

Technical Teachers' Perception and Readiness for E-Learning Instructional Delivery

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Abstract

The study investigated technical teachers' perception and readiness for e-learning instructional delivery in technical schools in Niger state. The study employed a survey research design. The sample for the study comprised 250 technical teachers. Two instruments were used namely e-learning technical teachers' perception and Readiness questionnaire ($r = 82$) and technical-based achievement Test ($r = 73$) to collect data. Four hypotheses were generated and tested. t-test analysis of variable and Pearson moment correlation statistic were used to analyze the data. The result showed that there was a significant difference in male and female technical teachers' perception of e-learning and also of their readiness for e-learning instructions. E-learning instructions should be incorporated into technical teaching in technical schools to enhance students' understanding of technical concepts.

Keyword: e-Learning, Perception, Technical teacher, Technical schools, Readiness

Introduction

The use of electronic learning (e-learning) is on the increase and it is gaining appreciable grounds in the educational systems all over the world. Involvement of e-learning is given prominent attention especially in the higher institutions and for distance learning situations. Ayoade and Raji (2006) when emphasizing on the importance of ICT asserted that ICT can be used in many ways and how it is integrated into educational settings depend largely on teachers' instructional goals and strategies. They further enumerated technologies that enable ICT activities in the classroom as interactive White Board (IWB), Web-Based Instructions (WBI) and Virtual Classroom (VC). Development of e-learning is therefore based on these ICT technologies. The pivot of e-learning is the web-based instruction in which individuals have freedom to choose their learning path in order to have greater control over their learning. E-learning is applied to systems for distance learning in which software support students to take a campus based course or online documentation for teaching and learning (Rhdhagen and Trojer, 2008).

Carr (2000) noted that since early this century, various "new" educational technologies have been touted as the revolutionary pedagogical eave of the future. Classroom films, language laboratories, educational television, computer-assisted instruction, interactive video disc, and more recently, electronic learning, which is any type of online learning that is relevant and realistic to the user, are now adopted and integrated into the curriculum with varying degrees of success most especially in the developed countries. E-learning, which is also known as internet-based hybrid learning is now one of the most significant new learning technologies to emerge. Most technical teachers still resort to using old technology of books, chalkboard, overhead projector, video projector and computer. It is possible to use various pedagogical approaches for effective implementation of e-learning in technical schools. Such approaches include instructional design, social constructivist Laurillard's conversational model, cognitive perspective emotional perspective, behavior perspective, contextual perspective and model neural (Reeds and Jones, 2008).

Technical teachers' gender often has an influence on their classroom instructional delivery especially when using electronic media in teaching science related subjects (Daramola, 2002). Barry (1995) investigated the influence of teacher' gender on their perception of pupils' learning behaviors. He related the conclusion that gender of teachers predicated their readiness and involvement in information technology in assessing and changing pupils' behaviors. The perception and readiness of e-learning by these teachers therefore might likely be affected by their gender. The type of technical subjects a teacher teaches whether auto-mech, metal work, wood work, electrical and electronics or building based could also be a pointer to the mode of teachers' use of e-learning to teach students in schools. Hence, the need for this study which is aim to investigates technical teachers' perception and readiness for e-learning instructional delivery.

Statement of the Problem

Technical teaching in most of the Nigeria classrooms still adheres strictly to the methods of chalk and talk with little practical activities as the final external examinations are approaching. Technical teachers resort to making students to be slaves to available textbooks and try and error usage of obsolete equipment and materials in our laboratories. Information and communication technologies are rapidly influencing education and it is thought that in this millennium virtual classrooms will replace conventional classrooms. The e-learning is now widely used in the delivery of lectures in the tertiary institutions but its usability at technical school levels is yet to be noticed (kolo, 2002). E-learning cannot take place without the teachers that will guide and order the instructions. The questions therefore to be asked are these: what are the technical teachers perception for e- learning and are they really ready for its utilization in their day to day instructional delivery considering their gender and teaching technical subjects?

Research Hypotheses

- HO₁ There is no significant difference between male and female technical teachers perception of e-learning.
- HO₂ There is no significant difference between male and female technical teachers readiness for e- learning instruction.
- HO₃ There is no significant difference between technical teachers' perception for e-learning instructions based on their technical subject affiliations
- HO₄ There is no significant difference in technical teachers' readiness for e-learning instructions based on their technical subject affiliations

Methodology

The study employed a survey research because none of the variables used in the study was manipulated but were used as they have existed. The population for the study comprised all the technical teachers in technical school in Niger State. Two instruments were used to collect the data for the study and they were constructed by the researcher. They were e-learning technical teachers' perception readiness questionnaire (ELETPRQ) and technical-based achievement test (TBAT). ELETPRQ was divided to three sections. Section A requested for the background information of the technical teachers section B was the perception scale which contained 12-items and section C contained the technical teachers' readiness scale with items. Four-point likert scale responses of strongly agree (4), Agree (3), Disagree (2) and strongly disagree (1) were used. The scores were reversed for negatively worded items. It was given to colleagues for content and construct validity. The internal consistency of the instrument was established using Cronbach Alpha which yielded a reliability index of 0.82. TBAT was 60-items multiple choice test of science students' achievement in seven related senior secondary schools science subject. The instrument was

pilot tested and the kuder-Richardson 20 reliability index was 0.73. The researcher and other two research assistant collected the data for the study. Completed instruments were collected from the science teachers and students that took part in the study. The data were analyzed using descriptive, t-test, ANOVA and Pearson moment correlation statistics.

Results

Table 1

t-test of Technical Teachers Perception and Readiness for e-Learning by Gender

Gender	N	Mean	SD	std.nError	t	df	Sig.
Perception Male	120	103.52	8.731	.797	2.52	248	.012*
Female	130	100.41	10.582	.928			
Readiness Male	120	35.36	8.121	.741	2.51	248	.013*
Female	130	32.66	8.808	.772			

* = significant at p<.05

Table 1 showed the male and female technical teachers e-learning perception and readiness scores. It is revealed from the table that male technical teachers mean perception score was 103.52 while that of their female counterparts was 100.41. This implies that male technical teachers had better perception of e-learning than the female technical teachers. Also, there was significant difference (t(248)=2.522, p<0.05) between male and female technical teachers perception of e-learning.

Therefore, hypothesis 1(i) was rejected. It is also deduced from the table that male technical teachers had higher readiness (35.36) for e-learning than the female technical teachers (32.66). the difference in their mean score are also significantly different [t(248)=2.511, p<0.05]. Hypothesis 1 (ii) is also rejected.

Table 2

Mean Perceptions Scores, ANOVA and Scheffe Post Hoc Analyses on Technical Teachers' Perception of e-Learning by Subject Affiliations

Subject Affiliations	N	Mean	Sum of squares	df	Mean square	F	P
Auto-mech	60	104.08	Between groups 1791.283	3	597.094		
Metal/Wood Work	80	98.03	Within groups 22329.217	2469	90.769	6.578	.000*
Elect/Elect Building	50	103.90	Total 24120.500	249			
	60	103.22					
Scheffe Post Hoc			Mean Difference		Std. Error		
Metal/Woodwork	Auto-mech			-6.058	1.627	.004*	
	Building			-5.192	1.62	.019*	
	Elect/Elect			-5.875	1.718	.010*	

*= significant at p<.05

Table 2 elicits the mean perception scores and ANOVA analysis of teachers' perception according to their subject affiliations. Auto-mech teachers had the mean highest perception score (104.08) of e-learning, followed by elect/elect teachers score (103.90) and building the least. When the perception mean scores were subjected to ANOVA analysis, it is shown in table 2 that there is a significant difference in technical teachers perception of e-learning by their subject affiliations [f (3,246) =6.578, p<0.05]. Scheffe post hoc result showed that the

perception of metal/woodwork teachers of e-learning was significantly different from that of auto-mech, building and elect/elect subject teachers.

Table 3
Mean Readiness Scores and ANOVA Analysis on Teachers Readiness for e-Learning by Subject Affiliations

Subject Affiliations	N	Mean	Sum of squares	df	Mean square	F	P
Auto-mech	60	33.20	173.296	3	57.765		
Metal/Wood Work	80	33.07	18135.200	246	73.720	.784	.504ns
Elect/Elect	50	33.54	18308.516	249			
Building	60	35.40					

Table 3 shows mean readiness scores and ANOVA analysis technical teachers' readiness for e-learning instructional delivery in technical schools. The table reveals that building teachers had highest readiness mean score of 35.40, followed by elect/elect, auto-mech and metal/woodwork teachers with mean scores of 33.54, 33.20 and 33.07 respectively. It is also shown from the table that there is no significant difference [$f_{(3,246)} = .784, P < 0.05$] in technical teachers readiness based on their subject affiliations. Therefore the hypothesis 3(ii) is not rejected

Discussion of findings

The study has revealed a significant difference between male and female technical teachers perception of e-learning. Also, male technical teachers have higher e-learning perception than the female technical teachers. This may due to greater interest that the male technical teachers develop in information technology and the ever domestic commitment that occupy most of time of the female technical teachers. Difference between male and female technical teacher readiness for e-learning instructional delivery could be warranted because male technical teachers are more inquisitive for new innovations in developing themselves more in the use internet. It was also deduced from the study that there is a significant difference in technical teachers, perception of e-learning based on the subject affiliations. The significant difference was noticed between metal/woodwork teachers and other technical subject affiliations such as auto-mech, building and elect/elect. No significant difference was found in technical teachers' readiness for e-learning among the metal/woodwork, auto-mech, building and elect/elect teachers even though the building teachers seemed to be more ready than other categories of technical teachers. The finding of the study also revealed that the relationship between technical teachers' perception of e-learning is positive and significant. Perception of technical teachers of e-learning will enable them to encourage their students to browse on internet to do solve tutorial questions on the net which will definitely affect their performance positively. This also support the assertion of Idris (2001) that computer-based instruction facilitates individual learning, thinking, provides opportunity to go beyond the confines of one learning package and provide immediate feedback that make to understand in order to improved their achievement. The low positive but significant relationship between technical teachers' perception of e-learning and their readiness for e-learning instructional delivery is brought about because a well informed teacher and who known the advantage of e-learning in facilitating teaching and learning will also be ready to utilize such facilities to enhance his/her teaching process.

Conclusion and Recommendations

E-learning provides a promising alternative to on site education since it reduces cost of buildings, travelling and accommodation. Teachers can be located in one place while students can stay in their home environment and attend to lessons from their teachers. Technical teachers' perception and readiness to employ e-learning among their students are major issues to be considered before this teaching innovation can be effectively applied in Nigerian technical schools. If teachers consider e-learning as replacing them, they would not be ready for its application to support their classroom teaching. E-learning and digital learning materials are therefore supposed to complement irregular and low quality and a lack of up-to-date school books for the students. Appropriate perception and readiness of technical teachers for e-learning will help them to use it to support weak students to find new motivation and to be able to learn on their own pace.

In view of the findings of this study, the following recommendations are made for educational stakeholders to consider for effective utilizations of e-learning in secondary schools:

1. Government should sponsor technical science teachers to develop technical subject content materials and lesson notes for delivery through the internet, making and delivering CD-ROMS to the schools.
2. Female technical teachers should be encouraged to develop themselves not only in the use of ICT facilities but also be internet browsing literate to make them ready for the use e-learning.
3. Educational policy makers should provide internet facilities in the technical schools for the use of teachers and also of students in order to undertake e-learning activities.
4. Metal/woodwork teachers need to realign their teaching professionalism with the new challenges of e-learning by creating interest and developing themselves for better perception of e-learning.
5. Technical teachers should be sent for in-service training, seminars and workshops on how to incorporate e-learning mode of instruction to their teaching-learning processes.

References:

- Ayoade, O. B. and Raji, M. O. (2006). Integrating ICT into Curriculum Design and Classroom Delivery: Prospects, Barriers and Challenges. *Nigerian Journal of Computer Literacy*, 7 (1), 15-36.
- Barry, B. H. (1995). Gender Effects on Evaluations of Faculty. *Journal of Research and Development*. 83 (5), 139-144.
- Carr, V.H. (2000). Teaching, Adoption And Diffusion. Retrieved from <http://tlc.nlm.nih.gov/resources/publication> on 16th April, 2011.
- Daramola, N. C. (2002). Gender Differences in the Perception of Chemistry Laboratory Classroom Environment. *Queensland Journal of education* 15, 133-137.
- Idris, A. M. (2001). Promoting Learning through Effective Teaching: Some Guiding Principles and Implications for Technical Teacher Education. Paper Presented at the 1st Conference of Nigerian Association of Teachers of Technology, Niger State Chapter Held on 21st- 23rd November, 2001.
- Kolo, E. J. (2010). Perception of Nigerian Technical Teachers on Introduction of e-Learning Platforms for Instruction. *China Education Review*, 8 (13), 10-14.
- Reeds, S. B. and Jones, C. (2008). Mode Neutral pedagogy. *European Journal of Open, Distance and e-Learning*. 26 (4), 111-115.

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Rydhagen, B. and Trojer, L. (2006). Digital Delivery and e-Learning in Rural Secondary Schools in Tanzania. Retrieved from <http://africa.lights.apc.org/Apc> on 14th April, 2011.