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### *Editorial*

The Open University of Tanzania is celebrating its 20<sup>th</sup> anniversary this year. Being the first public Open University in Eastern Africa it has unveiled the best educational preference to many people in the region. The best learning process transcends the efficiency and ethics of a workforce. Through research and hard work, the university has been stirring social transformation evidently in the elevation of dependable approach in solving social problems consistently with the needs of the 21<sup>st</sup> century. Although the OUT doesn't brag for its learning output, its mission and vision attract many to share the reputation of belonging to such learning institution. The importance of this occasion inspires all university stakeholders to re-evaluate the contribution of the open and distance learning to the nation. The growth in delivering and expanding access to many students in Eastern Africa has been marked with increased knowledgeable workforce in the society.

Adult learning contributes in attainment of achievers of social reform and development. For 20 years, East African nations have absorbed graduates capable of transforming society dreams to reality. Learners' response in e-learning has proved that acquisition of knowledge and skills can be done in a non-tradition classroom setting. Deviating from conventional mode of delivery, learning becomes the source of interest and excitement to both students and scholars. The uniqueness of the Open University of Tanzania is realized in its attainable goals, and taking risks while embracing internal and external challenges. The opportunity to extend access and knowledge coincides with emphasis on andragogical learning methodologies. Mobilization of educational resources and guidance in the acquisition of new knowledge empower learners' confidence and sense of belonging to the institution. Inclusion of learners' background and experience has moderated the pace of learning whereby students are in control of what and when to take courses. An online learning method has encouraged students' inclination and motivation to engage in the 21<sup>st</sup> century technology. The OUT has adhered to students' quest for new knowledge through face to face sessions, virtual and physical libraries.

Open and Distance Learning (ODL) has liberated many individuals from stagnation to active participant through e-learning. Learners appreciate their recognition and inclusion of their experience in the learning process. ODL acts as the remedy of many shortfalls of traditional system of education. ODL is also mentioned by Mushi in her article to create free critical and relatively independent thinkers capable of interrogating, interpreting and innovating. East African governments have welcomed the OUT move to create challengers of actions, goals, social structures, traditions and thinking. Higher quality of learning and achievable goals override society status quo. Although liberation is refined by social transformation, the OUT is still challenging its staff and students to be more conversant with emerging technologies.

Human capital has been a pillar of OUT for realization of its goals. Outsourcing innovators and those proven to excel the norm, has made the institution firm to the

present. Mbwette and Ngirwa emphasized the importance of human resource managers to increase diversity of employees. Inclusion of individual's contributions enables the institution to achieve multiple goals. Differences offer higher chance of growth but is also mentioned by Mbwette and Ngirwa to elevate chances of creating specific challenges. The institution is current in its delivering superior knowledge through qualified individuals and its initiative in sponsoring its workforce in acquisition of new knowledge and skills. The stability of the institution to its core values is affirmed in its unitary vision of all stakeholders.

Dr. John Soka  
The Editor

## Online and Mobile Learning in Poultry Farming in Tanzania

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**Abstract:** *Poultry farming in Tanzania has become a major source of income in families in the rural areas. In earlier days, farmers used only a traditional way of farming by letting free poultry in the morning to fetch for food and later in the evening let them in the chicken barn for shelter. In some cases the farmers were not using vaccination or methods of treatment against diseases, instead they slaughter and eat a fowl if it shows signs of being sick. Currently, this situation is changing due to concerted effort to improve poultry farming in rural Tanzania. One of the many efforts is the deployment of agricultural extension officers they operate as facilitators and communicators, helping farmers in their decision-making and ensuring that appropriate knowledge is implemented in order to obtain the best results.*

*Nowadays, several training are offered but have not reached the rural areas where the extension officers are operating and the residence for the bigger percent of traditional farmers. Introduction of m-learning is believed to be effective in delivering learning materials to agricultural extension officers in the rural areas.*

*This paper explores the impact which can be realized by using m-learning to deliver learning materials to agricultural extension officers who in-turn will guide traditional poultry farmers in rural Tanzania to use professional methods of poultry farming. The learning materials are developed in the Learning Management System (LMS), which is also available via the web, and delivered to the mobile phones.*

### Introduction

Rural life in Tanzania is similar to that in many other developing countries. The rural poor population survive by various forms of subsistence farming. The only livestock enterprise available to all farming families, even the poorest, is poultry production. Throughout the developing world, indigenous chickens, referred to as “village chickens” or “rural chickens”, scavenge for survival, their diets sometimes supplemented by household scraps. Under most forms of management, these chickens are not very productive, but every egg and every chicken that becomes available for consumption or sale is a benefit to the owner and produced at minimal cost. Many international organizations and veterinarians are now becoming interested in the potential productivity of village chickens. The causes of low productivity are being defined and suitable interventions are being designed.

There are about 15 major poultry farms in Tanzania located in Dar es Salaam, Morogoro, Songea, Zanzibar, Tanga, Arusha, and Moshi. According to Tanzania Daily News of 31 October 2010, the Central Zone regions are estimated to have about 9.2 million chickens kept by 60 per cent of the rural communities which constitutes about 1.17 million households. The single most important constraint of local chicken rearing is their high death rate as a result of poor health control, poor housing, and inadequate feeding.

The government is also keen to see agriculture sectors improving, and therefore, through the office of Prime Minister – TAMISEMI, has stationed agricultural extension officers in the rural Tanzania, who are intermediaries between research and farmers. They operate as facilitators and communicators, helping farmers in their decision-making and ensuring that appropriate knowledge is implemented in order to obtain the best results.

The Open University of Tanzania (OUT) and Sokoine University of Agriculture (SUA) under the project sponsored by DANIDA have established the use of LMS and mobile phones to promote availability and accessibility of learning content. Currently, training materials are available in the system for diploma courses which are developed in such a way that even the farmers are able to understand and can be motivated to take the courses themselves instead of waiting for the extension officer. This will also ensure that we produce future professional poultry farmers in the rural areas.

Agricultural extension officers encourage farmers to adopt new, improved methods of farming, using a variety of methods to reach farmers i.e. organizing study groups for farmers, demonstrations, as well as informing the media. The best method though, is through personal contact with farmers on their farms.

### **M-Learning**

O’Connell and Smith (2007) defined the term ‘m-learning’ as referring specifically to learning that is facilitated and enhanced by the use of digital mobile devices, which can be carried and used anywhere and anytime such as mobile phones, PDAs and MP3 players. The strength of m-learning is that it has the potential for delivering information at the right time.

Figure 1

*Local Chicken in the field*

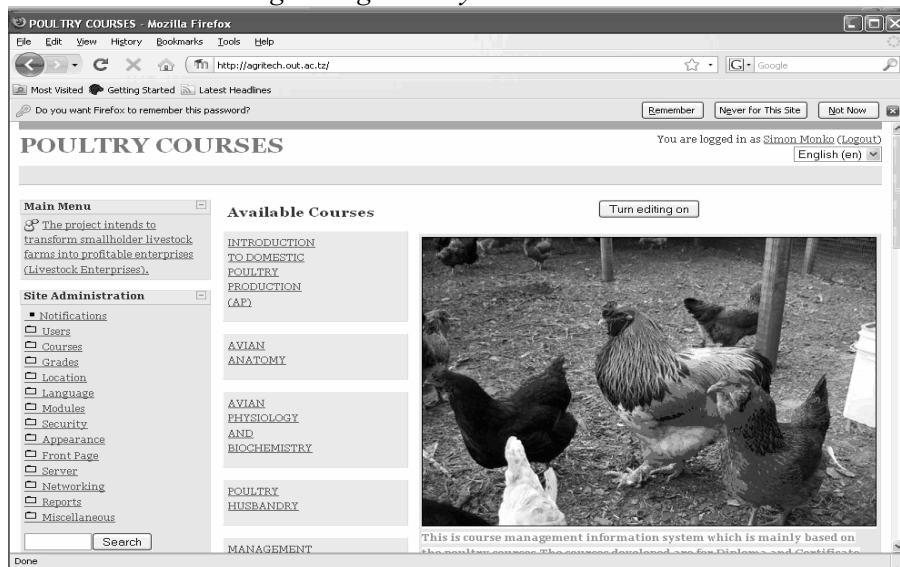


Before engaging in developing content for mobile learning, also referred as m-learning objects, one should consider the learning styles of the target group. Learning styles were developed by Honey and Mumford (1982), based upon the work of Kolb, and they identified four distinct learning styles or preferences: Activist, Theorist; Pragmatist and Reflector:

1. Activists are those people who learn by doing. Activists need to get their hands dirty, to dive in with both feet first. Have an open-minded approach to learning, involving themselves fully and without bias in new experiences.
2. Theorists like to understand the theory behind the actions. They need models, concepts and facts in order to engage in the learning process. They prefer to analyse and synthesise, drawing new information into a systematic and logical 'theory'.
3. Pragmatists need to be able to see how to put the learning into practice in the real world. Abstract concepts and games are of limited use unless they can see a way to put the ideas into action in their lives. Experimenters, trying out new ideas, theories and techniques to see if they work.
4. Reflectors learn by observing and thinking about what happened. They may avoid leaping in and prefer to watch from the sidelines. They prefer to stand back and view experiences from a number of different perspectives, collecting data and taking the time to work towards an appropriate conclusion.

Farm work is characterized by a large amount of physical activity; farmers use their whole body doing practical things. People attracted to the farming life will, besides valuing working with the land and animals, prefer action and doing rather than analysis and theory. This indicates that m-learning should aim at fulfilling the needs of the Activists and the Pragmatists. This is another motive toward developing materials capable for mobile learning access to facilitate teaching and learning in the fields.

Figure 2  
*Courses in the learning management system*



The contents for the learning objects are a complete re-use of content pulled from e-learning management system hosted at the Open University of Tanzania. The content in the LMS is developed by experts from Sokoine University of Agriculture (SUA) using OUT in-house style for course material development, then the courses are hosted by OUT and technical support provided by OUT technical staff.

Currently, there are six (6) courses completed and can be delivered online, and six (6) courses are yet to be developed. The five courses completed in the system are the one required to qualify for the diploma and the remaining courses will make a student qualify for the certificate.

The list of the courses offered up to diploma level are as follows;

- 1) An Overview Of Domestic Poultry Production
- 2) Avian Anatomy
- 3) Avian Physiology And Biochemistry
- 4) Poultry Husbandry
- 5) Management Of Poultry Diseases
- 6) Gender And Socio-Economic Aspects Of Poultry Production, Community Collaboration, Group Formation And Marketing
- 7) Poultry Health: Poultry Diseases And Biosecurity Course
- 8) Poultry Pathology And Disease Diagnosis
- 9) Applied Poultry Breeding: Breeds, Ecotypes, Names Of Local Ecotypes And Productivity
- 10) Hatchery Establishment And Management
- 11) Poultry And Poultry Products: Processing And Marketing



## 12) Extension Methodologies, And Rural Sociology Participatory Constraints (Ap)

### **Learning Management System and its Extension to Mobile Learning**

It is expected that, for the purpose of developing content for the mobile phones, authoring system will be used. Currently, it is envisaged that the system will be Learning Mobile Author 4.4 from HotLava Software. Learning Mobile Author is a PC-based tool with a simple but effective interface. It allows content authors to design, author, test and publish mobile content for delivery to mobile phones and PDAs. It is possible to use text, pictures, video, Flash, audio, test and quizzes and to communicate results to a central management system. The philosophy in Learning Mobile Author is more suited for non-formal learning as is the case in poultry farming. Due to the fact that the content is available on hand, we believe the technical production of learning objects will be easy.

With respect to audio content, we are expecting to produce objects using an Edirol R-09 recorder, simply using its build-in microphone. Recordings will be edited and trimmed using Audacity - a free open source software for recording and editing sounds. Since August 2010, OUT is negotiating with Airtel Company (former Zain Company) and Auto innovation company on the possibilities of delivering learning content to the students mobile phones. The groundwork has started and the technological issues and their costing is been sorted out.

Since the mobile phone is the most available tool in the rural areas, this device is seen to be the primary platform for delivering learning objects. There is a wide selection of phones in use and many of the medium-end models will be suitable for m-learning. In the future, it will be important to negotiate with Telecom Company to see the possibility of providing suitable phones for m-learning at affordable price.

### **The Use of M-learning in Poultry Farming**

As already stated, the strength of m-learning is that it has the potential for delivering information at the right time. This is very suitable for extension officers and farmers, since their learning styles favor practice and action instead of studying in formal settings. As it was mentioned before, extension officers can also motivate farmers to enroll into the courses available at certificate and diploma levels in order to build capacity for future professional poultry farmers.

As seen earlier, traditional farmers are slaughtering weak/sick poultry instead of applying medication; this is due to lack of knowledge on poultry diseases controls. Courses such as *ODP 008 Poultry Health: Poultry Diseases and Biosecurity Course* and *ODP 010 Management of Poultry Diseases* will help farmers gain knowledge on how to deal with poultry diseases; a knowledge which will eventually help to increase poultry production.

Course like *ODP 007 Gender and Socio-Economic Aspects of Poultry Production, Community Collaboration, Group Formation and Marketing* will empower community to realize the importance of poultry production. Farmers working together will easy marketing of poultry and poultry products.

In Tanzanian environment, m-learning is much more useful than computer-based learning because, for agricultural extension officers, access to computer in their workplace is difficult, but access to mobile phone is guaranteed. In order to ensure that the agriculture extension officers efficiently utilizes the materials provided, training will be offered in short face-to-face sessions, manuals, and awareness brochures will also be produced.

### **Future Prospects**

In future we are looking for the possibility of using the second life concept to extend our research work to a situation where we can develop second life application for teaching students on how to take care of the chicken and later extend the same concept to other agriculture development activities. Second Life (SL) is an online virtual world developed by Linden lab. According to (Wiki, 2011), a virtual world is a type of online community that often takes the form of a computer-based simulated environment, through which users can interact with one another and use and create objects which are used to build the entire environment. Applying the same concept in Agricultural development, one can develop a virtual world in a way that, you can bring in a piece of virgin forest land, let say 200 hectares. We then task the students to plan and develop the land, starting with planning in various aspects such as what they are going to cultivate, how they are going sow seeds, planning the make use of land, use of irrigation and human resources.

Currently where the major emphasis is on Kilimo kwanza in Tanzania, meaning Agriculture as priority one in the development of the country, but not many schools are practically teaching the subject. We believe that using technologies can influence the student's behaviour in many ways. First of all they can seem more interested in using virtual modes as a study method and because of this their learning satisfactions can be higher when compared to traditional classroom techniques (Wiki, 2011; Bishop, 2009).

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