2023

e-KrishiShiksha : e-Learning Portal on Agriculture Education in India

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Abstract:
The aim of the study is to understand the e-KrishiShiksha, an e-Learning platform for agriculture education in India. An e-learning portal called e-KrishiShiksha had a significant impact on India's agricultural research and extension programs. According to the study, out of seven-degree programs, most students (56.2%) registered for the B.Sc. (agricultural) degree program. This was followed by the B.Sc. (Horticulture) 15.3%, B.Tech. (Agricultural Engineering) 11.3%, and B.Tech. (Dairy Technology) 6.4%. According to the report, university-wise across the country majority of users registered in MPKV Rahuri University (8.9%), followed by IGKV Raipur (5.6%) and TNAU, Coimbatore (4.7%). Furthermore, it has been noted that the majority of undergraduate students across all seven disciplines have registered for e-KrishiShiksha.

Keywords: E-portal, e-KrishiShiksha, e-resources, e-Courses, e-courseware, ePathshala, SWAYAM, KRISHI.

1.Introduction

E-learning portals are a highly common way to create, manage, and educate a specific user group through a single portal. By providing access to data scattered across numerous organisations' websites, these e-portals are extending their reach. As a result, through a single gateway or platform, required users may obtain the information they require more conveniently, swiftly, and economically. SWAYAM, KRISHI, DIKSHA, National Repository of Open Educational Resources (NROER), NISTA, Swayamprabha, e-Pathshala, and other e-learning platforms were developed and promoted by the Indian government in this context. The Indian Council of Agricultural Research (ICAR) has launched a project called the Agricultural Information Resources and Information System Hub for Innovations (KRISHI) to distribute its knowledge resources to all stakeholders in one place. For faculty members to conduct teaching, research, and extension activities in State Agricultural Universities and for students to provide top-notch education in the agriculture sector, ICAR has developed a number of e-resources,

including e-Books, e-Journals, e-Granth (KrishiKosh repository), Consortium for e-Resources in Agriculture (CeRA), and e-Courses through e-KrishiShiksha. The portal includes electronic courseware for seven academic fields, including agricultural science, fisheries science, dairy science, veterinary medicine, animal husbandry, horticulture, home science, and agricultural engineering.

2. Review of Literature

Sonawane(2020) directed a study towards the utilisation of first MOOC in agriculture created by Yashwantrao Chavan Maharashtra Open University (YCMOU) and it was posted on the SWAYAM platform. It has been found that MOOC has got overwhelming response with an enrolment of 1,443 learners. Eighty-two percent of the respondents had not studied through MOOC before and became aware of the course from sources such as the SWAYAM portal. The majority of the learners were satisfied with the content and quality of the course as well as the presenter's knowledge.

Yogita and Ansari(2020) a comparative study of two state agriculture institutions in India were conducted to evaluate their e-learning preparedness. The study reveals that teacher's age, teaching experience, computer literacy, achievement motivation, and attitude toward e-learning are positively correlated with e-learning readiness.

Pandey and Upadhayay (2016) jointly conducted a study to analyze the usage of ICAR e-learning portal and other online resources among students of North East India. It was found that 85% of the respondents reported that access to internet improves learning, and around 80% of the respondents opined that the contents were found useful. Majority (51.71%) of the respondents suggested to add Power Point presentations and videos in support of the subject contents. The study reveals that students in North East India have a high level of awareness and use for the ICAR e-learning platform. Encouragement must be given to students to use the reference materials downloaded.

Parmer and Pateria (2015**)** conducted a study to outline the benefits of an e-learning platform. The study highlights the importance of e- KrishiShiksha for the entire academic community of agriculture, including students, faculty, researchers, etc. Due to its open access nature, this portal's utility for farmers and the broader public is also discussed. The study emphasises the potential longevity of an e-learning portal.

Agarwal and Kumar(2013) observed that E-learning is better than conventional learning methods and offers a number of benefits over them. E-learning aids in the advancement of agricultural education. The field of e-agriculture is expanding and focuses on enhancing agricultural and rural development through enhanced and modernised information and communication systems. With the use of online education, many farmers may quickly learn new methods for boosting crop yields and enhancing agricultural production.

Dahiya and Jaggi (2012) found that E-learning in the sector of agriculture is still in the early stages of development and implementation when compared to other business and management fields. In this vein, the IASRI in New Delhi conceived and created the "eLearnAgriculture" E- learning system, which is accessible online. By implementing the example courses from Agricultural Statistics and Computer Applications, the system has been evaluated and tested. The development of the eLearning materials, as well as the administration of users and contents, has been carried out using the free and open-source Learning Management System MOODLE. The study reveals the technology underlying the system, as well as the method for standardizing the course content and the common template used in course development.

3. Objectives of the study

- To study the availability of e-course content in e-KrishiShiksha
- To find out the discipline-wise registered students
- To evaluate the university-wise registered users
- To identify the top ten highly referred agricultural subjects
- To study the various category of registered students

4. Methodology

The necessary information has been accumulated from e-KrishiShiksha e-Learning official portal. This study primarily examines the influence of e-KrishiShiksha portal by illuminating Indian registered users' usage trends. The necessary secondary data for the study was gathered from 71 SAUs in India. The secondary statistics collected on different variables, including the number of registered users (faculty and students), the number of e-courseware downloaded by university and degree wise, etc., **were collected between April 2021 and October 2021.** To accomplish the objective of the study, descriptive statistics like percentage and average were generated.

5. e-KrishiShiksha portal

With the help of the Indian council of Agricultural Research (ICAR)-Agricultural Universities (AUs) System's, State Agricultural Universities (SAUs), Deemed Universities (DUs), Central Agricultural University (CAU), and Central Agricultural Research Institute (CARI), the Education Division plans, develops, coordinates, and ensures the quality of higher agricultural education in the nation. Therefore, it tries to uphold and enhance the standard and applicability of higher agriculture education**.** e-KrishiShiksha portal is a helpful tool for managing the data for online courses in agriculture, including those in veterinary medicine, animal science, fisheries, dairy, horticulture, and home science, among others. E-learning courseware has been made available as a downloadable component from the same portal for institutions, faculty, and students in remote areas. The process of physically supplying online courses on (CDs or DVDs) via postal or courier services will be eliminated as a result.

Experts in their fields from State Agricultural Universities in India and Deemed Universities of ICAR, New Delhi, prepared all of the online course materials on this website with the financial assistance of NAIP. For the convenience of undergraduate students currently enrolled in Indian agricultural universities, the course materials have been developed in accordance with the ICAR-approved syllabus.

The site is accessible to all academic staff, educators, students, and anybody else with a passion for agriculture and related fields. One must initially register by supplying a few basic identity facts in order to access the portal for the first time. For the purpose of free download and/or online access, the email ID is used to verify the identity of the registered users.

The development and coordination of education in agriculture, agroforestry, animal husbandry, fisheries, home science, and allied sciences in the nation is part of the ICAR/ DARE (Department of Agricultural Research and Education) mandate. ICAR worked to bring about consistency in the academic norms and standards, governance and financial management, quality and relevance of education, and policies on human resource development across the nation. With financial support from the World Bank, ICAR is now taking an ambitious step to further

strengthen the nation's national agricultural education system through the National Agricultural Higher Education Project (NAHEP), which will invest in infrastructure, the competence and dedication of faculty, and attract talented students to agriculture.

6. Data Analysis and Interpretation

Table-1: List of course content per degree e-KrishiShiksha

Discipline	Total No. of Courses/papers
B.Sc(Agriculture)	51
B.Tech. (Agricultural Engineering)	55
B.Tech. (Dairy Technology)	48
B.F.Sc (Fisheries Science)	49
B.Sc (Home Science)	86
B.Sc (Horticulture.)	50
B.V.Sc (Veterinary &Animal Husbandry)	64
Total	403

Table-1 demonstrates that the e-KrishiShiksha e-learning portal is a lone entry point via which one can have online access to e-courseware materials in seven disciplines of agricultural subjects. It was learnt that the home science subject has highest course content uploaded i.e. 86 followed by the veterinary and animal husbandry subject which has 64 course content.

Table 2: Discipline wise student's registration

Degree	Frequency	Percentage
B.Sc(Agriculture)	147514	56.2
B.Tech. (Agricultural Engineering)	29837	11.3
B.Tech. (Dairy Technology)	16602	6.4
B.F.Sc (Fisheries Science)	11535	4.5
B.Sc (Home Science)	6411	2.4
B.Sc (Horticulture.)	40281	15.3
B.V.Sc (Veterinary &Animal Husbandry)	9976	3.9
Total	262156	100.0

Most of the students were enrolled to the B.Sc. (agriculture) degree programme 56.2% followed by B.Sc. (Horticulture) 34.2%, B.Tech. (Agricultural Engineering) 25.3%, B.Tech. (Dairy Technology) 14.2% and B.F.Sc. (Fisheries Science) 9.9%. It is evident that agriculture graduates 56.2% are more aware of the accessibility of courseware contents via the e-KrishiShiksha learning portal.

Table-3: University wise user's registration

University	Frequency	Percentage (%)
MPKV, Rahuri, (Maharashtra)	26137	8.9
IGKV, Raipur, (Chhattisgarh)	16038	5.6

TNAU, Coimbatore, (Tamil Nadu)	13913	4.7
OUAT, Bhubaneswar, (Orissa)	12336	4.3
SHIATS, Allahabad, (Uttar Pradesh)	10210	3.6
IARI, New Delhi, (Delhi)	9881	3.4
DPDKV, Akola, (Maharashtra)	7935	2.7
GBPUAT, Pantnagar, (Uttarakhand)	7918	2.7
MAU, Parbhani, (Maharashtra)	7024	2.4
AAU, Anand , (Gujarat)	6091	2.1
Other 62 Universities	172974	59.6
Total	290457	100.0

According to Table-3, there are a total of 290457 users registered from 72 Indian universities/institutions, with 10 universities accounting for more than 40% of all users, while the other 62 universities have a tiny percentage of the total number of users registered in India. The study reveals that the majority of users are registered from the university of MPKV Rahuri 26137 users (8.9%), followed by IGKV Raipur 16038 users (5.6%), TNAU, Coimbatore 13913 users (4.7%), and OUAT, Bhubaneswar 12336 users (4.3%). These users are effectively using the e-KrishiShiksha e-learning portal for various purposes.

Table-4: Top ten highly referred agricultural subjects

Title of subject	**Frequency of referred subjects**
Agricultural Finance & Cooperation	5663
Crop Physiology	4742
Agricultural Microbiology	4605
Field Crops	4522
Crop Pests & Stored Grain Pests & their Management	4376
Breeding of Field & Horticultural Crops	4164
Agricultural Marketing Trade and Prices	4054
Weed Management	3691
Diseases of Field Crops and Their Management	3668
Statistics	3528

Table-4 depicts that the subject "Agricultural Finance & Cooperation" receives a lot of referrals at e-KrishiShiksha. The course content was viewed by 5663 visitors. Followed by crop physiology 4742, Agricultural Microbiology 4602, field crops 4522 and 4376 readers referred to crop pests and stored grain pests, and their management. The study also reveals that statistics subject is less visited 3528 compare to all other subject categories mentioned in table-4.

Table-5: Category of students registered to e-KrishiShiksha

Category of the users	**No. of Registration**	**Percentage (%)**
UG Student	156376	60.6
PG Student	37522	14.6
Ph.D. Student	13368	5.2
Faculty	18171	7.0
Teacher	12830	5.0

Administrator	1486	0.6
others	18109	7.0

According to the data presented in table-5, there were 7 different categories of users visited to the e-KrishiShiksha portal. Out of seven groups, the survey discovered that UG-students are highest registered category 60% of all visitors to e-KrishiShiksha. UG students are more at ease using e-KrishiShiksha. Accessing course material using an online portal significantly improved the speed and ease of information exchange during academic progress.

7. Findings of the study:

- The study found that home science subject has highest course content i.e. 86 followed by veterinary and animal husbandry subject which has 64 course content.
- The study observed that 56.2% of agriculture graduates are better aware of the e-KrishiShiksha learning portal.
- The study reveals that out of 72 Indian universities/institutions, the majority of users registered from the university of MPKV Rahuri 26137 (8.9%).
- Compared to all other subject groups, frequency of access to the statistics subject was 3528 very least.
- The study found that out of seven category of user 60% of e-KrishiShiksha users are undergraduate students.

7.1. Recommendations:

Based on the study, following recommendations are made to maximise the utilisation of e-KrishiShiksha portal on agriculture education.

- The e-KrishiShiksha portal awareness and training programmes needs to be arranged to the faculty and students / users at regular intervals.
- Subject experts have to employ more multimedia material to the portal to keep students updated and to increase the usage of e-portal in agriculture.
- To update the portal regularly with latest developments in the respected field.
- Suggested to introduce effective feedback mechanism and make this portal more user friendly.

8. Conclusion

The current digital era is an amazing time of remarkable accessibility and connectedness, which has a tremendous impact on the global education sector. Electronic Learning is rapidly gaining respect as a potent instrument with considerable benefits over traditional education over a global scale. E-learning portal on agriculture education is truly significant initiate taken by ICAR for growth and enhancement of the quality of agricultural education and best practices of students. Utilisation of portal would witness an upsurge as it provides uniform course material and that too as per ICAR syllabus.

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