

Digital Literacy among Post –Graduate Students of University of Agricultural Sciences, Dharwad

Mr. Veeresh Awari*

Dr. C. Krishnamurthy**

*Senior Research Fellow, Email: veereshalis@gmail.com

**Associate Professor, Email: jrfkrishna@gmail.com

Department of Library and Information Science, Karnatak University Dharwad

Abstract: *Digital Literacy is an important prerequisite for all people in the ongoing evolution of digital culture which furnishes people with the skills that will help in making use of the digital technology in all spheres of life. It is the ability to make and share information in different modes and formats; to create, collaborate and communicate effectively and to understand how and when digital technologies can best be used to support these processes. Keeping this trend in view this study has been conducted to know the digital literacy competencies among Post-Graduate (P.G) students of University of Agricultural Sciences, Dharwad. The study found that majority of the students own smartphones (79.34%) followed by Laptop (54.34%). 69.66% of the respondents make use of internet every day, the purpose of use of internet is for academic works (79.34%) and social networking (75%). Only 34.78% of the respondents aware of web portals followed by subject gateways (28.26%) and institutional repositories (25%). Google is the most preferred search engine (100%) while awareness about different search strategies among the respondents is poor as the respondents know only about concept search (47.82%) and Boolean search (41.39%).*

Keywords: *Digital Literacy, Computer Literacy, ICT literacy, Information Literacy, Resource Literacy, Agricultural Sciences.*

Introduction:

The need for today's students to be digitally literate is growing, and educational organisations worldwide have responded with new curricula to teach digital literacy skills. (Frydenberg, 2015). Digital literacy deals with the skills, knowledge, acquaintance, familiarity and understanding which enable critical, creative, astute, secure and sound practices with digital technologies when it is appropriate and helpful to the task to be performed, and when they are not. The term digital literacy refers to the ability to use ICT tools and internet to access, manage, integrate, evaluate, create and communicate information in order to function in knowledge society. (Jones-Kavalier, et al. 2006). The advent of a new millennium with the technological revolution has changed the society, the concept of literacy has assumed new meaning. In e-Generation one must possess the digital competencies needed to effectively navigate the

multi-dimensional and fast-paced digital environment of computers. Technology is playing an increasing role in culture generally and particularly in the lives of young people. Computers have become so strongly integrated into the social infrastructures of these societies that an individual without adequate computing skills would feel an alien in that society. (Majid & Abazova, 1998). In order to negotiate with this digital environment effectively, people need to be digitally literate.

Digital literacy helps in building academic excellence, saving resources and equity, with an objective to provide various benefits to the academic and research community which include access to information resources, retrieval and speedier dissemination of information. Dunaway (2011) suggests that learning landscapes in a digital age are networked, social and technological. Since people commonly create and share information by collecting, filtering and customizing digital content, educators should provide students opportunities to master these skills (Mills, 2013). A digitally literate person will possess a set of digital skills and necessary knowledge of the basic principles of computing devices in using computer networks and the ability to engage in online communities and social networks while adhering to behavioural protocols, to be able to find, capture, retrieve and evaluate information with an understanding of the societal issues raised by digital technologies (such as big data), and possess critical thinking skills .

Review of literature:

Ungerer (2016) discusses how digital curation has become core competency in current learning and literacy. The author throws light on what digital curation is and terms that it plays an important role in higher education. Digital curation is an essential requirement for optimally functioning in a modern media environment. Further the researcher urges to blend informal and formal learning as curation helps in compiling the relevant information. Frydenberg, M. (2015) aims to argue that the process of making an original game develops digital literacy skills and provides an authentic learning experience as students create, publish and deploy interactive games. Teaching students to create computer games has become common in both K-12 and tertiary education to introducing programming concepts, increase student engagement and recruit majors and minors in technology fields. This study describes a project where first-year college students in an introductory technology concepts course use a visual game creation tool to develop original games to play on their computers and mobile devices. Cihak, D. F. et al. (2015) examine the effects of teaching functional digital literacy skills to three high school students with intellectual disability. Functional digital literacy skills included sending and receiving email messages, organizing social bookmarking to save, share, and access career websites, and accessing cloud storage to download, revise, and upload documents. Results indicated that all students acquired and maintained these functional digital literacy skills. Findings are discussed in

the context of teaching essential digital literacy skills to increase greater participation in a digital society. Sampath Kumar, B. T (2014) investigate computer literacy competencies among rural and urban students in India and its prime objectives are to find out: how rural and urban students use computers, what is the purpose of computers for these students and what problems have the students encountered while using computers. A notable finding of the study was that majority (91.33 percent) of urban students used computers compared to a significantly less percentage of rural students (32.33 percent). Parvathamma N & Pattar, D. (2013) assess the digital literacy skills among students of management institutes in Davanagere district. The findings of the study reveal that all the respondents own personal computer, 73.33% of them have their own internet connectivity. While other digital devices like laptop, smartphone, digital camera and iPod are the widely used tools. Web portals are most widely used sources by the respondents while open access journals and institutional repositories are used least. The researcher concludes with a model curriculum to impart digital literacy skills to the students of Master of Business Administration. Ameen K & Gorman G E. (2009) explore the overall state of digital literacy in developing countries with special reference to Pakistan. The study further explains that how digital illiteracy is hampering the growth of nations especially developing Asian countries. Adeyoyin S. O. (2005) ascertains the ICT literacy among the professionals and paraprofessionals and other members of staff of 18 Nigerian university libraries. The study found that among 268 professionals librarians only 87 (32%) were ICT literate and out of the 358 paraprofessionals in those libraries only 28 (8%) were ICT literate. Of the 1133 other staff members in the survey, only 69(6%) of them were ICT literate, the remaining vast majority of them are ICT-illiterate. The study addresses the gap between the desired levels of ICT literacy and the actual levels. Majid Shaheen (1999) investigates the relationship between the computer literacy of academic staff at International Islamic University Malaysia (IIUM) and their use of electronic information sources often.

Need for the study:

Digital objects such as laptops, Smartphones, iPods, Desktops, e-readers, Notepads, etc. are motivating and intriguing the young minds in this modern world and become embedded inextricably in the life of human being. This trend has also changed the way of library operations, services, storage, retrieval and dissemination of information. Today's students are using these digital objects for communicating, accessing the internet, social networking, entertainment etc. but they often fail to find and search information sources, videos, podcasts and presentations related to anything that helps in their academic pursuits and learning. At this point of time digital

literacy skills play a key role. Hence the study is undertaken to ascertain the digital literacy competencies among the P.G. Students of University of Agricultural Sciences, Dharwad.

Objectives of the study:

1. To find out how far the respondents are competent enough to make use of internet and internet sources of information.
2. To know the use pattern of digital objects by the respondents.
3. To know the awareness of different databases among the respondents.
4. To find out the awareness of different search strategies among respondents.
5. To know the respondents opinion about digital literacy.

Methodology and Scope: A structured questionnaire was designed and distributed to P.G students of University of Agricultural Sciences, Dharwad. The sampling population consists of 490 P.G. students. Out of 490, 220 (44.89 %) samples were selected for the study using simple random sampling. Among 220 P.G. students, 184 returned the duly filled questionnaire with response rate of 83.63%. The same has been systematically analyzed and presented in the following sections. The scope of the present study is limited to P.G. students of University of Agricultural Sciences, Dharwad.

Results and Discussion:

The study reveals that, out of the 184 respondents surveyed, 123 (66.84%) are male and 61 (33.15%) respondents are female. Digital literacy deals with handling and making use of digital devices. In response to the question regarding what are the the digital devices owned by the students, majority of the students i.e. 146 (79.34%) revealed that they own smartphone while 100 (54.34%) of them posses Laptop followed by 32 (17.39%) who have desktop, 12 (6.52%) of them own notepad and only 04 (2.17%) respondents own I-pod.

Table-1: Use of ICT Tools by the students to access Internet

ICT Tools	No of respondents	Percentage
Laptop	144	78.26
Desktop	96	52.17
Notepad	04	2.70
Smart phone	132	71.73

Table-1 reveals that the vast majority of the respondents i.e. 144 (78.26%) accesses internet by using laptops while it is important to note that almost equal number of respondents i.e. 132 (71.73) access internet using smart phones. This shows that the rising trend of using smartphones for accessing the internet. Followed by 96 (52.17%) of the students access on desktops and only 04 (2.70%) of them access using Notepad.

Table-2: Frequency of use of Internet

Frequency	No of respondents	Percentage
Daily	128	69.66
Once in a two days	34	18.47
3 – 4 times a week	14	7.06
Once in a week	08	4.34
Total	184	100

The above table-2 shows that the frequency with which the respondents make use of internet, the study reveals that majority of the respondents i.e. 128 (69.66%) use internet every day, while 34 (18.71%) of them access internet once in two days followed by a very few students i.e. 14 (7.06%) access internet 3-4 times for a week and only 08 (4.34%) of them use internet once in a week.

Table-3: Purpose of using Internet:

Purpose	No of respondents	Percentage
For using Social Networks	138	75
For Communication	86	46.73
For academic purpose	146	79.34
To access database and online resources	62	33.69
For entertainment	96	52.17
As an additional source of information	76	41.30

A question was raised to know the purpose of using internet, table-3 reveals that, large majority of the respondents i.e. 146 (79.34%) make use of internet for academic purpose whereas almost equal number of students i.e. 138 (75%) use internet for social networking, 86 (46.73%) of them use internet for communication purpose followed by 96 (52.17%) of them use for entertainment, 76 (41.30%) use internet as an additional source of information and less number of respondents i.e. 62 (33.69%) use internet for accessing databases and other online resources.

Table-4: Awareness about internet sources:

Awareness	No of respondents	Percentage
Search engines	104	56.82
Subject Gateways	52	28.26
Web Portals	64	34.78
Digital library archives	68	36.95
Open access	108	58.69
Institutional repositories	46	25
Wikipedia	124	67.39

From the above table-4 it can be observed that majority of the students i.e. 124 (67.39%) opined that they are aware of Wikipedia while 108 (58.69%) of them are aware of open access information sources followed by 104 (56.82%) respondents are aware of search engines, 68 (36.95%) of them have the knowledge of Digital archives, 64 (34.78%) aware of web portals and very less number of students i.e. 52 (28.26%), 46 (25%) and 44 (23.91%) are aware of subject gateways, institutional repositories respectively.

Table-5: Familiarity with Application software

Application Softwares	No of respondents	Percentage
Word Processing Software	162	88.04
Spreadsheet software	144	78.26
Powerpoint Presentation	152	82.60
Audio File Formats	62	33.95
Video File Formats	80	43.47
Image File Formats	82	44.56

An attempt was made to know the familiarity of the respondents with different application software's which are helpful in their academic activities. From table-5 it is found that large majority of the respondents i.e. 162 (88.04%) are familiar with word processing software whereas 152 (82.60%) of them aware of powerpoint presentation. Further 144 (78.26%) of the respondents are familiar with spreadsheet software followed by 82 (44.56%) are aware of image file formats and very less number of students i.e. 80 (43.47%) and 62 (33.95%) of the respondents are familiar with video file formats and audio file formats respectively.

Table-6: Use and familiarity with Social Networking Sites:

Social Networks	No of respondents	Percentage
Facebook	162	88.04
Twitter	74	40.21
Google +	108	58.69

Web blogs	22	11.95
Linked In	60	32.60
Skype	100	54.34
WhatsApp	94	51.08

With regard to the use and familiarity of respondents with social networking sites, table-6 shows that the majority of the respondents i.e. 162 (88.04%) use Facebook followed by 108 (58.69%) of them use Google + and 100 (54.34%) of the students are using Skype. Further it is found that 94 (51.08%) of the respondents are using WhatsApp while 74 (40.21%), 60 (32.60%) and very less number of students i.e. 22 (11.95%) are using Twitter, LinkedIn and Web Blogs respectively.

Table-7: Familiarity with audio-video sharing Websites

Websites	No of respondents	Percentage
You tube	170	92.39
Slide share	74	40.21
My space	08	4.34
My video	10	5.43
Skype	56	30.43
Rediff	24	13.04
Yohoo video	40	21.73
Flicker	16	8.69

Table -7 presents that the familiarity of the respondents with Audio- video sharing websites, vast majority of the respondents i.e. 170 (92.39%) are aware of Youtube while 74 (40.21%) of them are familiar with Slideshare followed by Skype 56 (30.43%) , and Yahoo video 40 (21.73%). Further very less number of students i.e. 24 (13.04%) , 16 (8.69%) , 10 (5.43%) and 08 (4.34) are aware of Rediff , Flicker , my video and myspace respectively.

Table-8: Familiarity with Search Engines:

Search Engines	No of respondents	Percentage
Google	184	100
Yahoo	122	66.30
Rediff	48	27.17
Alta vista	02	1.08
Hot Bot	06	3.26
Lycos	06	3.28
Bing	44	23.91

Table-8 depicts that the respondents familiarity with search engines, it is significant to note that all the respondents i.e. 184 (100%) are using and familiar with Google while 122

(66.30%) of them are aware of Yahoo followed by Rediff 48 (27.17%), Bing 44 (23.91%) and very less number of respondents are familiar with other search engines such as Lycos 06 (3.28%), Hotbot 06 (3.26%) and Alta vista 02 (01.08%).

Table-9: Familiarity with the use of Digital Objects

Digital Objects	No of respondents	Percentage
CD- ROM	138	75
DVD-ROM	108	58.69
Pen drive	168	91.30
Hard disk	114	61.95
Printers	102	55.43
Scanners	110	59.78

Table-9 reflects that the familiarity with the use of digital objects by the respondents, a large majority of the respondents i.e. 168 (91.30%) use pen drive while 138 (75%) of the respondents are familiar with use of CD-ROM followed by hard disks 114 (61.95%), scanners 110 (59.78%), DVD-ROM 108 (58.69%) and almost equal proportion of users i.e. 102 (55.43%) are familiar with the use of printers.

Table-10: Use of databases in Agricultural Sciences

Databases	No of respondents	Percentage
CeRa	138	75
AGRIS	100	54.34
AQUASTAT	14	07.06
Cab abstracts	20	10.86
Agricola	30	16.30
FAOSTAT	16	8.69
IPNI	24	13.04

A question was raised to know the awareness about databases in the field of Agricultural Sciences, the table-10 reveals that majority of the respondents i.e. 138 (75%) are aware of CeRa database while 100 (54.34%) of the respondents know AGRIS, followed by the remaining databases such as Agricola 30 (16.30%), IPNI 24 (13.04%), Cab abstracts 20 (10.86%), and AQUASTAT 14 (7.06%) are very less known databases among the respondents.

Table-11: Awareness about Search Strategies

Search strategies	No of respondents	Percentage
Boolean operators	76	41.39
Truncation and wildcards	30	16.30
Case sensitivity	34	18.47

Proximity searching	34	18.47
Natural language searching	60	32.60
Concept searching	88	47.82
Phrase searching	46	25

Table-11 indicates that the respondent's awareness about different search strategies, it can be observed that most of the students i.e. 88 (47.82%) are aware of concept searching and 76 (41.39%) of them are familiar with Boolean operators while 60 (32.60%) of the respondents are aware of natural language searching followed by equal number of students i.e. 34 (18.47%) are aware of case sensitivity and proximity search and the remaining respondents i.e. 46 (25%), 30 (16.30%) are aware of phrase searching and truncation and wild cards respectively.

Table-12: Respondents opinion towards digital literacy.

Statements	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
I enjoy using computer and internet	80 (49.38)	80 (49.38)	00 (00)	02 (1.23)	00 (00)
ICT tools help in my studies	88 (54.32)	64 (39.50)	03 (3.70)	02 (1.23)	02 (1.23)
Internet is an useful source of information	106 (65.43)	50 (30.86)	04 (2.46)	02 (1.23)	00 (00)
Internet helps to keep up to date with latest developments	88 (54.32)	62 (38.27)	08 (4.93)	04 (2.46)	00 (00)
I can select and retrieve information from internet	46 (29.11)	84 (53.16)	20 (12.65)	06 (3.79)	02 (1.26)
I am aware of plagiarism and piracy	34 (22.78)	72 (45.56)	46 (29.11)	04 (2.53)	00 (00)
I am aware of digital copyright and IPR	42 (25.92)	68 (41.97)	34 (22.22)	16 (9.87)	00 (00)
I am aware of quality, accuracy reliability, credibility, authenticity etc. about the information available on internet	44 (32.85)	60 (44.77)	18 (13.43)	12 (8.95)	00 (00)
E – learning is effective	52 (31.32)	84 (50.60)	20 (12.04)	08 (4.18)	02 (1.20)

Table-12 provides the respondents opinion towards digital literacy, it can be observed that the majority of the respondents i.e. 80 (49.38%) strongly agree and the equal number of respondents agree that they enjoy using computer and internet. While 88 (54.32%) and 50

(30.86%) of the respondents strongly agree and agree respectively that ICT tools help in their studies. Further, 106 (63.43%) of them strongly agree that internet is a useful source of information and 50 (30.86%) of the respondents agree for the same. Most of the respondents i.e. 88 (54.32%) strongly agree that internet helps to keep themselves up-to-date with latest developments, while 62 (38.27%) of them agree with the same. About the ability of respondents to select and retrieve information from internet, 84 (53.16%) of them agree, whereas 46 (29.11%) of the respondents strongly agree that they can select and retrieve the information on internet. Further most of the students i.e. 36 (45.56%) agree that they are aware of plagiarism and piracy, while 46 (29.11%) of them are not aware of it. It can be noted that, 68 (41.97%) respondents agree that they are aware of digital copyright and IPR and 42 (25.92%) of them strongly agree with the same. About 60 (44.37%) of the respondents agree that they are aware of quality, reliability, credibility, authenticity of information available on the internet and 44 (32.85%) of them strongly agree with the same. 84 (50.60%) of the students agree that e- learning is effective and 52 (31.32%) of them strongly agree.

Findings of the study:

1. Majority of the respondents i.e., 146 (79.34%) possess Smartphone and about 100 (54.34%) of them have Laptop while 144 (78.26%) access internet by using laptops and about 132 (71.73%) access internet through Smartphones.
2. The study also reveals that a moderate number of the respondents i.e. 72 (39.13%) spend 1-5 hours a week for using the Internet and about 24 (13.09%) spend 10-15 hours a week.
3. Majority of the respondents i.e. 162 (88.04%) are familiar with word processing software while 152 (82.60%) of them are aware of powerpoint presentation.
4. With respect to the use and familiarity of respondents with social networking sites, large majority of the respondents i.e. 162 (88.04%) use Facebook and followed by 108 (58.69%) of them use Google +.
5. With regard to the familiarity of the respondents with Audio-video sharing websites, most of the respondents i.e. 170 (92.39%) are aware of YouTube expectedly while 74 (40.21%) of them are familiar with Slideshare.
6. It is significant to note that all the respondents i.e. 184 (100%) are using and familiar with Google while 122 (66.30%) of them are aware of Yahoo followed by Rediff 48 (27.17%).

7. Moderate number of students i.e. 88 (47.82%) are aware of concept searching while. 76 (41.39%) of them are familiar with Boolean operators followed by 60 (32.60%) of the respondents are aware of natural language searching.
8. A vast majority of the respondents i.e. 168 (91.30%) use pen drive as it is on the expected line while 138 (75%) of them are familiar with use of CD-Rom's followed by hard disks 114 (61.95%).
9. Majority of the respondents i.e. 138 (75%) are aware of CeRa database while 100 (54.34%) of the respondents know AGRIS, followed by the remaining databases such as Agricola 30 (16.30%), IPNI 24 (13.04%), Cab abstracts 20 (10.86%), and AQUASTAT 14 (7.06%) are very less known databases among the respondents.

Suggestions: On the basis of analysis of the data and the opinion given by the respondents, some of the important suggestions are as following.

1. Digital literacy plays an important role in the future since the focus of collection development policy of libraries is towards improving the electronic information resources, digital literacy has direct impact on the use of e-resources in the library. So that it is responsibility of the library authorities to keep users updated with the changing technology which helps in their academic endeavours.
2. The library of UAS, Dharwad should organize orientation and training programs for creating awareness and better usage of available e-resources.
3. Search strategies are very important to make use digital resources available over the internet as well as in the library, library authorities must ensure that the training programmes and literacy programmes should focus more on improving the search skills of the respondents.
4. The study reveals that awareness of digital plagiarism, piracy, copyright and other Intellectual Property Rights among the respondents is found to be unsatisfactory, so that it is obligation on the part of library authorities to overcome this challenge by organising workshops, training programmes on copyright issues.
5. The majority of the respondents aware of only CeRa and AGRIS databases, but they are unaware of other databases such as Agricola, IPNI, Cab abstracts, and AQUASTAT etc. Therefore, library professionals need to address this issue.

Conclusion: The study shows that students are using digital devices and other applications for either personal use or entertainment, their ability to make use of them for learning purpose is

minimal. It is need of the hour to train and enable them to make use digital devices for learning purpose so that they can make use of online information resources, databases, open access resources, institutional repositories and web portals more efficiently in their learning activities. The current trend in digital literacy suggests a complete revolution in the status of operations, services, management, acquisition, storage and collection development of the library. As information technology (IT) advances, the emphasis of libraries is on the intrinsic excellence of collection development suitable to digital literacy resources. In the present context lot of information is available in a variety of forms like CD-ROM, online databases. E- Journals etc., inventions of devices like DVD's, flashcards, pen drives etc. with large capacity, have changed the outlook of libraries. Hence, digital literacy is one of the critical skills essential for all, more specifically for the students of 21st century. Digital technology is sweeping across all spheres of the society, therefore digital literacy continues to be a vital skill in everyday living and it is essential that the students should be well equipped with the necessary digital skills to withstand the challenges ahead in the upcoming digital revolution.

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