Open and Distance Learning System in Extension Education

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Conventionally, land, labour, capital and management are four factors of production. In the competitive globalized environment, not only the capital and infrastructure but also the information, research and innovation, education and learning systems are vital; therefore, knowledge is a core of development process in the present era. Extension education is system to impart learning to rural and form community to improve their livelihood by changing their behaviour (change in knowledge, attitude and skills). Extension education provides knowledge and skills for better management of farming and increases income.

Open and distance learning (ODL) is relatively new in the field of education. It gains prominence only in the last 25 years. This term is comprised of two terms i.e. Open Learning and Distance education. Open learning is a philosophy and Distance learning is a methodology in education. Openness and learner-centric is a basic philosophy of ODL. Flexibility and openness in entry and admission requirements, programme structure, and flexible learner support (when, where and how to study), etc. are important reasons for popularity of ODL. Distance education or distance learning, is a field of education that focuses on teaching methods and technology with the aim of delivering teaching to students who are not physically present in a traditional educational setting such as a classroom. It has been described as “a process to create and provide access to learning when the source of information and the learners are separated by time and distance, or both” (Wikipedia). Physical on-site presence of teachers and learners is also recommended in the new generation distance education particularly in technology oriented courses.

There are a number of similarities between extension education and distance education:

- Extension education deals with study of farmers problems and needs of the farmers. The subject and areas deal with the distance education is also based on the need of the society.
- Extension education has no fixed curriculum or course of study & curriculum are developed with the help of farmers based on their requirements. Similarly, in case of distance education, curriculum is developed based on the requirements of the learner and choice is given for selection of curriculum.
- Decision power is given to farmers / or learners in extension and distance education in terms of when, where, what and how to learn.
- Participation of learners is voluntary in both extension education and distance education (self pacing).
- In extension education local leaders are used for teaching and In distance learning, the locally available teacher-counselors are used for teaching.
- Learners are large & heterogeneous in both extension and distance education.
- Both are flexible in terms when, where, what and how to study.
- Extension education is more practical & intended for immediate application in the solution of problems. The programmes/ courses offered by the distance education are also need based and have immediate application for improving the livelihood.

The open and distance learning (ODL) system is successful in providing the education to the unreached. It is being employed in agriculture as well for suitable curriculum development and delivery. This paper covers the development and delivery of agricultural programmes through cost-effective and efficient ODL to educate farmers, upgrade their technical, entrepreneurial, and analytical skills.

I. Development of Education and Extension System:

In pre-independence India, five agricultural colleges at Pune, Coimbatore, Sabour, Kanpur, Nagpur and Layallpur (Now in Pakistan) were opened in order to
impart agriculture education and bring improvement in production technology. Setting of Imperial Agricultural Research Institute, Pusa (Bihar) and Imperial Council of Agricultural Research were the major initiatives for agricultural research, education and extension activities in the country. The education system has undergone lot of changes in post-independent India. The Imperial word was replaced by Indian Council of Agricultural Research (ICAR). State Agricultural Universities (SAU) were established on the philosophy of Land - Grant College of USA. Presently, there are 48 SAUs and one Central Agricultural University (CAU). SAUs and ICAR institutes are also undertaking extension activities to transfer developed technologies to the cultivators. However, the target population to be covered by the available extension and education system has limitations in reaching out to all citizens in a geographically vast country like India, particularly those in rural and agricultural-based communities.

II. Need for Open and Distance Learning (ODL)

Agricultural knowledge and advancement in farming practices must be brought to the farming for their adoption. Open and distance learning is a proven system of education for the un-reached. Distance education is a form of education which relies on the pedagogy/andragogy, technology and instructional systems design that are effectively incorporated in delivering education to students who are not physically “on site”. However, teachers and students can interact at a time of their own choice. The mode of interaction can be in the form of print or electronic media or technology mediated. Because of use of multi-technology, openness and flexibility, the ODL system is able to become an alternate and cost effective mode of extension education. The ODL System can provide access to extension system to reach large segment of population.

III. Indira Gandhi National Open University (IGNOU)

IGNOU was established in 1985 in order to provide cost-effective quality education to large sections of population, including those living in remote and far-flung areas. The University at present offers 475 programmes of study to cumulative student strength of over 2.6 million through 21 School of Studies making it the largest University in the world (Anonymous, 2011). These programmes have been created with a view to fulfilling the learners’ need for acquisition of professional qualifications; continuing education and professional development in the workspace; skill improvement and self-enrichment; and certification. IGNOU is the National Resource Centre for Open and Distance Learning providing access to sustainable and learner-centric quality education by using innovative technologies and methodologies and ensuring convergence of existing systems for massive human resources required for promoting integrated national development and global understanding. The teaching-learning process is through self-instructional learning material and multimedia contents which are supported by teacher-learner and learner-learner interaction at study centers.

IV. School of Agriculture (SoA)

The School of Agriculture was established in January 2005 at IGNOU and is mandated to improve and sustain productivity and quality of human life in rural areas through ODL System in agriculture and allied sectors. It aims at improving out-reach of agriculture education and extension for rural masses through academic, continuing and extension programmes. The School is playing important role in turning the rural unemployed youth to first rate agricultural entrepreneurs and agri-business managers of tomorrow. This will strengthen human resource base through quality education and generate trained manpower. It imparts knowledge and skills for life-long learning. The major functional areas identified by the School to cater the educational needs of the rural community are Plantation Management, Agricultural Policy, Value Added Products from Fruits and Vegetables, Dairy Technology, Meat Technology, Production of Value Added Products from Cereals, Pulses and Oilseeds, Fish Product Technology, Organic Farming, Sericulture, Water Harvesting and Management, Poultry Farming, Bee- Keeping, etc.

The programmes offered by the School of Agriculture are mostly vocational in nature, having both theory and practical components. Hands on training on preparation of different value added products; marketing and others aspects are provided. The School of Agriculture in IGNOU also conducts need based extension/awareness / short training programmes in the areas of Dairy Farming, Value Added Products from Fruits and Vegetables, Watershed Management, Marketing Management of Horticultural Produce, Water Harvesting, Integrated Farming System, Vermicomposting, Aquaculture, Extension Methodology
for Extension Functionaries, Technologies in Increasing Milk Production, Sericulture, Hygienic Meat Production and Processing, Poultry Farming, Fruit Preservation and Pig Rearing. These training are organised using the local expertise and resources.

V. Technological Innovations for Improving Outreach and Effectiveness of Open and Distance Education in Agriculture

There is a need for extension system which fast and efficient in disseminating the knowledge. A number of technological innovations are used in distance education with the advent of the information and communication technologies. The Information and Communication Technologies (ICT) are bringing about the knowledge revolution by empowering the resource-poor farmers with up-to-date knowledge about agricultural technologies, best practices, markets, price trends, consumer preferences, sources of finance, weather, soil-moisture conditions and the environment (Singh, 2006). Use of innovative media and Information Technology (Radio, TV, Farm information and advisory centre, Private portals, Public and private information shops, cyber kiosks, teleconferencing, on line and e-learning) to disseminate the knowledge on agriculture has become important and popular.

IGNOU has made an attempt to conduct the educational programmes / courses using ICTs. Few programmes offered by IGNOU have been converted in to online format using ICTs. ICT’s supported education if designed and implemented well, can promote the acquisition of the knowledge and skills that will empower students for lifelong learning.

The extension and educational programmes of the IGNOU have multi-media support. The University has state of art facilities for production of audio/video programmes and their dissemination through radio and television. The University also uses interactive radio counselling as well as tele-conferencing to provide interactivity in the teaching-learning process. IGNOU is the nodal agency for running a 24-hour educational TV channel (Gyan Darshan) and a network of 40 FM Radio stations (Gyan Vani) exclusively devoted for education. The University has made a major breakthrough in distance education and training with the launch of an exclusive Educational Satellite, EDUSAT which has a wide reach to cover large sections of population with its two-way video conference facility.

The instruction methodology in IGNOU is more learner-oriented and the student is an active participant in the teaching and learning process. Most of the instruction is imparted through distance rather than face-to-face communication. The system of instruction followed in IGNOU includes the following components:

- Study material
- Practical training
- Face to face counselling
- TV broadcasting
- Radio broadcasting
- Teleconferencing
- Internet based delivery
- Work experience

The agricultural programmes of IGNOU are offered through Programme Study Centres (PSCs) established at conventional research and educational institutions / organizations. The theory and practical counseling (contact session) are conducted at these PSCs. The counseling sessions are conducted by the locally available resource persons. Besides face to face contact sessions, Information Communication Technologies (ICTs) based counseling are conducted. Brief descriptions of ICTs used by the IGNOU are given below:

i. Teleconferencing: Two-way interactive telecounselling, tele-teaching, tele-training, tele-discussion and extended contact programme (live sessions) are conducted via satellite (EduSat) in entire country. These tele-sessions are also webcasted at www.ignou.ac.in.

ii. Audio-video programmes: Demonstration of skills, better clarification and enhancement of understanding of the course material are facilitated by audio and video programmes The audio and video programmes are being played at the study centers during the hours of the counselling sessions. The video programmes are telecast at National Network of the Doordarshan and the Gyan Darshan.

iii. Interactive radio counselling: This is done through National Network of AIR and the Gyan Vani stations where teacher explain the queries raised by students via Toll free telephone facility.

iv. Gyan Darshan: IGNOU run the two TV Channels (Gyan Darshan-I and Gyan Darshan-II) a fully digital 24-hour exclusive Educational TV Channels. The video programmes developed for
various courses are broadcasted on these channels. Live sessions of teleconferencing are also broadcasted on these channels.

v. *Gyan Vani:* It is a Cooperative of Radio and is a unique low-cost, interactive medium for enhancing and supplementing the teaching-learning process by reaching out to widespread learners. Its main objective is to bridge the gap between educationally privileged and deprived. Total around 40 FM radio stations are fully operational.

vi. *Touch Screen Kiosk:* IGNOU has put a Touch Screen Kiosk at its Student Support Service Centre and its all Regional Centres throughout the country where students by entering their enrolment number can have information related to address, admission, registration, grade card, semester wise term end examination results etc.

Various improved pedagogic methods of ODL are being developed and used for the purpose of knowledge dissemination, which are the important components of extension education.

**VI. National and International cooperation for development of ODL System**

Distance education in agriculture is being developed and adopted in various parts of the world and different models. These programmes could provide valuable information and course materials through appropriate partnerships. International agricultural research centers offer a large set of knowledge that could be used in the national systems of education. The international education systems in distance learning should be linked with national organizations in order to strengthen knowledge access to various stakeholders of agriculture. The participation of the private sector and Non-Government Organizations (NGOs) can further complement and supplement the efforts of public sector in educating farmers and rural youth.

The School of Agriculture of IGNOU is undertaking number of programmes in collaboration with various national and international organizations like Ministry of Agriculture, Ministry of Food Processing Industries, Ministry of Rural Development, Agricultural and Processed Food Products Export Development Authority (APEDA), Central Silk Board, International Network for Bamboo and Rattan (INBAR), Commonwealth of Learning (CoL) and International Food Policy Research Institutes and International Crop Research Institute for the Semi Arid Tropics (ICRISAT). ICAR institutes, State Agricultural Universities (SAUs) and other research and educational organizations are actively helping IGNOU in developing and delivering of ODL programme in agriculture sector.

**VII. Technology Mediated Open and Distance Learning**

Use of Information and Communication Technology is a well-recognized fact in the present era for education delivery particularly in Open and Distance learning. This development is leading towards Technology mediated learning which refers to systems of teaching and learning in which a technology other than print has a major role. There are two existing major forms of technology mediated learning: (i) stand-alone e.g. computer-assisted learning and computer-managed learning and (ii) conference e.g. for example, audio, video or computer ([www.col.org](http://www.col.org)). Education counselling through Radio and video conferencing are a common feature in all programmes of IGNOU. IGNOU has also started two online programmes in agriculture. In these programmes, all course contents are available online, teaching-counselling are done online, and examination are conducted online.

The School of Agriculture is implementing a National Agriculture Innovation Project on “Innovations in Technology Mediated Learning: An Institutional Capacity Building in Using Re-usable Learning Objects in Agro- Horticulture”. The project will scale up the success stories of Open and Distance Learning. The main focus of the project is on e-extension in agriculture in the form of Reusable Learning Objects (RLO).

RLO Technology is a new paradigm in Life Long Learning. RLOs are the e-extension resources available freely and openly to anyone who can use, re-use, remix, recycle and redistribute it in restricted or un-restricted manner. RLO is the smallest stand alone and an independent unit of learning designed for re-use in multiple instructional context. A RLO is a type of online instruction that provides a digital educational resource that can be scaled and shared from a central online repository in the support of instruction and learning. Each RLO supports a single learning objective. RLO can include text, audio, video, photograph, animation, table, chart, laminations that can be suitably combined to form new body of knowledge in the form of learning lesson, unit, module, course, programme, etc. Every RLOs is searchable i.e. it is tagged with meta-data. In addition to this RLOs are easy to update which makes easy
access to updated quality teaching and learning resources for a wide range of learners.

CONCLUSION

There are number of similarities in philosophy and methods of distance education and extension education. Agricultural universities, colleges and research institutes have been set up to provide the extension education. The majority of peoples in agriculture sector are resource poor; they can not effort to go these conventional universities and colleges. The numbers to be covered by the extension education are too large. Therefore, the Open and Distance Learning system can help greatly in order to impart timely and cost effective education in agriculture. Advent of new information and communication technology further improving the outreach of distance learning system. School of Agriculture of IGNOU is offering a number of need based distance learning programme to fill knowledge gap of stakeholders of agriculture. The learning materials of IGNOU are supported by the various ICTs based tools like TV, radio, audio-video programmes, teleconferencing, interactive radio counselling, etc. Several government departments and ministries are also helping IGNOU in imparting agriculture education programmes. The project on e-extension in the form of Reusable Learning object is a new paradigm in lifelong learning in agriculture. It will scale up the success stories of ODL in extension education.

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