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UNIVERSITY LECTURERS' INFORMATION LITERACY SKILLS IN RELATION TO COMPUTER-MEDIATED PROFESSIONAL DEVELOPMENT

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ABSTRACT
The Internet and its allied Information and Communication Technology (ICT) tools and resources is changing both the process and product of education with new and creative ways of learning and teachers' professional development. Skills in information processing are key factors to technology use among individuals and groups in facilitating effective classroom interaction through computer-mediated communications and computer-mediated professional development. This paper examines information literacy skills of university lecturers in relation to ICT tools and resources that are applicable to faculty development such as; e-learning, e-mail communication, interactive multimedia, electronic discussion groups, discussion forum and emerging technologies. The study involved a total of 142 participants randomly selected from five Universities located in two geo-political zones (South West and North East) in Nigeria. Findings revealed higher information literacy skills among university lecturers in information literacy skills of tool, resource, research and publishing. Findings further imply that participants are technologically-capable in line with UNESCO ICT-Competency Standards for Teachers as participants reported effective use of most of the computer-mediated professional development modes. The study recommends adoption of computer-mediated professional development by academic institutions, professional bodies, and associations. It also suggests e-mentoring among academic staff with collaborative efforts in technology adoption within and among universities and inter-university institutions for professional development. It concludes that lecturers without key information processing skills may find it difficult if not impossible, to cope with the pace of new and emerging technologies in their teaching career.

Keywords: University Lecturers, Information Processing, Skills, Professional Development, Computer-Mediated Professional Development.

1. INTRODUCTION

Teachers' professional development (PD) is crucial to the overall improvement and continuous implementation of educational system policy framework and programmes at all level of education in Nigeria. University teachers who are at the center of implementing higher education reforms and innovations are under accountability pressure most especially due to ever-growing technological development and high-demand of globalization and internationalization. Texas Collaborative for Teaching Excellence (2007) defines professional development as a systematic process of renewal, which ultimately creates or promotes an environment for learning and growth for students, faculty and institutions.

The Michigan State Board of Education (2007) also defines professional development as "a continuous process of improvement to promote high standards of academic achievement and responsible citizenship. This implies that professional development increases the capacity of all members of the learning community to pursue life-long learning. Taylor (1980) in McCormick & James (1990) argues that professional development and personal development are not distinguishable processes but one or the same thing and concludes that professional development is closely bound up with personal growth. Villegas-Reiners (2003) opine that the process of professional development has a significant positive impact on teachers' beliefs and practices, students learning and on the implementation of educational reforms. Shafika (2006) defines Teacher Professional Development (TPD) as 'a systematized, initial and continuous, coherent and modular process of professional development of educators in accordance with professional competency standards and frameworks'. Modern day professional development depends more on computers and other forms of information technology in a variety of fields including law, education and even among government workers. (Tebo, 2000; Moore, 2002; Saunders, 2003).

Ferguson and Wilson (2004) are of the opinion that computers and communications Technology has applications in all sectors of teaching and learning. Okebukola (2005) also postulate that appropriately planned and deployed information and communication Technologies (ICT) constitute a potent tool for effective delivery of quality higher education.

Some studies have actually confirmed some of these postulations for example; Alshammari (2000) conducted a survey on 248 teachers' concerns for computer-mediated professional development in Kuwait and found the teachers to have four concerns related to collaboration, personal, refocusing and informational stages when the Information Technology curriculum was implemented. Askar and Usluel (2001) also studied 27 teachers and 6 administrators from three primary schools in Ankara and found that 30% of the teachers showed no interest in using computers as part of their professional development. Theodore, Lavelle and Liu (2003) after an intervention found significant changes in all seven dimensions of K-12 teachers concerns about technology integration into professional development after they had participated in a graduate online course and gain new insights about the ways in which students learn.

These reports support Hearther (2005) who opines that in the recent past, schools, institutions and professional associations have been making use of technologies to support the training and upgrading of skills and knowledge base among workers especially teachers at all level of education. At the regional level Olakulehin (2007) report on challenges confronting the educational process in general and the application of ICTs in professional development programmes in particular. In summary the report observe that despite the fact that ICT has found its way into the formal curriculum in most educational practices in Africa their existence is embryonic mainly due to a lack of computers, connections and staff expertise. Therefore, Olakulehin (2007) conclude that it is more of 'falling below expectations regarding the use of ICTs particularly in instructional and learning activities'. Ayoola (2010) reports on a case study of continuous professional development (CPD) programme for English Language teachers and teacher-trainers in one of the states in Nigeria. It was an evaluation of effectiveness of a computer assisted programme partly sponsored by the British council. The evaluation report concludes that the programme did not achieve its desired objectives due to; content overloading, absence of Internet connectivity, trainees'' low level of computer literacy, poor power supply and lack of commitment on the part of both the trainees and their employers.

The term 'Computer-Mediated Professional Development' (CMPD) emerged with some of the reported cases of computer-mediation for professional development. The British Educational Communications & Technology Agency (2004) define Computer-Mediated Professional Development (CMPD) as training, course work, communication, and networking that takes place using a computer as the principal vehicle for its activities. According to BECTA (2004) CMPD enable the development of 'communities of practice' in which professionals can communicate, cooperate, and collaborate (C^3). It state further that CMPD provide opportunities for a high level of interaction among participants, the instructor, and the computer-mediated material in a variety of modes using the following tools: e-mail, listserv, chat rooms, bulletin boards, and desktop conferencing, audio conferencing, tele-conferencing, e.t.c. all of which the computer facilitates either synchronously or asynchronously. 4

This implies that facilitators and participants may be scattered in homes, schools, or training centers throughout the world, or they may be together in the same room. Generally, CMPD can be used as an information delivery tool; innovative uses of CMPD are better suited and more useful for collaboration and information-sharing rather than unidirectional information transmission (BECTA, 2004).

However, there are skills that are important for university teachers to effectively benefit from CMPD; these set of specialized skills are termed 'information literacy skills'. Information literacy skills are key factors to technology use in facilitating effective computer-mediated professional development. Bruce (1997) describes information literacy as the ability to locate, evaluate, and use information effectively for a range of purposes. The author further clarify that university teachers see information literacy as using IT for retrieval and communication, finding information, executing a process, controlling information, building up a knowledge base in a new area of interest, working with knowledge to gain a new insight and using information wisely for the benefit of others. Shapiro and Hughes (1996) suggest seven important components of a holistic approach to information literacy (see figure 1. These components are:

1. Tool literacy or the ability to understand and use the practical and conceptual tools of current information technology relevant to education and the areas of work and professional life that the individual expects to inhabit.
2. Resource literacy or the ability to understand the form, format, location and access methods of information resources, especially daily expanding networked information resources.
3. Social-structural literacy or understanding how information is socially situated and produced.
4. Research literacy or the ability to understand and use the IT-based tools relevant to the work of today's researcher and scholar.
5. Publishing literacy or the ability to format and publish research and ideas electronically, in textual and multimedia forms ... to introduce them into the electronic public realm and the electronic community of scholars.

6. Emerging technology literacy or the ability to continuously adapt to, understand, evaluate and make use of the continually emerging innovations in information technology so as not to be a prisoner of prior tools and resources, and to make intelligent decisions about the adoption of new ones.
7. Critical literacy or the ability to evaluate critically the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and costs of information technologies

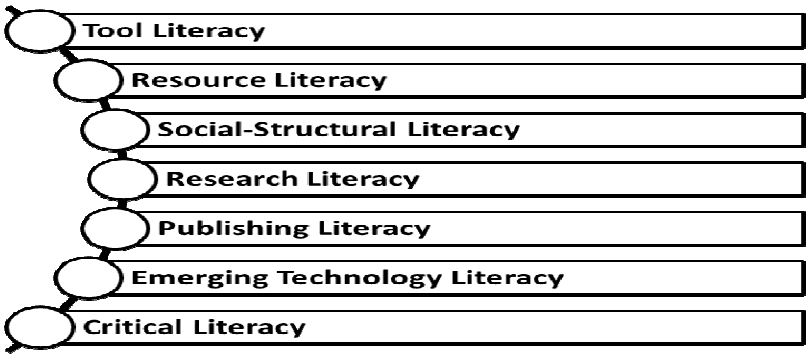

Fig. 1: Seven Components of a Holistic Approach to Information Literacy

Furthermore, the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a global body is equally involved in information literacy programmes, such that it provide people with the skills and abilities for critical reception, assessment and use of information and media in their professional and personal lives. The goal is to create information literate societies by creating and maintaining educational policies for information literacy. They work with teachers around the world, training them in the importance of information literacy and providing resources for them to use in their classrooms. To this end, UNESCO publishes studies on information literacy, pedagogical tools and curricula for school boards and teachers to refer to and use in many countries.

Typical of such major UNESCO interventions is the recently proposed UNESCO technology literacy approach which is designed to prepare learners, citizen and a workforce that is capable of taking up new technologies to support social development and improve economic productivity. The UNESCO (2008) Information and Communication Technology - Competency Standards for Teacher's (ICT-CST) project (i.e. UNESCO ICT-CST) is a major attempt to set standards on pedagogic benchmarks for ICT integration in teaching i.e. CMPD. The UNESCO (2008) ICT-Computer Standard for Teachers (CTS), provide guidelines for all teachers that will prepare them to play an essential role in providing technology-supported learning opportunity for their students. Teachers' development of competences in relation to the technology literary approach includes ability to:

- Use word processing, presentation, graphic, record keeping software package and digital resources to support instruction and record management.
- Create and use an e-mail account for correspondences, common social networking communications and web-based collaboration technologies to help students collaborate, access information and communication external experts and
- Use a search engine to access web or ICT resources to enhance productivity and acquisition of subject matter and pedagogical knowledge.

Therefore, UNESCO ICT-CST (2008) is an all-encompassing set of standards for ICT integration in professional development, which has attracted patronages from member nation's ministry of education. Arising from the above issues of information literacy vice-a-vice it importance to computer-mediated professional development (CMPD); this study therefore examine university teachers' information literacy skills and their engagement in CMPD The study proffer answers to the following research questions.

1.1 Research Questions

Research Question 1
What is the reported level of information literacy skills among University teachers?

Research Question 2
To what extents do University teachers engage in computer-mediated professional development?

2. METHODOLOGY

The study is a descriptive survey research design which is a baseline for further studies.

2.1 Sampling Procedure and Sample

The study adopted random sampling technique which involved a total of 142 participants including 98 (69.0 %) males and 44 (31.0 %) females; selected from five Universities (three federal and two state universities) located in two geo-political zones (South West and North East) of Nigeria.

2.2 Instrumentation

A 20-items pilot-tested University Teachers' Computer-Mediated Professional Development / Information Literacy Skill Survey instrument was developed by the author and used to gather data on self-reported information literacy skills and computer-mediated professional development. Reliability test of the instrument using Cronbach Alpha recorded reliability coefficient of 0.89. Copies of the instrument were administered to teachers in the five universities and were later collated for further processing.

2.3 Statistical Analysis

Data collected through the instruments were analyzed using descriptive statistics of frequency count and percentages.

3. RESULTS AND FINDINGS

Research Question 1
What is the reported level of information literacy skills among University teachers?

Table 1: University Teachers' Information Literacy Skills with corresponding Computer-Mediated Activities

Information Literacy Skills	Description of Corresponding Computer-Mediated Activities and Competences	Highly Skillful		Partially Skillful		Not Skillful	
		No	%	No	%	No	%
Tool Literacy	Computer operational skills: Starting and booting a computer, installation of accessories on devices etc.	127	(89.4)	15	(10.6)	0	(0.0)
Resource literacy	Information sourcing on the Internet / Search conduct	123	(86.6)	19	(13.4)	0	(0.0)
Social-structural literacy	E-mail communication.	135	(95.1)	7	(4.9)	0	(0.0)
Research literacy	Word processing: typing and formatting document etc,	117	(82.4)	25	(17.6)	0	(0.0)
Publishing literacy	Text formatting of research findings and journal papers	129	(90.8)	13	(9.2)	0	(0.0)
Emerging technology literacy	Adaptation to new / emerging technologies, multimedia etc	56	(39.4)	64	(45.1)	22	(15.5)
Critical literacy	Evaluation of information technology programmes.	50	(35.2)	70	(49.3)	22	(15.5)

Table 1 reveals that majority University lecturers are highly skillful in five out of seven information literacy activities that are required for Computer-Mediated Professional Development i.e. social-structural literacy (95.1 %), publishing literacy (90.8 %), tool literacy (89.4 %), resource literacy (86.6 %) and research literacy (82.4 %). While majority are partially skillful in critical literacy (49.3 %) and emerging technology literacy (45.1%).

Research Question 2
To what extents do University teachers engage in computer-mediated professional development?

Table 2: University Teachers' Engagement in Computer-Mediated Professional Development Using Corresponding Information Literacy Skills and Activities

Computer-Mediated Professional Development Activities	Actively Engaged	Partially Engaged	Non - Engagement
	No %	No %	No %
Word processing of academic document for professional development	113 (79.5)	27 (19.01)	2 (1.4)
Online information sourcing and download of e-learning materials and supplementary resources	135 (95.1)	6 (4.2)	1 (0.7)
Previews of electronic presentations on professional development	125 (88.0)	14 (9.9)	3 (2.1)
Previews of streaming video, interactive multimedia resources on professional development	56 (39.4)	46 (32.4)	40 (32.7)
Participation in online professional collaboration with experts.	75 (52.8)	55 (38.7)	12 (8.5)
Participation in electronics discussion forum e.g. News group, listservs, e.t.c.	80 (56.3)	50 (35.2)	12 (8.5)
Electronic or online publications using ICT platforms and resources	65 (45.8)	45 (31.7)	32 (22.5)
Online information on conferences registration / workshop for professional development	135 (95.1)	5 (3.5)	2 (1.4)
Information sourcing from online database on professional development	40 (28.2)	55 (38.7)	47 (38.1)
Evaluation of information technology resources and activities for improvement and high standards	39 (27.5)	54 (38.0)	49 (34.5)

Table 2 reveals that majority of University lecturers are actively engaging five out of ten information literacy skills for Computer-Mediated Professional Development i.e. online information sourcing and browsing of e-learning materials and supplementary resources (95.1 %), Online information on conferences registration / workshop for professional development (95.1 %), previews of electronic presentations on professional development (88. 0 %), participation in electronics discussion forum (56.3%) and participation in online professional collaboration with experts (52.8%). Finding further reveals that majority of the University teachers involved in this study are partially engaging in two CMPD activities i.e. information sourcing from online database on professional development (38.7 %) and evaluation of information technology resources and activities (38.0 %). Lastly, previews of streaming video and interactive multimedia resources on professional development were on the average.

4. DISCUSSIONS

Finding from this study implies that university teachers sampled in this study possess most of the required skills in information literacy and surprisingly also reported active engagement in CMPD. This finding is not in congruence with findings of Olakulehin (2007) and Ayoola (2010) who evaluated intervention programmes on teachers' professional development as regards use and integration of ICT in teaching. This finding implies that CMPD approaches can assist University teachers to share and compare their experiences through e-mail communications or via a computer- mediated discussion groups, mailing list, academic-based social media and other related platforms. CMPD has the potentials to enables University teachers;

- Learn and adapt new pedagogy to their individual teaching situations through CMPD,
- Discuss teaching strategies, lecture / laboratory management strategies and appropriate use of technological capabilities of computer,
- Discover new and online available CMPD networks, tools and resources, thereby;
- Solve particular problems with each other through localization of professional advice to their teaching environment using CMPD platforms.

5. CONCLUSION

One major way for University teachers to learn about new and emerging teaching methodologies, strategies and approaches is through CMPD programmes, which may take the form of institution or professional associations' facilitated collaboration, networking and mentoring (online or e-mentoring). Computer-mediated professional development provide conducive and neutral environment for demystifying technology with comfort. In conclusion, it is imperative that lecturers without key information processing skills for professional development may find it difficult if not impossible, to cope with the pace of new and emerging technologies in their teaching career.

6. RECOMMENDATIONS

The study recommends;

- Adoption of computer-mediated professional development by academic institutions and professional bodies.
- Adoption of e-mentoring among academic staff with collaborative efforts in technology adoption within and among universities and inter-university institutions for professional development.
- Inclusion of CMPD modules and programmes as part of continues professional development of membership of professional bodies, societies and associations as well as universities, institutes and organizations.
- Inclusion of CMPD activities as part of mandatory capacity building and manpower development of professional bodies to assist members to be fully engaged in-between annual conferences, meetings, workshop and seminars.
- To this end, professional bodies, societies and associations could harness resources from funding agencies, corporate organizations, university and inter-university centres within and outside Nigeria to support university teachers by providing various CMPD to bring about desires improvement into Nigerian higher education.

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