

TECHNICAL TEACHERS' PERCEPTION AND READINESS FOR E-LEARNING INSTRUCTIONAL DELIVERY OF TECHNICAL SCHOOLS IN MINNA, NIGER STATE

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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 one hundred technical teachers. An instrument tagged e-learning technical teachers' perception and readiness questionnaire (ELETPRQ) was used for the study. The internal consistency of the instrument was established using Cronbach Alpha which yielded a reliability of 0.82. Four hypotheses were postulated for the study. The t- test and ANOVA was used to test the hypotheses at 0.05 level of significance. 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. Recommendations were made that e-learning instructions should be incorporated into technical teaching in technical schools to enhance students' understanding of technical concepts among others.

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. E-learning is the application of computers and telecommunication facilities in instructional delivery. Explaining further Nwachukwu (2009) stated that e-learning is the use of computer, communication, network and mobile technology to mediate in teaching learning process. E-learning facilities include computers, internet, interactive electronic boards, mobile phones among others. 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 depends 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 (CV). 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, educational television, computer-assisted instruction, interactive video disc, and more recently, electronic learning which is any type of online learning are now adopted and integrated into the curriculum with varying degrees of success 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.

However the perception of teachers about the use of e-learning in instructional delivery is not encouraging. Njoku(2011) explained that many teachers still use computers with suspicion. They have phobia with anything that has to do with e-learning. They feel the use of the 'modern machine' should be

left to the new generation of learners and not for the old breed like them, forgetting they are the teachers that have to pass down this knowledge to their students. This makes the teachers to deprive themselves the opportunities to tap new information sources and to link with colleagues around the world. They deprive themselves and their students of expanding their knowledge and skills. The poor perception of e-learning by these teachers makes it difficult for them to be ready to adopt this new technology. No wonder Njokuwu(2011) asserted that most of the teachers in tertiary and secondary schools are not computer literate and therefore unprepared to use the technology. Supporting this view Oriwari(2001) opined that teachers are not ready to use the technology because they do not possess the necessary skills and competence to use them.

Therefore most technical teachers still resort to using old technology of books and chalkboard instead of e-learning facilities. The world is driven by information, knowledge and technology. If teachers are to remain relevant in this new dispensation there must be readiness to adopt the new world order of information communication technology. Readiness has been defined by Walter (2006) as having a willingness to be prepared for immediate action or use. Speaking about readiness to accept or inculcate ICT in their teaching Tsiga and Bala (2011) stated that many of Nigerian teachers belong to the old school with little or no knowledge of ICT and are not willing to learn. They are also used to typical tradition of lecturing. Therefore technical teachers need a transformation from the traditional setting to the use of ICT in instructional delivery. Technical teacher transformation can start by producing actions through readiness and willingness to adopt ICT in instruction.

Technical Teacher refers to teachers involved in training students to acquire practical skills , attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (FRN, 2004). They help to provide skilled manpower in applied sciences, engineering technology for rapid socio-economic development. The readiness to apply ICT for teaching by technical teachers will in a long way make learning flexible, interesting, creative and reduces boredom. It will also enhance students to develop manipulative skills and higher thinking processes. It is therefore imperative that these teachers embrace the use of ICT to enrich their instructional delivery and produce competent graduates who would not only meet our local needs in job market but can compete with the best in the world. ICT can be used to prepare students for the 21st century challenges as it stimulate learners to learn actively and independently and in collaboration with others. Technical teachers' gender has been discovered to influence their classroom instructional delivery especially when using electronic media in teaching science related subjects (Daramola, 2002 ;Nworgu 2004). Barry (1995) investigated the influence of teacher' gender on their perception of pupils' learning behaviors and concluded that the gender of teachers predicated their readiness and involvement in information technology in assessing and changing pupils' behaviors. 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, collaboration or co-operative learning (Reeds and Jones, 2008). 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 or building based could also be a pointer to the mode of teachers' use of e-learning to teach students in schools. Hence, this study was aimed at investigating 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 trial 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. 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

Method and Material

Research Design

The study employed a survey research because none of the variables used in the study was manipulated but were used as they have existed.

Population

The population for the study comprised all the 137 technical teachers in the five technical secondary schools in Niger State. One hundred teachers were randomly selected. This was made up of eighty two males and forty eight females.

Instrumentation

One instrument constructed by the researchers was used to collect the data for the study. This was the e-learning technical teachers' perception and readiness questionnaire (ELETTPRQ). ELETIPRQ was divided into 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 of 0.82. .

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 t- test and Anova.

Results: Results of the study will be discussed based on the hypothesis

Hypothesis 1: There is no significant difference between male and female technical teachers perception of e-learning

Table 1: t-test result of Technical Teachers Perception and Readiness for e-Learning by Gender

Gender	N	Mean	Std.Dev	std. Error	t	Df	Sig.
Perception Male	82	103.52	8.731		.797	2.52	248 .012*
Female	48	100.41	10.582		.928		
Readiness Male	82	35.36	8.121		.741	2.51	248 .013*
Female	48	32.66	8.808		.772		

* = significant at p<.05

Table 1 showed the male and female technical teachers e-learning perception and readiness scores. The table revealed 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 was rejected. It was 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 was also rejected.

Hypothesis 2: There is no significant difference between male and female technical teachers readiness for e-learning instruction

Table 2: Mean Perceptions Scores, ANOVA and Scheffe Post Hoc Analyses of Technical Teachers' Perception of e-Learning by Subject Affiliations

Subject N Affiliations	Mean	Sum of squares	DF	Mean square	F	P
Auto-mech	25	104.08	Between 1791.283	3	597.094	
			groups			
Metal/Wood Work	22	98.03	Within 22329.217	2469	90.769	6.578 .000*
			groups			
Elect/Elect	31	103.90	Total 24120.500	249		
Building	22	103.22				
Sheffe 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 shows the mean perception scores and ANOVA analysis of teachers' perception according to their subject affiliations. Auto-mech teachers had the highest mean scores on perception of e-learning (104.08), followed by elect/elect teachers with mean score of (103.90) and building teachers with mean score of (103.22) in that order. The metal/woodwork teachers mean score (98.03) was the least. When the perception mean scores were subjected to ANOVA analysis, there was 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.

Hypothesis 3: There is no significant difference between technical teachers' perception for e-learning instructions based on their technical subject affiliations

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

Subject N Affiliations	Mean	Sum of squares	DF	Mean square	F	P
Auto-mech	25	33.20	Between 173.296	3	57.765	
			groups			
Metal/Wood Works	22	33.07	Within 18135.200	246	73.720	.784 .504ns
			groups			
Elect/Elect	31	33.54	Total 18308.516	249		
Building	22	35.40				

Table 3 shows mean readiness scores and Anova analysis of technical teachers' readiness for e-learning instructional delivery in technical schools. The table revealed that building teachers had the 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. The table also revealed 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 4 is not rejected

Discussion of findings

The study has revealed a significant difference between male and female technical teachers perception of e-learning. This is consonance with Njoku (2011) and Onwari who stated that many teachers have poor perception about the use of ICT and are not willing to learn. Also, male technical teachers had higher e-learning perception than the female technical teachers. This is also in line with Nworgu (2004). This may be due to greater interest that the male technical teachers have towards information technology unlike the domestic commitment that occupy the time of the female technical teachers. Also difference between male and female technical teacher readiness for e-learning instructional delivery could be as a result of male technical teachers' inquisitiveness for new innovations in ICT. 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. A 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 the other categories of technical teachers. The finding of the study is in line with Tsiga and Bala (2011) 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 solve tutorial questions on the net which will definitely affect their performance positively. This also supports the assertion of Idris (2001) that computer-based instruction facilitates individual learning, thinking and provides opportunity to go beyond the confines of one learning environment. There is a significant relationship between technical teachers' perception of e-learning and their readiness for e-learning instructional delivery. This is because a well-informed teacher who knows 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

E-learning provides a promising alternative to on site education since it reduces cost of buildings, travelling and accommodation. Teachers can be in one location while students can stay in their home environment and attend to lessons from their teachers. Technical teachers' perception and readiness to employ e-learning is imperative if the innovation is to be effectively applied in Nigerian technical schools. Teachers should use e-learning to support their classroom teaching. E-learning and digital learning materials could complement 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 learn in their own pace.

Recommendations

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:

- . Government should sponsor technical science teachers to develop technical subject content materials and lesson notes for delivery through the internet by producing instructional CD-ROMS to the schools.
- . Female technical teachers should be encouraged to develop themselves in the use of ICT facilities as it will enhance teaching and learning
- . Educational policy makers should provide internet facilities in the technical schools for the use by teachers and students in order to undertake e-learning activities.
- . 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.
- . 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.

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