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**RESEARCH PAPER**

# ICT mediated platforms for capacity building of faculty members in agricultural universities

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**Abstract:** In teaching-learning process teachers play a crucial role in enhancing effective learning and they are the pillars of agriculture education and rural development. The faculty in agricultural colleges play a vital role in shaping the future of agricultural graduates. Agricultural faculty are required to use different e-resources in teaching, webinars, conferences, trainings, workshops, etc to update the new knowledge, skills. It also empowers teachers to revise and increase the relevance of outdated curricula for better delivery of agricultural courses and concepts to students. Yet, many of the faculties are facing difficulties in handling the online classes due to lack of proper training in using the online platforms like ZOOM, WebEx, Google meet. In this backdrop, the authorities of State Agricultural Universities should take initiatives to popularize the usage of ICT tools and encourage faculties to customize with the online platforms for various educational purposes. Though, e-resources represent many challenges at every level of their selection, acquisition, preservation, maintenance and management. At the same time, these resources have also come with many advantages giving solution to many professional problems like solution to space problem, providing remote access, convenience in use, increased readership with improved services, leading to more opportunities for productive research output and academic excellence within short time.

**Key words:** e-Database, Education policy, Human resource

## Introduction

Teaching is multi-dimensional in nature and in order to accomplish the objectives of teaching, multiple methods of teaching are used in an integrated manner. Before the advent of Information and Communication Technology (ICT) tools and internet, it was quite difficult for faculties/ teaching professionals to gather up-to-date and complete information in their respective subject area. At present, ICT tools are used in myriad ways, especially in education process. The tools are playing vital role in providing chunk of information on any subject with various examples for enriching the knowledge of faculty members.

## Role of ICT in Capacity building of Agriculture Faculty

ICTs play a pivotal role in capacity building of agriculture faculties in terms of (a) professional development of the faculty on teaching and cognitive skills. The faculties of the agricultural Universities has to undergo various certification courses conducted by the reputed educational institutions like ICAR, MANAGE, NAARM and State agricultural Universities.. These courses help in enhancing their capacity to teach the concern subject contents easily understandable. (b) Agricultural faculties can increase their domain knowledge with the help of e-journals, e-magazines and e-library through the use of ICT tools/applications. In this regard, faculties also can participate in discussions and conferences with the experts on their subject area to improve their knowledge and skills through audio and video conferencing. The research conducted by Kalbande *et al*. (2013) in Mahatma Gandhi Phule Agricultural University, Rahuri, revealed that out of 185 faculty respondents, most (31.15%) of the faculty used e-databases and e-journals ((26.23%) for studying and teaching purposes followed by use of e-article/e-prints (14.75%), e-theses/dissertations (11.80%), e-newsgroups/magazines (7.54%), and e-books (6.56%). (c) ICT tools helps to learn innovative methods of teaching by providing online interaction facilities besides helping the students and teachers to exchange their ideas and views along with on the spot clarification on topics dealt. Example: Digital assessment tool. (d) Participation in ICT based in-service training programmes, workshops and webinars are essential for skill development and knowledge of the faculties. The study conducted by Subhendkundu in 2020 highlighted that, 98.1% of teachers have participated in different webinars and workshops for skill development and knowledge. (e) ICT tools help teachers to guide students to take up scientific research and writing thesis which are available in internet, e-books, e-journals, e-magazines and social sites. (f) ICTs also helps the faculty in developing the curriculum of different subjects that leads to achieve the aims and objectives of subject of teaching.

## Important ICT tools helpful for agricultural faculties to acquire the required skills and knowledge

The Internet is a heterogeneous channel with vast educational resources. There are several e-resources available for the teachers in agricultural education. Each of these resources while using have their own set of rules, but they relate to one another in several ways. Some of the important e-resources which are essential to enhance the efficiency and effectiveness of the agricultural faculty are discussed as follows.

**1. Open Education resources (OER)**

It was first coined by UNESCOs in 2002 for higher education. It is used to support access to knowledge of respective subject which are available in full courses, course materials, modules, textbooks, videos etc. It mainly helps in building capacities among the faculty members by reducing their time to develop instructional content.

**Example:** a) **NPTEL** (National Programme on Technology Enhanced Learning), under this programme there are currently 16 agricultural courses available for knowledge acquisition.

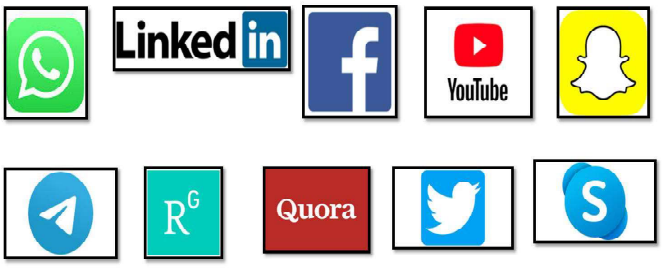
b) **National Digital Library**: used to review the technical reports, manual, Thesis *etc.*

c) **MOOCs**: Described *as free to browse and pay to use*.

A study conducted by National Academy of Agricultural Research Management (NAARM) revealed that, out of 3179 registrants of MOOCs program on 'dynamics of teaching and learning', half of the participants were at the beginning of their career. About one tenth were young scientists (Assistant Professors and Assistant Research Scientist). Remaining were Senior Scientists/Associate Professors, Professors/ Principal Scientists/ HoDs/ Dean/ Director, Junior/ Senior Research Fellow, Teaching/ Research Associate, Officials of line departments and others. The course attracted senior professors and administrators as well. Finally the study concluded that MOOCs undoubtedly holds promise as the mode of knowledge acquisition and future capacity building of professionals.

**2. Social media for sharing information:**

Social media applications are used as learning tools, delivery platforms, networking tools and collaboration tools used for sharing information and documents, some of the social media are;




In his PhD thesis, Dishant (2020) found that, majority of KVK scientists used whatsApp and facebook for seeking and dissemination of information, for acquiring skills pertaining to agriculture practices and publishing/rapport building. It shows the social medias are becoming popular platforms to collect useful information and builds the confidence among the Scientists in the transfer of technologies to the farmers.

**3. Current online Platforms**

These are helping in supporting, enhancing and enabling course content delivery. Through these mediums the teacher or students can have two way communications to achieve maximum in limited time. Some of the latest platforms are;

**1. Zoom**

**2. Google meet**

**3. Cisco WebEx meet**


Conducting the webinar/workshop in online platform is cost effective and convenient when compared to conventional seminars or workshops.

**4. E-resources**

E-resources consisting of information materials that are available in electronic form, having specific characters like, borderless, available 24X7, user friendly and multiple accesses. Some of the e-resources which were developed by ICAR for knowledge management and sharing research information by supporting innovative applications for agricultural faculty and students available in the agricultural Universities are:

| | | |
|---|---|---|
| Cera: | : | Consortium for e-resources in agriculture. |
| Krishiprabha | : | Indian Agricultural Doctoral Dissertations repository |
| Agricat | : | Union catalogue of Agricultural Libraries in India |
| Ideal | : | Integrated Digital Ensemble of Agricultural Libraries |
| Krishikosha | : | An institutional repository of National Agricultural Research System in India |
| Epubs | : | E-Publishing of Scientific Journals of Indian NARES |
| CAB Abstract | : | Commonwealth Agricultural Bureaux |
| AGRIS | : | International bibliographic Information System for the AGRicultural sciences and technology |

These e-resources are very effective in professional development of agricultural faculties. It was observed in one of the research conducted by Kalbande *et.al* (2013) was that, 95.37 percent of faculty members expressed e-resources are more useful followed by 86.11 percent mentioned it as time saver. Meanwhile 57.41 percent of faculties responded as easy to use and 3.70% percent them mentioned that more Informative. Finally he concluded that use of e-resources is the best way to enhance capacity of the faculty members in agricultural Universities.

**5. Online databases:** The most effective way to provide access to electronic books/journals at the Agricultural University libraries is through subscription to online databases which can be accessed through the internet. Online databases are a collection of electronic information sources (e-journals/e-books) by publishers from various fields and disciplines. Presently students also started to utilize the growing range of electronic resources to acquire and practice the skills necessary to exploit them.

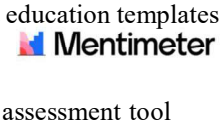
**6. CD-ROM databases:** CD-ROM databases allow users access to relevant databases without robust Internet connectivity in

libraries. Besides, CD-ROM databases are of immense value over print if the system is networked, as patrons at their terminals could access information without coming to the library. New modes of teaching, learning and accessing information have emerged as a result of Internet and World Wide Web. CD-ROM databases are important tools for identifying the bibliographic details of potentially useful documents and ensure easy access to large volumes of literature for research.

**7. Digital assessment tools**

Online assessment tools for teachers are a necessary in teaching and learning process. From first day to the last day of the teaching of a course the teacher need to know what students have understood. Important digital assessment tools available for the teachers are:

- Socrative - quizzes and questions with real-time grading
- Google Forms - easy to use
- Mentimeter - pre-built education templates
- Poll Everywhere
- Kahoot - game-based assessment tool




Findings of most of the studies showed that use of e-resources are useful for education and offer many beneficial opportunities. On the basis of studies following are the advantages and few drawbacks of e-resources:

- Accessing information through electronic Libraries.
- Helpful in conducting research.
- Submission of assignment through e-mail.
- Data/ File storage through Cloud Computing.

**Few problems on the use of e-resources**

- Lack of reliability and quality of information.
- Quality control issues with online information.
- Overload of information.
- Financial constraints.
- Changes in work habits.

**Conclusion**

In teaching-learning process teachers play a crucial role in enhancing effective learning and they are the pillars of agriculture education and rural development. The faculty in agricultural colleges play a vital role in shaping the future of agricultural graduates. Agricultural faculty are required to use different e-resources in teaching, webinars, conferences, trainings, workshops, etc to update the new knowledge, skills. It also empowers teachers to revise and increase the relevance of outdated curricula for better delivery of agricultural courses and concepts to students. Yet, many of the faculties are facing difficulties in handling the online classes due to lack of proper training in using the online platforms like ZOOM, WebEx, Google meet. In this backdrop, the authorities of State Agricultural Universities should take initiatives to popularize the usage of ICT tools and encourage faculties to customize with the online platforms for various educational purposes. Though, e-resources represent many challenges at every level of their selection, acquisition, preservation, maintenance and management. At the same time, these resources have also come with many advantages giving solution to many professional problems like solution to space problem, providing remote access, convenience in use, increased readership with improved services, leading to more opportunities for productive research output and academic excellence within short time.

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