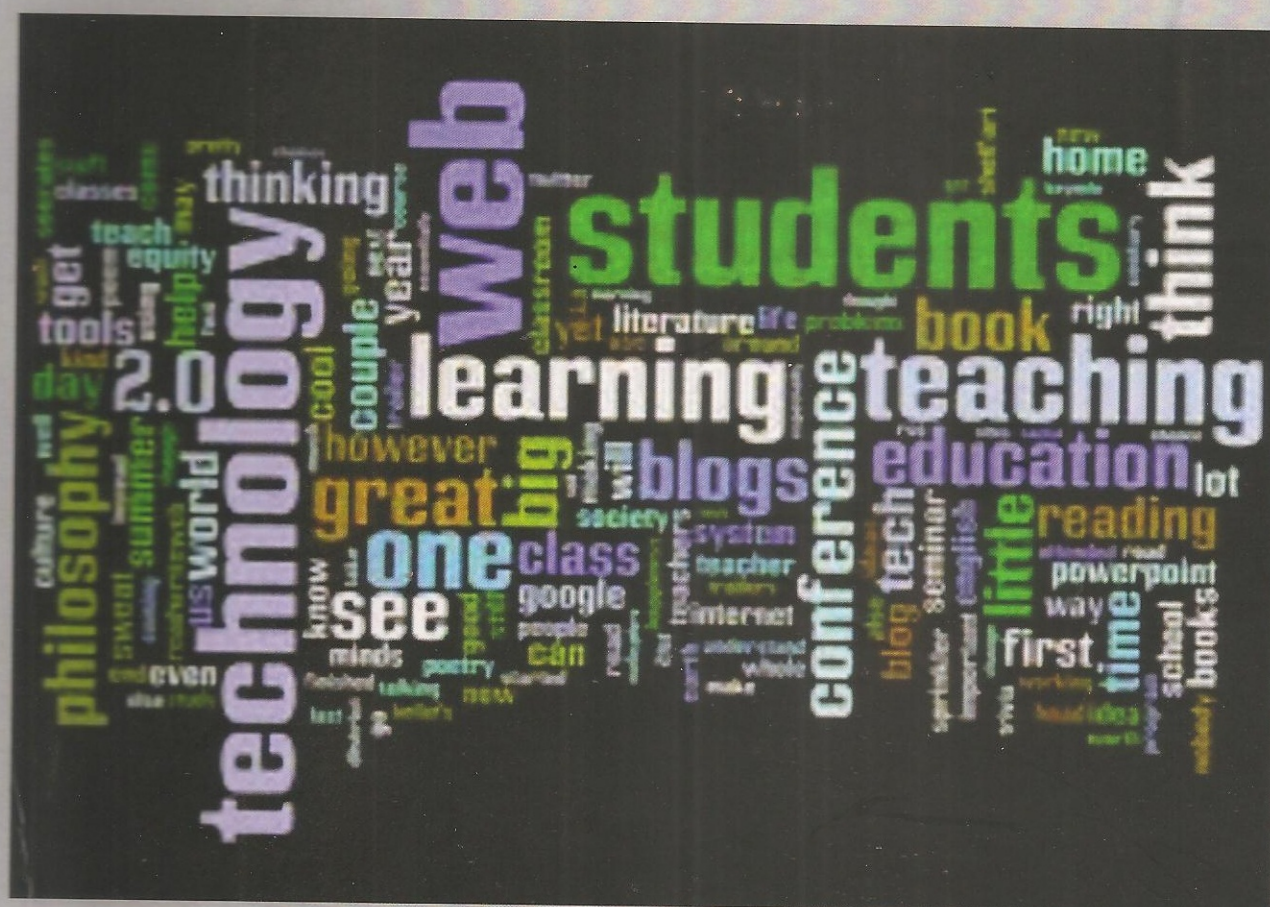


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STAKEHOLDERS' PERCEPTION OF THE INTEGRATION OF  
NEEDED INFORMATION AND COMMUNICATION TECHNOLOGY  
EQUIPMENT AND FACILITIES IN DISTANCE LEARNING IN  
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*Abstract*

*Information and Communication Technologies (ICT) have transformed distance learning by expanding and widening access to education, improving its quality and credibility. This study investigated stakeholders' perception of the integration of needed ICT equipment and facilities in distance learning in Nigeria. Two research questions were raised; 897 respondents participated in the study drawn from five Universities in Nigeria using Research-Design questionnaire. Percentage (%) was used to analyse the data. From the analyses, it was noted that all 27 ICT equipment and facilities were considered needed; the least among them was video conferencing (71.5%) and the highest was computer (97.7%). It was also noted that 531 (59.2%) of the respondents were female while 366 (40.8%) were male; this indicates that female respondents are slightly higher than male respondents. It is therefore recommended amongst many that government should give necessary support to integrate and procure the needed ICT aspects and materials. Conclusively, distance learning curriculum should be designed to accommodate the integration of ICT equipment and facilities.*

**Keywords:** *Perception, Stakeholders, ICT Integration, ICT Equipment and Facilities, Distance Learning*

**Introduction**

Information and Communication Technologies (ICTs) are made up of diverse tools; such as computers, electronic media and mobile devices, synchronic and asynchrony platforms and the internet among many others, which are increasingly being employed by distance learning stakeholders for learning and presenting information and other activities. Thus, information and communication technologies have provided significant prospects for improved access, equity and quality form of distance learning in Nigeria. Yusuf and Falade, (2005), cited in Makinde, (2015) concluded that the process and power of interconnectivity of computers and capability of needed ICTs have provided great learning environments for collaboration, participation and interaction within and among communities of learners.

Tinio, (2010) defined ICTs as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information. These technologies includes computers, the internet, broadcasting technologies (Radio and Television), and telephony. They (ICTs) have the potential of being able to meet the learning needs of individuals, promote educational opportunities, offer high quality learning materials, increase stakeholders' self-efficacy and independent learning among learners (students), and improve teachers' professional development. (Abolade & Yusuf, 2005).

For a developing country like Nigeria, ICTs have proved to have a potential for increasing access to and improving the relevance and quality of education. Education tends to be one of the fastest growing social and economic sectors all over the world; and the use of new technologies such as ICT is an integral and driving component of the growth. Sofoluwe, (2003) posited that distance learning is

a process through which additional formal education can be earned, the evidence of which can be seen as demonstrated through the recognition and co-ordination of distance and correspondence learning institutions across the nation. This makes distance learning to be affordable and accessible anytime and anywhere. Distance learning as defined by Akande, (2011) is a formal educational programmes that embraces minimal physical contact between teacher and student with emphasis on instructional equipment, materials and or facilities. Distance Learning (ODL) is defined by Tinio, (2010) as a way of providing learning opportunities that is characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency; the use of variety of media. Opening and distance education, emerges from the need for external learning opportunities at various level of people who do not have access to conventional modes for various reasons such as financial or time restrictions, challenges related to job and family responsibilities, admission problem as so on.

Perception could be explained as a process of expressing one's personal view and opinion about an issue. It is a means of receiving, collecting and action of taking possession and apprehension with the mind or senses. Perception is observed to enhance encoding, decoding, interpreting and understanding a learning concept (Falade, 2004). Media are materials and equipments that facilitate learning. They are essential and unmatched channel through which meaningful knowledge, skills and idea could be imparted on learners (Omoniyi, 2009).

Rouse, (2011) posited that the importance of ICT in distance learning lies less in the technology itself as its ability to create greater access to information and communication is greatly needed. Hismanoglu, (2012) reported that ICT in Distance Learning has been promoted as a platform for providing stakeholders with opportunities for learning. Ajayi and Ekundayo, (2011) stated that through ICT, distance learning needs have been met. This implies that teaching and learning activities in distance learning had been enormously enhanced via the presence and processes of ICT. The convenience of time, space and location are the promises that ICT is fulfilling in distance learning stakeholders. Nnazor, (2009) also supported that computer conferencing and other related ICT resources are needed for distance learning transaction essentially for individualized and collaborative learning. More so, the ability of ICT resources to collect, store, process and distribute any form of information by electronic means makes it imperative or needed in distance learning.

Obviously, one of the dividends of ICT is to bring rapid technological breakthrough to distance learning in particular, and in education generally. In addition, ICT materials are very much needed in distance learning as a contemporary intervention to complement processes of providing alternative education to many as planned by Millennium Development Goal (MDG). These ICT resources have been observed to be needed in distance learning. However, they were found to be grossly unavailable or inadequate. .

The purpose of the study is to investigate stakeholders' perception of the integration of ICT equipment and facilities into distance learning in Nigeria. Also, to investigate the influence of stakeholders' gender on their perceived ICT equipment and facilities into distance learning in Nigeria. This study is guided by the following two research questions:

- (1) What is the perception of stakeholders of the integration of ICT equipment and facilities needed in distance learning in Nigeria?
- (2) What influence does Stakeholders' gender have on their perceived ICT equipment and facilities in distance learning in Nigeria?

The study is a descriptive research type utilizing survey method. The researcher-designed questionnaire has two major sections; sections I and II. Section I consists of personal and institutional information

such as name of distance learning institutions, school/faculty, gender, mode of Distance Learning institution, nature/type of stakeholders and so on which requires that the respondents should fill. Section II deals with the needed ICT equipment and facilities for Distance Learning having 27 digital based ICT facilities and equipment as its Items.

The population for the study comprises all the stakeholders in distance learning in Nigeria. This consists of lecturers, facilitators, administrator, support staff such as course tutors, course writers, centre co-coordinators; and distance learners. The target population comprises all those stakeholders from University of Abuja Centre for Distance Learning and Continuing Education. Distance Learning Centres of the Universities of Ibadan, Lagos, Obafemi Awolowo, Ile-Ife and the National Open University of Nigeria (NOUN), Lagos. The institutions were chosen purposively because they cover both the single mode and dual mode distance institutions in Nigeria.

A total of 250 copies of the questionnaire distributed to each of the five distance learning institutions totaling 1250 altogether; 908 were returned while only 897 were found to be valid and used for the study. The Instrument was validated by three specialists in ICT and Distance Learning. The Instrument was tested for reliability using Pearson product moment correction coefficient of 0.87 as its value. The analysis and interpretation of data obtained through the research-designed questionnaire was by using percentage.

In answering research question 1 (*What is the perception of stakeholders on ICT equipment and facilities needed in distance learning in Nigeria?*) to investigate if ICT equipment and facilities are needed or not in distance learning stakeholders. Response to this is as shown in Table 1.

**Table 1: Perception of the Respondents Analyses on ICT Equipment and Facilities Needed for Distance Learning in Nigeria**

| S/N | Digital based ICT Facilities and Materials             | Needed  |        | Not Needed |       |
|-----|--------------------------------------------------------|---------|--------|------------|-------|
|     |                                                        | N       | %      | N          | %     |
| 1   | Computers                                              | 876     | 97.7%  | 21         | 2.3%  |
| 2   | Satellite Facilities                                   | 787     | 87.7%  | 110        | 12.3% |
| 3   | Instructional/Interactive Television                   | 788     | 87.80% | 109        | 12.2% |
| 4   | Internet/World Wide Web (www) Facilities               | 816     | 91.0%  | 81         | 9.0%  |
| 5   | Video Conferencing                                     | 641     | 71.5%  | 256        | 28.5% |
| 6   | Teleconferencing                                       | 676     | 75.4%  | 221        | 24.6% |
| 7   | Multimedia Equipment and Facilities                    | 803     | 89.5%  | 94         | 10.5% |
| 8   | Electronic Mail (e-mail) Facilities                    | 811     | 90.4%  | 86         | 9.6%  |
| 9   | Internet Facilities                                    | 730     | 81.4%  | 167        | 18.6% |
| 10  | Electronic Library (e-library) Facilities              | 766     | 85.4%  | 131        | 14.6% |
| 11  | Bandwidth/Access Appliances                            | 666     | 74.2%  | 231        | 25.8% |
| 12  | Data Processing Facilities                             | 781     | 87.1%  | 116        | 12.9% |
| 13  | Editing Studio                                         | 663     | 73.9%  | 234        | 26.1% |
| 14  | Online Multimedia (Interaction and interactive)        | Non 764 | 85.2%  | 133        | 14.8% |
| 15  | CDs/CD ROM                                             | 751     | 83.7%  | 146        | 16.3% |
| 16  | Live Audio and Video: Unicast, Multicast and Broadcast | 714     | 79.6%  | 183        | 20.4% |
| 17  | Short Message Service (SMS)                            | 728     | 81.2%  | 169        | 18.8% |
| 18  | Personal Digital Assistants (PDA)                      | 710     | 79.2%  | 187        | 20.8% |
| 19  | Digital Recording Facilities                           | 746     | 83.2%  | 151        | 16.8% |
| 20  | Electronic Book (e-book) Readers                       | 760     | 84.7%  | 137        | 15.3% |
| 21  | Memory Cards                                           | 758     | 84.5%  | 139        | 15.5% |
| 22  | Flash Drives                                           | 762     | 84.9%  | 135        | 15.1% |
| 23  | Mobile Phones                                          | 756     | 84.3%  | 141        | 15.7% |
| 24  | Radio                                                  | 713     | 79.5%  | 184        | 20.5% |
| 25  | Laptop                                                 | 829     | 92.4%  | 68         | 7.6%  |
| 26  | Tablets                                                | 684     | 76.3%  | 213        | 23.7% |
| 27  | Interactive Whiteboards                                | 728     | 81.2%  | 169        | 18.8% |

The responses of the respondents in respect of the ICT equipment and facilities needed for distance learning are as shown in Table I. Majority of the stakeholders [97.7%] indicated that computers were needed while 2.3% of the stakeholders indicated computers were not needed. Also, 87.7% of the stakeholders indicated that satellite facilities were needed while 12.3% indicated otherwise. For instructional/interactive television (ITV), 87.8% of the stakeholders claimed it was needed, while 12.2% indicated otherwise.

Furthermore, 91.0% of the stakeholders indicated that www facilities were needed while 9.0% stakeholders responded that they were not needed. For video conferencing, 71.5% indicated that it was needed, while 28.5% indicated that it was not needed; for teleconferencing 75.4% claimed it was needed, while 24.6% claimed it was not needed. Percentage of the respondents indicated that the Digital Based ICT facilities and materials needed for distance learning in Nigeria was found to be above 70%; Based on this, it could therefore be established that digital based ICT equipment and facilities are essentially needed for Integration of ICT in distance learning in Nigeria. From the percentage analyses, it can be inferred that all the ICT equipment and facilities were considered required by the stakeholders with the least accepted, which is video conferencing 71.5% and the highest which is the, attracting an overwhelming

97.7%.

In answering research question 2 (*What influence does stakeholders' gender have on their perceived ICT equipment and facilities for distance learning in Nigeria?*) Table 2, shown that 531 (59.2%) of the respondents were females while 366 (40.8%) were males. It is obvious that females formed the highest number of respondents and were more influenced than their male counterparts.

**Table 2: Percentage Distribution of Respondents by Gender**

| Gender | No of Respondents | %     | Mean |
|--------|-------------------|-------|------|
| Male   | 366               | 40.8  | 2.1  |
| Female | 531               | 59.2  | 2.9  |
| Total  | 897               | 100.0 |      |

The results on the stakeholders' perceived digital based ICT resources showed that they responded in favour of the dire need of ICT facilities. Example of such ICT facilities are video conferencing, digital recording facilities, internet facilities, memory cards, on-line multimedia, multimedia equipment, interactive television, satellite facilities and so on. This is in support of Dabbagh and Bannan-Ritland, (2005); Beers (2007); Epper and Bates, (2007) who claimed that the quality of distance learning could be improved through the availability and use of technology. This suggests that ICT resources are needed in improving the quality of distance learning in Nigeria.

**Discussion of the Findings**

Information and Communication Technology (ICT) had been recognized as a potent force to transform the development, pace and status of a country (UNDP, 2007; Badmus, 2013). In recent time, the teaching and learning process has been dramatically changed by the synthesis of variety of technological, instructional and pedagogical developments (Marina & Smith, 2002).

Gender is an important factor in every aspect of learning; it has a significant impact on all stakeholders of education generally and especially on distance learning (Green, 2009). However, in reality; gender issues are not holistically addressed in the integration or application of ICT (Fontaine, 2009). One of most reasons the researches were considering investigation of gender, ICT and

education was that women and girls are poorly placed to benefit from the knowledge economy because they have less access to scientific and technical education specifically, and to education in general. They have less access to skills training and development which will enable them to gain employment in the information and communication technology (ICT) sector, and when they do, they generally get work at the lower levels, with less pay (Huyer, 2003). Their perception was in favour of the integration of ICT equipments and facilities in distance learning in Nigeria.

She added that these initial disadvantages have prevented women and girls from benefiting equally from the opportunities that the entire range of ICT can bring; yet paradoxically, the new technologies also offer many opportunities for women and girls to gain the education and technical skills required for them to participate equally in the knowledge economy. A number of studies have been conducted on the subject. For instance, Hafkin and Taggart, (2001); Mictor, (2001) revealed in their studies that the participation of women in IT design and development was generally low. A number of other studies which have been conducted revealed that males are more exhaustive in the internet usage, they enjoy more competitive forms of learning while using ICT than females (Badmus, 2013; Colley, 2003; Capper & Weaver, 2003; Volman & Eck, 2007). There are several investigations indicating that gender gaps probably became more latent and more complex (Odogwu & Nyala, 2010).

Kuwahara, (2007) did a study on post graduate admission in Japan based on gender submitted that 6.8 percent of Ph. D. students in Physics were women, and 7.1 percent women were admitted for Ph.D. programme in engineering. In Senegal, women make up to 26 percent of students in medicine, pharmacy and dentistry, and 15 percent in science and technology (Der, 2002; Huyer, 2003). Similarly, in Nigeria, women make up to 30 percent of all technical and related workers, however, only 1 percent of engineers are women (Chinye, 2002; Huyer, 2003). The Carribean is the only region where the percentage of women working in science and engineering is over 50 percent (UNDP, 2002; Huyer, 2003).

Looker and Thiessen, (2003) in their study on gender differences and computers' use among students used Canada found that male students, generally used computers more frequently than female students. Male students were also more competent in using various ICT applications than their female counterparts (Bimber, 2002; Pritchard, 1998). However, Marwan, (2008) reported in his findings that there is a difference in frequency of computer use between male and female student, female use computer more frequency than male computer part with mean values of 3.06 and 2.76 respectively. McLanchlan, Crag and Coldwell, (2010) concurred that the ICT industry is suffering from a significant shortage of skill personnel in Australia. Lynch, (2007) and Grad Careers in Engineering, Science and IT (2008) had earlier posited the same.

Wheeler, (2002) in his study on student perception of learning support in distance education found that one way Analysis of Variance (ANOVA) revealed statistical significant differences between the male and females in expected practical support [ $F(1,27) = 4.965, P < 0.04$ ], with females expecting substantial support in this area. Females also received more practical support, but not so much as they generally expected. A gender difference was consistently observed in both expected and received support, with females generally receiving more practical and academic support than males, and males receiving more social support than females.

Based on the above, there is no gender discrimination towards ICT and working with computers as neither male nor female students have any reason not to embrace ICT in their learning. Green, (2009) pointed out that lack of computer skills is a severe barrier for women and girls in accessing the new ICTs. The World Links gender research found that girls had inequitable access to the computer laboratories in some schools as a result of several conditions: college student – to –

computer ratios at first-come, first – served policies did not favour the girls; girls access was limited due to domestic chores responsibilities.

### Implications

This study explored the stakeholders' perception of the needed ICT equipment and facilities into distance learning in Nigeria. The result obtained from data gathered and analyzed indicated that basic ICT facilities and equipment are needed for distance learning in Nigeria.

Though, those were greater number of female respondents (59.2%) in this study than their male counterpart (40.8%). However, the overall result show that the gender has no influence on their perceived ICT equipment and facilities for Distance Learning in Nigeria.

### Recommendations

Based on the findings and conclusion of this study, the following recommendations were made:

- (1) government at all levels, should give necessary supports to procure all needed ICT facilities and equipment for distance learning programs in Nigeria;
- (2) gender biases in any form should be avoided at all levels in distance learning regarding ICT facilities and equipment utilization;
- (3) a workable ICT policy that will be friendly to all levels and categories of educational programme should be formulated; of which distance learning should not be left out;
- (4) distance learning programme curriculum should be designed to accommodate the use of ICT facilities and equipment; and
- (5) stakeholders involved in distance learning should take the lead in shifting the paradigm from the use of print materials to the use of ICT equipment and facilities.

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