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Technical Centre for Agricultural and Rural Cooperation
ACP-EU Cotonou Agreement

In all correspondence on this matter
Please quote our ref. no.: Dir/130715/JAF/amu

Wageningen, 15 July 2013

Dr Olutayo Olajide Babalobi
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Dear Dr Babalobi,

Re: Acknowledging your contribution to CTA S&T Knowledge for Development (K4D) website – http://knowledge.cta.int

The Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) is pleased to confirm that your article "*The Challenge of Changing Trends in the Development and use of the Internet and Information Communication Technologies for Veterinary Medicine Education in Nigeria*" was posted to the Knowledge for Development (K4D) website on 17th August 2010 and was referenced in the K4D E-newsletter. The article can be found under the link:
http://knowledge.cta.int/Dossiers/S-T-Policy/ICKM-MIS-ICT/ICT-for-transforming-research-for-agricultural-and-rural-development/Feature-articles/The-challenge-of-changing-trends-in-the-development-and-use-of-information-and-internet-web-communication-technologies-for-veterinary-medicine-education-in-Nigeria

The K4D website is a specialist website on S&T for agricultural and rural development. It is valued by users as a trusted website on S&T. The website had 17,813 unique visitors this quarter and the monthly E-newsletter reaches approximately 3,800 subscribers; both English and French, 3,396 twitter followers and 1,028 facebook followers.

Articles posted on the CTA Science &Technology K4D website are peer reviewed and also undergo a scientific and copy editing process by professionals attached to CAB International and CTA. Articles which meet the criteria for publication on the website are then translated into French, edited and copy-edited. Articles featured on the knowledge website are considered as opinion pieces for influencing policy and practice and can be freely reproduced, provided that authors and source are fully acknowledged.

We appreciate the contribution that your article made to galvanizing opinion on this important issue of ICT use in veterinary services and hope this information is satisfactory. We regret the delay in responding to your query and apologize for any inconvenience caused.

Sincerely,

Judith Francis
Senior Programme Coordinator
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Le CTA est financé par l'Union européenne
The CTA is funded by the European Union
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Knowledge for Development
Observatory on Science and Technology
Connaissances pour le développement
Observatoire des sciences et des technologies

The challenge of changing trends in the development and use of information and internet web communication technologies for veterinary medicine education in Nigeria

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Date: 17/08/2010

Introduction: In his article, the author discusses trends in ICT use in veterinary science education in Nigeria. His discourse focuses on how the web itself is changing to allow new trends in communication, information and knowledge exchange to flourish in veterinary medicine. Education resources in this field of practice are actively being promoted in Nigeria, and include comprehensive articles on the application of ICTs in veterinary medicine, veterinary training and research. Their impacts and challenges are significant; as is their role in providing improved acquisition of skills and competences in veterinary medicine and animal production. Many veterinarians in Nigeria are now active participants in online social networking communities, such as Facebook, Ning and Twitter – and more and more are getting involved. The author concludes that perhaps the most important factor for the remarkable growth of ICT use recently has been collaborative funding initiatives from a number of international organisations, and he points to the massive joint support programmes set up by international funding agencies that have resulted in a phenomenal increase of ICT use in Nigeria's veterinary faculties.

Introduction

Internet Web Communication Technology (WCT) is arguably one of the most significant technological developments of the late 20th century. Initially conceived in the seventies to act as a nuclear-attack-resistant method for exchange of scientific information, the Internet was deployed for linking research agencies and universities. A number of websites are dedicated to veterinary medicine research and

education resources (Babalobi, 2006; Simões, 2010).

Information Communication Technologies (ICTs) encompass a wide range of elements that are used in the processing, management and maintenance of information, and include all forms of computer, communication, network and mobile technologies that mediate access to information. ICTs when applied to education enhance the delivery and access to knowledge, improve the breadth and scope of the curriculum, increase learning rates, encourage critical thinking and offer unlimited means of achieving educational goals (Iloanusi and Osuagwu, 2009).

In this article, ICT usage trends in Nigeria, in particular in veterinary science education, are presented. Discussion is also centred on how the Internet World Wide Web itself is changing to allow new trends in communication, information and knowledge exchange to flourish.

Trends in ICT usage in NIgeria's tertiary institutions

There has been a tremendous improvement in Internet WCT penetration in Nigeria, particularly over the last five years. Internet usage has increased from 0.1% in 2000 to 3.1% in 2006 and 7.4% in 2009 (Nigeria Internet Usage, Population, and Telecommunications Market). The University of Ibadan, Ibadan, Nigeria (http://www.ui.edu.ng), for example, is subscribed to such free online biomedical information databases such as the World Health Organisation (WHO) Health InterNetwork Access to Research Initiative (HINARI) and Access to Global Online Research in Agriculture (AGORA), among others. These have enabled biomedical staff and students to have easier and less costly access to teaching and research materials on the internet.
While there has been a phenomenal growth in Internet web communication technology (WCT) usage in Nigeria's tertiary Institutions, the only ICT that has likewise experienced phenomenal usage is mobile phone technology. Investments in ICT in Nigerian education have not yielded reasonable expectations compared to similar investments made in GSM communication The consensus of various authors on ICT usage in Nigeria's tertiary institutions is that it is still very low and shallow (World Bank, 2003; Oilskin, 2008, Lionise and Osage, 2009).

Status of ICT in Nigerian educational institutions

According to Iloanusi and Osuagwu (2009), the goals of ICT in education should embrace these four approaches: emerging, applying, infusing and transforming approaches. The last three phases are functional approaches. There are few sectors within the Nigerian economy that have progressed beyond the emerging phase. It is estimated that 90% of Nigerian educational institutions are in the emerging phase, 7% in the applying phase, and 3% in the infusing and transforming phases. ICT is therefore in its infancy in Nigeria. Several governmental and non-governmental organizations, banks and individuals have funded the implementation of ICT in Nigerian educational institutions at all levels and strategic plans and projects are always ongoing to revisit targets in area of ICT. Some of these organizations include the Nigerian Communications Commission (NCC) and Education Trust Funds (ETF) geared towards universities and polytechnics.

Efforts made so far by the government towards ICT development in Nigeria include the launching of the National Telecommunication Policy in September 2000, development of a comprehensive science and technology policy in 2001, the development and launching of the National IT policy in 2001, the establishment of the National Information Technology Development Agency (NITDA) in 2001, and the launching of the Nigeria satellite systems programme by the National Space Research and Development Agency (NASRDA) in 2001. These efforts are complimentary to additional development

initiatives, such as the granting of licenses to mobile telephone network operators beginning with MTN in 2001, the development of a ministerial initiative on e-education for the Nigerian education system by the Federal Ministry of Education in 2004, the formulation and presentation of an IT bill to the National Assembly in 2006, and the organisation of computer training for teachers across the country by Educational Trust Fund (ETF) in 2006 (Oyelekan and Olorundare, 2009).

One of the goals of the National Universities Commission (NUC), Nigeria, is ' to initiate and promote proficiency in the use of ICT for service delivery within the Commission and the Nigerian University System'. The NUC has stated as far back as 2006 that the reform in the university system would focus on the development of a dynamic and robust infrastructure to support ICT. The creation of the NUC Virtual Library is a step in this direction. The National Virtual Library Project was established in 2001 as one of the several strategies devised to bolster the quality of teaching and learning in Nigerian schools.

Many hurdles remain in the infusion of ICT in educational institutions in Nigeria. These hurdles include low funding, paucity of ICT infrastructure, irregular and low-quality power supply and high cost of ownership of ICT facilities, which include capital and operational costs. While international collaborative funding is being sought, there is a great need for government, industry and philanthropists to partner to provide the needed ICT tools and infrastructure for the nation's educational institutions (Iloanusi and Osuagwu, 2009).

ICT applications in veterinary education: present and future

ICT-based applications dedicated to veterinary medicine, including websites and online resources, are becoming increasingly prevalent. Education resources in this field of practice are actively being promoted in Nigeria, and include very comprehensive articles on the application of ICT to veterinary medicine (Babalobi and Cowen, 2001; Babalobi et al., 2002; Babalobi, 2003a; 2003b; Babalobi et al., 2004; Babalobi, 2005; Babalobi et al., 2006; Hassan et al., 2004; Geidam et al., 2006; Simões, 2010). In the past decade, several veterinary professional electronic (discussion) groups and in particular, the nvmaegroup@yahoogroups.com, the official email group of the Nigerian Veterinary Medical Association (NVMA), have been created. This interactive electronic forum has greatly stimulated Nigerian veterinarians worldwide to utilise blogging and e-discussions to exchange veterinary-related information at local and international levels, for example from the World Veterinary Association (WVA), the American Veterinary Medical Association, the NVMA, the Food and Agriculture Organization (FAO), the WHO and Office international des épizooties/ World Organisation for Animal Health (OIE/WAHO). This nvmaemailgroup, which was founded in November 2006, is available online and has 1086 subscribers, who have exchanged 4279 messages as at 30th April 2010. Finally, additional information is constantly being added to the course "Computer Application in Veterinary Practice" taught to final-year Doctor of Veterinary Medicine (DVM) students at the University of Ibadan, This type of resource use clearly demonstrates some of the impacts of ICTs in the world of veterinary science in Nigeria.

ICTs are important to veterinary training and research. Their impacts and challenges are significant; as is their role in providing improved acquisition of skills and competences in veterinary medicine and animal production fields, medical and surgical learning, food animal management, food safety, public health, bioinformatics, genetic research, including many other areas such as genomic selection and animal breeding based on thousands of single nucleotide polymorphisms. This was made possible through the Internet interaction and use of digital devices for data storage, computation and communication, ancillary digital devices connected to computers, personal digital assistants and servers for teaching and learning purposes in both public and private analytical laboratories and

veterinary hospitals. Other than laboratory and clinical diagnosis of diseases in domestic, exotic and wild animals or hospital-organizational models, ICTs are also responsible for new veterinary paradigms that are improved by geospatial information technologies (Simões, 2010).

The promotion and application of geographical information system (GIS) to veterinary medicine and related activities has been undertaken by lecturers and students of the Department of Veterinary Public Health and Preventive Medicine, University of Ibadan (DVPHPM), over the past decade (Falobi, 1998, Babalobi and Esuruoso 2000, Babalobi et al., 2000). Its application began with the supervision of a DVM student's GIS project (Oguamanam, 2001) and since GIS applications have been promoted, peer reviewed and the results published (Oguamanam et al., 2001; Babalobi et al., 2002; Onyeka, 2004; Babalobi et al., 2005; Onyeka et al., 2005; Babalobi et al., 2006; Onyeka et al., 2006; and Babalobi, 2007). The Department has also applied GIS to mapping and analysing African swine fever and to river pollution (Ogunwale, 2002; Adeyemo, 2005; Akinwale, 2006; Alade, 2006; Olayinka, 2006; Olugasa, 2006; Omobolaji, 2006; and Adeyemo and Baba obi, 2008).

At the national level, the Nigerian component of the EU-sponsored Pan-African Program for the Control of Epizootics (PACE), organized a four-week (first-leg) intensive GIS training for five Nigerian veterinarians at the Regional Centre for Training in Aerospace Surveys (RECTAS), Obafemi Awolowo University Ile-Ife, Nigeria in 2001. A comprehensive GIS-based National Animal Disease Information System (NADIS) is being developed for Nigeria as part of PACE. The NADIS DATABASE , a 3 in 1 system – database, disease reporting and information – will include an epidemio-surveillance network and the assessment of the status of the five major transboundary diseases in Nigeria (African swine fever, contagious bovine pleuropneumonia, foot-and-mouth disease, Newcastle disease and rinderpest). It will also include a nationwide avian influenza random survey for the purpose of facilitating trade – covering access to (international) market, protection of animals against exotic or new diseases, evaluation of disease control programmes and protection of human health. In 2009, a GIS workshop was organized by Nigeria's premier veterinary research Institute, the National Veterinary Research Institute (NVRI) and as a Continuing Education topic by Veterinary Council of Nigeria (VCN). It is also a major curriculum topic in the ongoing CDC-organized Nigeria Field Epidemiology and Laboratory Training Program (NFELTP).

These new initiatives within scientific education must be intrinsically connected to the forever-changing world of the ICTs. Indeed, the virtual world is developing at an incredible rate, and the scientific and educational world must adapt quickly and efficiently to these changes.

Future interactive usage trends in ICT / WCT for development

Web 2.0 technologies now make it potentially possible for every Internet user to have a voice and a worldwide audience – linking people from around the world in an unforeseen way. Participatory Web 2.0 for Development – or Web2forDev for short – is a way of employing web services to intentionally improve information and collaborative production of content for development (Ashley et al., 2009). This is a pertinent and serious challenge that needs to be taken up by developing countries, including Nigeria. Many veterinarians in Nigeria are now active owners and participants in online social networking such as Facebook, Ning and Twitter; and more are getting involved.

The use of computers, projectors, magnetic board and CDs has become in vogue in teaching and research. Lecturers routinely use the United States Department of Agriculture USDA/APHIS Animal Health Emergency Management Training CD on Foreign Animal Diseases and the AU-IBAR Community

Animal Health Workers Scheme CD to teach at undergraduate and postgraduate levels. The materials have also been used in extension education of community-based rural livestock producers. Veterinary students are also routinely referred to varieties of online website to access the gamut of relevant veterinary education information.

A recent report (Ubabukoh, 2010) quotes the Nigerian Country Representative of the FAO, Dr Helder Muteia, as saying "With funds provided by the Canadian International Development Agency, fellowships were awarded to 10 Nigerian media persons who were selected in a competitive process, with a mandate to go through the states, local government and communities of their choice across the country and document as much as possible, using a multimedia approach, including radio, television, print media and photography." In the same report, the Chief Technical Advisor, Emergency Centre for Transboundary Animal Diseases (ECTAD) and FAO (in Nigeria) Dr Tesfai Tseggai stated that "The Media Fellowship is about giving voice to ordinary Nigerians, especially rural dwellers, to talk to the media on their experiences with birds and avian influenza."

Conclusion

As recently advocated by Simões (2010), only the worldwide use of technological development applied to research and learning in all professional fields, according to international regulatory directories, can create sustainable biodiversity for humans and animals. Enlarged by global climatic change, the prediction, control and surveillance of widespread emergent, epizootic and zoonotic diseases assumes a special relevance for animal production, veterinary and medical fields. However, serious challenges for ICT use persist worldwide. In developing countries without technological structures, a great effort needs to be made in order to provide, facilities such as wireless web access with low-cost computers for information accessibility, and eventually effective results.

Perhaps one of the most important factors for the recent remarkable growth has been collaborative funding initiatives from a number of international organizations. The phenomenal increase in Internet usage/ICTs in education is attributable to massive joint support schemes by international funding bodies, and this good deed must continue. Facilitating the future of ICTs and its role in enhancing research and education for enhancing agricultural performance in developing countries (including Nigeria) requires funding support. Funding of the subscription of Nigeria's veterinary faculties to the Computer-aided Learning In Veterinary Education (CLIVE) project is a pertinent example.

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