DMPedia Lecture Notes in Multidisciplinary Research, Volume 1, pp.679-688, 2026
International Conference on Multidisciplinary Perspectives in Advanced Computing and Technology (IMPACT 2026)
G. B. Pant University of Agriculture and Technology, Uttarakhand, India. Jan. 10-11, 2026

Awareness and Utilization of ICT and e-Resources among the Veterinary Fraternity of ICAR–IVRI

K. N. Kandpal[1] and H C Yadav[2]
[1]National Library of Veterinary Sciences, ICAR-Indian Veterinary Research Institute, Izatnagar-243122
[2]Farm Machinery & Power Section, ICAR-Indian Veterinary Research Institute, Izatnagar-243122
kandpalivri@gmail.com, harishivri@gmail.com

Abstract

This study examines the awareness and use of Information and Communication Technology (ICT) and electronic resources among the researchers and faculty of the Indian Veterinary Research Institute (IVRI). It explores the extent of ICT exposure, identifies the challenges users face, and provides recommendations for improvement. Data were collected using a structured questionnaire distributed to faculty members and researchers. The findings reveal that most respondents are aware of veterinary science e-resources and actively use databases, e-journals, and other digital tools for academic and research purposes. The study emphasizes the need for enhanced internet speed, expanded access infrastructure, and a broader subscription to e-resources to better serve the institute's academic community.

Keywords: *ICT, e-Resources, e-Journals, Internet, Veterinary Science, Awareness, ICT Adoption*.

1. Introduction

The Indian Veterinary Research Institute (IVRI) traces its origin to the Imperial Bacteriological Laboratory (IBL), established in Pune in 1889 under the leadership of Dr Alfred Lingard. Due to biosafety concerns in a densely populated area, the laboratory was relocated to Mukteswar in 1893. Initially, it focused on controlling rinderpest (cattle plague) and successfully produced its first anti-rinderpest serum in 1899. By 1906, its scope expanded to develop vaccines and antisera for major livestock diseases such as anthrax, hemorrhagic septicaemia, tetanus, and black quarter. In 1913, the laboratory shifted to Izatnagar, where the main campus still operates.

Following independence, the institute was renamed the Indian Veterinary Research Institute and was integrated into the Indian Council of Agricultural Research (ICAR) in 1966. Over the decades, IVRI has expanded with regional stations at Palampur and Kolkata and campuses in Bengaluru and Pune. It has played a central role in the eradication of several livestock diseases, including rinderpest, contagious bovine pleuropneumonia, and dourine, and has developed numerous vaccines and diagnostic kits. The institute's contributions also extend to livestock genetics, nutrition, and technology transfer to entrepreneurs. IVRI has twice received the *Sardar Patel Outstanding ICAR Institution Award* (2001 and 2009) in recognition of its excellence in veterin ary research and education. It became a deemed university in 1983 and now offers undergraduate, postgraduate, and doctoral programs. The institute also manages a Referral Veterinary Polyclinic, Teaching Veterinary Clinical Complex, and a Wildlife Health Centre. Through its museums and outreach activities, IVRI continues to advance veterinary science, public awareness, and innovation in animal health management [1].

2. Literature Review

Technological advancement and widespread internet connectivity have revolutionized access to knowledge and communication. Studies have shown that ICT literacy and access significantly influence how individuals use digital resources for academic, professional, and recreational purposes.

- **Demographic Factors:** Age, education, and geographic location shape digital behavior. Younger users (18–35 years) are typically more active online, while older individuals primarily use the internet for communication and research [2]. Higher educational attainment correlates with greater internet use for professional and research tasks [3]. The strong basis for expected channel utilization of internet enhancement is 58.39% leading to overall channel utilization (voice/speech channel) of 94.39% [4].
- **ICT Exposure in Academia:** In the study it is found that faculty members increasingly prefer e-journals and digital dissertations over print materials [5]. Similarly, Satpathy and Rout was observed that most faculty members are aware of institutional e-resources and find them essential for research productivity [6]. Students at NTR College of Veterinary Science accessed library e-resources daily, underscoring ICT's growing role in academic research [7].
- **Digital Literacy:** Katz and Rice highlighted the link between computer literacy and effective internet usage [8]. The Pew Research Center further emphasized that younger, better-educated individuals tend to exhibit higher digital proficiency, enabling them to leverage e-resources for education and innovation [9].
- **Access through National Initiatives:** The Indian Council of Agricultural Research (ICAR) provides researchers access to full-text journals and databases through the Consortium for e-Resources in Agriculture (CeRA) and related platforms such as AGRICAT, Krishi Prabha, and e-Granth, which collectively strengthen agricultural and veterinary information systems across India.

3. Objectives Of the Study

The study aimed to:

- Assess the use of ICT in veterinary research and education.
- Identify the purposes for which internet services are used in libraries.
- Examine the awareness and utilization of e-resources by IVRI faculty and researchers.
- Evaluate users' attitudes towards e-resources.
- Determine the effectiveness of e-resources in supporting veterinary research.
- Suggest strategies for improving existing e-resource facilities at veterinary science institutions.

4. Methodology

The study employed a survey-based approach using a structured questionnaire designed to capture information on ICT exposure and e-resource usage. Data were collected from

researchers and faculty members of ICAR-IVRI during 2023–24, primarily from those visiting the National Library of Veterinary Sciences, Izatnagar. Out of 200 distributed questionnaires, 123 valid responses were received and analyzed using descriptive statistics.

5. Data Analysis and Findings

5.1 Demographic Profile

The demographic breakdown is 102 (83.93%) males and 21 (17.07%) females among the 123 submitted questionnaires. The 42 Nos. of M. V. Sc. Researchers, 17 Nos. of Faculty members of IVRI and 28 Nos. of other researchers conducted research works at IVRI. According to age, the data were further grouped into 21 to 30, 31 to 40, 41 to 50, and 51 to 60 age groups, representing 90 (73.17%), 15 (12.20%), 8 (6.50%), and 10 (8.13%), respectively.

5.2 Computer Literacy

In the present computer era, functional knowledge of computers has become a necessity for all researchers/faculty members, and faculty for their daily work. Keeping this fact in view, the present study attempts to ascertain the level of computer knowledge among the researchers, faculty, and staff of the Indian Veterinary Research Institute. Table 1 shows that 53.66% of IVRI, the veterinary fraternity has good IT exposure and working knowledge of computers, 14.66% reported fair knowledge of IT and computers, 13.82% have very good knowledge, 10.57% have satisfactory knowledge, and only 07.32% has been reported to have Excellent knowledge of IT and computers. For reference, see Table 1.

Table 1: Extent of Computer Literacy

S.No.	Extent	No. of Response (%)
1	Excellent	09 (7.32%)
2	Very good	17 (13.82%)
3	Good	66 (53.66)
4	Fair	18 (14.66%)
5	Satisfactory	13 (10.57%)
Total		123 (100%)

5.3 Internet Usage Patterns

Nowadays, the internet has become an important tool for education, research, and teaching. Information on all fields is available online, which is very useful for users to enrich their

knowledge. The present study makes an effort to ascertain the use of internet, frequency, purpose, and place of internet use. Table 2 shows the frequency of internet use among the veterinary fraternity. The majority of the users, i.e., 63 (51.22%), use the internet daily, 36 (29.27%) of users use the internet monthly, 20 (16.26%) users use the internet on a weekly basis, a small percentage of users, i.e. 0325% use the internet in fortnightly and no user usage of internet as and when required.

Table 2: Internet Usage

S. No.	Internet Usage	No. of Response (%)
1	Daily	63 (51.22%
2	Weekly	20 (16.26%)
3	Fortnightly	4 (03.25)
4	Monthly	36 (29.27)
5	As & when required	0 (0%)
Total		123 (100%)

5.4 Purpose of Internet Use

The veterinary fraternity of IVRI uses the internet for official and research purposes. According to the study, Table 3 shows that most users use the internet (69, 56.1%) for e-mail, charting, research, downloading, and entertainment. 40 (32.52%) users use the internet only for research purposes, 08 (06.50%) use it only for e-mail, and 06 (04.88%) use it only for charting.

Table 3: Purpose of Internet Use

S. No.	Internet Usage	No. of Response (%)
1	e-Mail	08 (06.50%)
2	Charting	06 (04.88%)
3	Research	40 (32.52%)
4	Downloading	0 (0%)
5	Entertainment	0 (0%)
6	All above Purpose	69 (56.1%)
Total		123 (100%)

5.5 Preferred Access Location

Internet access occurred across multiple locations. About 43.9% used it across all settings—home, department, library, and cafés—while 34.15% preferred the library due to institutional connectivity and access to e-resources and at home, at department and internet cafe (11.38%), (08.94%) and (01.63%) respectively.

Table 4: Preferred Access Location

S. No.	Place for Internet use	No. of Response (%)
1	At home	14 (11.38%)
2	At department	11 (08.94%)
3	At library	42 (34.15 %)
4	Internet cafe	02 (01.63%)
5	All the above Place	54 (43.90%)
Total		123 (100%)

5.6 Awareness and Use of e-Resources

The table 5 shows that a total of 58.54% of respondents used all available e-resources (e-books, e-journals, databases, etc.), while 32.52% primarily accessed e-journals. Limited awareness was observed for e-databases (0.81%).

Table 5: Awareness and Use of e-Resources

S. No.	Resources	No. of Response (%)
1	e-Books	03 (02.44%)
2	e-Databases	01 (0.81%)
3	e-Journals	40 (32.52%)
4	Other e-Resources	05 (04.06%)
5	Not attempted	02 (01.63%)

6	Use all above	72 (58.54%)
Total		123 (100%)

5.7 Frequency and Purpose of e-Resource Use

Table-6 shows that the nearly 67.48% reported frequent use of all e-resources. The majority (75.61%) utilized them for combined purposes—study, teaching, research, and paper writing—indicating high academic relevance while 13.82% used only e-journal, 08.94% respondents using e-articles, 02.44 % respondents using e-databases and 01.63% of e-theses.

Table 6: Frequency and Purpose of e-Resource Use

S. No.	e-Resources	No. of Response (%)
1	e-Databases	03 (02.44%)
2	e-Journals	17 (13.82%)
3	e-Articles	11 (08.94%)
4	e-Books	07 (05.69%)
5	e-Theses	02 (01.63%)
6	All e-resources	83 (67.48%)
Total		123 (100%)

5.8 Copyright and IPR Awareness

The study of veterinary fraternity of IVRI shows that the awareness of copyright and intellectual property rights was moderate while 47.15% understood these concepts, 48.78% were unaware, reflecting a need for user education. Moreover, 04.07% not attempted the question.

Table 7: Copyright and IPR Awareness

S. No.	Copyright/ IPR	No. of response (%)
1	Yes	58 (47.15%)
2	No	60 (48.78%)
3	Not attempted	05 (04.07%)

Total	123 (100%)

5.9 Criteria for Selecting e-Resources

Table- 9 reveals the criteria for selection and use of e-resources. Reliability, authenticity, and usability were key selection factors. About one-third (33.33%) valued all these attributes collectively when choosing e-resources and 18.70% of the respondents feels that e-resources are 'reliable', 15.45% of the respondents feels are authenticity of e-resources, 11.38% use for usability, 09.76% use for other resigns.

Table 8: Criteria for Selecting e-Resources

S. No.	Criteria for using e-resources	No. of response (%)
1	Reliability	23 (18.70%)
2	Currency	06 (04.88%)
3	Authenticity	19 (15.45%)
4	Usability	14 (11.38%)
5	Objectivity	08 (06.50%)
6	Any other	12 (09.76%)
7	All the above	41 (33.33%)
Total		123 (100%)

5.10 User Dissatisfaction

The table-10 reflects that the main causes of dissatisfaction included inadequate infrastructure (13.82%) and insufficient alignment of e-resources with research needs (29.27%) while about 31% cited other unspecified reasons. Moreover less the 10% assigned unsuitability of library timing and 17.07% not attempted the question and few people responded the uncooperative behavior of library staff.

Table 9: Reasons for dissatisfaction with e-resources

S. No.	Reason of dissatisfaction	No. of response (%)
1	Infrastructure is not good	17 (13.82%)
2	e-Resources are not as per need	36 (29.27%)
3	Library time is not suitable	09 (07.32%)

4	Library staffs are not cooperative	02 (01.63%)
5	Any other reasons	38 (30.89%)
6	Not attempted	21 (17.07)
Total		123 (100%)

5.11 Perceived Usefulness

The analysis of study shows that the most respondents (64.23%) rated e-resources as "highly useful" compared to print materials, while 27.64% found them "somewhat useful," indicating strong overall acceptance and the table 11 also reveals 03.25% not at all and 04.88% have not attempted the question.

Table 10: Perceived Usefulness

S. No.	e-Resources V/s Print resources	No. of response (%)
1	Great extent	79 (64.23%)
2	Small extent	34 (27.64%)
3	Not at all	04 (03.25%)
4	Not attempted	06 (4.88%)
Total		123 (100%)

5.12 Library Visit Frequency

The table 12 demonstrate that the library engagement was high—65.04% visited daily, 26.83% weekly, and 1.63% fortnightly, highlighting the centrality of library services to academic activity. This is a good sign for the relevance of the library services.

Table 11: Frequency of library visits

S. No.	e-Resources	No. of response (%)
1	Daily	80 (65.04%)
2	Weekly	33 (26.83%)
3	Fortnightly	02 (01.63%)

6. Suggestions

- **Enhance ICT Training:** Implement regular computer literacy and e-resource orientation programs for researchers and faculty.
- **Upgrade Internet Facilities:** Ensure high-speed connectivity and stable access throughout the institute.
- **Expand e-Resource Subscriptions:** Include more subject-specific databases in veterinary science under CeRA.
- **User Awareness Campaigns:** Conduct workshops on copyright, ethical use, and research tools.
- **Strengthen Library Infrastructure:** Increase the number of terminals and provide continuous staff training.
- **Promote Digital Literacy Nationwide:** Extend ICT training to rural research centres to bridge the digital divide.
- **Evaluate User Needs Periodically:** Conduct regular feedback studies to assess satisfaction and resource utility.

7. Conclusions

The findings reveal that IVRI's veterinary research community is largely aware of and satisfied with available e-resources, though improvements in infrastructure and digital access remain essential. Daily library visits and active use of e-resources reflect a positive academic culture. However, limited awareness of IPR issues and infrastructural challenges indicates areas for development. Libraries must continue to evolve as gateways to digital knowledge, ensuring that users receive adequate support in navigating online information resources. With targeted improvements and continued institutional support, IVRI can further enhance its role as a model of ICT-enabled veterinary education and research.

REFRENCES

[1] Biam, K. P., Chander, M., & Paul, P. (2022). Client's satisfaction towards Indian veterinary research institute-referral veterinary polyclinic services: A case study. *Indian Journal of Extension Education*, *58*(2), 202-204.

[2] Roy, S. K. (2009). Internet uses and gratifications: A survey in the Indian context. *Computers in human behavior*, *25*(4), 878-886.

[3] Ramasubramanian, C., Vinitha, K., & Thirumagal, A. (2018). Impact Of Internet in Academic Efficiency of Students Among Engineering Graduates. *Library Philosophy and Practice*, 1-15.

[4] Purohit, H., Kaur, P., & Choudhary, S. (2022). Mitigating the Effect of COVID Lockdown Period on Channel and Bandwidth Utilization in Mobile Communication Network in North Western Rajasthan (India). *Wireless Personal Communications*, *123*(4), 3497-3509.

[5] Swain, D. K., & Panda, K. C. (2009). Use of electronic resources in business school libraries of an Indian state: A study of librarians' opinion. *The electronic library*, *27*(1), 74-85.

[6] Satpathy, S. K., & Rout, U. N. (2012). Information Needs and Seeking Behaviour of Faculty Members: A Case Study of Premier Engineering College of Orissa. *International Journal of Information Library and Society*, *1*(1), 27.

[7] Kandpal, K. N., Rawat, S. S., & Vithal, K. S. R. (2013). Use of E-resources by Undergraduate Students of NTR College of Veterinary Science. *DESIDOC Journal of Library & Information Technology*, *33*(5).

[8] J. E. Katz and R. E. Rice, Social Consequences of Internet Use: Access, Involvement, and Interaction. Cambridge, MA: MIT Press, 2002.

[9] Anderson, M., & Jiang, J. (2018). Teens, social media & technology 2018. *Pew research center*, *31*(2018), 1673-1689.