



Utilization of E-databases by Postgraduate students and Research Scholars in Agricultural University Libraries: A Comparative Study

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Abstract: Technology has transformed libraries into digital hubs. The digital evolution in libraries has brought efficiency in work and redefined how knowledge is preserved, managed and shared. A survey of 208 postgraduate students and research scholars of three agricultural universities was conducted to determine users' awareness and utilization of CAB Abstract, CeRA and Krishiprabha, satisfaction with the resources and challenges faced by the postgraduate students and research scholars. The study found differences in the preference of e-resources by the postgraduate students and the research scholars. Respondents from PAU show moderate use of databases whereas HAU respondents exhibit less frequent use of them. Among all the resources, e-journals emerged as the most valued e-resource. E-databases received comparatively low ratings of excellence. It was discovered that the major barrier to the effective use of e-resources was infrastructure.

Keywords: E-resources, E-databases, CeRA, CAB Abstract, Agricultural universities

Introduction

The past few decades have witnessed a sea change in the higher education system driven by advances in ICT. The internet is continuously bringing new domains of information transfer and new models of scholarly communication. As a result, libraries have evolved manifold times in terms of collections and services, shifting from traditional print resources to digital resources. E-resources have become an essential component of modern libraries, providing users with quick, convenient, and efficient 24*7 access to a wide variety of information resources. These resources are available in various formats such as e-books, e-journals, ETDs, and e-databases. Among the resources, e-databases provide access to a wide variety of journals, proceedings, reports, and other materials, facilitating high-quality research. Rietz (2004) elaborated that a database is a large, regularly updated file of digitised information (bibliographic records, abstracts, full-text documents, directory, entries, images, statistics, etc.) related to a specific subject or field, consisting of records of uniform format organised for ease and speed of search and retrieval and managed with the aid of database management system software. With the increasing emphasis on digital scholarship and remote access to information, e-databases have become an essential tool for learning and research in agricultural universities. Their role in promoting interdisciplinary research, scientific productivity, improved research, and timely access to global knowledge resources underscores their indispensable value in traditional agricultural university libraries. E-databases provide reliable and current information that enriches the academic experience.

This study attempts to present the use of databases by postgraduate students and research scholars at the Agricultural University of Punjab, Haryana, and Himachal Pradesh. Postgraduate students and research scholars are directly linked to the university's academic achievements and play a powerful role in e-learning. It is therefore imperative to examine the exposure of postgraduate students and research scholars to electronic information resources. Various aspects, such as awareness of e-resources, use of e-resources, and the purpose and preference for e-resources, have been analysed. Besides, the frequency of using CAB Abstract, Consortium of e-resources in Agriculture (CeRA) and Krishiprabha has also been discussed.



Literature Review

Naqvi (2012) investigated the use of e-databases by postgraduate students and research scholars at the Govind Ballabh Pant University of Agriculture and Technology (GBPUAT) Library, India. It was observed that databases such as AGRIS, AGRICOLA, CAB Abstracts, and Agriculture & Natural Resources were the most frequently used electronic resources. Most users were satisfied with the databases available in the library. However, training and literacy programmes are prerequisites for the optimum use of e-resources. Abubakar & Akor (2017) highlighted the positive attitude of the respondents regarding the use of online databases. These databases help with academic activities such as research and updating knowledge on various subjects. The study also highlighted the importance of online databases for high-quality research. High level of satisfaction was observed among the respondents for its 24 by 7 availability. Further, importance was laid on the advocacy of electronic resources for proper utilization of these resources.

Bhat & Ganai (2017) examined the use of indexing and abstracting databases among research scholars, postgraduate students and faculty members and observed that CABI Abstract and AGRIS databases were the most widely used databases, whereas AGRICOLA, FSTA, VetCD and BIOSIS databases had low usage. Regular training and user awareness campaigns are fundamental to enhancing the use of electronic resources. Naqvi (2017) revealed that electronic resources and services have become a significant part of the library in meeting the information needs of postgraduate and research scholars. Aspects related to user satisfaction should be prioritized. The library collection, which is underutilised, must be reviewed. Islam & Sheikh (2020) examined the factors influencing the satisfaction of postgraduate students with online databases using SEM (Structural Equation Model) and the Rasch model. Factors such as computer self-efficacy and perceived ease of use were the prominent indicators of students' satisfaction. Emphasis was placed on the need for a digital information literacy programme for newly enrolled students and for incorporating the programme into the curriculum to improve the accessibility, usability, and effectiveness of online research databases for academic learning and research.

Khan & Ahmed (2020) highlighted the acceptance of e-resources among the research scholars and the scientists. It was found that most of the respondents accessed e-databases and e-journals 2-3 times a week. Most respondents rely heavily on e-databases and e-journals for their research and other academic activities. E-resources are preferred over print resources. Slow internet connection and lack of training were among the major factors hindering the use of e-databases and e-journals. However, Lawal & Kannan (2021) established that the majority of the students rely on search engines instead of specialized databases and full-text e-resources. Most of the respondents were not using the databases, only 3.5 percent to 5.6 percent respondents use them. Additionally, poor internet facilities, lack of speed, lack of space, etc. were the major constraints that hamper the access of e-resources. Neogi & Partap (2022) investigated the awareness and use of CeRA among the postgraduate students. It was observed that nearly half of the respondents were aware of CeRA and its use. One fourth of the students found that resources available through CeRA were somewhat adequate. The 50 percent of respondents were satisfied with resources available through CeRA. However, major problem in accessing electronic resources was slow speed of the internet and the difficulty in document delivery service. It was suggested that training campaigns will strengthen the utilization of electronic resources. Sharma, P.V.K. (2022) studied different information resources available in the field of agriculture and its allied subjects. The study specifically highlighted the role of CeRA, Krishiprabha and KrishiKosh in enhancing agricultural research.

Studies conducted so far indicate that users in agricultural universities are generally aware of e-resources and databases, and that these resources have significantly contributed to improving agricultural education and research. CeRA, Krishiprabha, and Krishikosh have been recognized as valuable sources for accessing scholarly information. In view of the increasing emphasis on digital resources in higher education, the present study has been undertaken in Punjab Agricultural University (Ludhiana), Chaudhary Charan Singh Haryana Agricultural

University (Hisar), and Dr Chaudhary Sarwan Kumar Himachal Pradesh Agricultural University, Palampur, to examine the status of database awareness and usage among postgraduate students and research scholars. The study aims to assess whether users' acceptance and utilization of these e-resources have improved over time and to identify the changes, trends, and challenges in their usage patterns.

Objectives and Methodology

Databases have transformed agricultural research and education in agricultural universities. Postgraduate students and researchers rely heavily on specialized platforms to access resources. CeRA, KrishiPrabha, and CAB Abstracts serve as the core pillars of the agricultural databases. It is hence significant to know the utilization of these resources (EIRs) by the postgraduate students and research scholars of Punjab Agricultural University (PAU), Haryana Agricultural University (HAU) and Himachal Pradesh Agricultural University (HPAU).

The objectives of the study are:

- To know the awareness of e-resources among the students
- To know the preference of different e-resources
- To analyse the use of CAB Abstracts, KrishiPrabha and CeRA
- To know the satisfaction of the students regarding e-resources
- To identify the problems in accessing e-resources.

A structured questionnaire was developed and distributed randomly to 150 Postgraduate students (PG) and 150 Research scholars (RS). Out of which 208 questionnaires (100 (PG) and 118 (RS)) were duly filled and returned and analysed. The data was analysed using percentage and rank to score conversion, wherever necessary, to see the order of priority.

Data Analysis

Awareness	PAU				HAU				HPAU			
	PG		RS		PG		RS		PG		RS	
	N	%	N	%	N	%	N	%	N	%	N	%
Fully aware	21	47.73	18	45	10	25.64	17	33.33	09	52.94	17	62.96
Partially aware	22	50	22	55	28	71.79	34	66.67	8	47.06	9	33.33
Not aware	1	2.27	0	0	1	2.56	0	0	0	0	1	3.7

Table 1: Awareness of E-resources

Table 1 describes that the majority of the respondents are either partially or fully aware of the e-resources available in the university library. HPAU research scholars are highly aware, in contrast to those at other universities. Additionally, the majority of HAU postgraduate students and research scholars are partially aware. However, a very small percentage of respondents were unaware. This implies that advocacy of e-resources can improve the depth of awareness among the postgraduate students and research scholars across the three universities.

Preference of E-resources		PG	RS
E-Books	Avg. Rank	2.88	3.29
	Avg. Score	52.40	44.24
E-Journals	Avg. Rank	1.92	1.75
	Avg. Score	71.60	74.92
ETD	Avg. Rank	3.00	3.05
	Avg. Score	50.00	48.98
E-Databases	Avg. Rank	2.88	2.46
	Avg. Score	52.40	60.85
E-Reference Sources	Avg. Rank	4.32	4.45
	Avg. Score	23.60	21.02

Table 2: Preference of e-resources

Table 2 presents respondents' preferences regarding e-resources. A higher average score for e-journals indicates that e-journals are the first choice of postgraduate students as well as research scholars (RS). However, the second preference varies based on their academic needs. The postgraduate students (PG) preferred e-books, whereas research scholars gave more weightage to the e-databases, reflecting the research needs of the scholars.

E-databases	PAU	Daily		Weekly		Fortnightly		Rarely		Aware but don't use		Unaware	
		N	%	N	%	N	%	N	%	N	%	N	%
CAB Abstract	PG	7	15.91	14	31.82	10	22.73	7	15.91	3	6.82	3	6.82
	RS	6	15.00	12	30.00	12	30.00	8	20.00	2	5.00	0	0.00
KrishiPrabha	PG	4	9.09	14	31.82	15	34.09	4	9.09	4	9.09	3	6.82
	RS	1	2.50	13	32.50	12	30.00	4	10.00	8	20.00	2	5.00
CeRA	PG	4	9.09	16	36.36	18	40.91	3	6.82	2	4.55	1	2.27
	RS	6	15.00	14	35.00	14	35	6	15.00	0	0.00	0	0.00

Table 3: Frequency of use of E-databases in PAU

Table 3 describes the frequency of use of e-databases by the postgraduate students and research scholars of PAU. The results reflect that their preferences shift according to their academic needs and high qualifications. CAB Abstract and CeRA are accessed by both postgraduate students and research scholars weekly or

fortnightly. However, research scholars are more inclined towards these e-resources. In contrast to CAB Abstracts and CeRA, Krishiprabha was used less frequently by the research scholars. CeRA was the most widely used e-resource among research scholars, while CAB Abstract was used moderately. Overall, the results suggest that the frequency of use of databases was either weekly or fortnightly. It was observed that research scholars exhibit consistent use compared with postgraduate students. by the respondents.

E-databases	HAU	Daily		Weekly		Fortnightly		Rarely		Aware but don't use		Unaware	
		N	%	N	%	N	%	N	%	N	%	N	%
CAB Abstract	PG	3	7.69	9	23.08	11	28.21	13	33.33	3	7.69	0	0.00
	RS	7	13.73	14	27.45	14	27.45	9	17.65	6	11.76	1	1.96
KrishiPrabha	PG	1	2.56	8	20.51	9	23.08	13	33.33	8	20.51	0	0.00
	RS	7	13.73	14	27.45	10	19.61	14	27.45	4	7.84	2	3.92
CeRA	PG	2	5.13	10	25.64	12	30.77	14	35.90	1	2.56	0	0.00
	RS	14	27.45	13	25.49	11	21.57	9	17.65	3	5.88	1	1.96

Table 4: Frequency of use of E-databases in HAU

Table 4 highlights the frequency of use of e-databases by the postgraduate students and research scholars of HAU. It shows that research scholars use these resources more extensively than postgraduate students. This indicates that research scholars were more inclined towards e-resources and greater integration of e-resources in their academic work. However, postgraduate students' usage of these resources is less frequent. Overall, CeRA emerged as the most extensively utilized database among research scholars. In contrast, postgraduate students access CAB abstract, CeRA and Krishiprabha on a rare to fortnightly basis.

This indicates a greater need for a user education programme and an awareness campaign to encourage users to utilize e-resources more effectively.

E-databases	HPAU	Daily		Weekly		Fortnightly		Rarely		Aware but don't use		Unaware	
		N	%	N	%	N	%	N	%	N	%	N	%
CAB Abstract	PG	3	17.65	2	11.76	4	23.53	5	29.41	3	17.65	0	0.00
	RS	5	18.52	10	37.04	4	14.81	8	29.63	0	0.00	0	0.00
KrishiPrabha	PG	4	23.53	7	41.18	1	5.88	3	17.65	2	11.76	0	0.00
	RS	3	11.11	10	37.04	7	25.93	6	22.22	0	0.00	1	3.70
CeRA	PG	6	35.29	6	35.29	1	5.88	3	17.65	1	5.88	0	0.00
	RS	3	11.11	11	40.74	6	22.22	6	22.22	1	3.70	0	0.00

Table 5: Frequency of use of E-databases in HPAU

Table 5 highlights the frequency of use of e-databases by HPAU postgraduate students and research scholars. It was observed that over one-third of research scholars use CAB Abstract weekly, and nearly one-fifth use it daily. However, a notable percentage of postgraduate students are aware of the CAB Abstract but do not use it. The postgraduate students of HPAU, however, show greater use of KrishiPrabha as daily usage of postgraduate students is higher than that of the research scholars. Similarly, 70 percent of postgraduate students use CeRA either daily or weekly, which is slightly more than the daily or weekly use of the research scholars.

The findings indicate that CeRA is the most actively utilized e-database at HPAU, particularly among postgraduate students, and research scholars exhibit great dependency on CAB Abstracts. Additionally, continuing awareness campaigns and literacy programmes can enhance the utilization of these e-resources.

Correlating Table 3, Table 4 and Table 5, it shows that respondents from PAU exhibit moderate and consistent use of e-databases, HAU respondents (postgraduate students) exhibit less frequent use of e-databases, research scholars, however, use databases more regularly, whereas HPAU respondents show the highest use of databases, particularly CeRA and KrishiPrabha.

Level of satisfaction

Satisfaction Level	Group	Always		Sometimes		Never		Can't Say	
		N	%	N	%	N	%	N	%
PAU	PG	10	22.73	32	72.73	2	4.55	0	0.00
	RS	14	35	26	65	0	0.00	0	0.00
HAU	PG	7	17.95	29	74.36	2	5.13	1	2.56
	RS	17	33.33	33	64.71	0	0.00	1	1.96
HPAU	PG	7	41.18	10	58.82	0	0.00	0	0.00
	RS	12	44.44	15	55.56	0	0.00	0	0.00

Table 6: Satisfaction on Searching Desired Information

Table 6 describes the satisfaction of postgraduate students and research scholars with searching for desired information. The majority of them are satisfied, where research scholars show higher or complete satisfaction than postgraduate students. However, respondents are satisfied with the existing collection, and improvements at PAU and HAU could help make the search experience go from sometimes satisfied to always satisfied, thereby enhancing the overall experience.

Satisfaction with E-resources		PG (%)	RS (%)
E-Books	Excellent	48	37.29
	Average	46	52.54
	B. Average	5	6.78
	Can't Say	1	3.39

E-Journals	Excellent	40	49.15
	Average	50	49.15
	B. Average	9	0.85
	Can't Say	1	0.85
ETD	Excellent	48	39.83
	Average	40	49.15
	B. Average	10	5.93
	Can't Say	2	5.08
E-databases	Excellent	35	27.12
	Average	53	55.93
	B. Average	10	11.86
	Can't Say	2	5.08
E-Reference Sources	Excellent	33	27.12
	Average	49	52.54
	B. Average	9	10.17
	Can't Say	9	10.17

Table 7: Satisfaction with available E-resources

Table 7 highlights the satisfaction among postgraduate students and research scholars with the e-resources collection. The majority of respondents are satisfied, as most rated their satisfaction with e-resources as either excellent or average. Among all resources, e-journals emerged as the most valued e-resource. The value of e-books, ETDs, and e-databases cannot be undermined. Despite being essential for academics, e-databases received comparatively low ratings of excellence.

Limitations		PG	RS
Lack of helpful staff	Avg. Rank	5.73	5.9
	Avg. Score	47.7	46.02
Low speed of Internet	Avg. Rank	3.89	4.13
	Avg. Score	66.1	63.73
Less number of computer terminals	Avg. Rank	3.5	2.77
	Avg. Score	70	77.29
No power backup	Avg. Rank	6.07	6.36
	Avg. Score	44.3	41.44

Lack of ICT skills in helping staff	Avg. Rank	5.59	5.57
	Avg. Score	49.1	49.32
Feel hesitation in use due to lack of IT skills	Avg. Rank	7.08	7.48
	Avg. Score	34.2	30.17
Lack of training	Avg. Rank	4.74	4.7
	Avg. Score	57.96	57.97
Information overload	Avg. Rank	5.48	5.52
	Avg. Score	50.2	49.83
Printing issues	Avg. Rank	5.84	5.29
	Avg. Score	46.6	52.12
Non availability of help staff	Avg. Rank	7.08	7.29
	Avg. Score	34.2	32.12

Table 8: Limitations in Accessing E-resources

Table 8 highlights users' challenges when accessing resources. It was observed that the unavailability of computer terminals was a significant limitation, especially among research scholars (avg. score: 77.29) and postgraduate students (avg. score: 70). This indicates that existing infrastructure was insufficient. Low Internet speed also emerged as a major concern that directly affects access to e-resources. Similarly, lack of training was also identified as an important issue, suggesting the need for continuing user education programmes. However, research scholars also showed great concern for printing facilities.

Overall, the major barrier to the effective use of e-resources was infrastructure.

Conclusion

In a digitally transformed world, e-resources have significantly enhanced academic learning and accessibility by supporting academic research. Although scholars are generally aware of major academic databases, there is still considerable scope for exploring the full potential of e-databases. Many researchers tend to use databases primarily for searching and downloading journal articles, while overlooking the wider range of tools and services they provide. To improve the effective utilization of e-resources, universities should focus on intensified computer facilities, high-speed internet connectivity, user training programmes, strengthening of technical support, and ensuring adequate library infrastructure. These measures would enhance user satisfaction and enable both postgraduate students and research scholars to make better use of available electronic information resources.

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