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Research Article

INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON TEACHING LEARNING PROCESS IN COLLEGES OF ODISHA

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Abstract

The present study was undertaken by the researchers with the main objectives to study the access of ICT services viz, EDUSAT, Internet, UGC Gyan Darshan etc. in colleges of Khordha District. It also aims at identifying the basic ICT facilities in terms of availability of ICT infrastructure and operational management of colleges of Khordha District. Identifying the level of awareness of ICT on learning of male and female students of colleges of Khordha District and studying the influence of ICT services on teaching-learning process in Colleges of Khordha District are also the prime focus of the study. It has been found that the access to desktop computers, laptops, Internet, LCD-projectors, slide projectors, printers and scanners was 100% and 10% colleges used laptop for internet usage, 25% colleges used desktop for internet usage and 65% colleges used both laptops and desktops for internet usage. It was further noticed that only 60% colleges had video conferencing facility where as 15% colleges used video conferencing system frequently and 35% colleges used rarely. 55% colleges used projectors frequently, 35% colleges used projectors rarely.

Keywords: Information Communication Technology, Teaching Learning Process

INTRODUCTION

Information and Communication Technology (ICT) has brought about a great revolution in the system of education. It plays vital role in teaching learning process. The teaching and learning process has been radically changed by the intervention of ICT. It has also changed the roles played by both teachers and students. It helps for enhancing students' learning and teachers' facilitation skills. It enhances the motivationof students, improves teaching and increases the outcome of learning. It can help to improve decisive thinking in students, develop problem solving capacity, increase educational quality and enhance access to education. ICT includes different dimensions such as computers, internet, mobile phones, projectors, television, video conferencing etc. According to Khan, (2015) ICT stands for Information Communication Technology. It is an umbrella term which comprises any communication device such as TV, radio, mobile phones, PC and system equipment, satellite systems etc and other appliances and services with them viz, video conferencing and distance learning. Information and communication technology (ICT) has been touted as potentially powerful enabling tools for educational change and reform. Information and communication technology (ICT) helps in transferring, transmitting, inculcating desirable goals and values through education that cannot be over emphasized in any society. In an educational system, ICT is adriving force in the process of transferring of worthwhile goals from a teacher to expected learners that would make them to be valuable to themselves and the society at large. Shavinina (2001) defines ICT as all the digital technologies including computer, scanner, printer, telephone, internet, digital satellite system (DSS), direct broadcast satellite (DBS), pocket-switching, fiber optic cables, laser disc, microwaves, and multi-media systems for collection, processing, storage and dissemination of information all over the world. According to Dawes (2001), Information and communication technology has the power to support teaching and learning, and provide innovative approaches for doing the required work ina way that was never possible before. Information and Communication Technology offers Opportunities to enhance professional development of teachers. A teacher can enhance his/her knowledge by the use of Information and communication technology.

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REVIEW OF RELATED LITERATURE

The review of related literature helps to select the research problem, finalize the tools, and follow the research design and techniques to analyze data with latest methods. Hence, the researchers have gone through the following studies to conduct the present study.

Marcinkiewicz (1993) has pointed out that the "full integration of computers into the educational system is a distant goal unless there is reconciliation between teachers and computers. Borg & Gall (1979) defines, "The literature in any field forms the foundation upon which all the future work will be built. If we fail to build the foundation of knowledge provided by the review of related literature our work is likely tobe shallow naive and will often duplicate work that has already been done better by someone else."Monicka & Jayachithra (2019) conducted a study on the awareness of M.Ed.students towards ICT. Descriptive survey method of research was employed for the present study. The sample comprised of 35 M.Ed. students selected by stratified random sampling from colleges of Education in Sivagangai district. Results revealed that there was no significant difference in the awareness of M.Ed. students towards ICT with regard togender and locale. Kumar,

S. & Kumara, S. (2018) did a study to know the digital divide amongthe rural and urban students. From 64 rural and urban high schools, a total of2592 respondents were selected. Findings revealed that only20.66% rural students used computers while 69.70% of urban students used computer for various academic purposes. It was also revealed that most of the students were highly dependent on the teachers to learn computer. It was further revealed that very few rural schools 6.25% had permanent computer teachers but the majority of urban schools have 96.87% computer teachers to teach computer and its applications. Mir, S.A. & Paray, A.A. (2018) has done an empirical study on Internet usage and Academic Performance of Secondary School Students with respect to gender and type of school in Kashmir. The findings of the study revealed a significant difference between male Internet-user and female Internet-user secondary school students. The findings further indicated a significant difference on academic performance of internet users with respect to their type of school. Tapas Karmakar and Manas Karmakar (2017) conducted a comparative study on internet use by rural and urban college students. The findings revealed that urban college students use the internet over rural college students in terms of daily or ¾ times of every week as calculated criteria. It was also revealed that male college students use internet over the feminine college students in terms of daily or ¾ times of every week. The results also revealed that Science college students use internet over the arts college students in terms of daily or times of every week. Rangaswamy, Manjunatha, G. & Kumar, S. (2017) investigated the usage of internet among the faculty members and students of engineering college libraries in Tumakuru city. In order to collect data from the faculty members as well as students, a questionnaire was used. The findings revealed that the majority of respondents accessed the Internet using smart phone (67.40%) and49.25% of them used the internet at their college campus. Majority of faculty and students were of the opinion that the low Internet speed (46.29%) and high Internet cost (31.48%) were the major problems faced by the users. Pal, S. (2017) conducted a study to compare the level of knowledge of ICT and academic performance of secondary school students of G.S.E.B and C.B.S. Eboards. Data were analyzed by using t-test. Descriptive method has been used for the study. Students of IX and X standard were selected randomly for collection of the data. The investigator constructed five point rating scale tool having 120 statements. The findings revealed that there is significant difference in the level of knowledge of ICT and academic performance of G.S.E.B and C.B.S.E school students and it is higher in C.B.S.E school students than G.S.E.B school students. Kuheli B. D, Quendarisa, K.& Baphimon, R (2017) conducted a survey to examine knowledge of ICT and computer proficiency in college and university teachers. Descriptive statistics was adopted for this study. Findings revealed the inadequacies in the knowledge and skills of college and university teachers regarding ICT.

Need and Importance of the Present Study

Information and Communication Technology (ICT) has become one of the vital parts of modern society within a very short time. It has become an indispensability to use Information and Communication Technology as a tool for increasing students' learning, teachers' guidance and for improving quality education in formal and non-formal settings. Understanding ICT and mastering the basic skills and concepts of ICT is now regarded as part of the core of education. It is considered as a powerful tool for educational change and reform. ICT gives teachers and students new tools which helps them to teach and learn. ICT is not only the backbone of the information society, but is also presented as an important catalyst for inducing educational reforms that change our students into productive knowledge workers (Pelgrum, 2001). ICT basically is applied to serve as a means of improving efficiency in the educational process. The use of ICT in education generally deepens understanding; it can help improve memory retention and increases motivation, (Jones and Knezek, 1993). ICT can also be used to promote collaborative learning, including role playing, group problem solving activities and articulated projects (Fathi, Shelda & Nahid, 2010). ICT enables the establishment of rich networks of interconnections and relations between individuals. It has the power to change the ways students learn and professors teach. It enhances the capabilities of professors and students, and their well determined use can transform roles and rules in the classroom. It performs pedagogical, cultural, social, professional and administrative roles in an institution. ICT if judiciously utilized with suitable hardware and software can positively affect many aspects of educational life, from a healthy questioning of present teaching practices to a gradual enhancement of the quality, scope and depth of the learning environment, as well as to offer a wonderful opportunity for the development of teachers.

The investigators while scanning the available literature found that very few studies have been conducted on Information and Communication Technology in colleges of Odisha. Hence, the researchers got interested in studying the Information and Communication Technology enabled Teaching Learning Process in colleges of Odisha.

Statement of the problem

The research problem for the study was "Influence of Information and Communication Technology (ICT) on Teaching Learning Process in Colleges"

Objectives of the Study

The study was conducted with the following objectives:

- To study the access of ICT services viz, EDUSAT, Internet, UGC Gyan Darshan etc. in colleges of Khordha District.
- To assess the basic ICT facilities in terms of availability of ICT infrastructure and operational management of colleges of Khordha District.
- To assess the level of awareness of ICT on learning of male and female students of colleges of Khordha District.
- To study the influence of ICT services on teaching-learning process in Colleges of Khordha District.

Delimitation of the Study

The present study was delimited to the 06 numbers of degree colleges in urban and rural areas in Khordha District of Odisha.

METHODS OF THE STUDY

Descriptive survey method was adopted to conduct the present study.

(a) Population: All the degree college students and teachers of Khordha District were the population of the study.

(b) Sample: The sample for the present study was drawn from both rural and urban government degree colleges of Khordha District. In all 06 colleges, 03from rural areas and 03from urban were selected randomly. The sample comprised of 120 students and60 teachers. Out of 03 urban government degree colleges, 30 male and 30female students will be selected (20 students from each college) by using random sampling technique. Likewise, out of 03 rural colleges, 30 male and 30 female students were selected (20 students from each college). Also 60 teachers (10 from each government degree college) were selected from these 06sample colleges by using random sampling technique.

(c) Tools: The investigators constructed the following tools with due procedure to collect the relevant data.

- Checklist to access the ICT services viz, EDUSAT, Internet and UGC Gyan Darshan etc. in colleges of Khordha District.
- Questionnaire-I for students.
- Questionnaire-II for teachers.

Procedure of Data Collection

The said tools were administered to collect the relevant data from the sample giving clear cut information to the respondents. After taking due permission from the principals of the colleges, the tools were administered among the teachers and students of the sample colleges. The response of both teachers and students were kept secret.

Analysis and Interpretation

The collected data were analyzed and interpreted with the statistical techniques to find out the result of the present study.

Table 1. ICT services

Sl.No.	Access of ICT Services	Percentage
1	Desktop Computers	100%
2	Separate Computer Lab	100%
3	Laptops	100%
4	Internet	100%
5	LCD-Projector	100%
6	Slide-Projector	100%
7	Printer	100%
8	Scanner	100%
9	Broadband Access to the Internet	95%
10	Digital Camera	90%
11	Browsing Centre	85%
12	Microphones	80%
13	Television	80%
14	E-books	80%
15	Departmental Email services	75%
16	Audio Tape Player	65%
17	Radio Set	55%
18	Video Conferencing System	60%
19	EDUSAT Programmes	40%
20	Gyan Darshan Programmes	00%

The above table shows the access of ICT services in colleges of Khordha District. The perusal of the table depicts that the access of desktop computers, separate computer lab, laptops, Internet, LCD-projectors, Slide projectors, printers and scanners was 100% i.e., they were found in all sample colleges of Khordha District. Broadband access to the internet was 95.0%, the access of digital camera was 90% and browsing center was 85%. The access of ICTitems like microphones, television and e-books was 80%. The access of Departmental E-mail services was found to be 75.0%, audio tape player was 65%, video conferencing system was 60%, radio was 55% and the access of EDUSAT programmes was 40%. Gyan Darshan programmes were not available in colleges of Khordha District as the percentage was zero.

Table 2. Access to ICT facilities

Sl. No	Items		%
1	Computer facility		100%
2	Internet facility		100%
3	For internet use	Laptop	10%
		Desktop	25%
		Both	65%
4	Internet usage in college	Last one year	15%
		Last two years	30%
		Last more than two yrs	55%
5	Internet used for	Entertainment	00%
		Education	60%
		Both	40%
6	Browsing centre availability	Yes	85%
		No	15%
7	Frequency of using browsing centre	Daily	60%
		Once in a week	15%
		Once in a month	05%
		Other	05%
8	Broadband access to internet	Yes	95%
		No	05%
9	Video conferencing facility	Yes	60%
		No	40%
10	Frequency of using video conferencing	Frequently	15.0
		Rarely	35.0
		Never	10.0
11	Projector facility	Yes	100%
		No	0%
12	Frequency of using projectors	Frequently	55%
		Rarely	35%
		Never	10%
13	Computer related courses	Yes	85.0%
		No	15.0%
14	Computer based faculty	Yes	95%
		No	5.0%
15	Well qualified computer based faculty	Yes	85.0%
		No	10.0%
16	Well experienced computer faculty	Yes	90.0%
		No	5.0%
17	Time spending in using computer	One hour	25.0%
		Two hours	45%
		Three hours	15%
		More than three hours	15%
18	Good quality ICT equipments	Yes	55.0%
		No	45.0%
19	Reliability of ICT equipments	Reliable	90.0%
		Unreliable	10.0%
20	Student-Computer Ratio	1:1	0
		1:2	0
		1:3	5.0%
		Morethan1:3	95.0%

The above table shows information regarding basic ICT facilities in terms of availability of ICT Infrastructure and operational management of Colleges of Khordha District. The perusal of the table clearly depicts that computer and internet facility were found to be 100% i.e., these facilities were available in all the sample colleges of Khordha District. 0ut of 06 colleges, it was found that only 10% colleges used laptop for internet usage, 25% colleges used desktop for internet usage and 65% colleges used both laptops and desktops for internet usage. Out of 06 colleges, it was found that only15% colleges had been using internet for one year, 30% colleges had been using internet for two years and 55% colleges had been using internet for last more than two years. Out of 06 colleges, 60% used internet for education purposes,

40%colleges used internet for both education and entertainment and no college used internet only for entertainment. Out of 06 colleges, it was found that 85% colleges had browsing centre facility. In 60% colleges, browsing centre is used daily, in 15%colleges browsing centre is used once in a week and in 5% college browsing centre is used once in a month. Out of 06 colleges, 95% colleges had broadband access to internet. Out of 06 colleges, 60% colleges had video conferencing facility and 40% colleges had no such facility. Only 15% colleges used video conferencing system frequently, 35%colleges used rarely and 10%colleges never used video conferencing system. Out of 06 colleges, all 100% colleges have projector facility available. 55%colleges used projectors frequently, 35%colleges used projectors rarely and 10% colleges never used projectors. Out of 06 colleges, 85% colleges had computer related courses and 15% colleges had no computer related courses available. Out of 06 colleges, 95% colleges had computer based faculty. Out of 06 colleges, 85% colleges had well qualified computer based faculty and 90% colleges had well experienced computer based faculty. Out of 06 colleges, in 25%colleges, students used computer for one hour, in 45% colleges, students used computer for two hours, in 15% colleges, students used computer for three hours and in 15% colleges, students used computer for more than three hours. Out of 06 colleges, 55% had good quality ICT equipments, 45% had no good quality ICT equipments. Out of 06 colleges, 90% had reliable ICT equipments, 10% had unreliable ICT equipments. Out of 06 colleges, 95% colleges had student- computer ratio more than1:3.

Table 3. Level of awareness of ICT

Awareness of ICT	Levels	Range	Male	Female	Total
			60	60	120
			%	%	%
	High awareness	28 &above	4.7	1.7	3.2
	Average	16-27	67	70.3	68.7
	Low awareness	15&below	28.3	28.0	28.2
Total			100	100	100

The above table shows the level of awareness of ICT of male and female students in government degree colleges of Khordha District. The perusal of the table depicts that out of 120 college students, 3.2 % students had high awareness of ICT, 68.7% students had average awareness of ICT and 28.2% students had low awareness of ICT. Out of 60 male students, 4.7 % students had high awareness of ICT, 67 %) students had average awareness and 28.3 % students had low awareness of ICT. Out of 60female students, 1.7% students had high awareness of ICT, 70.3% had average awareness and 28.0% students had low awareness of ICT. Therefore, the quick look of the table reveals that majority of male and female students had average awareness of ICT.

Table 4. Influence of ICT services

	Levels	Range	Male	Female	Total
			60	60	120
Influence of ICT			%	%	%
	Highly Satisfactory	16 &above	15.7	14.0	14.8
	Average	12 – 15	44.3	47.3	45.8
	Highly dissatisfactory	11&below	40.0	38.7	39.3
Total			100	100	100

The above table shows the level of Influence of ICT of male and female students in government degree colleges of Khordha District. The perusal of the table depicts that out of 120 college students, 14.8 % students had high Influence of ICT, 45.8 % students had average Influence of ICT and 39.3 % students had low Influence of ICT. Out of 60 male students, 15.7 % students had high Influence of ICT, 44.3 % students had average Influence of ICT and 40 % students had low Influence of ICT. Out of 60 female students, 14 % students had high Influence of ICT, 47.3 % had average Influence of ICT and 38.7 % students had low Influence of ICT. Therefore, the quick look of the table reveals that majority of male and female students had average Influence of ICT.

RESULT OF THE STUDY

- It has been found that the access of desktop computers, laptops, Internet, LCD-projectors, slide projectors, printers and scanners was 100% in all sample colleges of Khordha District. Broadband access to the internet was 95.0%, the access of digital camera was 90% and browsing center was 85% and the access of EDUSAT programmes was 40%. Gyan Darshan programmes were not available in colleges of Khordha District as the percentage was zero.
- It was found that only 10% colleges used laptop for internet usage, 25% colleges used desktop for internet usage and 65% colleges used both laptops and desktops for internet usage.
- Out of 06 colleges, it was found that 55% colleges had been using internet for last more than two years. 60% colleges used internet for education purposes, 40% colleges used internet for both education and entertainment.
- Only 60% colleges had video conferencing facility where as 15% colleges used video conferencing system frequently and 35% colleges used rarely. 55% colleges used projectors frequently, 35% colleges used projectors rarely.
- It has been found that, 85% colleges had computer related courses. 95% colleges had computer-based faculty. 85% colleges had well qualified computer-based faculty and 90% colleges had well experienced computer-based faculty. 25% colleges, students used computer for one hour, in 45% colleges, students used computer for two hours. 55% colleges had good quality ICT equipment, 45% had no good quality ICT equipment. 90% had reliable ICT equipment. 95% colleges had student- computer ratio more than 1:3.
- It has been found that, 3.25% college students had high awareness of computer, 68.7% college students had average awareness of computer and 28.2% college students had low awareness of computer. 4.7% female college students had high awareness of computer, 67.0% female college students had average awareness and 28.3% female college students had low awareness of computer. 1.7% male college students had high awareness of computer, 70.3% male college students had average awareness and 28.0% male college students had low awareness of computer.

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