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E-Learning Training Needs of Special Educators in Universities in an Age of Information and Communication Technology

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ABSTRACT

The Nigerian universities are faced with the challenges of using e-learning to support the traditional pedagogical models adopted within the confines of the classroom especially for the learners with special needs. However, the basic pedagogical skills teachers acquire while on training are not adequate for e-learning. This paper examined the e-learning skills in which special educators require training for implementation of e-learning in the universities for effective teaching of learners with special needs. The sample consisted of 24 special educators and 74 Management Information Systems staff from the two federal and five state universities with Faculty of Education in South East, Nigeria. A Checklist and Questionnaire were used for data collection. Descriptive statistics were used to analyze the research questions. Findings indicate that special educators lack the basic skills in the use of e-learning and require professional development in basic technological skills and in the designing and implementation of curriculum for e-learning instruction.

KEYWORDS : e-learning, special educators, special education needs, universities

Introduction

The introduction of Information and Communication Technology (ICT) in education is provoking changes in the manner content is being delivered to learners. Major benefits of the introduction of ICT in education are the possibilities for effective communication of ideas and the wide scope it allows for variety and flexibility of learning and teaching opportunities (Thompson, 1987). This requires that teachers reconsider what they teach and the approaches they adopt in the teaching and learning process. However, achieving these ideas depends on institutional disposition towards the integration of ICT in education and the attitude of teachers towards the change.

The Nigerian education system continues to grapple with the challenges of the changing world. One of such challenges is how to utilize ICT in order to transform the teaching and learning process especially the education of learners with special needs that have not been given adequate attention for a long time now. For learners with special needs to meet the challenges of the 21st century, they need access to a wide range of learning opportunities which the utilization of ICT provides. Currently, we live in a world without boundaries, where new portfolios of ideas, information and knowledge are flowing across nations (Duderstadt, 2004). Today, children are born into a world without boundaries, a world which is knowledge based and entrepreneurially driven. Their survival in this circumstance requires that educators and learners explore the new teaching and learning approaches made available through ICT. Modern digital technology has been found useful in allowing educators to shift from the traditional "sage on the stage" to a more effective and progressive anytime, anyplace facilitator of learning experience (Watkins, 2005; Smith, 2005). E- learning provides a wider range of learning opportunities and flexibility that continue to enhance education for productivity (Weigel, 2000). E- learning supports the shift from teacher-centered to student-centered learning in which lecturers serve as facilitators of learning.

E-learning has been described as an educational delivery system through electronic means such as satellite broadcasting, CD.ROM, video, audio conferencing, mobile technology, interactive television, and web-based technologies (Wardca, 2005). The Intranet, Internet and the Local Area Network are particularly increasing in importance as e-learning delivery devices. Through e-learning, teachers are able to provide enough materials that enable students to access information fast, develop individual learning path-ways, get networked with other learners, interact with the content and get immediate feedback and reinforcement (Wardca, 2005). With e-learning, the quality of learning is improved, access to education and training is increased and the universal cost of education reduced (Wlodkowski, Mauldin, & Campbell, 2002). E-learning is currently viewed as a strategic tool which helps engage and enrich the learning opportunities of learners especially those with special education needs (O'Connor, 2000). It is a strategic tool for breaking down current educational barriers faced by learners with disabilities in a bid to access education. O'Connor further sees e-learning as an avenue to promote greater access to all learners. E-learning provides a level field for all learners and wider opportunities for learners with special needs

In spite of the current opportunities the use of ICT in teaching and learning offers, research shows that little attention has been paid to the application of ICT in the education of people with special needs (Williams, Hamid, Nichols & Nicholas, 2006; Starcic, 2010). Research has also shown that learners with special education needs are often marginalized and vulnerable when it comes to the use of internet and virtual learning environment (Livingstone & Helsper, 2007; Soderstrom, 2009). Starcic (2010) noted that many teachers are not aware of how to develop the e-learning environment and systems which facilitate the inclusion of learners with various special educational needs. They are also not aware of the potentials e-learning has for individualized instruction, individualized study planning and classroom management that promotes meaningful participation of students with disabilities.

The utilization of e-learning becomes more effective when teachers receive professional development in the application of e-learning. Effective professional development does not simply focus on ICT skills; it must develop competencies in designing the virtual learning environment in such a way that the peculiarities of people with special needs are accommodated. The e-learning resources to be utilized have to fit the needs of each learner. For instance, in designing e-learning experience for people with visual impairment, audio instructions, text to speech could be added to meet their special needs.

During initial training, teachers usually learn basic pedagogical skills which are subsequently improved on during the actual classroom experiences in the schools they work. However, research has shown that these experiences are not sufficient for teaching in an e-learning environment (Palloff & Pratt, 2001). For teachers to effectively utilize e-learning, it is expected that they develop a clear conception of the learning and e-learning environments, posses relevant skills for planning and development of e-learning strategies, develop pedagogical principles specific to e-learning as well as skills in the use of technology. (Wardca, 2005). This, in fact, suggests that effective e-learning does not simply involve the ability to manipulate the technology. The process of training would require the exposure of trainees to the necessary skills of planning, communicating, analyzing, learning and development needs, providing meaningful learning activities, assessing of learners and the evaluation of programs. The acquisition of technological competencies is quite important but the ability to transform traditional teaching to fit e-learning is crucial for the goals of e-learning to be achieved (EDUCAUSE Centre for Applied Research, 2003).

With the gradual introduction of e-learning in Nigerian institutions of higher education, both teachers and students are confronted with the challenges of adapting their experience to fit the new realities. This becomes necessary as course preparation requires learning new software applications by the teachers. For the students to participate effectively and benefit from the process, they must learn how to manipulate the technologies required for online learning (Watkins, 2005). Such skills will enable students to learn to interact with one another in different ways by applying such tools as chat rooms, discussion forums and e-mail in the process of learning. For teachers, skills in developing e-learning materials based on learners' needs and how to deliver the materials utilizing pedagogical principles relevant to e-learning are vital for success (Palloff & Pratt, 2003). However, in Nigeria mass unawareness of the possibilities offered by e-learning and low computer literacy level are considered critical factors affecting acceptability of e- learning. Folorunso, Ogunseye and Sharma, (2006) noted that lack of adequate trained personnel is a major challenge to e-learning in most Nigerian institutions of higher education. For Nigeria to realize her desire of equalizing educational opportunities for all citizens (FRN, 2004), teachers of people with special needs need new skills to embrace e-learning such as presenting information in new ways utilizing e learning resources, navigating and utilizing the benefits of the web and engaging in computer mediated learning in ways that benefit learners with different learning needs.

In Nigeria, most special educators in higher educational institutions have computers in their offices but very few of them can incorporate it in their teaching. Some of the factors implicated as responsible for the lack of adoption of e-learning include special needs educators' lack of necessary ICT skills and general fear of venturing to the unknown Oye, Salleh & Iahad, 2011). Most special educators in Nigeria could be referred to as what Prensky (2001) called 'digital immigrants.' This generation of special educators was not born into the digital world but they merely started seeing the new technologies in the course of their professional growth. Those who learn to use it do so out of necessity or compulsion while some others still feel uncomfortable with it and insist on the traditional process of pedagogy. Considering the fact that the skills developed through formal practice of the teaching profession are not sufficient for an effective utilization of e learning resources (Levy, 2003), what then are the basic skills required by special educators for effective e-learning?

This study was designed to answer the following research questions:

1. What are the basic e-learning skills needed by special educators for the adoption of e-learning in the education of persons with special needs in the universities?
2. To what extent do pre-service special educators in Nigerian universities possess the e-learning skills necessary for the adoption of e-learning for the education of people with special needs in the universities?
3. What are the e-learning skills special educators need training in to enable them adopt e-learning for the education of persons with special needs?

Method

This study adopted a descriptive survey design as it sought the opinion of the respondents on the e-learning training which special educators in universities need for adoption of e-learning in educating persons with special needs.

Participants The participants for the study consisted of all the thirty seven (37) special educators from the two federal and five state universities with faculty of education and seventy four (74) management Information System (MIS) staff who were adjudged experts in ICT and specifically e-learning in the same Universities in South East, Nigeria. The Federal Universities are University of Nigeria and Nnamdi Azikiwe University. The State Universities include Enugu State University of Science and Technology, Enugu, Anambra State University, Uli, Ebonyi State University, Abakaliki, Imo State University, Owerri and Abia State University, Uturu.

Instrumentation

Two instruments developed by the researchers were used for data collection. The instruments were: E-learning Skills Checklist and the E-learning Training Needs Questionnaire.

The E-learning Skills Checklist was designed to provide information that would help determine the basic e-learning skills needed by special educators to adopt e-learning for the education of persons with special needs. The items on the checklist were generated through a review of relevant literature and the researchers experience with e-learning. The Checklist was validated by two experts in ICT from the Management Information System Units of the University of Jos, Plateau State, Nigeria. This instrument was only administered to the MIS staff who participated in the study. The e-learning training needs questionnaire was designed to elicit information required for determining the extent to which special educators possess the e-learning skills necessary for applying e-learning in the education of persons with special education needs. The items of this instrument were also generated based on the e-learning skills listed on the checklist. The instruments had two parts. Part A sought information on the ICT skills required for e-learning. Part B sought information relating to skills needed for the designing and implementation of e-learning curriculum. The questionnaire is a rating scale designed to determine the extent the skills are possessed by special educators. The scale ranges from very high extent (VHE = 5), high extent (HE = 4), moderate extent (ME = 3), low extent (LE = 2) to not at all (NAA = 1). The rating scale required the respondents to self-report on the extent they possessed the skills needed for the adoption of e-learning in educating learners with special needs. The instrument was face-validated by one specialist each in ICT, Curriculum and Implementation, Educational Psychology and Special Education from the University of Jos. The instrument was modified based on the specialist opinion of those who validated it. After the validation exercise, the instrument was trial tested to further determine the suitability. The data obtained were used to test for the internal consistency reliability estimate of the instrument. Cronbach Alpha procedure was adopted to determine the internal consistency reliability of the instrument. The internal consistency reliability estimate of 0.81 and 0.87 were obtained for part A and B respectively.

Data Collection

A research assistant from each of the universities used was instructed on how to administer the instrument and they assisted the researchers in the distribution of the checklist and the questionnaire and subsequent collection from the respondents. The total number distributed was collected back and used in the analysis.

The data were analyzed using descriptive statistics. To determine the basic e-learning skills required for the adoption of e-learning in the education of special needs learners, an item selected by 70% and above of the e-learning specialists that checked the list was selected. Also, to determine the extent to which special educators possessed the e-learning skills, interpretation was based on the real limits of number values attached to the scale. An item with mean ranging from:

0.50 – 1.49 is interpreted as Not At All, 1.50 – 2.49 as Low Extent, 2.50 – 3.49 as Moderate Extent,

3.50 – 4.49 as High Extent, 4.50 – 5.00 as Very High Extent

To determine the e-learning skills special educators need training, items in Table 2 with a mean rating of 3.49 and below were selected as skills in which the special educators needed training for them to effectively apply e-learning for the learning of people with special needs.

Discussion of Results (Appendix: Tables 1 & 2)

The results as shown in Table 1a indicate that the basic e-learning skills required by special educators for the adoption of e-learning for persons with special needs included skills in word processing, surfing using common search engines, creating and maintaining bookmark entries, writing and sending messages electronically, ability to attach documents to e-mail and ability to organize e-mail into folders. Other skills required are ability to use spread sheets, power point, launching programmme in widows, using taskbar to manage more than one open window, creating backups, creating and renaming files and folders and skills in planning and producing a multimedia presentation. Also required are skills in designing templates, colour schemes and graphics, using on-line tool box, creating, saving and editing home page on the web, creating and forwarding assignment to students, downloading and marking student's assignments, creating discussion forum, creating and posting message on the web for all to read, creating work groups, creating work calendar, posting and uploading contents, edit-

ing contents in a course and creating chat rooms.

Skills required by special educators for developing and implementing curriculum for e-learning as shown on Table 1b are skills in defining both students' and instructors' expectations before instruction, managing contents in online learning, logical presentation of contents for easy navigation, providing multiple opportunities for students' input and feedback and providing course contents with variety of visual, textual, kinesthetic and auditory activities. Also important as shown on Table 1B are skills for developing instructional strategies that fit online learning, developing students' support for online learning, managing chat rooms, assessing learners' needs, skills in online content delivery, managing students feedback, managing problems arising from online learning, managing class size and managing conflict. Others are creating and maintaining conducive e-learning environment as well as skills in developing assessment strategies, creating and using online assessment rubric, managing a workgroup, managing online course calendar, actively engaging learners in the learning environment and managing online assignment. In support of the relevance of these skills, EDUCAUSE Centre for Applied Research (2003) noted that e-learning success rests on the fundamental requirement that educators possess adequate technical skills to use e-learning tools effectively. In other words, there is a difference between understanding the generic teacher trainer competencies and the new skills required for an e-learning environment. Successful teachers are those who possess the conventional teaching competencies and the skills in applying e learning resources effectively.

The findings on Table 2a and 2b indicate that the special educators possess few of the basic technological skills as well as the skills required for developing and implementing curriculum for e-learning. The extent they possess the skill in creating and sending email is very high. The skills they possess at a high extent are skills in word processing, surfing using common search engines, using taskbar to manage more than one open window, creating backups and the ability to develop assessment strategies. This is an indication that special educators are still far from getting ready to utilize the opportunities presented by the modern information and communication technologies in improving educational service delivery in Nigerian universities especially the education of persons with special needs. As Palloff and Pratt (2003) observed, without the basic e-learning skills teachers cannot exploit the vast learning opportunities provided by ICT. Unless Nigeria special educators move fast to embrace e-learning by first acquiring the basic skills, they will be left behind and the students they produce will not compete favourably in a world that is already ICT driven and has become a global village.

From the results presented in Table 2a and 2b it can be deduced that the e-learning skills special educators need training for effective implementation of e-learning programme for persons with special needs in universities include skills in creating and maintaining bookmark entries, ability to attach documents to e-mail and organize e-mail into folders. They need skills in the use of spread sheets, power point, launching a program in windows, creating and renaming files and folders, moving files and folders, planning and producing a multimedia presentation. Special educators also need training in designing templates, color schemes and graphics, using on-line tool box, creating, saving and editing home page on the web, creating and forwarding assignments to students, downloading and marking students' assignments, creating discussion forum, creating and posting messages on the web for all to read. Some other skills they need training are skills in creating work groups, creating work calendar, creating and uploading contents, editing contents in a course and creating chat rooms.

Special educators need to be trained on skills in defining both students and instructors' expectations before instructions, managing contents in online learning, logical presentation of contents for easy navigation, providing multiple opportunities for students' input and feedback, providing course contents with variety of visual, textual, kinesthetic and auditory activities, developing instructional strategies that fit online learning as well as skills for developing students support for online learning, managing chat rooms, assessing learner's needs and skills in online content delivery. They are also deficient in skills for managing students feedback, managing problems arising from online learning, managing class size and managing conflict, creating and maintaining conducive e-learning environment, creating and using online assessment rubric, managing a workgroup, managing online assignment and thus need training in them. It has been observed that implementing e-learning program requires specific sets of skills (Smith, 2005) and as Palloff and Pratt (2001) observed that currently not every teacher is suited for operation in an e-learning environment. Though a teacher may be a professionally competent in the traditional classroom but effectiveness in implementing e-learning requires moving beyond traditional pedagogy. The skills in utilization of e learning according to them can only be acquired through professional development. Levy (2003) also noted that though the principles applied in designing the traditional instruction and e-learning are similar, teachers need skills training to effectively implement e-learning.

Conclusions and Recommendations

The results of this study show that many special educators do not posses most of the basic skills necessary for adopting e-learning for educating learners with special needs. This suggests that they need training in those e-learning skills that will prepare them to exploit the opportunities offered by ICT.

To bridge this gap, university management should organize e-learning professional development designed to equip special educators with quality e-learning skills that will enable them to move from the traditional mode of instructional delivery to a modern, very efficient and flexible form of learning through ICT. This training should be such that special educators are provided with e-learning models that will enable them to effectively blend instructional technology into the teaching and learning process. Adequate institutional support that enhances the application of e-learning should be provided so that skills learnt can be put into practice.

Table 1A
Frequency and Percentage of Respondents on the Basic Technological Skills Required by Special Educators to Adopt E-Learning

S/N	Technological Skills for E-Learning	Required		Not Required	
		No	%	No	%
1	Basic skillsin word processing	74	100	0	0
2	Skills in surfing using common search engines	74	100	0	0
3	Create and maintain bookmark entries	73	87.71	1	12.29
4	Downloading and saving information from the web	74	100	0	0
5	Writing and sending messages electronically	74	100	0	0
6	Skills in attaching documents to email	74	100	0	0
7	Skills in organizing email into different folders	74	100	0	0
8	Basic skills in the use of spread sheets	74	100	0	0
9	Basic skills in the use of power point	74	100	0	0
10	Ability to launch a program in windows	74	100	0	0
11	Skills in using taskbar to manage more than one open window	74	100	0	0
12	Should know the difference between system software and application software	0	0	74	100
13	Skills in creating backups	74	100	0	0
14	Skills in creating and renaming files and folders	74	100	0	0
15	Skills in planning and producing a multimedia presentation	74	100	0	0

16	Skills in designing templates, colour schemes and graphics	74	100	0	0
17	Create save and edit home page on the web	74	100	0	0
18	Skills in using appropriate software to create, plan and integrate tutorials into a course of study	74	100	0	0
19	Skills in using on line tool box	74	100	0	0
20	Create and forward assignments to students	74	100	0	0
21	Download and mark students assignments	74	100	0	0
22	Skills in creating discussion forum	74	100	0	0
23	Create and post message on the web for all to read	74	100	0	0
24	Skills in creating work groups	74	100	0	0
25	Skills in creating work calendar	74	100	0	0
26	Skills in creating and uploading contents	74	100	0	0
27	Skills in editing contents in a course	74	100	0	0
28	Skills in creating chart room.	74	100	0	0

Table 1B
Frequency and Percentage of the Responses on the Skills Required by Special Educators to Develop and Implement Curriculum for E-learning

S/N	Skills Needed for Developing and Implementing Curriculum for E-learning	Needed		Not Needed	
		No	%	No	%
29	Skills in defining both students and instructors expectations before instruction.	74	100	0	0
30	Skills in managing contents in online learning	74	100	0	0
31	Skills in logical presentation of contents for easy navigation	74	100	0	0
32	Skills in providing multiple opportunities for students input and feedback	74	100	0	0
33	Skills in providing course contents with variety of visual, textual, kinesthetic and auditory activities	74	100	0	0
34	skills in developing instructional strategies that fit online learning	74	100	0	0
35	Skills in developing students support for online learning	74	100	0	0
36	Skills in managing chart room	74	100	0	0
37	Skills in assessing learners need	74	100	0	0
38	Skills in online content delivery	74	100	0	0
39	Skills in managing students feedback	74	100	0	0
40	Skills in managing problems arising from online learning	74	100	0	0
41	Skills in managing class size	74	100	0	0
42	Skills in managing conflict	74	100	0	0
43	Skills in creating and maintaining conducive e-learning environment	74	100	0	0
44	Skills in developing assessment strategies	74	100	0	0
45	Skills in creating and using online assessment rubric	74	100	0	0
46	Skills in managing a workgroup	74	100	0	0
47	Skills in managing online course calendar	74	100	0	0
48	Skills in actively engaging learners in the learning environment	74	100	0	0
49	Skills in managing online assignments	74	100	0	0

Table 2a
Mean Scores on the Basic Technological Skills Possessed by Special Educators to Adopt E-Learning

S/N0.	Technological Skills for E-Learning	N	$\overline{X}$	SD
1	Basic skills in word processing	37	3.51	.78
2	Skills in surfing using common search engines	37	3.63	.73
3	Create and maintain bookmark entries	37	2.43	.42
4	Downloading and saving information from the web	37	3.35	.39
5	Writing and sending messages electronically	37	4.42	.73
6	Skills in attaching documents to email	37	2.87	.69
7	Skills in organizing email into different folders	37	2.33	.47
8	Basic skills in the use of spread sheets	37	1.84	.38
9	basic skills in the use of power point	37	2.27	.70
10	Ability to launch a program in windows	37	2.46	.35
11	Skills in using taskbar to manage more than one open window	37	3.58	.48
12	Should know the difference between system software and application software	37	3.55	.74
13	Skills in creating backups	37	2.70	53
14	Skills in moving files and folders	37	2.89	72
15	Skills in planning and producing a multimedia presentation	37	2.30	65
16	Skills in designing template, color schemes and graphic	37	1.83	.51
17	Create, save, and edit home page on the web	37	3.25	62
18	Skills in using appropriate software to create plan and integrate tutorials into a course of study.	37	1.43	.61
19	Skill sin using online tool box	37	2.08	.57
20	Create and forward assignments to students	37	1.84	.42

21	Download and mark students assignments	37	2.43	.63
22	Skills in creating discussion forum.	37	1.28	.68
23	Create and post message on the web for all to read	37	2.05	.61
24	Skills in creating work groups	37	1.48	.53
25	Skills in creating work calendar	37	1.32	.43
26	Skills in creating and uploading contents	37	1.41	.68
27	Skills in editing contents in a course	37	1.34	.56
28	Skills in creating chart room	37	1.25	.72

Table 2b
Mean Scores of the Respondents on the Skills Possessed by Special Educators to Develop and Implement Curriculum for E-Learning

S/N0.	Skills Needed for Developing and Implementing Curriculum for E-Learning	N	$\overline{\times}$	SD
29	Skills in defining both students and instructors expectations before instruction	37	3.12	.97
30	Skills in managing contents in online learning	37	1.42	.48
31	Skills in logical presentation of contents for easy navigation	37	2.43	.31
32	Skills in providing multiple opportunities for students input and feedback	37	2.10	.49
33	Skills in providing course contents with variety of visual, textual, kinesthetic and auditory activities	37	1.32	.68
34	skills in developing instructional strategies that fit online learning	37	1.59	.74
35	Skills in developing students support for online learning	37	2.29	.53
36	Skills in managing chart room	37	1.00	.00
37	Skills in assessing learners need	37	3.46	.94
38	Skills in online content delivery	37	1.69	.79
39	Skills in managing students feedback	37	2.48	.45
40	Skills in managing problems arising from online learning	37	1.71	.55
41	Skills in managing class size	37	2.14	.77
42	Skills in managing conflict	37	2.33	.47
43	Skills in creating and maintaining conducive e-learning environment	37	1.41	.88
44	Skills in developing assessment strategies	37	3.52	.62
45	Skills in creating and using online assessment rubric	37	1.23	.46
46	Skills in managing a workgroup	37	1.04	.27
47	Skills in managing online course calendar	37	1.44	.26
48	Skills in actively engaging learners in the learning environment	37	2.19	.34
49	Skills in managing online assignments	37	1.09	.36

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