



## Application of Online Learning Management Systems (LMS) in agricultural education- A brief review

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### Abstract

*Electronic learning or online learning technologies have great potential to spread learning. Much of the success of e-learning can be attributed to the availability of Learning Management Systems (LMSs), also known as Virtual Learning Environments (VLE) or learning platforms. The online LMSs have made huge gains in filling the digital divide (Frausto and Torres, 2010). In this light, Mohammadi et al. (2011) have suggested that e-learning must be the future trend for agricultural education and agricultural in-service training as well. Online LMSs have been successfully used for agricultural education though it has content issues. Globally there are lots of organizations that provide online agricultural courses ranging from certificate courses to doctoral programmes. Majority of the studies on the effectiveness of online learning uphold that blended learning offers more opportunities to address the issues of contextualization and practical work. So the prospects of using online LMS for agricultural education lie in designing courses through a logical blend of online and contact sessions.*

### I. INTRODUCTION

The present digital era, is an amazing age of remarkable ease of accessibility and connectivity, which tremendously impacts the field of education all over the world. "E-learning" may be defined as instruction delivered electronically via the internet, intranets, or multimedia platforms such as CD-ROM or DVD, instead of in a physical classroom. Studies show that online education is becoming an important long-term strategy for many postsecondary institutions including agricultural education. It is allowing greater access to more students and farmers, more efficiently, with better information. The evaluation results of the first international e-learning projects in agriculture show that much good can be done toward ensuring food security in the world if developed countries assist developing countries to implement e-learning methods (Leary and Berge, 2006). This discussion provides a brief review of the application of Online Learning Management Systems (LMS) in agricultural education.

Online Learning Management System is a broad term that is used for a wide range of systems that organize and provide access to online learning services for students, teachers, and administrators. According to Paulsen (2002) Online Learning Management Systems (Online LMS) are software that automates the administration of online learning and training events. Watson and Watson, (2007) defined them as frameworks that handle all aspects of learning process. An LMS is used for delivering, tracking and managing training/education. They range from systems for managing training or educational records to software for distributing courses over the internet and offering features for online collaboration.

The Ministry of Agriculture (MoA) in Iran considered the necessity of e-learning in agricultural extension centers throughout the country which would have direct interaction with farmers, because they found that traditional education was no longer effective. (Ahmadpour, 2010). The study to explore the attitude of agricultural instructors toward e-learning in Iran suggested that e-learning must be the future trend for agricultural education and agricultural in-service training (Mohammadi *et al.*, 2011). A web authoring tool called HyperTree was used to help the collaborative authors of a hypermedia digital library, which had been designed and developed to meet the educational needs of Greek beekeepers, to effectively structure and interconnect the information provided, and to preserve a common interface design thereby making the library more usable. (Batzios, 1997). The Internet-based e-learning applications can be used to train unemployed groups in traditional and new techniques, management, basic concepts and commercial activities in sericulture sector. (Andreopoulou, 2005). Vostrovsky and Jablonska (2007) found that E-learning and expert systems can promote mushroom cultivation in developing countries. E-learning through development of dedicated website, and expert systems for farmers are some of the stress points where ICT can be used effectively for development of quality human resource in poultry sector (Sethi *et al.*, 2009).

## **II. ONLINE LMS FOR AGRICULTURAL EDUCATION**

Online learning with multi sensory perception favors the different learning styles in deepening the understanding of agricultural issues and how to communicate them in informal settings. Combining theory and practice, the agricultural education curriculum can be tailored to suit the specific professional goals and interests. Compared to other business and management fields, e-learning in agriculture related fields is still in the early phases of adoption. As per the results of the study conducted by Yaghoubi and Malekmohammadi (2008) in Iran, the main components for e-learning in higher agricultural extension and education in Iran were: (1) Students, (2) faculty members, (3) Educational interactions (4) Supporting Factors and (5) learning management system.

Online LMS for Agricultural Education is used for almost all subjects including Crop science, Animal science, Poultry science, Soil science and Water management, Plant/Animal protection, Plant/Animal breeding, Post harvest handling and value addition and Marketing of agricultural produce. However, the different researches all over the world have found that the factors affecting the development of online LMS in agricultural education can be classified into financial, policy, support, technical, educational, cultural, personal, psychological, managerial and organizational factors.

### **2.1. Some cases of application of online LMS in agriculture**

Agricultural Innovation Partnership (AIP), launched with the support of the United States Agency for International Development (USAID), has adopted Online LMS towards improving agricultural education in India by promoting e-learning in Indian agricultural universities by creating e-learning centres to deliver ICT-enabled courses to students at partner Indian agricultural universities leveraging on the technological expertise of US partner universities. As part of one such initiative, the AIP facilitated adoption of e-learning by the Assam Agricultural University (AAU), Banaras Hindu University (BHU) and Sardar Vallabhbhai Patel University of Agriculture & Technology (SVPUA&T).

A number of State Agricultural Universities in India, government departments and also some private entrepreneurs have hosted Agricultural Web Sites. The National Institute of Agricultural Extension Management (MANAGE) has taken the initiative to provide linkages to the technical and other farmer friendly information through its websites. MANAGE supports a number of Agricultural

Universities and other research and training organizations like Regional Extension Education Institutes (EEIs), State level Management and Extension Training Institutes (SAMETIs), Agricultural Technology Management Agency (ATMAs), by which it has improved the information dissemination of these institutions significantly.

Tamil Nadu Agricultural University (TNAU) hosts the world largest Agritech portal, which is highly interactive and gives all information related to each crop right from sowing to harvest and even the market prices. Development of eCourses for B.Sc. (Agriculture), a TNAU project funded by National Agricultural Innovation Project (NAIP), brings world class faculty and curriculum of Tamil Nadu Agricultural University to students of Indian SAUs. Through the state-of-the-art digital technologies, students of B.Sc. (Agriculture) program all over India can access TNAU classes. TNAU creates customized digital learning packages as off-class resource to the students. Besides this, TNAU hosts video lectures for the B.Sc. (Agriculture) courses from their server-<http://www.mms.tnau.ac.in> for the student use.

Indian Council of Agricultural Research (ICAR) stipulated the conduct of compulsory e-courses in the curricula of UG, PG and Ph.D programmes of State Agricultural universities (SAUs). Under Learning and Capacity Building program of National Agricultural innovation Project (NAIP), e-Krishi Shiksha, several Undergraduate level interactive and multimedia e-Courseware contents in seven disciplines viz. Agricultural Science; Fisheries Science; Dairy Science; Veterinary and Animal Husbandry; Horticulture; Home Science and Agricultural Engineering have been developed at State Agricultural Universities (SAUs) and other organizations.

The Centre for e-Learning of Kerala Agricultural University has e-Krishi Patashala that conducts online courses in organic Agricultural Management, Plant Propagation and Nursery Management, Post Harvest Management and Marketing of Fruits and Vegetables.

An e-learning curriculum on food security, developed by international experts to support capacity development, is part of the “EC/FAO Program on Linking Information and Decision-making to Improve Food Security”. It is led by FAO and funded by the European Union’s Food Security Thematic Programme (FSTP). The World Agroforestry Centre has adopted Moodle as the learning management system for the online part of its blended courses. It is found to be simple, flexible and easy to access for people with moderate to good ICT knowledge.

Directorate of Distance Education, University of Agriculture Faisalabad, Pakistan has remained involved in distance education of lifelong learners (farmers) through utilising all available communication modes, since its inception. Jomo Kenyatta University of Agriculture and Technology (JKUAT) of Nairobi, has introduced Distance Learning Programmes which are Technology Supported where the students gets access to all course materials in the Learning Management System.

Emerging technologies and better internet connections will bring more opportunities that will allow further integration and demonstration of more practical applications into e-learning. Online agricultural education can be structured around the needs of students and their career goals. Practitioners in agriculture and natural resource management can be connected to global, regional and local experts in blended learning environments by combining real-time, group learning and knowledge sharing (e.g. videoconferencing and local facilitation) with self-paced exploration and learning (e.g. computers and the Internet).

### III. CONCLUSION

In the information age, the nature of work and the skills needed to be successful are markedly different. When it comes to agriculture, it is a subject that demands adequate hours for practical sessions and the prospects of using online learning in this sector needs introduction of blended learning. Blended learning offers high proportion of practical sessions to address the issues of contextualization and practical work. Simultaneously, the agents will continue to play a critical role in bridging the gap between e-learning methods and implementation in the field as reminded by Leary and Berge (2006).

Everything in agriculture can't be generalized at a global level and taught in an online environment and transmission of knowledge is often better achieved through peer-to-peer learning (Baena *et al.*, 2007). It is believed that blended learning offers more opportunities for agricultural and natural resources management, over purely online learning since the former allows addressing the issues of contextualization and practical work. At the same, the actual design of blended learning in agriculture and natural resource management should be done through a logical blend of online and contact sessions. However, this can take many forms, depending on the course objectives and the audience it is targeted toward.

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