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**Analysis of Information Communication Technology Competencies among Distance
Learning Students of Kuvempu University: A study**

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Abstract

The purpose of this study was to investigate the Information Communication Technology competencies among distance learners. Structured questionnaire was prepared and administered to the various disciplines, namely the Social Sciences, Science/Technology, and Commerce/Management. 1650 questionnaires were distributed and 1435 completely filled questionnaires were received obtaining a response rate of 87.0 %.It was found that, 1377 majority (95.9%) of the respondents use the Smart Phone,because it has maximum mobility and convenience, 1244(86.7%) of them opined ICT facilitate Communicating with many simultaneously, Quick Response with 1090(76.0%) response, Time saving with 1064 (74.1%) response, Learning from others contribution with 960(66.9%) response. majority 1086(75.7%)users ‘Strongly agree’ with the statement ‘ICT devices enable us to get a greater amount of study materials.

Key Words: ICT, Distance Education, Distance Learners, Kuvempu University, Internet.

Introduction

Education is the foremost and top key area for ICT applications. Worldwide, institutions of higher learning have highlighted the use and application of Information Communication Technology (ICT) in their teaching, learning and research process. Information Technology has brought many benefits in the field of education, both formal and informal education which helps in creating opportunities for lifelong learning, especially distance education. Distance education has earned the credibility of a viable and effective alternative channel for imparting education at all levels all over the world and India is no exception to it. However the academic performance of distance learners is usually looked down on account of its low quality or for some other reasons. ICT facilitates the Distance

Learners to access greater variety of learning resources; improved opportunities for individual learning; the possibilities of greater access of information; greater flexibility offered by the wide range of technologies; and there is a higher degree of interactivity as convergence occurs between individuals. Hence, the study has been considered as one of the important investigations in this vital area of Distance Education. Therefore research is needed to know the level or competency of ICT skills of distance learners, to identify the needs of existing distance learners. Keeping in view, this study is mainly focused on how frequently distance learners use the Computer, benefits' of using ICT, Impact of ICT among distance learners.

Review of Literature

Oliveira and Greenidge (2020) has conducted a study to determine the frequency of library use by off-campus students, students' level of awareness, students' seeking assistance strategies, students' use of services and sources, and success in meeting students' needs and satisfaction. The findings of the study showed that, students at a distance were relatively satisfied with the services and resources their university library offered, although the majority of the students preferred to utilize other sources of information before they sort assistance from a librarian or ventured into the library's website.

Usman (2019) has made a study to find out the information needs and information seeking behavior of distance learning university students in Khyber Pakhtunkhwa. It was found that their main information needs and seeking behaviour were related to "Lectures", "Information relating to their programs of study", and "Completing assignments". The internet and library were the main channels for meeting the information needs of students; however the usage of the library was infrequent. Among the various information sources available to the students, the heaviest reliance was on books and lecturers/tutors, but the usage of electronic resources such as e-journals and databases was very low

Das and Mahapatra (2018) jointly conducted a survey of distance learners' use of the electronic information resources at the IGNOU Regional Centre and Study Centres, Ranchi. A total of 100 responded learners were randomly selected. A copy of a structured questionnaire by the researchers was used for data collection while simple percentage was used for data analysis. The findings revealed that majority of the sampled distance learners made use of electronic information resources. The findings also indicated that the electronic

information resources which were available at the library were used majorly for their study purposes. It was also found that the distance learners preferred the electronic resources for research because they were less expensive, more informative, more useful and time saving.

Tury, Robinson and Bawden(2015)in their study have elaborated in their paper about information seeking behaviour of distance learners of the University of London International Programmes. The study observation of 649 students of the University of London. The study showed that the majority of students (74%) sought information in order to prepare for exams and (65%) to complete their course work and assignments. The results elucidate that there was a significant relationship between distance learners' information-seeking activities and gender.

Objectives of the study

- To study the use of ICT devices among the distance learners
- To identify the mode of learning through Computer among the distance learners
- To find out the awareness of the ICT tools among the distance learners
- To study the Opinion about use of ICT for Distance Learning

Research Methodology

In this research study, Questionnaire is the main instrument used in the collection of data from identified distance learners. Structured questionnaire was prepared and administered to the various disciplines of distance learners of Kuvempu University, namely the Social Sciences, Science/Technology, and Commerce/Management. The sample size of respondents was calculated based on Krejcie & Morgan formula (Krejcie & Morgan, 1970)

$$S = \frac{\chi^2 NP(1-P)}{d^2(N-1) + \chi^2 P(1-P)}$$

By using Krejcie & Morgan formula of sample size with a margin of error 0.025 and with a confidence level of 95%, the total population of this study was 21743 and hence the sample size is 1650.

Table : Distribution of Questionnaires and response rate

Sl.No.	Category	No. of questionnaires distributed	No. of questionnaires received	Percentage
1	Social Sciences/Humanities	926	806	49.8%
2	Science and Technology	216	187	12.0%
3	Commerce/Management	508	442	25.0%
Total		1650	1435	87.0%

The above table shows that, 1650 questionnaires were distributed and 1435 completely filled questionnaires were received obtaining a response rate of 87.0 %. The questionnaires were distributed among the respondents when they attended the contact classes conducted by the Kuvempu University. In order to collect the data, 1650 questionnaires were distributed among the respondents. Despite best efforts, 1435 filled-in questionnaires could be collected. The data collected through questionnaires were analysed and tabulated with the help of a Statistical Package for Social Sciences (SPSS) version 17 and Microsoft Excel was used to generate the necessary figures.

Data Analysis and Interpretation

Table: 1. Gender -Wise Distribution

Sl. No	Gender	Discipline			
		Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	Total (N=1435)
1	Male	329(40.8%)	77(41.1%)	185(41.9%)	591(41.2%)
2	Female	477(59.2%)	110(58.9%)	257(58.1%)	844(58.8%)
3	χ^2 - Value	$\chi^2 = .127, df=2, p=.939$			

The table 1 shows gender-wise distribution of distance learner's of Kuvempu University. Out of 1435 respondents, 844 (58.8%) are female and 591 (41.2%) are male respondents. The results of the study revealed that both males and females were pursuing their higher education through distance education mode and the number of female respondents was more compared to male respondents in all the three faculties.

To have a better view on analysis the χ^2 -test conducted for 2 d.f. at the 5% level of significance shows that there is no significant relationship between these groups of frequencies ($\chi^2=0.127$, $p=.939.>0.05$).

Table :2. Use of Computer devices

The use of computers by people in all walks of life is increasing day by day. The respondents were asked to name the type of computer system they make use of and the responses are presented in the Table 2.

Sl. No	Devices	Discipline			Total (N=1435)
		Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	
1	Desktop	298(36.9%)	96(51.3%)	252(57.1%)	646(45.1%)
2	Laptop	130(16.1%)	83(44.1%)	189(42.7%)	402(28.1%)
3	Smart Phone	759(94.2%)	181(96.7%)	437(98.8%)	1377(95.9%)

Data in Table 2 demonstrates that, 1377(95.9%) of the respondents use the Smart Phone, followed by 646(45.1%) of the respondents use Desktop and 402(28.1%) make use of the Lap Top which is a minimal number. It is interesting to know that the Smart phone is being widely used, as it has maximum mobility and convenience.

Table 3 Mode of learning through Computer

The responses on the modes used for acquiring ICT Skills are analysed faculty wise and presented in the Table 3.

Sl. No	Methods of learning	Discipline				χ^2 - Value
		Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	Total (N=1435)	
1	Self	442 (54.9%)	93 (49.7%)	216 (49.0%)	751 (52.3%)	$\chi^2 = 40.282$ df=2, p=.000 *
2	Friends/ Family Members	397 (49.2%)	56 (30.0%)	131 (29.6%)	584 (40.7%)	$\chi^2 = 116.285$ df=2, p=.000 *
3	Attending training programs	484 (60.0%)	144 (77.0%)	317 (71.7%)	945 (65.9%)	$\chi^2 = 2.583$ df=2, p=.275
4	Trial and Error method	478 (59.3%)	90 (48.1%)	209 (47.2%)	777 (54.1%)	$\chi^2 = 89.806$ df=2, p=.000*
5	Through Teachers	342 (42.4%)	164 (87.9%)	388 (87.4%)	894 (62.3%)	$\chi^2 = 212.686$ df=2, p=.000*

6	Attending workshops	221 (27.5%)	106 (56.6%)	251 (56.7%)	578 (40.3%)	$\chi^2 = 90.201$ df=2, p=.000 *
7	Tutorials/Online materials	497 (61.6%)	132 (70.5%)	307 (69.4%)	936 (65.2%)	$\chi^2 = 3.698$ df=2, p=.157

Note: * p<0.05

The table 3 reveals the methods adopted by the students for acquiring ICT Skills. The study has identified three modes through which they have acquired computer literacy and ICT skills. They are attending training programs 945(65.9%), tutorials and online materials 936(65.2%) and through teachers with 894(62.3 %). Among others, trial and error method with 777(54.1%) and self-learning come next with 751(52.3%).

In order to know the association between the preferred modes of acquiring ICT Skills and the students of distance learning, Chi-Square analysis has been performed. The result given in the table clearly indicates that there is a significant association between the preferred modes of acquiring ICT Skills and the students of distance learning (p=.000), except for the fields attending training programs (p=.275) and Tutorials/Online materials (p=.157).

Table 4 Familiar with use of the Computer

Sl. No	Familiar with use of the Computer	Discipline			
		Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	Total (N=1435)
1	Less than 1 year	42(5.2%)	4(2.1%)	6(1.3%)	52(3.6%)
2	1-2 years	180(22.3%)	4(2.1%)	10(2.2%)	194(13.6%)
3	2-3 years	312(38.7%)	55(29.4%)	135(30.5%)	502(35.0%)
4	3-4 years	163(20.3%)	98(52.5%)	226(51.1%)	487(33.9%)
5	More than 5 years	109(13.5%)	26(13.9%)	65(14.7%)	200(13.9%)
7	χ^2 - Value	$\chi^2 = 230.047$, df=8, p=.000			

The table 4 illustrates that, 502 (35.0%) of the respondents are using the computers for more than 2 years, while 487(33.9%) are using the computers for 3-4

years, 200(13.9%) are using for more than 5 years and a very small number 54 (3.8%) of users are using computers for less than 1 year.

The χ^2 -test conducted for 8 d.f. at the 5% level of significance shows that there is a significant relationship between these groups of frequencies ($\chi^2=230.047, p=.000 < 0.05$).

Table 5 Awareness of the ICT tools

Sl. No	ICT tools	Rating Scale	Discipline				Test Statistics	
			Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	Total (N=1435)	F-value	P-value
1	Smart Phone	Very Good	486 (60.3%)	131 (70.1%)	319 (72.2%)	936 (65.2%)	4.699	.003
		Good	219 (27.2%)	39 (20.8%)	90 (20.5%)	348 (24.3%)		
		Moderate	56 (7.2%)	6 (3.2%)	10 (2.2%)	72 (5.0%)		
		Poor	33 (4.0%)	6 (3.2%)	11 (2.4%)	50 (3.5%)		
		Very Poor	12 (1.4%)	5 (2.7%)	12 (2.7%)	29 (2.0%)		
2	Computer	Very Good	94 (11.6%)	36 (19.2%)	85 (19.4%)	215 (15.0%)	.657	.578
		Good	658 (81.8%)	138 (73.8%)	335 (75.8%)	1131 (78.8%)		
		Moderate	44 (5.4%)	10 (5.3%)	19 (4.2%)	73 (5.1%)		
		Poor	6 (0.7%)	2 (1.0%)	1 (0.2%)	9 (.6%)		
		Very Poor	4 (0.5%)	1 (0.5%)	2 (0.4%)	7 (.5%)		
3	Laptop	Very Good	56 (7.0%)	111 (59.4%)	214 (48.4%)	381 (26.6%)	5.857	.001
		Good	605 (75.0%)	56 (30.0%)	176 (40.0%)	837 (58.3%)		
		Moderate	109 (13.6%)	9 (4.8%)	24 (5.4%)	142 (9.9%)		
		Poor	26 (3.1%)	7 (3.7%)	16 (3.6%)	49 (3.4%)		
		Very Poor	10 (1.2%)	4 (2.1%)	12 (2.6%)	26 (1.8%)		
4	Storage Devices-(CD,DVD, Pen drive/	Very Good	250 (31.0%)	108 (57.9%)	250 (56.6%)	608 (42.5%)	7.398	.000
		Good	123 (15.2%)	65 (34.7%)	157 (35.6%)	345 (24.0%)		

	memory card)	Moderate	388 (48.3%)	4 (2.1%)	10 (2.2%)	402 (28.0%)		
		Poor	37 (4.5%)	6 (3.2%)	15 (3.4%)	58 (4.0%)		
		Very Poor	8 (1.0%)	4 (2.1%)	10 (2.2%)	22 (1.5%)		
5	Digital camera	Very Good	122 (15.1%)	32 (17.1%)	74 (16.7%)	228 (15.9%)	7.097	.000
		Good	483 (60.0%)	91 (48.6%)	221 (50.0%)	795 (55.4%)		
		Moderate	108 (13.5%)	45 (20.1%)	115 (26.0%)	268 (18.7%)		
		Poor	70 (8.6%)	13 (7.0%)	19 (4.2%)	102 (7.1%)		
		Very Poor	23 (2.8%)	6 (3.2%)	13 (2.9%)	42 (2.9%)		
6	Internet	Very Good	102 (12.7%)	103 (55.1%)	244 (55.2%)	449 (31.3%)	2.682	.045
		Good	530 (65.8%)	75 (40.1%)	149 (33.7%)	754 (52.5%)		
		Moderate	131 (16.2%)	1 (0.5%)	34 (7.6%)	166 (11.6%)		
		Poor	25 (3.1%)	5 (2.7%)	6 (1.3%)	36 (2.5%)		
		Very Poor	18 (2.2%)	3 (1.6%)	9 (2.2%)	30 (2.1%)		
7	iPad	Very Good	7 (0.8%)	00 (0%)	2 (0.4%)	9 (.6%)	3.142	.024
		Good	69 (8.5%)	39 (20.8%)	95 (21.7%)	203 (14.2%)		
		Moderate	134 (16.7%)	127 (68.0%)	289 (65.3%)	550 (38.3%)		
		Poor	532 (66.0%)	12 (6.4%)	31 (7.0%)	575 (40.1%)		
		Very Poor	64 (8.0%)	9 (4.8%)	25 (5.6%)	98 (6.8%)		
8	Printers	Very Good	10 (1.3%)	3 (1.6%)	7 (1.5%)	20 (1.4%)	1.360	.253
		Good	35 (4.3%)	21 (11.2%)	49 (11.1%)	105 (7.2%)		
		Moderate	90 (11.1%)	95 (50.9%)	225 (50.9%)	410 (28.6%)		
		Poor	571 (70.8%)	62 (33.1%)	147 (33.2%)	780 (54.4%)		
		Very Poor	100 (12.4%)	6 (3.2%)	14 (3.1%)	120 (8.4%)		
9	Copier (Xerox)	Very Good	10 (1.3%)	9 (4.9%)	24 (5.4%)	43 (3.0%)	7.079	.000
		Good	18	14	42	74		

			(2.2%)	(7.4%)	(9.5%)	(5.2%)		
		Moderate	39 (4.9%)	88 (47.0%)	174 (39.3%)	301 (21.0%)		
		Poor	648 (80.3%)	66 (35.4%)	177 (40.0%)	891 (62.0%)		
		Very Poor	91 (11.3%)	10 (5.3%)	25 (5.6%)	126 (8.8%)		
10	Scanner	Very Good	7(0.8%)	56(30.0%)	98(22.3%)	161(11.2%)	19.554	.000
		Good	12 (1.4%)	90 (48.1%)	209 (47.2%)	311 (21.6%)		
		Moderate	67 (8.4%)	33 (17.6%)	135 (30.5%)	235 (16.4%)		
		Poor	641 (79.6%)	7 (3.8%)	0 (.0%)	648 (45.2%)		
		Very Poor	79 (9.8%)	1 (0.5%)	0 (.0%)	80 (5.6%)		

The responses are quite clear and acceptable from the above table 5. As many as 936(65.2%) of them have very good skills in using the Smart Phone and 348 (24.3%) of them have good skills which shows that the device is almost possessed by many now. There are 1131(78.8%) of the respondents who have good skills in using the Computer, followed by 215(15.0%) respondents have very good skills and 7(.5%) of the respondents have very poor skills in using the Computer. About 837(58.3%) respondents have good skills using the Laptop, while 142(9.9%) have moderate skills and 26(1.8%) of them have very poor skills in using the Laptop.

About 608(42.5%) respondents have very good skills in using the Storage Devices- (CD, DVD, Pen drive/ memory card), whereas 402(28.0%) of them have moderate skills and 58(4.0%) of them have poor skills using the Storage Devices. About 795(55.4%) respondents have good skills in using the digital camera, followed by 268 (18.7%) of them who have moderate skills and 42(2.9%) of them have poor skills using the digital camera. There are 754(52.5%) respondents who have good skills in using the Internet, while 449(31.3%) of them have good skills and 36(2.5%) of them have poor skills in using the Internet.

About 575(40.1%) respondents have poor skills in using the iPad, followed by 550(38.3%) of them who have moderate skills and 98(6.8%) respondents have very poor skills in using the iPad. The use of computer accessories like printers and scanners are quite less as it requires to possess them personally. The use of Copiers is Poor as the respondents

are not required to use and handle them personally. Interestingly the results are quite realistic and practical.

The One-way ANOVA test has been employed to know the significant differences between the students of distance learning with respect to their awareness of various Information Technology tools. The result of One-way ANOVA presented in the table clearly shows that there is a significant association between the categories of users with respect to their awareness of Information Technology tools. The One-Way ANOVA statistical test also shows that there is no significant difference between the categories of users with respect to their awareness of Information Technology tools only for few fields viz., Computer($p=.578$), Printers ($.253$) since the probability value is more than the $.05$.

Table 6. Rating of purposes of use of Internet among Distance learners

Sl. No	Purpose	Rating Scale	Discipline			Total (N=1435)
			Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	
1	To prepare notes	Very Often	85 (10.5%)	23 (12.2%)	61 (13.8%)	169 (11.8%)
		Often	575 (71.3%)	133 (71.1%)	315 (71.2%)	1023 (71.3%)
		Sometimes	69 (8.6%)	15 (8.1%)	33 (7.4%)	117 (8.2%)
		Rarely	48 (6.1%)	10 (5.3%)	20 (4.5%)	78 (5.4%)
		Never	29 (3.5%)	6 (3.2%)	13 (3.0%)	48 (3.3%)
2	Social Networking	Very Often	458 (56.9%)	124 (66.3%)	311 (70.3%)	893 (62.2%)
		Often	316 (39.2%)	47 (25.1%)	11 (2.9%)	474 (33.0%)
		Sometimes	25 (3.1%)	11 (5.9%)	13 (2.9%)	49 (3.4%)
		Rarely	2 (0.2%)	3 (1.6%)	3 (0.6%)	8 (.6%)
		Never	5 (0.6%)	2 (1.3%)	4 (0.9%)	11 (.8%)
3	Download notes, study materials	Very Often	340 (42.1%)	147 (78.6%)	362 (81.9%)	849 (59.2%)
		Often	153 (19.0%)	25 (13.5%)	49 (11.2%)	227 (15.8%)
		Sometimes	264 (32.9%)	4 (2.1%)	19 (4.2%)	287 (20.0%)
		Rarely	43	9	8	60

			(5.3%)	(4.8%)	(1.8%)	(4.2%)
		Never	6 (0.7%)	2 (1.0%)	4 (0.9%)	12 (.8%)
4	Online learning (E-learning)	Very Often	27 (3.4%)	57 (30.5%)	122 (27.6%)	206 (14.3%)
		Often	428 (53.1%)	123 (65.8%)	290 (65.6%)	841 (58.6%)
		Sometimes	325 (40.3%)	6 (3.2%)	12 (2.7%)	343 (23.9%)
		Rarely	20 (2.5%)	1 (0.5%)	10 (2.3%)	31 (2.2%)
		Never	6 (0.7%)	0 (.0%)	8 (1.8%)	14 (1.0%)
5	To keep abreast of latest development in the field	Very Often	69 (8.6%)	9 (4.9%)	41 (9.3%)	119 (8.3%)
		Often	255 (31.8%)	166 (88.7%)	352 (79.6%)	773(53.9%)
		Sometimes	165 (20.4%)	10 (5.4%)	32 (7.3%)	207 (14.4%)
		Rarely	280 (34.7%)	1 (0.5%)	6 (1.3%)	287 (20.0%)
		Never	37 (4.5%)	1 (0.5%)	11 (2.5%)	49 (3.4%)
6	For professional development	Very Often	5 (0.6%)	14 (7.5%)	47 (10.6%)	66 (4.6%)
		Often	24 2(30.1%)	138 (73.8%)	339 (76.8%)	719 (50.1%)
		Sometimes	420 (52.1%)	27 (14.5%)	32 (7.2%)	479 (33.4%)
		Rarely	100 (12.4%)	8 (4.2%)	24 (5.4%)	132 (9.2%)
		Never	39 (4.9%)	0 (.0%)	0 (.0%)	39 (2.7%)
7	To search other University websites	Very Often	20 (2.4%)	12 (6.5%)	30 (6.9%)	62 (4.3%)
		Often	37 (4.5%)	29 (15.5%)	69 (15.6%)	135 (9.4%)
		Sometimes	107 (13.2%)	26 (13.9%)	63 +(14.2%)	196 (13.7%)
		Rarely	553 (68.7%)	91 (48.7%)	242 (54.8%)	886 (61.7%)
		Never	89 (11.1%)	29 (15.5%)	38 (8.5%)	156 (10.9%)
8	E-mail	Very Often	41 (5.1%)	7 (3.8%)	40 (9.1%)	88 (6.1%)
		Often	117 (14.5%)	21 (11.2%)	73 (16.5%)	211 (14.7%)
		Sometimes	590 (73.2%)	143 (76.4%)	324 (73.4%)	1057 (73.7%)

	Rarely	49 (6.0%)	11 (5.9%)	2 (0.4%)	62 (4.3%)
	Never	9(1.2%)	5(2.7%)	3(0.6%)	17 (1.2%)

Table 6 reveals that, majority 1023(71.3%) of the students of distance education often use the Internet to prepare notes for their study, followed by 893(62.2%)of the respondents use it for social networking,849(59.2%)of them very often use Internet for the purpose of downloading notes and study materials, 841(58.6%) of them often use Internet for the purpose of Online learning (E-learning), 773(53.9%)of them often use to keep abreast of latest development in the field, 719(50.1%)of them often use it for professional development. It is also described that majority 1057(73.7%) of the students of distance education sometimes use it for e-mail communication and only 886(61.7%) respondents rarely use Internet to search other University websites. The table shows that internet is used by the students of distance education almost for right purposes at a maximum level. But surprisingly, the use of Internet for social networking is at the highest which does not go in equal with studies and also that it is used sometimes for E-mail.

Table 7 Opinion on support of ICT on Distance Learning

Sl. No	Opinion	Discipline				χ^2 - Value
		Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	Total (N=1435)	
1	Communication with many	714 (88.5%)	159 (85.0%)	371 (83.9%)	1244 (86.7%)	$\chi^2 =5.862$ df=2,p=.053
2	Learning from others contribution	491 (60.9%)	120 (64.1%)	349 (78.9%)	960 (66.9%)	$\chi^2 =42.680$ df=2,p=.000*
3	Quick response	599 (74.3%)	145 (77.5%)	346 (78.2%)	1090 (76.0%)	$\chi^2 =2.750$ df=2,p=.253
4	Economic	381 (47.2%)	91 (48.6%)	216 (48.8%)	688 (47.9%)	$\chi^2 =.337$ df=2,p=.845
5	Flexible	604 (74.9%)	138 (73.8%)	325 (73.5%)	1067 (74.4%)	$\chi^2 =.332$ df=2,p=.847
6	Sharing of ideas	564 (70.0%)	146 (78.1%)	345 (78.0%)	1055 (73.5%)	$\chi^2 =11.863$ df=2,p=.003*
7	Time saving	486 (60.2%)	171 (91.4%)	407 (92.1%)	1064 (74.1%)	$\chi^2 =183.993$ df=2,p=.000*

Note: * $p < 0.05$

It is found from the table 7 that, out of 7 advantages of ICT in Distance Learning the data reveals that the six advantages are over 70% and the first being the Communicating with many simultaneously with highest percentage of 1244(86.7%), whereas Quick Response with 1090(76.0%) response, Time saving with 1064 (74.1%) response, Learning from others contribution with 960(66.9%) response. The only low response is on Economics of the ICT in information seeking which shows 688(47.9%), however there are good advantages of ICT's use in Distance Learning.

Therefore, the Chi-Square test was applied to know the association between the influences of ICT on Distance learning . However, the result of the Chi-Square test reveals that there is no significant association between the influences of ICT on Distance learning where the p-value is $> .05$, except for few fields Learning from others contribution, Sharing of ideas and Time saving where the p-value is $< .05$.

Table 8 Opinion about use of ICT for Distance Learning.

Sl. No.	Opinion	Rating Scale	Social Sciences (N=806)			Science/ Technology (N=187) Total (N=1435)
			Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	
1	Scored more in examination	Strongly Agree	84 (10.4%)	126 (67.3%)	330 (74.6%)	540 (37.6%)
		Agree	652 (80.9%)	47 (25.1%)	94 (21.2%)	793 (55.3%)
		Neutral	53 (6.7%)	6 (3.2%)	10 (2.2%)	69 (4.8%)
		Disagree	13 (1.6%)	5 (2.6%)	6 (1.3%)	24 (1.7%)
		Strongly Disagree	4 (0.4%)	3 (1.6%)	2 (0.4%)	9 (.6%)
2	ICT devices enable us to get a greater amount of study materials and Internet resources.	Strongly Agree	617 (76.5%)	155 (82.9%)	314 (71.1%)	1086 (75.7%)
		Agree	137 (17.0%)	27 (14.5%)	83 (18.8%)	247 (17.2%)
		Neutral	30 (3.9%)	4 (2.1%)	31 (7.0%)	65 (4.5%)
		Disagree	20 (2.4%)	1 (0.5%)	10 (2.2%)	31 (2.2%)
		Strongly	2	0	4	6

		Disagree	(0.2%)	(.0%)	(0.9%)	(.4%)
3	ICT/ Computers are a fast and efficient means of getting updated information.	Strongly Agree	532 (66.0%)	116 (62.1%)	239 (54.0%)	887 (61.8%)
		Agree	220 (27.2%)	42 (22.5%)	170 (38.4%)	432 (30.1%)
		Neutral	33 (4.0%)	21 (11.2%)	14 (3.1%)	68 (4.7%)
		Disagree	13 (1.7%)	8 (4.2%)	16 (3.9%)	37 (2.6%)
		Strongly Disagree	8 (0.9%)	0 (.0%)	3 (0.6%)	11 (0.8%)
4	ICT helps acquire new knowledge effectively	Strongly Agree	113 (14.1%)	54 (28.8%)	100 (22.7%)	267 (18.6%)
		Agree	557 (69.1%)	125 (66.9%)	297 (67.1%)	979 (68.2%)
		Neutral	88 (10.9%)	4 (2.1%)	28 (6.3%)	120 (8.4%)
		Disagree	32 (3.9%)	2 (1.1%)	12 (2.7%)	46 (3.2%)
		Strongly Disagree	16 (2.0%)	2 (1.1%)	5 (1.2%)	23 (1.6%)
5	I do agree that electronic devices like computers, Internet, Television all are very helpful in my studies during examination	Strongly Agree	466 (57.9%)	119 (63.7%)	232 (52.5%)	817 (56.9%)
		Agree	236 (29.4%)	48 (25.7%)	121 (27.4%)	405 (28.2%)
		Neutral	58 (7.1%)	9 (4.8%)	43 (9.7%)	110 (7.7%)
		Disagree	33 (4.0%)	9 (4.8%)	32 (7.2%)	74 (5.2%)
		Strongly Disagree	13 (1.6%)	2 (1.0%)	14 (3.2%)	29 (2.0%)
6	ICT gives opportunity to learn more	Strongly Agree	463 (57.6%)	133 (71.2%)	342 (77.3%)	938 (65.4%)
		Agree	195 (24.1%)	47 (25.1%)	78 (17.6%)	32 (22.1%)
		Neutral	90 (11.1%)	4 (2.1%)	15 (3.3%)	109 (7.6%)
		Disagree	42 (5.2%)	2 (1.0%)	6 (1.3%)	50 (3.5%)
		Strongly Disagree	16 (2.0%)	1 (0.5%)	1 (0.2%)	18 (1.3%)
7	Studying with the help of computers	Strongly Agree	57 (7.1%)	21 (11.4%)	50 (11.5%)	128 (8.9%)
		Agree	473	129	253	855

	gives me great pleasure and satisfaction		(58.7%)	(69.0%)	(57.2%)	(59.6%)
		Neutral	139 (17.3%)	22 (11.7%)	90 (20.3%)	251 (17.5%)
		Disagree	100 (12.4%)	7 (3.7%)	27 (6.1%)	134 (9.3%)
		Strongly Disagree	37 (4.5%)	8 (4.2%)	22 (4.9%)	67 (4.7%)
8	ICT helps to develop higher order thinking skills	Strongly Agree	34 (4.2%)	27 (14.4%)	62 (14.1%)	123 (8.6%)
		Agree	72 (8.9%)	114 (70.0%)	291 (65.9%)	477 (33.2%)
		Neutral	615 (76.4%)	23 (12.3%)	52 (11.7%)	690 (48.1%)
		Disagree	55 (6.8%)	22 (11.9%)	21 (4.7%)	98 (6.8%)
		Strongly Disagree	30 (3.7%)	1 (0.5%)	16 (3.6%)	47 (3.3%)
9	Learning through electronic devices creates eagerness, curiosity and encourages me to do something new	Strongly Agree	47 (5.9%)	11 (6.0%)	47 (10.7%)	105 (7.2%)
		Agree	68 (8.4%)	104 (55.6%)	214 (48.4%)	202 (14.1%)
		Neutral	544 (67.4%)	31 (16.5%)	70 (15.9%)	205 (14.3%)
		Disagree	104 (13.0%)	35 (18.7%)	99 (22.3%)	862 (60.1%)
		Strongly Disagree	43 (5.3%)	6 (3.2%)	12 (2.7%)	61 (4.3%)
10	I prefer getting information on computer screen instead of printed page	Strongly Agree	19 (2.3%)	41 (21.9%)	89 (20.1%)	149 (10.4%)
		Agree	52 (6.4%)	132 (70.5%)	331 (75.0%)	515 (35.9%)
		Neutral	97 (12.0%)	7 (3.9%)	5 (1.1%)	109 (7.5%)
		Disagree	604 (75.0%)	3 (1.6%)	1 (0.2%)	608 (42.4%)
		Strongly Disagree	34 (4.3%)	4 (2.1%)	16 (3.6%)	54 (3.8%)

The data presented in the table 8 reveals that ICT has had a positive impact on the students in distance learning. To know the users view various statement were placed and

users had to mark as strongly agree, agree, neutral, disagree and strongly disagree with the statements. Out of 1435, majority 1086(75.7%)users ‘Strongly agree’ and 247(17.2%)users ‘Agree’ with the statement ‘ICT devices enable us to get a greater amount of study materials and Internet resources’. Followed by 938(65.4%)users ‘Strongly agree’ and 320(22.1%) users ‘Agree’ to ‘ICT gives opportunity to learn more’, 887(61.8%)users ‘Strongly agree’ and 432(30.1%)users ‘Agree’ to ‘ICT/ Computers are a fast and efficient means of getting updated information’,979(68.2%)users ‘Agree’ and 267(18.6%) users ‘Strongly agree’ about ‘ICT helps distance learners acquire new knowledge effectively’.

About 817(56.9%)users ‘Strongly agree’ and 405(28.2%)users ‘Agree’ about ‘I do agree that electronic devices like computers, Internet, Television all are very helpful in my studies during examination’, 793(55.3%)users ‘Agree’ and 540(37.6%)users ‘Strongly agree’ to ‘Scored more in examination’. It is also found from the study that 690(48.1%)users ‘Neutral’ and 477(33.2%) users ‘Agree’ with ‘ICT helps to develop higher order thinking skills’.

There are 855(59.6%)users ‘Agree’ and251(17.5%)users ‘Neutral’ about ‘Studying with the help of computers gives me great pleasure and satisfaction’. Most 862(60.1%)users ‘Disagree’ with the statement of ‘Learning through electronic devices creates eagerness, curiosity and encourages me to do something new’ and 608 (42.4%) users ‘Disagree’ with the statement of ‘I prefer getting information on computer screen instead of printed page’.

The responses in large majority are positive rating with strongly agree to Agree in most cases. It is factual as lot of e-learning material is created and made available on the websites of the open universities under study especially the e-Gynakosh from IGNOU and e-PGPatashala from INFLIBNET. The only low and average response is for ‘Higher order thinking level’ because the distance learner’s key requirement is to acquire a higher qualification for the reasons mentioned already in an earlier section.

Table 9 Problems faced while using ICT for Information Gathering

Sl. No	Problems	Discipline				χ^2 - Value
		Social Sciences (N=806)	Science/ Technology (N=187)	Commerce/ Management (N=442)	Total (N=1435)	

1	Internet speed is very slow	471 (58.4%)	136 (72.8%)	318 (72.0%)	925 (64.5%)	$\chi^2 = 29.155$ df=2, p=.000*
2	Retrieval of irrelevant/ junk information	643 (79.8%)	76 (40.6%)	185 (41.8%)	904 (63.0%)	$\chi^2 = 222.194$ df=2, p=.000*
3	Overload of information on the Internet	689 (85.4%)	139 (74.3%)	352 (79.6%)	1180 (82.2%)	$\chi^2 = 15.856$ df=2, p=.000*
4	Lack of uninterrupted power supply	261 (32.3%)	78 (41.7%)	171 (38.6%)	510 (35.5%)	$\chi^2 = 8.529$ df=2, p=.014*
5	Lack of information retrieval skills (Advanced search techniques)	469 (58.1%)	48 (25.7%)	147 (33.3%)	664 (46.3%)	$\chi^2 = 117.624$ df=2, p=.000*

Note: * p<0.05

The above table 9 reveals that the users are experiencing the problem, overload of information on the Internet with highest response of 1180(82%). The next is obviously the Internet speed which is very slow 925(64.5%), retrieval of irrelevant/ junk information i.e., 904(63.0%) and lack of information retrieval skills (Advanced search techniques) i.e., 664(46.3%). So the last problem needs to be looked into which can be overcome by training the users by library professionals. There should be some courses for the distance learners on the use of different search methods and how they can be applied to searching information on the internet as it is observed that most users use Google and use some random keywords to search and that retrieves junk of information which has least relevance with the query.

Findings of the study

- ❖ Out of 1435 respondents, 844 (58.8%) are female and 591 (41.2%) are male respondents. The results of the study revealed that both males and females were pursuing their higher education through distance education mode and the number of female respondents were more compared to male respondents in all the three faculties.
- ❖ Majority 1377 (95.9%) of the respondents use the Smart Phone, followed by 646(45.1%) of the respondents use Desktop and 402(28.1%) make use of the Lap Top which is a minimal number. It is interesting to know that the Smart phone is being

widely used, as it has maximum mobility and convenience.

- ❖ It was found that the methods adopted by the students for acquiring ICT Skills. They are attending training programs 945(65.9%), tutorials and online materials 936(65.2%) and through teachers with 894(62.3 %). Among others, trial and error method with 777(54.1%) and self-learning come next with 751(52.3%).
- ❖ About 502 (35.0%) of the respondents are using the computers for more than 2 years, while 487(33.9%) are using the computers for 3-4 years, 200(13.9%) are using for more than 5 years and a very small number 54 (3.8%) of users are using computers for less than 1 year.
- ❖ Most 936(65.2%)of them have very good skills in using the Smart Phone , while 1131(78.8%) have good skills in using the Computer, 215(15.0%) have very good skills in using the Computer,837(58.3%) respondents have good skills using the Laptop.
- ❖ Majority 1023(71.3%) of the students of distance education often use the Internet to prepare notes for their study, followed by 893(62.2%) for social networking,849(59.2%) downloading notes and study materials, 841(58.6%) for Online learning (E-learning),
- ❖ It is found that, out of 7 advantages of ICT in Distance Learning the data reveals that the six advantages are over 70% and the first being the Communicating with many simultaneously with highest percentage of 1244(86.7%), whereas Quick Response with 1090(76.0%) response, Time saving with 1064 (74.1%) response, Learning from others contribution with 960(66.9%) response.
- ❖ Out of 1435, majority 1086(75.7%)users ‘Strongly agree’ with the statement ‘ICT devices enable us to get a greater amount of study materials and Internet resources’. Followed by 938(65.4%)users ‘Strongly agree’ to ‘ICT gives opportunity to learn more’, 887(61.8%)users‘ Strongly agree’ to ‘ICT/ Computers are a fast and efficient means of getting updated information’,979(68.2%)users ‘Agree’ about ‘ICT helps distance learners acquire new knowledge effectively’.
- ❖ About 817(56.9%)users ‘Strongly agree’ about ‘I do agree that electronic devices like computers, Internet, Television all are very helpful in my studies during examination’, 793(55.3%)users ‘Agree’ to ‘Scored more in examination’. It is also found from the study that 690(48.1%)users ‘Agree’ with‘ICT helps to develop higher order thinking skills’.
- ❖ The users are experiencing the problem reveals that, overload of information on

the Internet with highest response of 1180(82%). The next is obviously the Internet speed which is very slow 925(64.5%), retrieval of irrelevant/ junk information i.e., 904(63.0%) and lack of information retrieval skills (Advanced search techniques) i.e., 664(46.3%)

Conclusion and Recommendations

One of the key factors for Distance Education Learners is acquisition of good computing skills, internet surfing and use of social media like Face Book, LinkedIn, as more and more reading materials especially is being published in the electronic form. The study observed that, the computer and ICT skills are quite essential now for the distance learners because the distance education programmes are getting more and more e-content and for promoting online and virtual education. Hence, it is suggested that, the distance education programme offering institutions/ universities should be started advanced training for users at different levels. The contents of the training programs should be (i) Basic introduction to library services and facilities, (ii) OPAC Search (c) Methods and tools for searching information resources, (d) Internet Use (iii) Online and CD-ROM databases, (iv) Using electronic journals, (v) Introducing reference books, (vi) Introducing audio/video materials. To introduce information literacy classes within the academic period to enable and encourage successful information gathering methods so that relevant to teaching and learning needs becomes the focus.

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