Agro-Research and Extension Personnel’s Knowledge of ICT Applications for Agricultural Development in Southwest-Nigeria

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ABSTRACT

ICT integration in agriculture is changing the tempo of the sector globally. Successful application of ICT for agricultural development however depends on the agricultural workers’ knowledge of the information-driven technologies applications. Assessment of the Nigerian agricultural researchers and extension agents’ knowledge of the ICT applications showed that 92.9% of the researchers and 51.6% of the extension agents had knowledge of the ICT applications. The chi-square analytical test showed that the agricultural researchers’ knowledge of ICT applications was significantly related to their level of education ($\chi^2 = 52.33, p = 0.017$), work experience ($\chi^2 = 26.37, p = 0.04$), IT training ($\chi^2 = 26.19, p = 0.036$) at $p < 0.05$ level. The extension agents’ knowledge of ICT utilities was significantly related to their education ($\chi^2 = 47.39, p = 0.047$) at $p < 0.05$ levels. T-test of difference between the researchers and extension agents’ knowledge of ICT applications was found significant. It was concluded that the respondents’ knowledge of the ICT applications was influenced by their level of education; and was recommended that the agricultural researchers and extension agents should train anytime the organisational ICT devices are scaled up for new applications in agriculture.

Keywords: Agricultural Researchers, Extension Agents, Information Communication and Technology (ICT), Knowledge of ICT Functionalities, Southwest Nigeria

INTRODUCTION

Development of agriculture largely depends on a number of interactive factors. The roles of agricultural researchers and extension agents remain fundamental to making agriculture amenable to a given agro-climatic environment. For instance, the researchers bring about research-based technologies with which the farmers can improve their farm productivity; the extension agencies on the other hand educate the farmers on efficient utilisation of the disseminated
technologies. Successful attainment of the agricultural researchers and extension agents’ respective goals of technology development and dissemination however depend, not only on the essential and functional working tools or equipment that may be available to them in their respective agricultural organisations, but also on their operational competence of such production equipment. Although, the required production tools for agricultural research and extension service delivery differ, the use of information and communication technology (ICT) has become a common denominator in both research and extension organisations for various agricultural activities.

ICT, which entails electronic devices by which the gathering, deposition, processing, retrieval, display, dissemination and exchange of information can be facilitated (Food and Agriculture Organisation - FAO, 1993; Warren, 2002; Lawal-Adebowale, 2009), are available in both complex and simple forms. The complex ones include the satellite, computer, Internet, Geographical Information Systems (GIS), Global Positioning Systems (GPS) and remote sensing. The simple ICT devices include the radio, television, telephone, camera and audio and video recorder/player (Omotayo, 2005; Arokoyo, 2006). Based on the dynamics and utilities of the ICT devices, all have had extensive application in the agricultural system (Kouno, Ninomiya, Machida, & Moriizumi, 1998; Kouno, Roy, Machida, Moriizumi, & Ninomiya, 2000). For instance, computers have had suitable applications in agriculture for rudimentary farm office activities such as accounting and financial information management, bookkeeping and enterprise recording, payroll and budgeting, farm automation, decision support systems, production monitoring and control, information management and dissemination (Moverley, 1987; FAO, 1993). With further development in computer applications, utility software such as spreadsheet, databases and graphic programmes; and special management programmes such as “dataplan,” “flockdata,” “farmtrack,” “cropman,” etc., have allowed for efficient management of farms and farm production enterprises in terms of budgeting, stock control, rationing, pedigree recording and breed selection, and investment appraisal (Moverley, 1987).

Integration of networking of the computer systems and other communication devices in agricultural research create expanded capacities for field data assessment and collection in a more convenient and efficient way. For instance, networking of workstation computers with the High Definition Television (HDTV), via a Local Area Network (LAN), as an audio-visual standard creates instant access to production areas, such as production field, barn, packing-houses, etc. (FAO, 1993). By this possibility, production and site-specific field data, such as rates of seed and fertilizer use, labour man-days, soil features to weather information are readily monitored and recorded over a considerable period of time to support farm decision or development of farm growth model (Moverley 1987). Integration of web-camera in the computer networking system additionally makes it possible to automatically collect crop images in the field and remotely analyse the plant growth and condition efficiently (Kouno, Ninomiya, Machida, & Moriizumi, 1998; Kouno, Roy, Machida, Moriizumi, & Ninomiya, 2000). Similarly, incorporation of the Packet Digital Assistance (PDA) alongside the Geographical Positioning System (GPS) allows for farm data recording and automatic measurement of location data which can then be synchronised with computer-based Geographical Information System (GIS) application for data manipulation and/or mapping (Otuka & Yakamawa, 2003; Otuka & Sugawara, 2003).

The Internet in the global network of computer systems has a great deal of potentials for ensuring efficient information documentation, utilisation and exchange between intended users of certain information. These Internet potentialities has brought about the World Wide Web (WWW) and electronic mail (e-mail) components, which makes it possible for individual agricultural research and extension organisations to create their own information-base for public accessibility, and have relevant
Measuring Mobile Phone Technology Adoption in SMEs: Analysis of Metrics
www.igi-global.com/article/measuring-mobile-phone-technology-adoption-in-smes/169949?camid=4v1a