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ICT Literacy Competencies among Undergraduate and Postgraduate Students of College of Agriculture, Vijayapur (UAS, Dharwad): A Study

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ABSTRACT

The study mainly focused on ICT Literacy Competencies among Undergraduate and Postgraduate Students of College of Agriculture, Vijayapur. The present study examine the ICT literacy competencies, frequency and purpose of use of computer, level of computer skills, usage of various types of electronic information resources and services, impact of ICT on academic performance, benefits of use of e-resources and problems associated with utilization of ICT applications and to suggest ways and means for enhancing ICT literacy competencies among undergraduate and postgraduate students. For this purpose the researchers prepared a well structured questionnaire as a tool for data collection and the collected questionnaire has been analyzed and presented in the form of suitable tables. The article concludes with appropriate suggestions.

KEYWORDS: ICT Literacy, Electronic Resources, ICT Literacy Competencies, Retrieval Techniques, Agriculture Students.

1. INTRODUCTION

The exposure on the use of technology from as early as in primary school has enabled students to integrate computer technology in their life in the early stage of their lives (Wilkinson, 2006). With the facilities provided, these students can be considered to be 'ICT literate' because they have the opportunities to further integrate computer technology in their lives even after leaving school (Wilkinson, 2006). Therefore, most students who have entered higher learning institutions now are more exposed to ICT compared to the generations before them (McLennan, 2008; Hardy et al., 2006). With the existing knowledge that they have, these students believe that they have sufficient

competency to deal with the learning environment in campus (Grant et al., 2009; Wilkinson, 2006; Easton et al., 2006).The student community should try to utilize the available ICT based tools and technologies for acquiring knowledge to maximum extent. As the discipline of agriculture is one of the fastest developing as a result of scientific and technological advancement. The growth of digital information, the focus on lifelong learning, and the demand for highly skilled workers have highlighted the need for ICT-related competencies. Thus, agricultural students need to be equipped with strong ICT literacy skills to succeed in their academic and future professional endeavors. Hence, the study focuses on the ICT Literacy Competencies among undergraduate and postgraduate students of College of Agriculture, Vijayapur.

2. REVIEW OF LITERATURE

Many similar studied related to the topic has been reviewed and the literature review gives a broader outlook of it. Some of the important reviews are presented below**.**

Awuor, Rabah and Maake (2013) found in their study that the adoption of ICT has revolutionized service provision in libraries and their general information management systems. This has transformed most services to digital: e-database, e-catalogs, e-library and use of archiving technology like DSpace. Today, within the developing world, most libraries are moving towards transforming their existing traditional library services to digital systems - allowing them to tap and benefit from the vast advantages of ICT, for example, operation costs reduction, increased efficiency, an on-the-fly availability of information. Even with such numerous benefits, most Higher Institutions of Learning in developing countries still lag behind on adoption of ICT in their library services.

Seena and Pillai (2014) conducted a study to investigate the awareness, skill and attitude towards Information and Communication Technologies (ICT) among library professionals in Kerala University Library, Thiruvananthapuram. The study revealed that the library professionals in the Kerala University library system have relatively average level skills in various ICT related tasks in libraries. LibSys software was more used in libraries and a good number of professionals indicated that the main constraint in the application of ICT in libraries is inadequate training in ICT applications. All the professionals expressed a positive attitude towards the application of ICT in libraries.

Ramamurthy, Siridevi and Ramu (2015) investigated the knowledge of information literacy and search skills of students in five selected Engineering Colleges in Chittoor District, Andhra Pradesh. It was found that preponderance of respondents have low knowledge of information literacy skills, showed high deficiency in identifying diverse information sources. The various information literacy programmes to the respondents‘ in institutions lacked hands-on training. Thus, the need for an enhanced and continuous library user education geared towards empowering students to be sufficiently familiar with information sources.

Kumar and Kumbar (2015) conducted a study on autonomous engineering institutions affiliated to Visvesvaraya Technological University in Karnataka to examine the factors that affect the optimum utilization of electronic information resources and search pattern. The study mainly focused on the use of different types of electronic information resources by the faculty, source of awareness, learn to use, problems faced, purpose of use, preferred search engines and search methods for effective retrieval of electronic information resources. The members of faculty are well aware of existing resources and library services. But they need training in the area of information search and retrieval in the web environment.

3. OBJECTIVES OF THE STUDY

The objectives behind conducting the present study are:

1. To know the ICT literacy competencies among undergraduate and postgraduate students.
2. To know the frequency of use of computer/ laptop by the undergraduate and postgraduate students.
3. To find out the purpose of use of computers and to investigate level of computer skills.
4. To know the usage of various types of electronic information resources and services.
5. To investigate the impact of ICT on academic performance, benefits of use of e-resources and problems associated with utilization of ICT applications.
6. To suggest ways and means for enhancing ICT Literacy Competencies among undergraduate and postgraduate students.

4. SCOPE, LIMITATIONS AND METHODOLOGY

The scope of the study is restricted to ICT literacy competencies among undergraduate and postgraduate students of College of Agriculture, Vijayapur. The survey method was adopted, using questionnaire as a tool for data collection. A structured questionnaire was designed and distributed among undergraduate and postgraduate students of College of Agriculture, Vijayapur. Out of 421 questionnaires distributed among undergraduate and postgraduate students, 396 filled in questionnaires were received back amounting 94.06%. In addition to questionnaire method, interview schedule was also used to collect required information as a supplement to the questionnaire method to bring more clarity to the data which are essential and use for analysis and interpretation of data.

5. DATA ANALYSIS

The data was collected by different methods were analyzed and interpreted and the same is presented in the following tables.

5.1. Category Wise Distribution

The students are categorized as undergraduate and postgraduate students. Hence, the category wise distribution of students has been shown in Table-1.

Table-1: Category Wise Distribution

Category	Number (N=396)	Percentage
Undergraduate Students	324	81.81
Postgraduate Students	72	18.18

The Table-1 depicts that a very high number of students 324 (81.81%) are 'Undergraduate students', followed by 72 (18.18%) are 'Postgraduate students'.

5.2. Frequency of Use of Computer/ Laptop

The frequency of use of computer/ laptop by the students has been summarized in Table-2 and it is clear from the study that 396 (100.00%) of students access and use ICT facilities. The Table-2 depicts that 189 (47.73%) of students use Computer/ Laptop 'Daily', followed by 93 (23.48%) access 'Twice in a week', 54 (13.64%) access 'Occasionally', 33 (08.33%) access 'Weekly', 20 (05.05%) access 'Fortnightly' and 07 (01.77%) of students use to computer/ Laptop 'Monthly'.

Table-2: Frequency of Use of Computer/ Laptop

Frequency	UG Students (N=324)	PG Students (N=72)	Total (N=396)
Daily	133 (41.05)	56 (77.78)	189 (47.73)
Twice in a week	84 (25.93)	09 (12.50)	93 (23.48)
Weekly	32 (09.88)	01 (01.39)	33 (08.33)
Fortnightly	20 (06.17)	00 (00.00)	20 (05.05)
Monthly	07 (02.16)	00 (00.00)	07 (01.77)
Occasionally	48 (14.81)	06 (08.33)	54 (13.64)
Note: Figures in parentheses indicate percentage			

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The Table-2 also depicts that 133 (41.05%) of undergraduate students and 56 (77.78%) of postgraduate students use Computer/ Laptop 'Daily'.

5.3. Purpose of Use Computer/ Laptop

The purposes for which the Agricultural students mainly make use of Computers/ Laptops is summarized in Table-3. The Table-3 depicts that 326 (82.32%) of students use computer/laptop for the purpose of recreational purpose, followed by 288 (72.73%) use for preparing seminar, 280 (70.71%) use for preparing assignments/ reports, 138 (34.85%) use for personal work and 58 (14.65%) of students use computer/laptop for the purpose of research.

Table-3: Purpose of Use Computer/Laptop

Purpose of use Computer	UG Students (N=324)	PG Students (N=72)	Total (N=396)
Research purpose	00 (00.00)	58 (80.56)	58 (14.65)
Personal Work	96 (29.63)	42 (58.33)	138 (34.85)
Preparing Seminars	221 (68.21)	67 (93.06)	288 (72.73)
Preparing Assignments/ Reports	216 (66.67)	64 (88.89)	280 (70.71)
Recreational Purpose	281 (86.73)	45 (62.50)	326 (82.32)
Note: Figures in parentheses indicate percentage			

The Table-3 also depicts that 281 (86.73%) of undergraduate students use computer/laptop for the purpose of recreational purpose and 67 (93.06%) of postgraduate students use computer/laptop for the purpose of preparing seminars.

5.4. Rate the Level of Computer Skill

The rating towards the level of computer skill has been summarized in Table-4. The Table-4 depicts that 195 (49.24%) of students rate level of computer skill as 'Excellent', followed by 104 (26.26%) rate as 'Very Good', 52 (13.13%) rate as 'Good', 30 (07.58%) rate as 'Fair' and 15 (03.79%) of students rate level of computer skill as 'Average'.

Table-4: Rate the Level of Computer Skill

Level of Computer Skill	**UG Students (N=324)**	**PG Students (N=72)**	**Total (N=396)**
Excellent	139 (42.90)	56 (77.78)	195 (49.24)
Very Good	92 (28.40)	12 (16.67)	104 (26.26)
Good	49 (15.12)	03 (04.17)	52 (13.13)
Fair	30 (09.26)	00 (00.00)	30 (07.58)
Average	14 (04.32)	01 (01.39)	15 (03.79)
Note: Figures in parentheses indicate percentage			

The above Table-4 also depicts that 139 (42.90%) of undergraduate students and 56 (77.78%) of postgraduate students rate level of Computer skill as 'Excellent'.

5.5. Experience of Use of Internet

The experience of use of internet by the students has been summarized in Table-5. The Table-5 depicts that 232 (58.59%) of students have experience of '06 to 10 Years' towards use of internet, followed by 126 (31.82%) of students have experience of '01 to 05 Years' and 38 (09.60%) of students have experience of 'Above 10 Years' towards use of internet. The Table-5 also depicts that 214 (66.05%) of undergraduate students have experience of '06 to 10 Years' and 38 (52.78%) of postgraduate students have experience of '01 to 05 Years' towards use of internet.

Table-5: Experience of Use of Internet

Experience of Use of Internet	**UG Students (N=324)**	**PG Students (N=72)**	**Total (N=396)**
1-5 years	88 (27.16)	38 (52.78)	126 (31.82)

6-10 Years	214 (66.05)	18 (25.00)	232 (58.59)
Above 10 Years	22 (06.79)	16 (22.22)	38 (09.60)
Note: Figures in parentheses indicate percentage			

5.6. Use of Various Types of Electronic Information Resources

The extent of use of electronic information resources by the students has been summarized in Table-6. The Table-6 depicts that 382 (96.46%) of students use 'Online Educational Videos', followed by 362 (91.41%) of students use 'E-Newspapers', 242 (61.11%) of students use 'E-Magazines', 236 (59.60%) of students use 'E-Books', 204 (51.52%) of students use 'E-Tutorials', 118 (29.80%) of students use 'E-Reports', 76 (19.19%) of students use 'E-Journals', 63 (15.91%) of students use 'E-Thesis and Dissertation' and 59 (14.90%) of students use 'Subject Gateways'. The Table-6 also depicts that 292 (90.12%) of undergraduate and 70 (97.22%) postgraduate students use 'E-Newspapers'.

Table-6: Use of Electronic Information Resources

Electronic Resources	**UG Students (N=324)**	**PG Students (N=72)**	**Total (N=396)**
E- journals	11 (03.40)	65 (90.28)	76 (19.19)
E- Books	182 (56.17)	54 (75.00)	236 (59.60)
E-Thesis and Dissertation	2 (00.62)	61 (84.72)	63 (15.91)
E-Magazines	198 (61.11)	44 (61.11)	242 (61.11)
E-Newspapers	292 (90.12)	70 (97.22)	362 (91.41)
E-Reports	84 (25.93)	34 (47.22)	118 (29.80)
E-Tutorials	162 (50.00)	42 (58.33)	204 (51.52)
Subject Gateways	27 (08.33)	32 (44.44)	59 (14.90)
Online Educational Videos	314 (96.91)	68 (94.44)	382 (96.46)
Note: Figures in parentheses indicate percentage			

5.7. Use of Electronic Information Services

The extent of use of electronic information services by the students has been summarized in Table-7. The Table-7 depicts that 376 (94.95%) of student access to 'OPAC', followed by 272 (68.69%) of student access to 'Internet in the Library', 132 (33.33%) of student access to 'CD-ROM/ DVD Services', 72 (18.18%) of student access to 'Electronic References Services', 66 (16.67%) of student access to 'Online Access to databases' and 50 (12.63%) of students access to 'Institutional Repositories'. The Table-7 also depicts that 304 (93.83%) of undergraduate students and 72 (100.00%) of postgraduate students access 'OPAC'.

Table-7: Use of Electronic Information Services

Services	**UG Students (N=324)**	**PG Students (N=72)**	**Total (N=396)**
Access to OPAC	304 (93.83)	72 (100.00)	376 (94.95)
CD-ROM/ DVD Services	89 (27.47)	43 (59.72)	132 (33.33)
Online Access to databases	14 (04.32)	52 (72.22)	66 (16.67)
Electronic References Services	32 (09.88)	40 (55.56)	72 (18.18)
Institutional Repositories	21 (06.48)	29 (40.28)	50 (12.63)
Access to Internet in the Library	229 (70.68)	43 (59.72)	272 (68.69)
Note: Figures in parentheses indicate percentage			

5.8. Opinion on Impact of ICT on Academic Performance

The information gathered about the opinion on impact of ICT on academic performance by the students has been summarized in Table-8. The Table-8 depicts that 202 (51.01%) of students 'Agree' with the statement that they developed self confidence in their academic activities, 144 (36.36%) of students 'Strongly Agree' with the statement that they improved motivation and presentation skills, 173 (43.69%) of students 'Agree' with the statement that they expedited (Speed up) the research process, 182 (45.96%) of students 'Strongly Agree' with the statement that they keep them up-to-date in my subject field, 216 (54.55%) of students 'Strongly Agree' with the statement that they dependency on the internet has increased, 118 (29.80%) of students 'Strongly Agree' with the statement that they use of conventional (print) documents has decreased.

Table-8: Opinion on Impact of ICT on Academic Performance

Statement	**(N=396)**				
	Strongly Agree	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
Developed self confidence in their academic activities	109 (27.53)	202 (51.01)	45 (11.36)	29 (07.32)	11 (02.78

Improved motivation and presentation skills	144 (36.36)	109 (27.53)	85 (21.46)	51 (12.88)	07 (01.77
Expedited (Speed up) the research process	76 (19.19)	173 (43.69)	78 (19.70)	30 (07.58)	39 (09.85
Keep them up-to-date in my subject field	182 (45.96)	144 (36.36)	41 (10.35)	16 (04.04)	13 (03.28)
Dependency on the internet has increased	216 (54.55)	148 (37.37)	23 (05.81)	07 (01.77)	02 (00.51)
Use of Conventional (print) documents has decreased	118 (29.80)	101 (25.51)	72 (18.18)	86 (21.72)	19 (04.80)
Note: Figures in parentheses indicate percentage					

5.9. Benefits of Use of Electronic Resources

The benefits of use of electronic resources by the students have been summarized in Table-9. The Table-9 depicts that 338 (85.35%) of students opine that they are benefited due to '24/7 access to information', followed by 302 (76.26%) opine as 'Easy to use', 284 (71.72%) opine as 'Easily portable of E-resources', 269 (67.93%) opine as 'Improvement in the quality of professional works', 255 (64.39%) opine as 'Time saving', 244 (61.62%) opine as 'Access to up to date information', 217 (54.80%) opine as 'Better source of information', 195 (49.24%) opine as 'Less expensive' and 128 (32.32%) of students opine as 'Information available in various formats'. The Table-9 also depicts that 268 (82.72%) of undergraduate and 70 (97.22%) of postgraduate students opine that they are benefited due to '24/7 access to information'.

Table-9: Benefits of Use of Electronic Resources

Benefits of Use of Electronic Resources	**UG Students (N=324)**	**PG Students (N=72)**	**Total (N=396)**
Time saving	194 (59.88)	61 (84.72)	255 (64.39)
Access to up to date information	180 (55.56)	64 (88.89)	244 (61.62)
Easy to use	235 (72.53)	67 (93.06)	302 (76.26)
Better source of information	163 (50.31)	54 (75.00)	217 (54.80)
Less expensive	145 (44.75)	50 (69.44)	195 (49.24)
Information available in various formats	92 (28.40)	36 (50.00)	128 (32.32)
24/7 access to information	268 (82.72)	70 (97.22)	338 (85.35)
Improvement in the quality of	211	58	269

professional works	(65.12)	(80.56)	(67.93)
Easily portable of E-resources	229 (70.68)	55 (76.39)	284 (71.72)
Note: Figures in parentheses indicate percentage			

5.10. Problems Associated with Utilization of ICT Applications

The problems associated with utilization of ICT applications by the students has been summarized in Table-10. The Table-10 depicts that 182 (45.94%) of students face problem due to inadequate information search skills, followed by 174 (43.94%) face problem due to slow internet connection /low bandwidth, 108 (27.27%) lack of access to Internet, 100 (25.25%) lack of time, 93 (23.48%) lack of access to computer, 86 (21.72%) power failure, 83 (20.96%) unfamiliarity with computer hardware and software and its use, 57 (14.39%) lack of orientation /training program on computer literacy and 24 (06.06%) of students face problem due to absence of well-equipped classroom /laboratories with ICT infrastructure. The Table-10 also depicts that 168 (51.85%) of undergraduate students face problem due to inadequate information search skills and 32 (44.44%) of postgraduate students face problem due to slow internet connection /low bandwidth.

Table-10: Problems Associated with Utilization of ICT Applications

Nature of Problems	**UG Students (N=324)**	**PG Students (N=72)**	**Total (N=396)**
Lack of access to computer	88 (27.16)	05 (06.94)	93 (23.48)
Lack of access to Internet	106 (32.72)	02 (02.78)	108 (27.27)
Power failure	79 (24.38)	07 (09.72)	86 (21.72)
Lack of time	84 (25.93)	16 (22.22)	100 (25.25)
Slow internet connection /low bandwidth	142 (43.83)	32 (44.44)	174 (43.94)
Inadequate information search skills	168 (51.85)	14 (19.44)	182 (45.96)
Unfamiliarity with computer hardware and software and its use	78 (24.07)	05 (06.94)	83 (20.96)
Lack of orientation /training program on computer literacy	46 (14.20)	11 (15.28)	57 (14.39)
Absence of well-equipped classroom /laboratories with ICT infrastructure	18 (05.56)	06 (08.33)	24 (06.06)
Note: Figures in parentheses indicate percentage			

5.11. Suggestions for Enhancing ICT Literacy Competencies

The information related to suggestions for enhancing ICT literacy competencies by the students has been summarized in Table-11. The Table-11 depicts that 205 (51.77%) of students 'Strongly Agree' with the suggestion 'More networked computers should be made available in the department' to enhance ICT literacy competencies, followed 192 (48.48%) of students 'Strongly Agree' with the suggestion 'Slow internet connection should be improved', 236 (59.60%) of students 'Strongly Agree' with the suggestion 'Providing information and ICT Literacy training programs for students and also encourage them in lifelong learning', 203 (51.26%) of students 'Agree' with the suggestion 'Need of well-designed library websites with links to academic resources', 168 (42.42%) of students 'Agree' with the suggestion 'Need of well-equipped classrooms /laboratory with PC's, LCD projectors, etc.' and 220 (55.56%) of students 'Strongly Agree' with the suggestion 'Need of dedicated Wi-Fi connectivity in the campus'.

Table-11: Suggestions for Enhancing ICT Literacy Competencies

Suggestions	**(N=396)**				
	Strongly Agree	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
More networked computers should be made available in the department	205 (51.77)	102 (25.76)	56 (14.14)	21 (05.30)	12 (03.03)
Slow internet connection should be improved	192 (48.48)	171 (43.18)	23 (05.81)	03 (00.76)	7 (01.77)
Providing information and ICT Literacy training programs for students and also encourage them in lifelong learning	236 (59.60)	135 (34.09)	14 (03.54)	08 (02.02)	3 (00.76)
Need of well-designed library websites with links to academic resources	132 (33.33)	203 (51.26)	35 (08.84)	12 (03.03)	14 (03.54)
Need of well-equipped classrooms /laboratory with PC's, LCD projectors, etc.	137 (34.60)	168 (42.42)	52 (13.13)	30 (07.58)	9 (02.27)
Need of dedicated Wi-Fi connectivity in the campus	220 (55.56)	136 (34.34)	23 (05.81)	06 (01.52)	11 (02.78)
Note: Figures in parentheses indicate percentage					

SUGGESTIONS

Based on the above results the following suggestions are made for further improvement in ICT Literacy competencies among undergraduate and postgraduate students of College of Agriculture, Vijayapur:

- The libraries should organize training, seminars and workshops for the users at regular interval of time to keep users in tune with latest ICT enabled technologies.
- The undergraduate and postgraduate students should further improve their information searching skills to make better use of largely available web information resources.
- The speed of the internet should be increased to save user valuable time and to speed up information search and retrieval process.

- The electronic resources publishers should provide online help menu in the search page for better utilization of their electronic information resources.
- Most of the web search engines retrieve information based on the metadata. It is strongly suggested that the search engine should have content based information search facilities for effective information retrieval.

CONCLUSION

Due to tremendous development in the area of Internet and Information Technology, large amount of educational resources are being produced, distributed and accessed in the electronic format. The dependency on internet based information resources and services is increasing everyday and users of agricultural colleges are depending more on information resources available through internet to meet there academic and research needs. The agricultural college libraries should organize trainings and workshops for the users at regular interval of time to keep them in tune with latest ICT enabled technologies and to enhance the ICT literacy competencies. The users should become familiar with latest online information search techniques for optimum utilization of ICT enabled electronic information resources for their educational purposes.

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