

RESEARCH ARTICLE**Study on Awareness and Use of e-Resources Among the Students in Academic and Research Work****Kumari Asha¹, H.C. Singh², Ashwani Kumar Verma³, Rohit⁴ and V.K. Sharma⁵**

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ABSTRACT

The use of e-resources has become increasingly important in higher education, and this study aims to investigate the level of awareness and use of e-resources among students in agriculture universities of Uttar Pradesh for academic and research work. The study was conducted in 2022, using a structured questionnaire distributed through online Google Forms. A total of 240 responses were received, and data were analyzed to determine the extent of awareness and usage of e-resources among students. The findings revealed that the majority of the students (58.75%) had a medium level of awareness, followed by 21.67% with high awareness and 19.58% with low awareness. The study found no appreciable difference in the understanding of e-resources among students at the chosen agriculture universities, indicating the need for increased awareness campaigns and training programs. The results also showed that 89.58% of students associated with medium to high levels of e-resources use in the study area, demonstrating the potential benefits of these resources for academic and research work. The variables such as age, annual income, ICT competence, and fathers' education were found to have a significant association with the extent of e-resources use among students, highlighting the need for targeted interventions to improve access and usage. This study provides useful insights for educators and policymakers to improve the awareness and use of e-resources among students in agriculture universities of Uttar Pradesh.

Key words: Awareness; Usage; E-resources; Agricultural University; ICT .

Electronically stored information is referred to as a "e-resource," and it can be accessed through electronic networks and systems. Online Public Access Catalog, Compact Disc-Read Only Memory, online databases, e-journals, e-books, internet resources, print-on-demand (POD), e-mail publishing, wireless publishing, electronic link, and web publishing, e-Audio/ e-Images, Data/ GIS, Digital Library Projects, Electronic Exhibitions, e-Subject Guide, e-newsletters, e-White papers, e-conference proceedings and Web search tools are few examples of the publishing formats that fall under the umbrella term "e-resource". Many of the electronic resources are freely available to anyone over internet access but some are commercial resources. Contextually, the term e- resource basically denotes "any electronic product that delivers collection of data be it in text, numerical, graphical, or time based,

as a commercially available resource" (Bavakenthy *et al.*, 2003). E-resources are now an essential part of all intellectual activities in higher education. A growing number of publications are getting web linked in the current era of information explosion. The majority of social scientific libraries now view functions and services differently. The world is quickly becoming more electronic. Numerous research on the use of electronic resources in various areas of education, including medicine, higher education, engineering, and other subjects, can be found in the literature. This research has looked into how using technology affects students' academic performance and efficacy (Day and Bartle, 1998). The studies agree that, properly utilized, e-resources can have a favorable impact on students' academic achievement. The majority of research' findings indicated that using electronic resources is helpful for education of agricultural stake

holders because it can offer numerous advantageous options to find materials (Nag et al., 2017; Shenmare, 2018). E-resources are also ideal for the environment because they cannot be dumped on land. The fact that e-resources are less polluting than traditionally printed materials is another reason why they are better for the environment. More than 60 per cent of people on the planet have access to digital devices (Shenmare, 2018). In the 21st century, skill development is crucial to revive Indian agriculture. The use of e-resources can establish a framework to address various issues that have made skill development essential in this sector. Agri-youth should receive skill training that incorporates e-resources to enhance their knowledge and abilities (Bhattacharyya and Mukherjee, 2019).

Realizing the value of e-resources, the majority of Indian colleges have made generous investments to give students access to these materials to assist learning, teaching, and resources. Every country's finest learning and intellectual centres are universities, and university libraries are what fuel all of these centers' intellectual pursuits. Although universities have made significant investments in the infrastructure for teachers, researchers, and students to use electronic resources, there have been relatively few attempts to explore student knowledge of and access to these resources in universities and colleges. We considered it crucial in this situation to conduct research on awareness and use of e-resources at the institutions. Hence, the present investigation is planned with the following research questions:

- What is the level of awareness about e-resources among students in agriculture universities for academic and research work, and how does it vary across different socio-economic and academic backgrounds?
- To what extent are e-resources being used by students in agriculture universities for academic and research work, and what factors influence their usage?

METHODOLOGY

Locale of study and sampling plan: The study was conducted in Uttar Pradesh during 2022-2023. The state of Uttar Pradesh was purposively selected for study and ex-post facto research design was chosen. Universities, which had been operating for the last ten years were selected for study. Only the agriculture faculty was specifically chosen from among them

since PG and Ph.D. programmes had been successfully offered by this faculty for the past 10 years. Sixty students (Post-Graduate and Ph.D. level) from each designated college were selected by simple random sampling. Hence, 240 students made the sample. A pre-tested Google forms was used to collect data from the respondents through existing WhatsApp groups.

Data collection and analysis: Classification of students according to their level of awareness was measured by asking questions relating to various e-resources. The respondents' responses were compiled into a continuum of three points, viz. Highly aware, somewhat aware, and not aware with a score of 3, 2, and 1, respectively. After that, using the mean and standard deviation, each person's scores were calculated and divided into three levels, namely: Low level, medium level, and high level. The comparison among the students of selected universities about awareness was calculated by using Analysis of Variance-One way test (F-test) and results were drawn accordingly. To determine the extent of use of e-resources by the students in academic and research work, items related to preference to use of e-resources, place of access e-resources, frequency of using e-resources and preferred format for reading full-text articles were included in the schedule. Total score for each respondent was calculated and categorization was done using mean and standard deviation (Yadav, 2018; Mishra 2020). To determine the relationship between respondents' personal characteristics and the extent of e-resource use, the Chi-square test was used. Microsoft Excel and Statistical Package for Social Science (SPSS) were used to analyze the data.

RESULTS AND DISCUSSION

Socio-economic and academic status of students :

The basic socio-economic and academic status of the respondents is presented in Table 1. It was found that the majority of the respondents were males (74%); had 23-29 years of age (57.50%); Rs.1,00,000 to 6,00,000/annual family income (54.58%); belonged to rural background (46%); had medium level of competence (53%); 54 per cent students received no training; parents' occupation was Government jobs (31%) and 39 per cent students' fathers were graduate.

Similar studies also reported that majority of respondents' families (40%) were engaged in farming and belonged to rural areas, had 23-29 years of age, medium level of annual family income, had

Table 1. Socio-economic and academic status of students (N=240)

Characteristics	No.	%
<i>Gender</i> -Male	178	74.17
Female	62	25.83
<i>Age</i>		
< 23 years	52	21.67
23-29 years	138	57.50
>29 years	50	20.83
<i>Annual Income</i>		
< 1,00,000	53	22.08
1,00,000-6,00,000	131	54.58
> 6,00,000	56	23.33
<i>Family background</i>		
Rural	111	46
Semi-Urban	72	30
Urban	57	24

ICT Competence

Low	53	22
Medium	126	53
High	61	25
<i>Training received</i>		
No	129	54
Yes	111	46
<i>Family occupation</i>		
Farming	62	26
Farming +other occupation	49	20
Private sector /Business	55	23
Govt. sector	74	31
<i>Fathers education</i>		
Ist -Middle school	41	17
Ninth -Higher secondary school	54	23
Graduation	94	39
Above Graduation	51	21

Table 2. Classification of students (Post-Graduate and Ph. D level) according to their level of awareness (N=240)

Level of awareness	CSAUAT, Kanpur		ANDUAT, Ayodhya		SVPUAT, Meerut		SHUATS, Prayagraj		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Low (<81.45)	12	20	12	20	12	20	11	18.33	47	19.58
Medium (81.45-112.44)	35	58.33	34	56.67	35	58.33	37	61.67	141	58.75
High (>112.44)	13	21.67	14	23.33	13	21.67	12	20	52	21.67
Total	60	100	60	100	60	100	60	100	240	100

\bar{X} = 96.95; SD = 15.49

been exposed to training which is required to use of e-resources. Few studies revealed that majority of the respondents were female (61.98%); and residing in urban areas (Chaubey, 2015; Oresanya and Oresanya,2016; Yadav, 2018; Mishra, 2020; Shivani et.al.,2022; Meinam et. al., 2023).

Classification of students (PG and Ph.D level according to their level of awareness: It was found that majority

(58.75%) of the students of agriculture universities in Uttar Pradesh belonged to medium level of awareness followed by 21.67 per cent of them with the high level of awareness and rest 19.58 per cent of them were with low level of awareness (Table 2).

The reason for medium level of awareness among the students might be lack of sufficient training, medium availability of library and internet facilities at university to the scholars as well as moderate efforts from the faculty and personal internet facility received by scholars to collect useful information on their laptop and modern high-tech mobiles. Hence, there is a need to put efforts for the advanced training programmes for the students regarding the use of ICT and inclusion of the same in their course curriculum. Similar studies have also reported that majority of the students belonged to medium to high level of awareness regarding e-resources (Mishra, 2020; Shivani et. al.,2022).

Comparison among students according to the awareness about e-resources: Analysis of Variance-One way test (F-test) was used for comparison of students. Table 3 demonstrates that the estimated F

Table 3. Comparison among students (Post-Graduate and Ph.D. level) of selected agriculture universities according to the awareness about e-resources

Universities	Count	Sum	Average	Variance
CSAUAT, Kanpur	60	5766	96.10	246.80
ANDUAT, Ayodhya	60	5804	96.73	260.47
SVPUAT, Meerut	60	5872	97.87	222.83
SHUATS, Prayagraj	60	5826	97.10	240.57

Analysis of variance-one way test

Source of variation	SS	Df	MS	F	F crit
Between Groups	97.93	3	32.64	0.13 ^{NS}	2.64
Within Groups	57269.47	236	242.67		
Total	57367.40	239			

NS –Non significant (F<Fcrit)

Table 4. Classification of Students (Post-Graduate and Ph.D level) according to their level of use of e-resources (N=240)

Level of e-resources use	CSAUAT, Kanpur		ANDUAT, Ayodhya		SVPUAT, Meerut		SHUATS, Prayagraj		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Low (<101)	7	11.67	3	5	6	10	9	15	25	10.42
Medium (101-125)	46	76.66	53	88.33	41	68.33	34	56.66	174	72.50
High (>125)	7	11.67	4	6.67	13	21.67	17	28.33	41	17.08
Total	60	100	60	100	60	100	60	100	240	100

\bar{X} =112.92 SD =11.74

value of 0.13 was discovered to be smaller than the tabular value, which is statistically insignificant. As a result, the alternate hypothesis was rejected and the null hypothesis, "There is no significant difference among the students of selected agriculture universities about awareness of e-resources," was accepted. This indicates that there was no appreciable difference in the understanding of e-resources among students at the chosen agriculture universities. A similar awareness among the students may be the reason that almost a similar grant is received from the ICAR for development of e-resources in the agriculture universities of Uttar Pradesh. Similar findings have been reported by *Mishra (2020)*.

The data pertaining to Table 4 shows that the great majority (88.33%) of the students (Post-Graduate and Ph. D level) of ANDUAT, Ayodhya were with medium to high level of extent of use of e-resources, while, 76.66 per cent of the students of CSAUAT, Kanpur and 68.33 per cent of the Students of SVPUAT, Meerut and 56.66 per cent students of SHUATS, Prayagraj were with medium to high level of extent of use of e-resources, whereas, not more than 15 per cent students were observed in a low level of e-resources usage in all four agriculture universities of Uttar Pradesh. The table also reveals that majority (72.50%) of the students fell in the medium level, followed by 17.08 per cent of them had high level of e-resources use and the rest 10.42 per cent of them had low level of use of e-resources. Thus, it can be concluded that a vast majority *i.e.* 89.58 per cent of the students associated with medium to high level of e-resources use in the study area. The result is in accordance with that of *Mishra (2020)*.

Association of highly significant personal variables like age, annual income, ICT competence and Fathers education with the extent of use of e-resources has been discussed in detail (Table 5). Out of 52 students of less than 23years age group, 34 (65.38%)

had medium use category, while 13 (25 %) and 5 (9.61) students had high and low category of use of e-resources, respectively. In the age of 23-29 years group, out of 138 students, 83.33 per cent of students were under medium category of extent of use of e-resources, followed by low 14 (10.14%) and high level (6.52%) of use of e-resources. In the age group of above 29 years, majority, 25 (50%) of the students had medium level, followed by 38 per cent and 12 per cent belonged to high and low level of use of e-resources, respectively. Out of 53 students of low-income group, 54.71 per cent were of medium level of use of e-resources, whereas, 30.18 and 15.09 per cent respondents were observed in high and low level of use of e-resources group, respectively. In the group of medium annual income, 80.91, 9.92 and 9.16 per cent had medium, high and low category of use of e-resources, respectively. In high income group, majority of the post graduate scholars had medium category, followed by 21.42 and 8.92 per cent were belongs to high and low level of use of e-resources, respectively.

Furthermore, the Table also shows that out of 111 students of rural background, 86, 13 and 12 per cent of the students were placed under high, low and medium level of use of e-resources, respectively. Among the students of semi-urban background, majority (59.72) of the students belonged to medium, followed by 27.78 and 12.50 per cent were of high and low level of use of e-resources, respectively. Out of 57 students who belonged to urban areas 78.94 per cent had medium level of use of e-resources, while 15.78 per cent of students found to have high level of use of e-resources and rest of them 5.26 per cent belonged to low level of use of e-resources. Out of 53 students who fell in low group of ICT competence, 71.69 per cent had medium level of extent of use of e-resources, followed by 18.86 per cent were placed in low level group and 9.43 per cent were under high level of use. In the medium group

Table 5. Association between the personal variables and extent of use of e-resources by students in academic and research work

Variables	Extent of use			Total	χ^2 value
	Low	Medium	High		
<i>Gender</i>					
Male	20(11.23) ¹ (80) ²	128(71.91) ¹ (73.56) ²	30(16.85) ¹ (73.17) ²	178(100) ¹ (74.16) ²	0.50 ^{NS}
Female	5(8.06) ¹ (20) ²	46(74.19) ¹ (26.43) ²	11(17.74) ¹ (26.83) ²	62(100) ¹ (25.83) ²	
<i>Age</i>					
< 23 years	5(9.61) ¹ (20) ²	34(65.38) ¹ (19.54) ²	13(25) ¹ (31.70) ²	52(100) ¹ (21.67) ²	29.97 ^{**}
23-29 years	14(10.14) ¹ (56) ²	115(83.33) ¹ (66.09) ²	9(6.52) ¹ (21.95) ²	138(100) ¹ (57.50) ²	
> 29 years	6(12) ¹ (24) ²	25(50) ¹ (14.36) ²	19(38) ¹ (46.34) ²	50(100) ¹ (20.83) ²	
<i>Annual family income</i>					
<100,000	8(15.09) ¹ (32) ²	29(54.71) ¹ (16.67) ²	16(30.18) ¹ (39.02) ²	53(100) ¹ (22.08) ²	14.963 ^{**}
100,000-600,000	12(9.16) ¹ (48) ²	106(80.91) ¹ (60.91) ²	13(9.92) ¹ (31.70) ²	131(100) ¹ (54.58) ²	
>600,000	5(8.92) ¹ (20) ²	39(69.64) ¹ (22.41) ²	12(21.42) ¹ (29.26) ²	56(100) ¹ (23.33) ²	
<i>Family background</i>					
Rural	13(11.7) ¹ (52) ²	86(76.57) ¹ (49.42) ²	12(10.81) ¹ (29.26) ²	111(100) ¹ (46.25) ²	11.692 [*]
Semi-urban	9(12.50) ¹ (36) ²	43(59.72) ¹ (24.71) ²	20(27.78) ¹ (48.78) ²	72(100) ¹ (30) ²	
Urban	3(5.26) ¹ (12) ²	45(78.94) ¹ (25.86) ²	9(15.78) ¹ (21.95) ²	57(100) ¹ (23.75) ²	
<i>ICT competence</i>					
Low	10(18.86) ¹ (40) ²	38(71.69) ¹ (21.83) ²	5(9.43) ¹ (12.19) ²	53(100) ¹ (22.08) ²	25.167 ^{**}
Medium	12(9.52) ¹ (48) ²	100(79.36) ¹ (57.47) ²	14(11.11) ¹ (34.14) ²	126(100) ¹ (52.50) ²	
High	3(4.91) ¹ (12) ²	36(59.01) ¹ (20.68) ²	22(36.06) ¹ (53.65) ²	61(100) ¹ (25.41) ²	
<i>Training</i>					
No	18(13.95) ¹ (72) ²	84(65.11) ¹ (48.27) ²	27(20.93) ¹ (65.85) ²	129(100) ¹ (53.75) ²	7.863 [*]
Yes	7(6.30) ¹ (28) ²	90(81.08) ¹ (51.72) ²	14(12.61) ¹ (34.14) ²	111(100) ¹ (46.25) ²	
<i>Family occupation</i>					
Farming	7(11.29) ¹ (28) ²	46(74.19) ¹ (26.43) ²	9(14.51) ¹ (21.95) ²	62(100) ¹ (25.83) ²	8.647 ^{NS}
Farming and other occupation	7(14.28) ¹ (28) ²	28(57.14) ¹ (11.67) ²	14(28.57) ¹ (34.14) ²	49(100) ¹ (20.41) ²	
Private/Business	6(10.90) ¹ (24) ²	42(76.36) ¹ (24.13) ²	7(12.72) ¹ (17.03) ²	55(100) ¹ (22.91) ²	
Government sector	5(6.75) ¹ (20) ²	58(78.37) ¹ (33.33) ²	11(14.86) ¹ (26.89) ²	74(100) ¹ (30.83) ²	
<i>Fathers' education</i>					
Middle school	10(24.39) ¹ (40) ²	26(63.41) ¹ (14.94) ²	5(12.19) ¹ (12.19) ²	41(100) ¹ (17.08) ²	21.49 ^{**}
Higher secondary	8(14.81) ¹ (32) ²	32(59.25) ¹ (18.39) ²	14(25.92) ¹ (34.14) ²	54(100) ¹ (22.50) ²	
Graduation	2(2.12) ¹ (8) ²	78(82.97) ¹ (44.82) ²	14(14.89) ¹ (34.14) ²	94(100) ¹ (39.16) ²	
Above Graduation	5(9.80) ¹ (20) ²	38(74.50) ¹ (21.83) ²	8(15.68) ¹ (19.51) ²	51(100) ¹ (21.25) ²	
Total	25(10.41) ¹ (100) ²	174(72.50) ¹ (100) ²	41(17.08) ¹ (100) ²	240(100)	

**Significant at 1 per cent level of significance; *Significant at 5 per cent level of significance; NS= non-significant
Where, values in ()¹ represent percentage form of frequencies in the particular cells out of total row frequencies and values in ()² represent percentage form of frequencies in the particular cells out of total column frequencies

of ICT competence, 79.36 per cent of students had medium level, followed by 11.11 and 9.52 per cent of respondents fell under high and low category of extent of use of e-resources, respectively. Out of 61 students in the group of high categories of ICT competence, majority (59.01) of the students belong to medium, followed by high (36.06%) and low (4.91%) level of extent of use e-resources, respectively. Out of 41 students whose fathers were educated in the range of Ist -middle school, 63.41 per cent had medium level of extent of use of e-resources, followed by 24.39 per cent were placed in low group and 12.19 per cent were under high level of use. In the ninth-higher secondary school category, 59.25 per cent of students had medium

level, followed by 29.52 and 14.81 per cent of students fell under high and low category of extent of use of e-resources respectively.

In the category of graduation, out of 94 students, 82.97 per cent students' fathers had medium level of use, followed by 14.89 per cent were placed in high group and only 2.12 per cent were under low level of use. In the above graduation category, 74.50 per cent of students had medium level, followed by 15.68 and 9.80 per cent of students fell under high and low category of extent of use of e-resources respectively.

Variables like age, annual income, ICT competence and fathers' education had significant association with the extent of use of e-resources at 1 % level of significance

Hence, there is need to focus on these variables. Few variables like family background and training received were associated at 5% level of significance. Remaining independent variables like gender and family occupation had no association with the extent of use of e-resources.

Similar findings also reported that students from lower families were less competent and confident while using search engines to find reliable information, there was positive and significant relationship between age and awareness of e-resource, girls were more active texters and mobile communicators and visited social networking sites more frequently and for longer periods of time than boys (Lenhart et al., 2010; Duggan and Brenner, 2013; Adler's, 2014; Yadav, 2018; Mishra, 2020; Madhuri, R. and Sharma, G.R.K., 2022).

CONCLUSION

In conclusion, the study found that the majority of the students in agriculture universities in Uttar Pradesh were male, aged between 23-29 years, had an annual family income of Rs.1,00,000 to 6,00,000, and came from a rural background. The majority of students had a medium to high level of awareness of e-resources, with no significant difference in understanding observed among students in the selected universities. However, the vast majority of students had a medium level of e-resource use, indicating a need for more advanced training programs in ICT to be incorporated into their course curriculum. The study also revealed that variables such as age, annual income, ICT competence, and fathers' education had a significant association with the extent of use of e-resources, highlighting the need for further attention to these factors in promoting effective e-resource utilization among students in the agricultural sector.

This study implies that there is a need for increased efforts to incorporate advanced training programs in ICT into the course curriculum for students in agriculture universities in Uttar Pradesh. The study highlights that while the majority of students have a medium to high level of awareness about e-resources, their utilization of these resources remains at a medium level, indicating a need for further education and training. The study also calls for attention to personal characteristics, such as age, annual income, ICT competence, and fathers' education, as these factors were found to have a significant association with the extent of use of e-resources. Therefore, the findings of this study suggest that targeted interventions that address these factors could be effective in promoting greater utilization of e-resources among students in the agricultural sector.

CONFLICTS OF INTEREST

The authors have no conflicts of interest

REFERENCES

- Adler, B. (2014). News literacy declines with socioeconomic status. *Colombia Journalism Review*, http://www.cjr.org/news_literacy/teen_digital_literacy_divide.php
- Bavakenthy, M.; Veeran, M.C.K. and Salih, T.K.M. (2003). Information Access Management and Exchange in the Technological Age. ESS Publications, New Delhi. <http://www.webpages.uidaho.edu/mbolin/sethi-panda.htm>, on 24/2/2013
- Chaubey, A. K. (2015). ICT competence of students: A study in Institute of Agricultural Science BHU". Unpublished M.Sc thesis, Banaras Hindu University
- Day, J. and Bartle, C. (1998). The Internet as an electronic information service: its impact on academic staff in higher education. <http://www.intute.ac.uk>
- Duggan, M. and Brenner, J. (2013). The demographics of social media Users—2012. PEW internet and American life project. <http://www.pewinternet.org/Reports/2013/Social-media-users.aspx>.
- Lenhart, A.; Purcell, K.; Smith, A.; Zickuhr, K. (2010). Social media and mobile Internet use among teens and young adults. PEW Internet and American Life Project. <http://www.pewinternet.org/media/Reports/2010/>
- Madhuri, R. and Sharma, G.R.K. (2022). Veterinary students' perception towards online education in Andhra Pradesh. *Indian Res. J. Ext. Edu.*, **22** (4): 73-76
- Meinam, M; Singh, J.Y.; Upadhyay, A.D.; Thangavel, V.; Deepti, M. and Meinam, T. (2023). Students' Perception Towards e-Learning in Manipur. *Indian Res. J. Ext. Edu.*, **23** (1):51-54
- Mishra, S. (2020). Awareness and access to e-resources among the postgraduate students of agriculture universities of Rajasthan. Ph. D Thesis, MPUA&T, Rajasthan.
- Oresanya and Oresanya (2016). Attitude of students towards online shopping of agricultural products in selected tertiary institutions in Ogun state, Nigeria. *J. Agril. Ext.*, **20** (1) : 121-131
- Shivani, Gupta; S.; Singh, A and Raj, S. (2022). Awareness of students regarding online education during COVID-19 pandemic. *Indian Res. J. Ext. Edu.*, **22** (5) : 211-213
- Shenmare, S. J. (2018). Use e-resources to motivate digital learning to save the globe in digital era. *Intl. J. Cur. Engg. and Sci.Res.*, **5** (5) : 66-70
- Yadav Hansa (2018). Utilization pattern of e-resources among the agriculture students of S.K.N. College of Agriculture, Jobner, Jaipur (Rajasthan). M.Sc. Thesis, SKNAU, Jobner.

