adoption. However, there was no significant difference between males and females on adoption of social media.

Soud, Arthur, Taher and Mo'taz (2009) also, studied the relationship between perceived usefulness, perceived ease of use, perceived information quality, and intention to use e-government. The results shows that there was a significant positive relationship between perceived usefulness, perceived information quality and intention to use e-government for gathering information and conducting transactions. However, this is contrary to the work of (Norazah, 2011) that carried out investigation on whether gender, age, and education really moderate online music acceptance of early adopters. It was revealed that younger people (younger than 25 years), male and higher educated were more strongly affected by Perceived Playfulness and Ease of Use towards online music. Also, in relation to the work of Falode (2018), who carried an investigation on pre-service Teachers perceived ease of use, perceived usefulness, attitude and intentions towards utilization of virtual laboratory package in teaching and learning of Nigerian secondary school physics concept. Findings revealed that pre-service physics teachers perceived the virtual laboratory package useful.

What is the perceived ease of using Blog by pre-service teachers in teaching of Biology? Findings on the perceived ease of using blog revealed that respondents perceived the tool easy to use. This finding is in line with the work of Michael, Henry, Franklin and Fidelis (2016) who carried out research on effects of perceived ease of use and gender on social media adoption among university students in Ghana. It was discovered that perceived ease of use significantly predicts social media adoption. However, there was no significant difference between males and females on adoption of social media. The research of Tarja., Taina, and Asko, (2013) reported that Technology acceptance and its use are assumed to be based on the perceived usefulness and ease of use of the technology. The findings revealed that gender moderates the effect of

subjective norms on intention (significantly stronger for males than for female workers) and the influence of perceived ease of use on attitude (significantly stronger for male than for female workers).

### **Conclusion**

This study has revealed that Pre-service biology teachers perceived blog as a useful and easy to use instructional material. For timely completion of lessons, sustained students attention and wider coverage of the course outline, Blog should be employed by pre-service teachers (biology) to supplement conventional method of teaching in the classroom. Students should be encouraged to utilize blog as a social network in learning activities as it is beyond boundaries of distance and culture.

### **Recommendations**

Based on the findings that emanated from this study, the following recommendations were made:

- (i) Developers of Blogs should ensure that they are perceived useful and easy to use by the pre-service teachers; this would enable them to utilize it in learning biological concepts.
- (ii) Stakeholders of colleges of education should as a matter of urgent importance provides hardware devices that can accommodate blog site for the teaching of biology in Kano state. There is a need for in-house training and periodic orientation on the use of blog site for the teaching of biology in the colleges. There is a need for an enabling policy on the use of blog site, especially with pedagogical application in the teaching of biology.

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