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Usage of Information and Communications Technology Products and Services at Veer Surendra Sai University of Technology

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ABSTRACT

The revolution of information technology has forced the world to depend more and more on information and communication technology products and services. Due to this rapid growth, the ICT products and services are being overwhelmingly used in all spheres of life. This paper studied the usage of different ICT products and services by the students and faculty members of Veer Surendra Sai University of Technology for fulfilling their information needs.

Keywords: Information and communication technology, Internet, search engine, mean deviation, standard deviation, arithmetic mean

1. INTRODUCTION

Libraries have played an important role in providing a variety of learning resources for study and research in all spheres of education at school, college or at university level. The last few decades have witnessed a spectacular change in relationships between the users and libraries. This is only because of the impact of information and communications technology (ICT) an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems including myriad services and applications associated with them, such as videoconferencing and distance learning, etc. The ICT-enabled products and services and the availability of online information resources have changed the way the services of academic libraries and institutions are being now delivered.

Dilevko and Harris[1] in their paper have reported as how the traditional library is undergoing significant changes due to the electronic revolution, which in its various manifestations has affected nearly every aspects of information provision. The ICT now plays a crucial role in shaping the academic institutions and their services so as to meet the information needs of the students, researchers, faculty and the institution as a whole.

2. LITERATURE REVIEW

According to Kooganurmath and Jange[2] a majority of the users use Internet for communication followed by the access to information. More than 70 per cent of the users use Internet for their higher studies and only 39 per cent use it for discussions with the peer groups. The most used services of Internet are e-mail, the Web, discussion forums and FTP. Mishra, Yadav and Bisht[3] in their study have shown that 67.7 per cent of Internet users were male and 32.3 per cent were female students. Their study also showed further that 61.5 per cent of the male and 51.6 per cent of the female students used Internet primarily for preparing their academic assignments.

Asemi[4] in her study, on the other hand, reported that 55 per cent of the total respondents search internet primarily for scientific information because their university library provides access to various databases and online journals. Internet was also used by the respondents for downloading software or text, chatting, discussion, e-mail services, and for finding related references. She also observed that, the Google and Yahoo search engines

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were more widely used compared to other search engines. Her study further revealed that, 54 per cent of Internet users always find useful information on the net while 31 per cent of the respondents surveyed believed that, quality information is available on the Internet and 35 per cent of the studied population used print, online and offline form of information for updating their subject knowledge.

3. VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY

Veer Surendra Sai University of Technology (VSSUT), formerly known as University College of Engineering (UCE), Burla, the oldest and premier Engineering College of Orissa, is a constituent College of Biju Patnaik University of Technology, Rourkela. It has already produced more than 10,000 graduate engineers and 2000 postgraduates in different fields of engineering and technology. The college was founded on 12th August 1956 under Utkal University. In 2009, under section 12B of UGC Act, 1956 Govt. of India, it was declared a university.

4. OBJECTIVES

Information and Communication Technology has significantly affected the system and services of library to a great extent. Availability and access of multiple format of e-resources (both online and offline) is one of the major impact of ICT in libraries. These resources have become an integral part of any modern library. The basic objective of this paper is to make a study on the usage of ICT-based products and services by the students and faculty members of the VSSUT, Orissa. The other key objectives of the study are:

(i) To find out the level and purpose of use of various ICT-based products and services

(ii) To determine the frequency of use of ICT based products and services

(iii) To unfold the impact of ICT on study and research in professional and technical disciplines

(iv) To unearth the level of expertise on ICT-based products and services among the user community

(v) To identify the problems incurred by the user community while using ICT-based products and services.

5. LIMITATIONS OF THE STUDY

The limitations of the study are:

- The study covers only the respondents from VSSUT, Orissa.
- Limitation by category of respondents, i.e. the present study covers only the final year regular students of BTech and all the full-time regular students of MCA and MTech.

6. DESIGN/METHODOLOGY

A structured questionnaire was distributed among 480 respondents including all the graduate students (final year BTech), post graduate students (MCA and MTech) and all the faculty members of VSSUT. A total of 333 completed filled-in questionnaires were received having a response rate of 69.38 per cent.

7. DATA ANALYSIS

Statistical techniques such as arithmetic mean, standard deviation and mean deviation were used wherever needed. The mean and standard deviation were calculated to ascertain the level of variations amongst the variables by using the following computed formula:

Mean Deviation (δ) = $x - \overline{X}$

where, x = number of response, and $\overline{X}$ = number of responses

Standard Deviation (σ) = $\sqrt{\Sigma (x- \overline{X})^2 /N}$

where, $\Sigma (x- \overline{X})^2$ = sum of the squares of mean deviation.

7.1 User Category

Table 1 gives a details of the category-wise respondents covered and their response number in terms of filled-in questionnaires received with their percentage.

7.2 Level of Knowledge of ICT Products and Services

Table 2 shows that, out of 480 respondents, 242 (72.67 per cent) considered their knowledge of ICT product and services as strong, followed by 55 (16.52 per cent) manageable, 27 (8.11 per cent) average, 9 (2.7 per cent) poor.d 9 (2.7 per cent) poor.

7.3 Use of ICT Products

The respondents were asked to express their level of use of various ICT products for their study and research purpose which is depicted in Table 3. Table 3 shows the majority of respondents, i.e.189 (87.1 percent) graduates, 75 (96.16 per cent) postgraduates and 35 (92.11 per cent) faculties who used computer for their study and research work, respectively. While the other ICT products such CD/ DVD/ pen drive, printer, scanner etc. also have a notable use.

Table 1. Categories of respondents covered

Professional status	No. of questionnaires distributed	No. of questionnaires collected	Percentage (individuals category-wise)
Faculty	50	38	76
Postgraduates	120	78	65
Graduates	310	217	70
Total	**480**	**333**	**69.38**

Table 2. Level of knowledge on ICT products and services

Professional status	Strong	Manageable	Average	Poor	Total
Graduates	158 (72.81)	35 (16.13)	17 (7.83)	7 (3.23)	217 (100)
Postgraduates	61 (78.21)	11 (14.1)	6 (7.69)	—	78 (100)
Faculty	23 (60.53)	9 (23.68)	4 (10.53)	2 (5.26)	38 (100)
Total	**242 (72.67)**	**55 (16.52)**	**27 (8.11)**	**9 (2.7)**	**333 (100)**

Note: Figures in parenthesis denote percentage.

Table 3. Use of ICT Products

ICT products	Graduate		Postgraduate		Faculty	
	Response	Deviation	Response	Deviation	Response	Deviation
Computer	189 (87.1)	44.42	75 (96.16)	10.72	35 (92.11)	5.57
Laptop	153 (70.51)	8.42	68 (87.18)	3.72	28 (73.68)	-1.43
Printer	148 (68.21)	3.42	65 (83.34)	0.72	33 (86.85)	3.57
Scanner	133 (61.3)	-11.58	60 (76.93)	- 4.28	27 (71.06)	-2.43
CD/DVD/Pen drive	175 (80.65)	30.42	72 (92.31)	7.72	30 (78.94)	0.57
Pocket internet	126 (58.07)	-18.58	60 (76.93)	- 4.28	20 (52.64)	-9.43
LCD projector/OHP	88 (40.56)	-56.58	50 (64.11)	- 14.28	33 (86.85)	3.57

Note: Figures in parenthesis denote percentage.

For Graduate	For Postgraduate	For Faculty
$\overline{X_1} = 144.58$	$\overline{X_2} = 64.28$	$\overline{X_3} = 29.43$
$\sigma_1 = 30.85$	$\sigma_2 = 7.83$	$\sigma_3 = 5.42$

7.4 Frequency of Use of ICT Products and Services

Table 4 shows that a majority of respondents, i.e. 232 (69.67 per cent) used ICT products and services almost daily; followed by 53 (15.91 per cent) thrice in a week, 27 (8.12 per cent) twice in a week, and 21 (6.3 per cent) once in week, respectively.

7.5 Purpose of Using ICT Services

Respondents were asked to indicate the purposes for which they use various ICT services. Table 5 shows that, 100 per cent graduate respondents used such services primarily for mail followed by 86.64 per cent for study, 60.37 per cent for their research/publications, 54.84 per cent for self-improvement, 46.55 per cent for causal Internet surfing and 56.42 per cent for other purposes, respectively. While all the postgraduation students (100 per cent) were using ICT services for mail, 96.16 per cent use for their study, 91.03 per cent for their research/publications, 76.93 per cent for self-improvement, 48.72 per cent for other purposes and 42.31 per cent for causal Internet surfing, respectively. Similarly, 100 per cent faculty was using most of the ICT services for mail; followed by 94.74 per cent for research/publications, 71.06 per cent for study, 57.9 per cent for self-improvement and only 44.74 per cent for other purposes, respectively.

Table 4. Frequency of use of ICT products and services

Class of Respondents	Almost daily	Once a week	Twice a week	Thrice a week	Total
Graduate	133 (61.29)	21 (9.68)	22 (10.13)	41 (18.9)	217 (100)
Postgraduate	68 (87.18)	—	3 (3.85)	7 (8.97)	78 (100)
Faculty	31 (81.58)	—	2 (5.56)	5 (13.16)	38 (100)
Total	**232 (69.67)**	**21 (6.3)**	**27 (8.12)**	**53 (15.91)**	**333 (100)**

Note: Figures in parenthesis denote percentage.

Table 5. Purpose of using ICT services and products

Purpose of use of ICT services and products	Graduate		Postgraduate		Faculty	
	Response	Deviation	Response	Deviation	Response	Deviation
For mail	217 (100)	76.17	78 (100)	18.83	38 (100)	14.67
For study	188 (86.64)	47.17	75 (96.16)	15.83	27 (71.06)	3.67
For research/ publication	131 (60.37)	-9.83	71 (91.03)	11.83	36 (94.74)	12.67
For self-improvement	119 (54.84)	-21.83	60 (76.93)	0.83	22 (57.9)	-1.33
Casual internet surfing	101 (46.55)	-39.83	33 (42.31)	-26.17	—	-23.33
Other purposes	89 (41.02)	-51.83	38 (48.72)	-21.17	17 (44.74)	-6.33

Note: Figures in parenthesis denote percentage.

For Graduate	For Postgraduate	For Faculty
$\overline{X_1}$ = 140.83	$\overline{X_2}$ = 59.17	$\overline{X_3}$ = 23.33
σ_1 = 46.32	σ_2 = 17.69	σ_3 = 12.75

7.6 Preferred Search Engines

Regarding the use of search engines, the respondents were asked to indicate multiple answers according to their preferences in using the search engine.

Table 6 gives a clear picture of the preferred search engine of the respondents. It is clear that, Google is the most popular search engine having a response rate of 100 per cent among all categories of respondents.

Google was followed by Yahoo with 92.17 per cent, 96.16 per cent and 86.85 per cent, Altavista 80.65 per cent, 92.31 per cent and 97.37 per cent, and MSN with 75.12 per cent, 87.18 per cent and 92.11 per cent among graduate, postgraduate and faculty, respectively.

Table 6. Preferred search engines

Preferred search engine	Graduate		Postgraduate		Faculty	
	Response	Deviation	Response	Deviation	Response	Deviation
Google	217 (100)	53.67	78 (100)	11.5	38 (100)	7.67
Yahoo	200 (92.17)	36.67	75 (96.16)	8.5	33 (86.85)	2.67
MSN	163 (75.12)	-0.33	68 (87.18)	1.5	35 (92.11)	4.67
Alta Vista	175 (80.65)	11.67	72 (92.31)	5.5	37 (97.37)	6.67
Excite	120 (55.3)	-43.33	52 (66.67)	-14.5	21 (55.27)	-9.33
Hot Boot	105 (48.39)	-58.33	54 (69.24)	-12.5	18 (47.37)	-12.33

Note: Figures in parenthesis denote percentage.

For Graduate	For Postgraduate	For Faculty
$\overline{X_1}$ = 163.33	$\overline{X_2}$ = 66.5	$\overline{X_3}$ = 30.33
σ_1 = 40.09	σ_2 = 10.03	σ_3 = 7.87

7.7 Place of Use of ICT Service

The VSSUT provides access to the internet to its users at various places within the campus with wi-fi services. Table 7 gives a brief sketch of the place of use of ICT services. The study reveals that most of the graduate respondents were using internet at library (93.55 per cent), followed by 89.87 per cent at computer lab/ department, 83.88 per cent at cyber cafe, 71.89 per cent at home/hostel and 59.91 per cent at other places. Among the postgraduate respondents, library was also the most convenient place of use of Internet with 91.03 per cent respondents, followed by 84.62 per cent at computer lab/department, 74.36 per cent at cyber cafe, 62.83 per cent at home/hostel and 41.03 per cent at any other places, respectively. Similarly, among the faculty members, 86.85 per cent respondents preferred departmental computer/computer lab as the most comfortable place of using the Internet, while 78.95 per cent respondents used internet at home/hostel, 73.69 per cent at cyber cafe, 55.27 per cent at library and only 39.48 per cent at any other place.

7.8 Method of Learning to Use ICTs Products and Services

The respondents were asked to indicate how they learned to use ICTs products and services. After analysing the collected data (Table 8) it is clear that, most of the graduate and postgraduate students, i.e. 187 (86.18 per cent) and 73 (93.6 per cent) have had their formal education/ training on ICT products and services, while 166 (76.5 per cent) and 65 (83.34 per cent) took guidance from technical staff; 120 (55.3 per cent) and 59 (75.65 per cent) took guidance from friend/colleagues, 108 (49.77 per cent) and 56 (71.8 per cent) learnt from trial and error and 92 (42.4 per cent) and 41 (52.57 per

Table 7. Place of using ICT service(s)

Place of use	Graduate		Post Graduate		Faculties	
	Response	Deviation	Response	Deviation	Response	Deviation
At library	203 (93.55)	29.8	71 (91.03)	15.8	21 (55.27)	-4.4
At computer lab/dept.	195 (89.87)	21.8	66 (84.62)	10.8	33 (86.85)	7.6
At cyber cafe	182 (83.88)	8.8	58 (74.36)	2.8	28 (73.69)	2.6
At home/ hostel	156 (71.89)	-17.2	49 (62.83)	-6.2	30 (78.95)	4.6
Other place	130 (59.91)	-43.2	32 (41.03)	-23.2	15 (39.48)	-10.4

Note: Figures in parenthesis denote percentage.

For Graduate	For Postgraduate	For Faculty
$\overline{X_1}$ = 173.2	$\overline{X_2}$ = 55.2	$\overline{X_3}$ = 25.4
σ_1 = 26.84	σ_2 = 13.79	σ_3 = 6.53

Table 8. Method of learning to use ICT products and services

Ways to learned	Graduate		Postgraduate		Faculty	
	Response	Deviation	Response	Deviation	Response	Deviation
Trial and error	108 (49.77)	-26.6	56 (71.8)	-2.8	31 (81.58)	8
Guidance from technical staff	166 (76.5)	31.4	65 (83.34)	6.2	22 (57.9)	-1
Guidance from friend/colleagues	120 (55.3)	-14.6	59 (75.65)	0.2	29 (76.32)	6
Have formal education/ training	187 (86.18)	52.4	73 (93.6)	14.2	19 (50)	-4
Other ways	92 (42.4)	-42.6	41 (52.57)	-17.8	14 (36.85)	-9

Note: Figures in parenthesis denote percentage.

For Graduate	For Postgraduate	For Faculty
$\overline{X_1}$ = 134.6	$\overline{X_2}$ = 58.8	$\overline{X_3}$ = 23
σ_1 = 35.96	σ_2 = 10.63	σ_3 = 6.29

cent) learnt from any other ways, respectively. Similarly, most of the faculty members, i.e. 31 (81.58 per cent) learnt from trial and error basis while 29 (76.32 per cent) take guidance from friend/colleagues, 22 (57.9 per cent) take guidance from technical staff, 19 (50 per cent) have formal education/training and 14 (36.85 per cent) learned form other sources respectively.

7.9 Impact of ICT Products and Services on Study and Research

One of the basic objectives of the study was to determine the extent to which the respondents were satisfied with the ICT products and services and their impact on their study and research. The elicited responses are shown in Table 9. Table 9 shows that 47.75 per cent of the respondents considered the impact excellent while 83 (24.92 per cent) have rated the impact good, 61 (18.32 per cent) respondents opined average and 19 (5.71 per cent) respondents expressed poor opinion on ICT products and services, 11 (3.3 per cent) did not had any view about the impact of ICT products and services on study and research.

8. CONCLUSIONS

The present study investigated the use of ICT-based products and services by the graduate and postgraduate students and faculty members of VSSUT. The study revealed that, most of the respondents of the university have good knowledge on ICT products and services which indicates the sound technological environment of the University. The study further shows that ICT products like computer, CD/DVD/pen drive, laptop, pocket internet, LCD projector, scanner, printer, etc. were being mostly used by the respondents. Due to the technological-friendly environment of the University, the respondents are more IT savvy. Use of e-mail for communication is the most popular ICT-based services among the respondents. The study also revealed that, Google is the most conversant and extensively used search engine among all categories of respondents. The study identified that library was the most preferred place for use of ICT products and services among the graduate and postgraduate students while the faculty members felt comfortable at computer lab/department while using the same.

The study has also identified that, graduate and postgraduate students had their formal education and training while most of the faculty learned the art of using ICT products and services through trial and error device. Regarding the impact of ICT products and services on study and research, most of the respondents, among all categories, have considered the impact excellent followed by good and average in second and third ranks, respectively.

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Table 9. Impact of ICT products and services on study and research

Impact of ICT	Excellent	Good	Average	Poor	Cannot say	Total
Graduate	99 (45.62)	55 (25.35)	43 (19.81)	11 (5.07)	9 (4.15)	217 (100)
Postgraduate	41 (52.56)	18 (23.08)	11 (14.1)	6(7.69)	2 (2.57)	78 (100)
Faculty	19 (50)	10 (23.32)	7 (18.42)	2 (5.26)	--	38 (100)
Total	**159 (47.75)**	**83 (24.92)**	**61 (18.32)**	**19 (5.71)**	**11 (3.3)**	**333 (100)**

Note: Figures in parenthesis denote percentage.