

# Influence of Gender and Attitude of Pre-Service Teachers towards On-Line Instruction in a Selected University in South-western Nigeria

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## Abstract

The study examined the influence of gender and attitude of pre-service teachers on habitual use of online instruction in Faculty of Education at Obafemi Awolowo University, Ile Ife, Nigeria. The sample size of 300 part two Education students (150 males and 150 females) was used as sample for the study. Data were collected using 12 items structured questionnaire. The reliability of the questionnaire was determined using Cronbach Alpha and a reliability coefficient of 0.86 was obtained. The results showed that gender was a significantly factor in the usage of online learning. It was also revealed that female Education students showed higher habitual use of online learning than the male student's teachers. The results also showed that gender significantly influenced attitudinal constructs. Female pre-service teachers were found to have higher habitual use. It was therefore concluded that gender was a determinant factor in the use of online instruction. Not only this, student's actual usage was determined by their perceived ease of use and usefulness.

**Keywords:** gender, online pedagogy, divergence, attitude, teacher education and techno-phobia

## 1. Introduction

The United Nations declared 2005 to 2014 as the United Nations' Decade of Education for Sustainable Development (ESD). With this declaration, teacher education will continue to attract attention in the implementation of this goal because teachers are very important in the attainment of the UN declaration on education for sustainable development. In order to achieve the above; there is need for a shift in teaching from the old conventional teacher-centered to student-centered approach. Approach to learning should also change from the old passive learning to active and collaborative learning using online /World Wide Web and technology supported learning. These modes of learning should equally adopt the constructivist and collaborative learning theories. Constructivist and collaborative learning help students to develop the necessary skills required for self-supported study. Learner's sex and their individual differences must also be given attention. A gender-inclusive teaching method is desired to develop understanding and respect for learner participation and success in learning (UNESCO, 2001). Mainstreaming and gender factors are important factors that must be considered in any online/technology enhanced learning. The Learning experiences of the female and male must also be considered. This is necessary because it is an integral part of the design, implementation, monitoring and evaluation so that both sexes can benefit equally. The issue of gender divergence and attitude, psychological and social aspects of online learning environment would be a positive step towards mainstreaming a gender perspective.

## 2. Literature Review

Online learning according to literature presents new options, new possibilities and indeed opportunities for learning especially in Africa. Online instructional resources have come to play a central role in education (Wu & Hwang, 2010). This is referred to as digital revolution and the new revolution is becoming universally accepted at all levels of education. It is not only teachers that find online learning useful but also majority of the students, who sees online learning as a creative and better substitute to the overcrowded traditional lecture method of instruction. According to literature, students see online learning as a compliment to conventional classroom teaching techniques. To them, online education is more efficient more extensive, interesting, compelling, informative and accessible than the conventional teaching techniques (Gigurovic, 2010). Online instruction is an

approach that facilitate and enhance learning through both computer and communication technology. Such devices include CDRoms, games and simulations, Wikis, collaborative soft wares, classroom management soft wares, PDAs, mobile phones discussion forum, blogging etc (Van-Ejil, Pilot & De-Vologda, 2005). Thus online learning in Nigeria is becoming both more useful and more cost effective for many field of teaching; however one major limitation to its adoption across all the education sectors is the attitude of the teachers in training to its integration. Teacher's attitude is very important to determining whether the innovation will yield the desired result or whether it will prove effective to the classroom.

This therefore, forms the justification for the study. There are so many studies that examined the effect of online pedagogy on students' knowledge construction and learning experience. Some of them are Pena-Shaff and Nicholls (2004); White and Frederiksen (2005); Guan, Tsai and Hwang (2006); Abduls and Yoshimura, (2010). One common thing with these studies is that they measured academic self-efficacy within online instruction with genders as a factor. Other studies in this category are Bong and Choi (2000); Thompson, Meriac and Cope (2002); Meyer et- al (2002); Brown, et- al. (2003); Tai (2006); Crippen and Earl (2007); Yukselturk and Bulut (2007). Other studies examined gender, access to and use of the online environment. White (2000); Denis and Olivier (2002); Ono and Zavodny (2003) investigated the social and cultural perceptions of male and female and their preferences. However, little or no information is known about Nigeria. Hence, the need for the study.

The study is designed to assess the effect of attitude and the gender of pre-service teachers on the utilization of on-line instruction. It also examined the subtle and unintentional incidents of gender effect on students' participation in technology (Gatta, 2001). Literature also revealed that there is general lack of information on gender issue and the need for further studies in this area with respect to pre-service teacher education in Nigeria. It is therefore important to assess gender effect and attitude towards online instruction with its implications on classroom teaching and learning.

### **3. The Conceptual Framework**

This study is based on the theory of innovation and diffusion/ technology acceptance model (TAM). Innovation diffusion attempts to explain the variables that influence how and why users adopt a new information medium such as technology. Innovation diffusion research centers on the conditions that increases or decreases the likelihood that a new idea, product, or practice will be adopted by members of a given culture. Diffusion of innovation theory predicts that media as well as personality variables provide information and influence opinion and judgment

### **4. The Objectives of the Study**

Based on the above, the following objectives are stated for this study:

- 1) determine the pre-service teachers' perception about the usefulness, ease of use and actual usage of online instruction,
- 2) find out if gender is a factor in using online instruction;
- 3) investigate whether there is difference in gender and attitude of pre-service teachers towards online instruction.
- 4) find out the effect of gender on each of PU, PEUS, AUS and HUS among the pre-service teachers; and
- 5) find out the interaction effect of perceived usefulness(PUS), habitual use(HUS) and perceived ease of use(PEU) on students teachers actual use of online instruction

### **5. Research Questions**

Empirical answer will be provided to the following questions:

- 1) is there any significant difference in the perceived usefulness, perceived ease of use and actual usage of the online instruction?
- 2) is there any significant difference in the attitude of pre-service teachers towards online instruction?
- 3) will there be relationship between gender and attitudes of students towards online instruction?
- 4) is there any effect of gender on each of PU, PEUS, AUS and HUS among the pre-service teachers?,
- 5) is there any interaction between PUS, PEUS, HUS and Actual use of the online instruction?

### **6. Significance of the Study**

It is assumed that with the growing capacity and potential of the internet and the web based technologies; the growing familiarity with Information Communication Technology (ICT) such as, PDAs, iPods, ipad,

smartphones, more students would use online resources to facilitate their learning especially in the developing countries with numerous educational problems. This is the case with Nigeria, where Obafemi Awolowo University (OAU), Ile Ife, Nigeria like many other international institutions tried to use web based technologies and the information network to enhance teaching and learning. This study provides empirical information on student's perception, gender factor and student's attitude towards online instruction. It also provides insight into how the Faculty of Education, Obafemi Awolowo University and the University utilized integrated online technology to resolve the challenges of large class enrolment and inadequate facilities.

## 7. Research Method

The study adopted a descriptive survey design. The population for the study is made up of all the registered students in the Faculty of Education, Obafemi Awolowo University, Ile-Ife, Nigeria. The samples of three hundred students were selected through stratified random sampling from the full time undergraduate students of the Faculty. Data were collected through a structured questionnaire containing 12 items that was made up of 5 point Likert - type Scale. Section 1 solicited for demographic characteristic while section 2 contained frequency of usage (habitual use) of the online instruction. Other sections obtained information on the perceived usefulness, perceived ease of use and Actual use. This questionnaire was adapted from Technology Acceptance Model (TAM).. The questionnaire was validated using content and face validity. The reliability was determined using Cronbach Alpha reliability coefficient. A reliability co- efficient of 0.86 was obtained. This implied that the instrument is reliable.

## 8. The Study Hypotheses

The following null hypotheses are stated for the study:

HO<sub>1</sub> there is no significant difference in students' perceived usefulness, ease of use and students' actual use of online instruction,

HO<sub>2</sub> gender is not a determinant factor in students' habitual use of online instruction,

HO<sub>3</sub> there is no significant relationship between students' perceived usefulness, perceived ease of use and habitual use of online instruction; and

HO<sub>4</sub>:there is no any interactions between students perceived ease of use, perceived usage, habitual usage and student teachers actual usage of online instruction

## 9. Data Analysis

The data collected was analyzed using inferential statistics of Pearson correlation, ANOVA and t-test.

## 10. Findings and Discussions

Result of the analysed data is presented in tables 1-8

Table 1 provides answer to the first research question: "Will there be any difference in students' perceived usefulness, perceived ease of use and actual use of the online instruction?" The table revealed a significant difference in the students' perceived usefulness  $F_{(2, 275)} = 26.19$ ,  $P < .05$ , perceived ease of use  $F_{(4, 275)} = 49.653$ ,  $P < .05$  and actual use  $F_{(9, 275)} = 39.14$ ,  $P < .05$  respectively. Based on this result, the null hypothesis (HO<sub>1</sub>) that states that there is no significant difference between gender of students' and their perceived usefulness of online instruction was rejected. The study further revealed that female students had higher mean scores. Tables 4 and 5 showed that there is a significant difference between habitual use, perceived usefulness, perceived ease of use and gender. Based on the findings, the Null hypothesis (HO<sub>3</sub>) that states that there is no significant relationship between students' perceived usefulness, perceived ease of use and habitual use of online instruction was rejected.

Table 1. Analysis of variance showing significant difference in perceived usefulness, ease of use and actual usage

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model (Explained)	60.000a	24	2.500	45.833	0.05
Intercept	314.705	1	314.705	5769.599	0.05
Perceived Usefulness (Main effect)	2.857	2	1.429	26.190	0.05
Perceived Ease Of Use (Main effect)	10.833	4	2.708	49.653	0.05
Actual Use (Main effect)	19.214	9	2.135	39.140	0.05
Error (Residual)	15.000	275	.055		
Corrected Total	75.000	299			

Table 1 indicates significant difference in students' perceived usefulness  $F_{(2, 275)} = 26.19$ ,  $P < .05$ , perceived ease of use  $F_{(4, 275)} = 49.65$ ,  $P < .05$  and actual use  $F_{(9, 275)} = 39.14$ ,  $P < .05$  by gender

Table 2. Gender and perceived usefulness, perceived ease of use and actual use of the online instruction

Gender			Gender	Perceived Usefulness	Perceived Ease of Use	Actual Use
Male	N	Valid	150	150	150	150
		Mean	1.0000	14.0667	12.2667	14.7333
		Std. Deviation	.00000	3.11882	4.90810	2.49743
		Variance	.000	9.727	24.089	6.237
		Sum	150.00	2110.00	1840.00	2210.00
Female	N	Valid	150	150	150	150
		Mean	2.0000	14.2000	12.5333	15.2667
		Std. Deviation	.00000	1.83917	1.54862	3.22463
		Variance	.000	3.383	2.398	10.398
		Sum	300.00	2130.00	1880.00	2290.00

Table 2 depicts that the sum and mean of female in the three measured constructs are higher than those of the male.

Table 3. Paired sample t-test showing significance difference in habitual use of the online instruction by gender

	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Gender Habitual Use	-1.56667	1.08758	.06279	-1.69024	-1.44310	-24.950	299	0.05

Table 3 shows that there is a significant difference in habitual use of the online instructional environment by gender ( $t = -24.95$ ,  $P < .05$ ).

Table 4. Correlation between gender and habitual use of the online instruction

		Gender	I use web based instruction
Gender	Pearson Correlation	1	.129*
	Sig. (2-tailed)		.025
	N	300	300
Habitual Use	Pearson Correlation	.129*	1
	Sig. (2-tailed)	.025	
	N	300	300

Table 4 shows that a significant relationship ( $r = .129$ ,  $P < 0.05$ ) exists between sex and habitual use of the online instruction.

Table 5. Effect of gender on habitual use of the online instruction

Gender		N	Mean	Std. Deviation	Variance
Male	Gender	150	1.0000	.00000	.000
	Habitual Use	150	2.9333	1.00112	1.002
	Valid N	150			
Female	Gender	150	2.0000	.00000	.000
	Habitual Use	150	3.2000	1.04913	1.101
	Valid N	150			

The results show that the female group had higher sum and mean scores for habitual usage (2.93, 3.20 respectively, see Table5).

Table 6. Effects of perceived usefulness (PU) and perceived ease of use (PEOU) on students teachers active usage of online instruction

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model (Explained)	131.381 <sup>a</sup>	11	11.944	18.367	0.05
Intercept	1065.407	1	1065.407	1638.338	0.05
PU	77.270	5	15.454	23.764	0.05
PEOU	52.048	6	8.675	13.339	0.05
Error (Residual)	187.286	288	.650		
Corrected Total	318.667	299			

From Table 6, when a comparison of the effects of PU, PEU and PEOUS on students teachers actual use were carried it was revealed that the effects were significant ( $F=18.37$ ,  $23.764$  and  $13.34$ ) respectively ( see Table 6).

However, with respect to the interaction factors between habitual use, PUS and PEOUS, it was revealed that the F calculated were also significant ( $F_{3,296}= 9.52$  &  $21.47$ ) respectively. It implied that student teacher perceived ease of use and habitual use determines whether they will actually use the online instruction (See Table 7)

Table 7. Interaction between habitual use, perceived usefulness and perceived ease of use

		Sum of Squares	df	Mean Square	F	Sig.
Perceived Usefulness	Between Groups	172.048	3	57.349	9.523	0.05
	Within Groups	1782.619	296	6.022		
	Total	1954.667	299			
Perceived Ease of Use	Between Groups	706.286	3	235.429	21.470	0.05
	Within Groups	3245.714	296	10.965		
	Total	3952.000	299			

Table 8 shows that there is significant interaction effect between habitual use, perceived usefulness and perceived ease of use of the online environment.

Table 8. Joint contribution of perceived usefulness and perceived ease of use to habitual use

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.692	2	21.846	23.596	0.05
Residual	274.975	297	.926		
Total	318.667	299			

a. Predictors: (Constant), Perceived Ease of Use, Perceived Usefulness

b. Dependent Variable: Habitual Use

From Table 8, the results obtained shows that student teachers perceived ease of use have a significant effect on habitual use. On the other hand, it was revealed that Perceived Usefulness and Perceived Ease of Use jointly contributed significantly to Habitual use ( $F_{(2,297)} = 23.596$ ;  $P < 0.05$ ).

These findings agreed with those of Gun (2003), Yuen and Ma (2002) and Sanders and Morris-Shetlar (2001). Gunn (2003) in New Zealand also observed that females had higher usage and performed better in online than in a classroom environment in a Web design course. Yuen and Ma (2002) found out that there was a significant difference in beliefs and attitude of male and female pre service teachers. Applying the technology acceptance model to a group of pre-service teachers Sanders and Morris-Shetlar (2001) observed that the attitude of female towards web based learning was more positive than that of the male. In contrasts Paris (2004) argued that there was no significant difference between the attitudinal scores of male and female to computer and online instruction. The findings from this study also was in contrast with those of Atan, Sulaiman, et al. (2002); Atan, Azli et- al. (2002); Davidson-Shivers, Morris and Sriwongkol (2003) who opined that gender differences was not a factor in online behavior. Similarly, Graff (2003); Hashim and Mustapha (2004), Avraham (2005); Meelissen and Drent (2008); Sainz et al. (2010); Adebowale et al. (2010); Khatoon and Mahmood (2011) argued that men and women did not differ significantly in their actual use of online instruction. However they reported obvious differences in their perceived skills and nature of use of the online environment.

## 11. Summary and Conclusion

The study determined the pre-service teachers' perception about the usefulness, ease of use and actual usage of online instruction. It also find out if gender is a factor in using online instruction. In addition it investigated whether there were difference in gender and attitude of pre-service teachers towards online instruction. The effect of gender on each of PU, PEUS, AUS and HUS among the pre-service teachers were determined and lastly the study examined the interaction effect of perceived usefulness (PUS), habitual use (HUS) and perceived ease of use (PEU) on students teachers actual use of online instruction. The results showed that gender significantly influenced attitudinal constructs with female showing significantly higher attitude than the male. Female pre-service teachers were found to have higher habitual use. Gender had a significance interaction with habitual use. There was also a significant interaction effect between gender and the three measured constructs. It is

therefore concluded that gender was a determinant factor in the use of online instruction. Not only this, students actual usage is determined by their perceived ease of use and usefulness.

## References

- Abdous, M., & Yoshimura, M. (2010). Learner outcomes and satisfaction: A comparison of live video-streamed instruction, satellite broadcast instruction, and face-to-face instruction. *Computers & Education*, *55*, 733-741. <http://dx.doi.org/10.1016/j.compedu.2010.03.006>
- Adebowale, O. F., Adewale, I. A., & Oyeniram, F. M. (2010). Computer interest, approval and confidence of secondary school students in three elected local government of Lagos State: Implications for global computerization. *International Journal of Education and Development using Information & Communication Technology*, *6*(1).
- Avraham, L. (2005). *Differences in the way males and females perceive computers*. Retrieved from:<http://elsevier.org/course/spring97/76100/contributions/avraham/>
- Bimber, B. (2000). The Gender gap on the Internet. *Social Science Quarterly*, *81*, 868-876.
- Brown, S. W., Boyer, M. A., Mayall, H. J., Johnson, P. R., Meng, L., Butler, M. J., ... Reis, S. (2003). The global education project: gender differences in a problem-based learning environment. *Instructional Science*, *34*, 255-276. <http://dx.doi.org/10.1023/A:1024677708501>
- Cathy, G. (2003). Dominant or different? gender issues in computer supported learning. *Journal of Asynchronous Learning Networks*, *7*(1), 14-30.
- Crippen, K. J., & Earl, B. L. (2007). The impact of web-based worked examples and self-explanation on performance, problem solving, and self-efficacy. *Computers & Education*, *49*, 809-821. <http://dx.doi.org/10.1016/j.compedu.2005.11.018>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319-340. <http://dx.doi.org/10.2307/249008>
- Denis, A., & Olivier, M. (2002). How Wired Are Canadian Women? The intersection of gender, class and language with the use of new Information Technologies.
- Gatta, M. (2001). *Women and work: prospects for parity in the new economy*. New Brunswick, NJ: Center for Women and Work, Rutgers University.
- Girgurovic, M. (2010) Technology-enhanced blended language learning in an ESL class: A description of a model and application of the diffusion of innovation theory. Unpublished PhD Thesis, Iowa State University
- Graff, M. (2003). Cognitive style and attitudes towards online learning and assessment methods. *Electronic Journal of e-Learning Methods*, *1*(1), 21-28.
- Guan, Y. H., Tsai, C. C., & Hwang, F. K. (2006). Content analysis of online discussion on a senior-high-school discussion forum of a virtual Physics laboratory. *Instructional Science*, *34*, 279-311. <http://dx.doi.org/10.1007/s11251-005-3345-1>
- Hargittai, E., & Shafer, S. (2006). Differences in actual and perceived online skills: The role of gender. *Social Science Quarterly*. <http://dx.doi.org/10.1111/j.1540-6237.2006.00389.x>
- Hashim, H. R., & Mustapha, W. N. (2004). Attitudes toward learning and working with computers. *The Turkish Online Journal of Educational Technology*, *3*(1), 3-6.
- Jackson, L. A., Ervin, K. S., Gardner, P. D., & Schmitt, N. (2001). Gender and the Internet: Women communicating and men searching. *Sex Roles*, *44*, 363-379. <http://dx.doi.org/10.1023/A:1010937901821>
- Joo, Y., Bong, M., & Choi, H. J. (2000). Self-efficacy for self-regulated learning, Academic self-efficacy, and Internet self-efficacy in web-based instruction. *Educational Technology Research and Development*, *48*, 5-17. <http://dx.doi.org/10.1007/BF02313398>
- Meelissen, R. M., & Drent, M. (2008). Gender difference in computer attitudes: Does the school matter? *Computer in Human Behaviour*, *24*(3), 969-985. <http://dx.doi.org/10.1016/j.chb.2007.03.001>
- Myers J. M., & Halpin, R. (2002) Teachers' attitudes and use of multimedia technology in the classroom: constructivist based professional development training for district schools. *Journal of Computing in Teacher Education*, *18*, 133-140.
- Ono, H., & Madeline, Z. (2003). Gender and the Internet. *Social Science Quarterly*, *84*.

- <http://dx.doi.org/10.1111/1540-6237.t01-1-8401007>
- Paul, G. P. (2004). E-Learning: A study on secondary students' attitudes towards online web assisted learning. *International Education Journal*, 5(1), 56-63.
- Pena-Shaff, J. B., & Nicholls, C. (2004). Analyzing student interactions and meaning construction in computer bullet in board discussions. *Computers & Education*, 42, 243-265. <http://dx.doi.org/10.1016/j.compedu.2003.08.003>
- Sanders, D., & Morrison-Shetlar, A. (2001). Student attitudes toward web-enhanced instruction in an Introductory Biology Course. *Journal of Research on Computing in Education*.
- Sanders, J., & Campbell, P. B. (2001). Making it happen: The Role of teacher education in ensuring gender equity. *AACTE Policy Perspectives*, 2(4), 1-5.
- Tahira, K., & Sadia, M. (2011). Computer attitude as a function of gender, type of school mathematics anxiety and mathematics achievement. *European Journal of Social Sciences*, 18(3), 43-54
- Tai, W. T. (2006). Effects of training, general self-efficacy and motivation on trainees' training effectiveness. *Personnel Review*, 35, 51-65. <http://dx.doi.org/10.1108/00483480610636786>
- Tang, J. (2003). Women are succeeding in Science in the twentieth century. *Sociological Forum*, 18, 325-342. <http://dx.doi.org/10.1023/A:1024099831993>
- Thompson, L. F., Meriac, J. P., & Cope, J. G. (2002). Motivating online performance: The influences of goal setting and internet self efficacy. *Social Science Computer Review*, 20, 149-160. <http://dx.doi.org/10.1177/089443930202000205>
- UNESCO. (2001). General Assembly *Resolution and Road map Toward the Implementation of the Millennium Development Declaration*. 56<sup>th</sup> Sessions item 40 of the Provision of the Agenda and Follow-up and the outcome of the Millennium Development Summit. New York
- Van-Eijl, P., Pilot, A., & De-Vologda, P. (2005). Effect of collaborative and individual learning in a blended learning environment. *Education and Information Technologies*, 10(2), 49-63.
- Weiss, M. A. (2006). Towards Universal Primary Education: United Nations Millennium. *Project Report on Education and Gender quality*, 2(1).
- White, B., & Frederiksen, J. (2005). A theoretical framework and approach for fostering meta-cognitive development. *Educational Psychologist*, 40, 211-223. [http://dx.doi.org/10.1207/s15326985ep4004\\_3](http://dx.doi.org/10.1207/s15326985ep4004_3)
- Wu, W., & Hwang, L. (2010). The effectiveness of e-learning for blended courses in colleges: A multi-level empirical study. *International journal of Electronic Business Management*, 8(4), 312-322.
- Yuen, H. K., & Ma, W. K. (2002). Teachers' computer attitudes: factors influencing the instructional use of computers. Proceedings of the International Conference on Computers in Education (ICCE), Seoul Korea. 12-15.
- Yukselturk, E., & Bulut, S. (2007). Predictors of student success in an online course. *Educational. Technology & Society*, 10, 71-83.