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Digital Literacy Competency among Library Users of Rajendra Prasad Central Agriculture University, Nalanda University and Central University of Orissa: A Comparative Study

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ABSTRACT

This paper intends to investigate about the actual aspect of digital literacy competency, comfort level of using computer applications, familiarity of Internet resources, sources for information retrieval ,preference of search engine, awareness of mobile learning Apps , and application of Web 2.o tools among library users of Rajendra Prasad Central Agriculture University, Nalanda University and Central University of Orissa to fulfill their academic performance.To accomplish research, systematic reviews and survey method was adopted with questionnaire as an important tool for smooth collection of data, where questionnaire in both online and offline mode was used to conduct present survey. It was distributed among library users to get various interesting responses related to digital literacy competency where it was found that most of the students are comfortable and aware of web tools for learning purpose and maximum users are familiar with social networking sites. e-textbooks are used by 76.81% users of CUO on maximum for information retrieval and google is most preferred search engine with 100% response. Users are less aware of some mobile learning applications such as BoostHQ, Evernote etc.

KEYWORDS: *Digital literacy, Digital competency, web 2.0, web 3.0 technologies, e-learning, Artificial Intelligence.*

INTRODUCTION

The widening of digital society in 21st century has uplifted the use of digital resources and web tools in academic performance by expressing their ideas in digital mode (Perdana, Yani, Jumadi & Rosana, 2019). Technology advancement is playing a bit smarter role in self enhancement and updating by enabling one to think critically, improve performance and self-sustain capability and also let one to deal with the advanced techno environment very effectively. It permits libraries to create web generation information centre by enabling easy

accession of information at right place and at right time which fulfils Dr. SR Ranganathan's five laws of library science based on web environment. The implications of web technologies in growth and development are a rising question, where sound hand on emerging tools and technologies aid one to survive in this changing world. This paper approaches the concept of Digital literacy and competency, awareness and application of emerging web tools and technologies in variety of subject areas for self-growth and amplification.

Digital literacy can be defined as the ability of human to deal with digital environment intelligently and effortlessly. Digital tools and technologies adoption allows one to scale innovative efforts and solve complex problems with a soothe. The attempt to work in digital environment easily and doubtlessly is quite appreciable. The society is bit depending on technologies for processing, handling information, performing day to day tasks where with the use of micro electronic technologies man can simulate various jobs such as reading, calculating, comparing, making decisions if he/she is competent in digital world. Emerging web 3.0 technologies such as artificial intelligence, semantic web, etc. has no doubt the capacity to transform any of the sector, whether it may be medical, libraries, agriculture, education etc.
The research is going on for better version of emerging web technology which can perform tasks at enhanced level such as they are trying to create a technology which can learn and accumulate knowledge for self-improvement and perform mechanical tasks. Experts totally agree on the fact that the present generation will experience the new technologies in libraries, markets, hospitals, classrooms if they are much more competent and skilled in digital world.

The most common activities performed today by humans have developed various web features, most of the mobile phones, computer system have AI features which allows the completion of work very intelligently. Examples of advanced web technologies in computers can be self - driving cars, speech recognition, natural language processing, deep learning, machine learning, robotics which one can only adopt if he/she is digitally sound and literate. The society is developing and there is growing demand of information and its accessibility very easily and comfortably. The growth and development of technology, machines, computers have shifted libraries to adopt all the changes and be capable of providing technological output to the user community. Web technologies are applied in various areas such as education, medicine, business, libraries etc. whereas; the adoption of digital tools allows providing knowledge base services to user community very effectively. Application of digital tools and technologies in library system encompasses reference services cataloguing, technical services, subject indexing, shelf reading, collection development, information retrieval system etc for the benefit of users with digitally sound and competent so that they can avail all the facilities with no difficulty at all. Adoption of web tools in libraries and intelligent programming assures the creation of smart libraries in no more time enabling proper functioning and providing e- services in this digital world with an ease.

DIGITAL LITERACY

The past decade proved to be the test of time, where at one side COVID-19 outbreak has affected the whole world either economically, physically or mentally, on the other side it also aids in the development of multitude of digital tools to rectify the epidemic. People started to adopt and learn digital tools and technologies to continue their work performance without any disruption. Various problems were tackled easily with the help of technologies in different sectors whether it may be medicine, education, libraries, e-commerce and many more. The literacy of web technologies such as Artificial Intelligence (AI), Internet of things (IoT), big-data, block chain, deep learning etc. proved to be greater support in these bad circumstances. (Ting, Carin, Dzau & Wong, 2020).

The ability to use various computer sources for using and understanding different aspects of information in the digital world can be said as digital literacy. It can also be defined as the capability which allows one to be fit for learning, surviving, in this electronic world by

gathering information from variety of resources. Digital Literacy needs various skills such as digital search skills, internet safety, critical thinking, online identity management skills and many more which assist one to locate, access, create and use data as per the requisite in the digital world. The capability of a person to access, use and operate digital devices and software's easily in large variety of sociological, cognitive digital culture and effectively dealing in with the task required such as creating content, graphical use, production of digital content, utilization of digital materials, knowledge construction, navigation, e-safety measures etc. makes one digitally sound and competent to survive in this world. (Eshet, 2004).

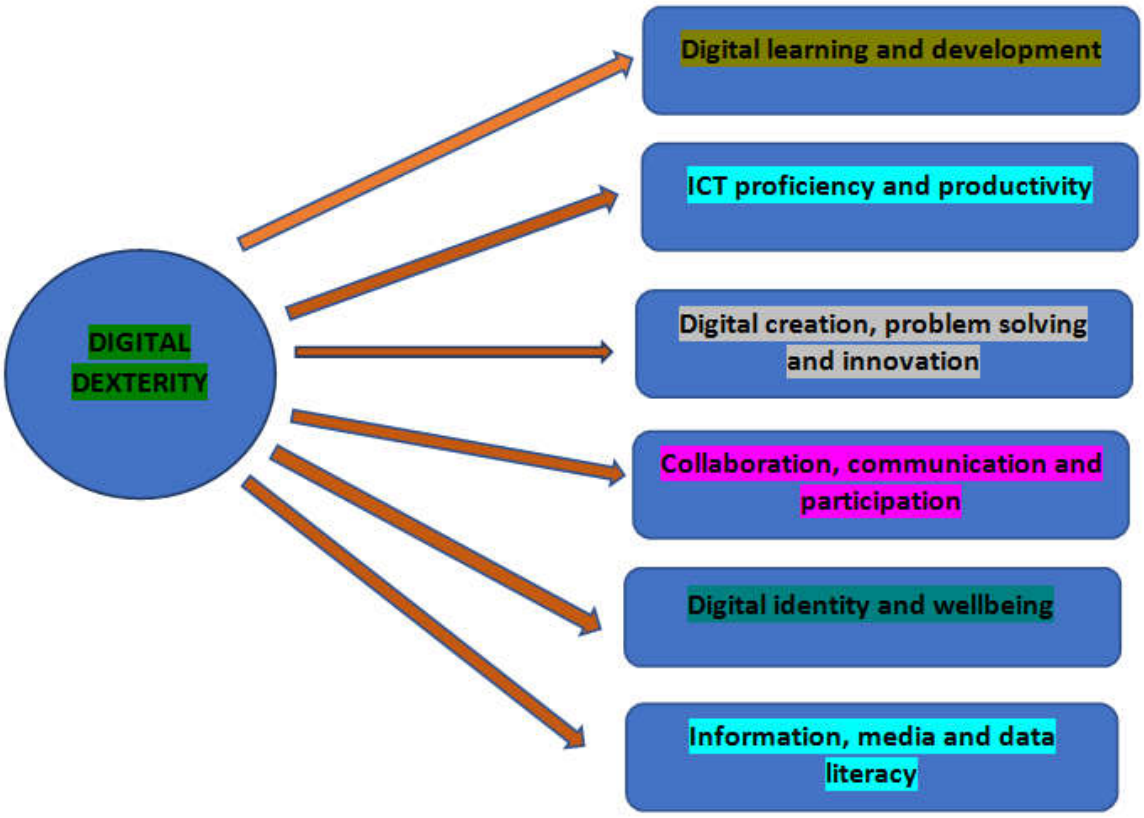

Figure 1: Digital Dexterity

REVIEW OF RELATED LITERATURE

The literature survey is repeated process of accessing and refining information in particular area of research and helps investigator to gather data and avoid duplication. To take an idea about present topic and its gaps various databases have been reviewed on continuous basis.

Tinmaz, Fanea-Ivanovici & Baber (2022) study reveals digital literacy, its evolution, various benefits, its impact in education critical thinking, and problems related to it by applying qualitative approach and it was found that growth and development of literacy is in continuous mode. Different models and frameworks are designed by various organizations to enhance their work performance digitally. It was also found that learners are trying to be digitally sound and enhance their skills and lifelong learning process.

Liu, Z. J., Tretyakova, N., Fedorov, V., & Kharakhordina, M. (2020) analysed digital

literacy skills, competency and levels of teachers to collect data in the digital information world. Survey was done in NAFI analytical centre to collect data and was found that level of digital literacy is higher by exceeding average level of Russia.

Oncul, G. (2020) study reveals skills to access digital tools of students studying in first year. It also supports in enhancing skills related to academic performance where result shows there is need of digital literacy skills advancement for better performance.

Brooks (2015) study shows information literacy and its use in digital world, its use to user community and librarians. The paper deals with connective theory which deals with connectivity of information literacy directive and use of iPad and tablets while conveying instructions. It has been observed that devices like mobile phones, tablets are mostly used as educational tools most frequently by college students.

Kim (2014) study reveals the society is in need of information where people are engaged in various stuffs like digital literacy, public policy and digital inclusion. As primary matter of libraries and information policy there is need to deal with digital literacy and inclusion incorporated in various areas. The research method conducted by author is qualitative and quantitative for data collection. The suggestion was to enhance and promote digital inclusion and literacy for better growth.

OBJECTIVES OF THE STUDY

The following objectives were placed for the present study.

1. To know digital literacy competency among library users.
2. To find out user's awareness and application web 2.0 technologies.
3. To know about familiarity of Internet resources and sources for information retrieval.
4. To know use of preference of search engine.

SCOPE OF THE STUDY

The present study focusses on Digital literacy, competency and awareness of trending tools and technologies among library users. The data is collected from Rajendra Prasad Central Agriculture University, Nalanda University and Central University of Orissa.

METHODOLOGY

The present study emphasizes on descriptive survey method by using questionnaire as a main research tool. The questionnaire was prepared and was randomly distributed via online and offline mode among library users of Rajendra Prasad Central Agriculture University, Nalanda University and Central University of Orissa. The percentage method was used to analyse collected data and further it was represented with the help of table and charts, with the use of microsoft excel application software.

DATA ANALYSIS

Table 1: Distribution of Questionnaires and response received

Central University	Questionnaires/link provided	Response received	Percentage
RPCAU	123	98	79.67%
NU	96	73	76.04%
CUO	91	69	75.82%
TOTAL	310	240	77.41%

RPCAU*-Rajendra prasad Central Agriculture University, **NU*-**Nalanda University, **CUO*** -Central University of Orissa.

Table 1 reflects distribution of questionnaires, in which total 123 questionnaires were distributed among library users of RPCAU where, 98(79.67%) response was obtained for data analysis. In NU 96 questionnaires were distributed among library users where 73(76.04%) response was obtained followed by CUO where 91 questionnaires were distributed among library users in which 69(75.82%) response was obtained for further analysis of data.

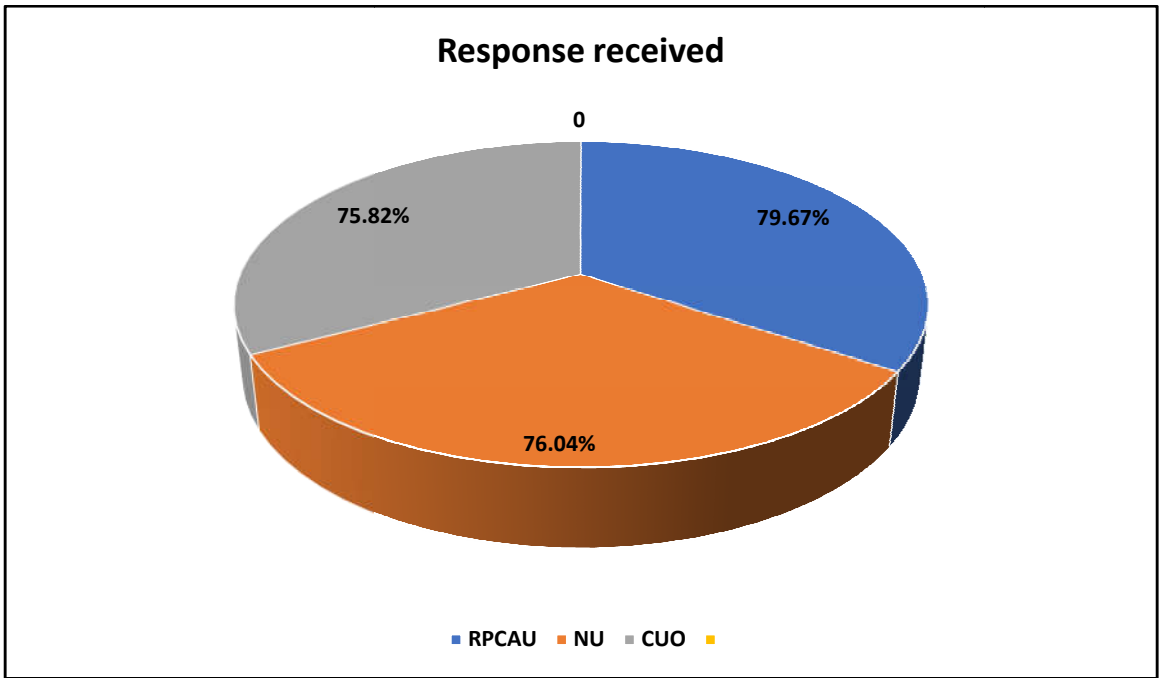

Figure 2: Distribution of Questionnaires and response received

Table 2: Comfort level of using computer applications

Central University	Comfortable	Less Comfortable	Neutral
RPCAU	69(70.40%)	08(8.16%)	21(21.42%)
NU	44(60.27%)	09(12.32%)	20(27.39%)
CUO	48(69.56%)	07(10.14%)	14(20.28%)

Table 2 shows comfort level of using computer application, where maximum response was gained in comfortable category by RPCAU with 69(70.40%) followed by CUO with 48(69.56%) and NU with 44(60.27%).

In Less comfortable category maximum response was gained by NU with 09(12.32%) followed by CUO 07(10.14%) and RPCAU 08(8.16%).

In Neutral category maximum response was observed by NU with 20(27.39%) followed by and RPCAU 21(21.42%) and CUO 14(20.28%).

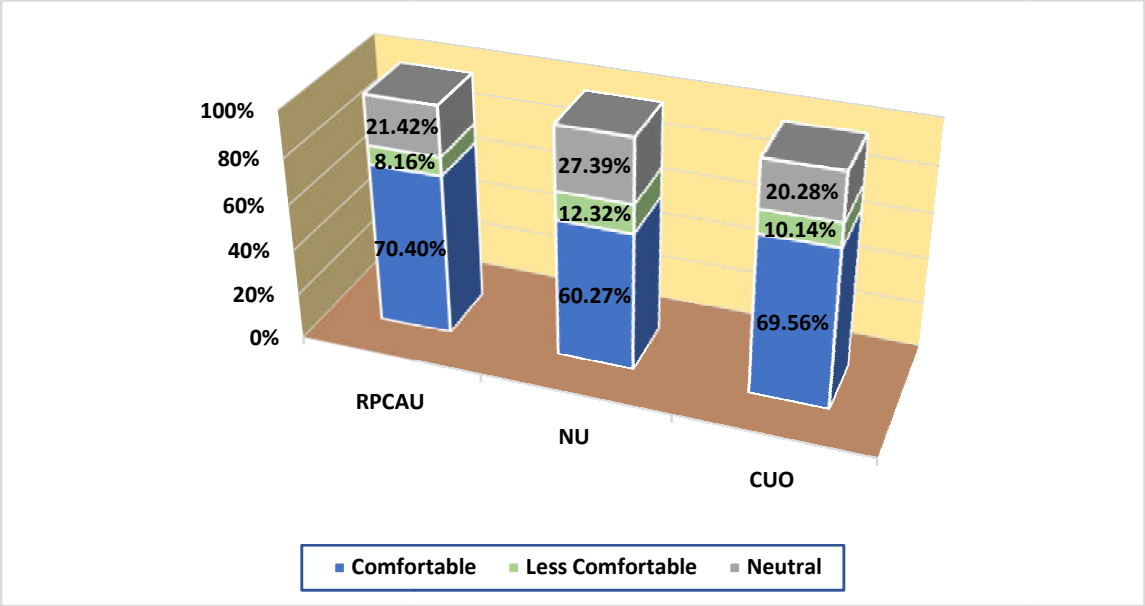

Figure 3: Comfort level of using computer applications

Table 3: Familiarity of Internet Resources

Internet resources	RPCAU			NU			CUO		
	Familiar	Less familiar	Not familiar	Familiar	Less familiar	Not familiar	Familiar	Less familiar	Not familiar
Websites	68 (69.38%)	19 (19.38%)	11 (11.22%)	43 (58.90%)	18 (24.65%)	12 (16.43%)	41 (59.42%)	18(26.08%)	10 (14.49%)
Databases	62 (63.26%)	23 (23.46%)	13 (13.26%)	34(46.57%)	21(28.76%)	18(24.65%)	38 (55.07%)	17(24.63%)	14(20.28%)
Library resources	58 (59.18%)	26 (26.53%)	14 (14.28%)	30(41.09%)	26(35.61%)	17(23.28%)	35(50.72%)	19(27.53%)	15(21.73%)
Social networking sites	93 (94.89%)	5 (5.10%)	0 (0.00%)	68(0.93%)	3(4.10%)	2(2.73%)	64(92.75%)	4(5.79%)	1(1.44%)
Subject gateways	28 (28.57%)	39 (39.79%)	31 (31.63%)	17(23.28%)	24(32.87%)	32(43.83%)	19(27.53%)	23(33.33%)	27(39.13%)

Table 3 shows familiarity of internet resources of library users, where maximum response was gained by social networking sites with 93(94.89%) of RPCAU users in familiar category followed by NU with 68(93.15%) and CUO 64(92.75%). The second highest response in familiar category was observed by websites with 68(69.38%) by RPCAU users followed by CUO 41(59.42%) and NU 43(58.90%).

In Less familiar maximum response was gained by Subject gateways with 39(39.79%) by RPCAU users followed by CUO 23(33.33%) and NU 24(32.87%). In not familiar category Subject gateways gained maximum response by users of NU with 32(43.83%) followed by CUO 27(39.13%) and RPCAU 31 (31.63%). All students of RPCAU are familiar with social networking sites.

Table 4: Sources for information retrieval (multiple tick)

Sources	RPCAU	Mean	NU	Mean	CUO	Mean
e-Textbooks	74(75.51%)	.75	52(71.23%)	.71	53(76.81%)	.76
e- journal	62(63.26%)	.63	43(58.90%)	.58	43(62.31%)	.62
general per1iodical	37(37.75%	.37	23(31.50%)	.31	26(37.68%)	.37
online Databases	53(54.08%)	.54	36(49.31%)	.49	36(52.17%)	.52
conference proceedings	21(21.42%)	.21	16(21.91%)	.21	18(26.08%)	.26
Other	32(32.65%)	.32	29(39.72%)	.39	27(39.13%)	.39

Table 4 shows Sources for information retrieval, where maximum response was gained bye-Textbooks with 53(76.81%) by CUO followed by RPCAU 74(75.51%) and NU with 52(71.23%). E-journal as information retrieval source was used maximum by RPCAU 62(63.26%) followed by CUO 43(62.31%) and NU 43(58.90%). CUO gained maximum response by conference proceedings with 18(26.08%). In other category, NU observed maximum response with 29(39.72%).

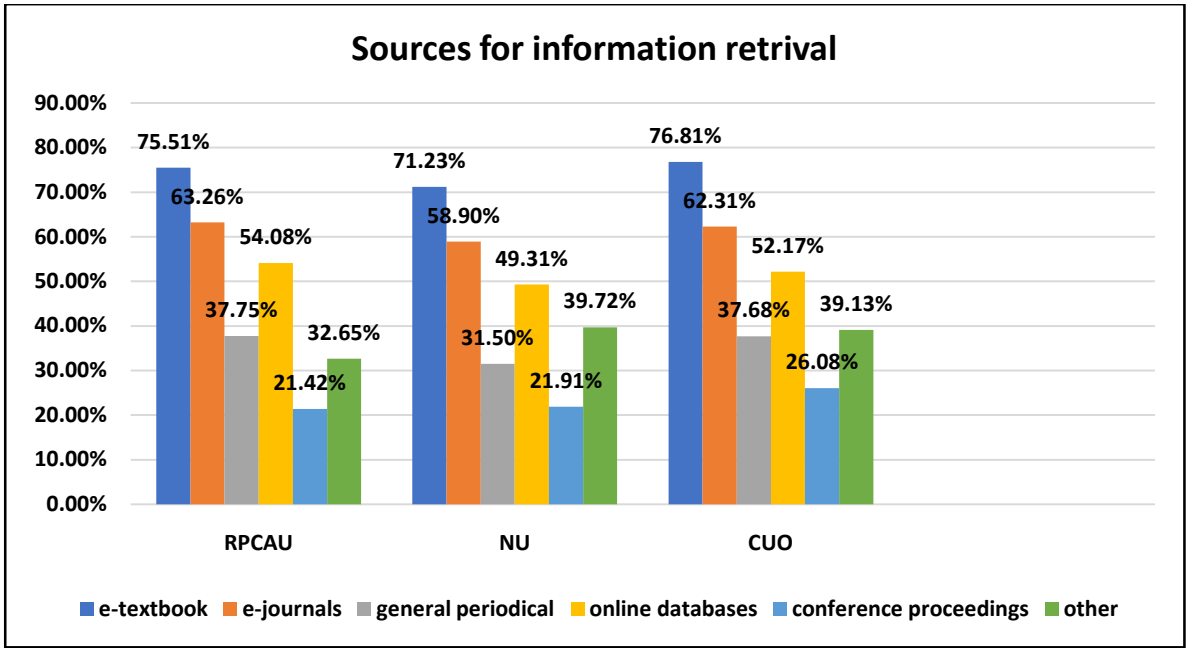

Figure 4: Sources for information retrieval

Table 5: Preference of search engine for academic purpose (multiple tick)

Search engine	RPCAU	Mean	NU	Mean	CUO	Mean
Yahoo	67(68.36%)	.68	57(78.08%)	.78	51(73.91%)	.73
Google	98(100.00%)	1	73(100.00%)	1	69(100.00%)	1
Bing	45(45.91%)	.45	41(56.16%)	.56	46(66.66%)	.66
Alta Vista	23(23.46%)	.23	24(32.87%)	.32	21(30.43%)	.30
Lycos	18(18.36%)	.18	14(19.17%)	.19	17(24.63%)	.24
Other	19(19.38%)	.19	17(23.28%)	.23	15(21.73%)	.21

Table 5 shows Preference of search engine for academic purpose, where google gained maximum response with 100.00% among all three universities. NU users responded yahoo with first preference 57(78.08%) followed by CUO 51(73.91%) and RPCAU 67(68.36%). CUO users preferred Bing as search engine with 46(66.66%) followed by NU 41(56.16%) and 45(45.91%). The lowest preference by RPCAU was gained by Lycos with 18(18.36%), where NU recorded lowest use of Lycos with 14(19.17%) and in CUO lowest response was gained by other category with 15(21.73%).

Table 6: Awareness of mobile learning Apps

Mobile learning Apps	**RPCAU**		**NU**		**CUO**	
	Aware	**Not aware**	**Aware**	**Not aware**	**Aware**	**Not aware**
BoostHQ	21(21.42%)	77(78.57%)	14(19.17%)	59(80.82%)	15(21.73%)	54(78.26%)
Evernote	23(23.46%)	75(76.53%)	12(16.43%)	61(83.56%)	13(18.84%)	56(81.15%)
SkillPill	27(27.55%)	71(72.44%)	19(26.02%)	54(73.97%)	17(24.63%)	52(75.36%)
Udemy	38(38.77%)	60(61.22%)	31(42.46%)	42(57.53%)	25(36.23%)	44(63.76%)
Word press	43(43.87%)	55(56.12%)	29(39.72%)	44(60.27%)	28(40.57%)	41(59.42%)

Table 6 shows Awareness of mobile learning Apps, where 15(21.73%) users of CUO are aware of BoostHQ followed by 21(21.42%) of RPCAU and 14(19.17%) of NU. Maximum response in aware category was gained by WordPress, where users of RPCAU observed 43(43.87%) followed by CUO 28(40.57%) and NU 29(39.72%).31(42.46%) users are aware about Udemy from NU followed by RPCAU 38(38.77%) CUO 25(36.23%). In not aware category 61(83.56%) users of NU are not aware about Evernote followed by CUO 56(81.15%) and RPCAU 75(76.53%).

Table 7: Awareness of web2.0 tools

Central University	**Very aware**	**Aware**	**Less aware**	**Not aware**
RPCAU	22(22.44%)	42(42.85%)	23(23.46%)	11(11.22%)
NU	9(12.32%)	24(32.87%)	25(34.24)	15(20.54%)
CUO	16(23.18%)	27(39.13%)	17(24.63%)	9(13.04%)

Table 7 shows Awareness of web 2.0 tools, where in very aware category CUO recorded maximum response with 16(23.18%) followed by RPCAU 22(22.44%) and NU 9(12.32%). In aware category RPCAU recorded maximum response with 42(42.85%) followed by CUO 27(39.13%) and NU with 24(32.87%). In Less aware category NU recorded maximum response with 25(34.24) followed by CUO 17(24.63%) and RPCAU 23(23.46%). In not aware category NU users are not aware of web 2.0 tools with maximum response of 15(20.54%) followed CUO 9(13.04%) and RPCAU with 11(11.22%).

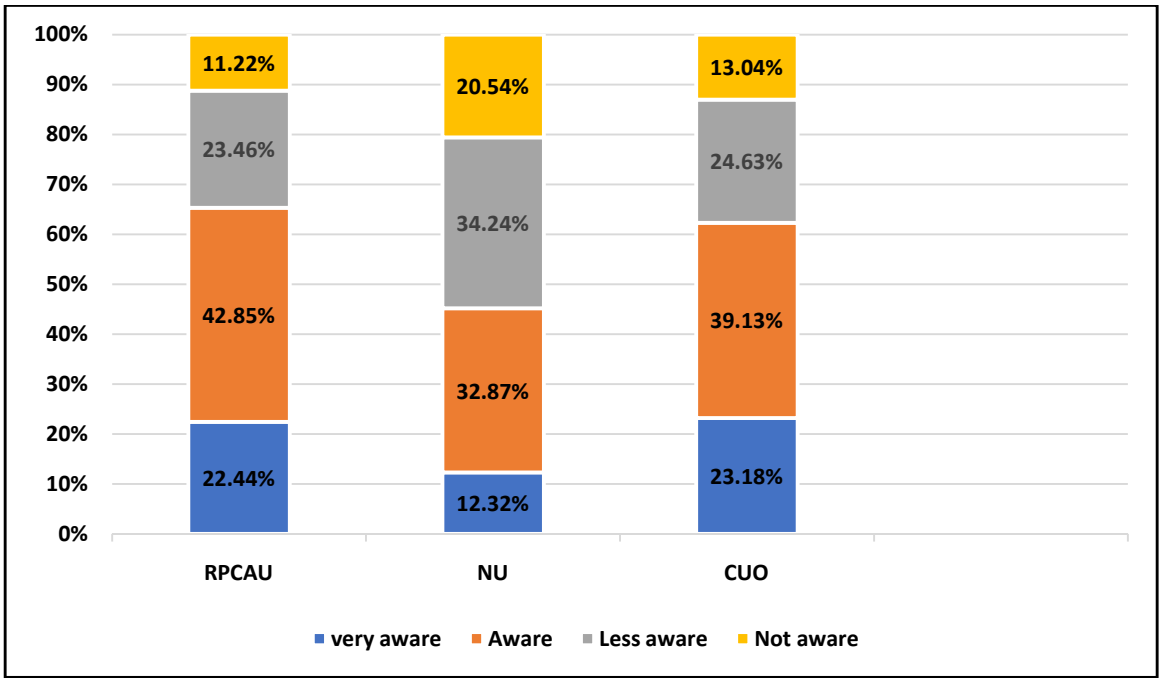

Figure 5: Awareness of web 2.0 tools

Table 8: Application of Web 2.0 tools for academic purpose

	RPCAU			NU			CUO		
Web 2.o tools use	**MU**	**SU**	**LU**	**MU**	**SU**	**LU**	**MU**	**SU**	**LU**
E-mail	74 (75.51%)	17 (17.34%)	7 (7.14%)	53 (72.60%)	16 (21.91%)	4 (5.47%)	50 (72.46%)	12 (17.39%)	7 (10.14%)
wikis	46 (46.93%)	39 (39.79%)	13 (13.26%)	29 (39.72%)	26 (35.61%)	18 (24.65%)	24 (34.78%)	26 (37.68%)	19 (27.53%)
Blogging	38 (38.77%)	45 (45.91%)	15 (15.30%)	24 (32.87%)	33 (45.20%)	16 (21.91%)	28 (40.57%)	27 (39.13%)	14 (20.28%)
Social networking	53 (54.08%)	26 (26.53%)	19 (19.38%)	31 (42.46%)	28 (38.35%)	14 (19.17%)	33 (47.82%)	25 (36.23%)	11 (15.94%)
Acdemic search engine	91 (92.85%)	7 (7.14%)	0 (0.00%)	58 (79.45%)	12 (16.43%)	3(4.10%)	56 (81.15%)	09 (13.04%)	4 (5.79%)
Wordpress	42 (42.85%)	47 (47.95%)	9 (9.18%)	33 (45.20%)	23 (31.50%)	17 (23.28%)	28 (40.57%)	24 (34.78%)	17 (24.63%)

MU*-Mostly used, **SU***-Sometimes used, **LU***-Less used

Table 8 shows Application of web 2.0 tools, where in mostly used category Academic search engine gained maximum response by RPCAU with 91(92.85%) followed by CUO56(81.15%) and NU 58(79.45%). Email gained second highest response by RPCAU with 74(75.51%) followed by NU 53(72.60%) and CUO 50(72.46%).

In sometimes used WordPress gained maximum response by RPCAU with 47(47.95%) followed by CUO 24(34.78%) and NU 23(31.50%). In least used category blogging gained maximum response by NU 16(21.91%) followed by CUO14 (20.28%) and RPCAU 15(15.30%).

CONCLUSION

In the 21st century the development of ICT tools and web technologies have provided citizens with various new opportunities. The abilities to tackle with new digital tools and contents influence one in positive direction to fulfil their needs. Digital literacy is an emerging concept which measures one's potential to use all the digital stuffs easily in order to achieve academic performance. The research deals with digital importance in terms of communication, collaboration, use, access knowledge with users' competency level regarding databases, emerging web tools, computer applications etc. Result shows that the users are digitally sound in some areas and are less aware about some tools and applications. Users are trying to perform different tasks with the help of digital tools as per their requirement and are eager to adopt new technologies.

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