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RESEARCH ARTICLE

ASSESSMENT OF KNOWLEDGE AND UTILIZATION OF INFORMATION AND COMMUNICATION **TECHNOLOGY (ICT) AMONG RADIOGRAPHY STUDENTS IN JAMIA HAMDARD**

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ARTICLE INFO ABSTRACT Background: Information and communication technology (ICT) has been the most fascinating Article History: phenomenon that has characterized the 21st century. The growth of these technologies has over the year Received 17th October, 2021 been accrued to researchers in the field of science and technology. According to Wikipedia online Received in revised form information technology is the use of computers and software to manage information, store data, and 15th November, 2021 transmit the data as necessary. The government of India's (GOI) initiative in education through ICT Accepted 20^{th} December, 2021 Education should highest priority for the development of any country. The government of India (GoI) has Published online 31st January, 2022 taken many imitative towards better utilization of ICT in education Information and communication Keywords: technology is often considered to be a catalyst for change, changes in teaching styles, and changes in learning methods and information acquisition (Watson, 2005). It means technology that provides access to Knowledge, in formation through telecommunications. Attitude, Practice. Aim: To determine the Availability, Reason, knowledge and utilization of information and communication technology among radiography students in JamiaHamdard university. Objective •To assess the availability OF ICT facilities to the radiography students in JamiaHamdard new delhi . •To determine the reason for the use of ICT by the radiography students. •To find out knowledge and utilization of ICT. student, And reason for using ICT TOOLS. Result: This survey based research revealed that A total of 150 responses were collected, out of them 42 % (n=63) were females and 58% (n=87) were males. There were more males than females. The top ICT Apart from that (62.7%) 94 students said good contributions of ICT Towards personnel development ,(46%) 73 students had done microsoft office training .(36%) 54 students confirmed their improved commination skills due to using Ict. Apart from that while trying to know the availability of Ict to students (46%) 70 students said not provide(30%) 45 students said find enough Ict facilities .(293 %) 44 students confirmed university had ICT innovation based Learning practice .(87.3%) that is 131 students use google for accessing information. (36%) 54 students were engaged personally in project using ICT. *Corresponding a uthor: Conclusion: Majority Radiography students in JamiaHamdard had knowledge of ICT and their level of Sabree na Afzal knowledge was relatively good. Majority of the students in the research population had access to ICT facilities, Also, there were no significant gender difference in the use of information and communication technology among the Radiography students, the extent of their use of these facilities were relatively good. Lastly, there was the full utilization of ICT by the Radiography students because of adequate internet access by the university. However, the researcher strongly believes that, workshops should be provided, training programs on ICT, projects on ICT innovations then knowledge and utilization of information and communication technology (ICT) among the Radiography students in Jamia Hamdard will be greatly improved.

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Material and method: This study was observational, comparative &questionnaire-based designed, and carried out in the Department of paramedical sciences, SNSAH, Jamia Handard New Delhi. A total 170 students were included in the study. Approval for this study was obtained from ETHICAL Committee Jamia Hamdard The self-structured questionnaire was prepared and reviewed by experts. Solely after their endorsement, it was shared with the participants. Consent was taken from the students. The survey was online based and the questionnaire was sent to participants via mail and SMS. The data collection was by questionnaire administered randomly and analyzed with percentage table. Among the 170 questionnaires sent online vai mail, sms, 150 students responded and 20 students did respond. The research was analyzed to bring out the students" knowledge, the availability of ICT to the students, " utilization of ICT by the

represented programme was Bmit (n=113,75.3%%), 63.3 %) 95 students were having good knowledge of

INTRODUCTION

A basic understanding of information and communication technology (ICT) in Healthcare system and education is vital in keeping level of rapidly changing technologies. The definition of ICT is an umbrella term that includes any communication devices or applications, encompassing: radio, television, cellular phones computer and network hardware and so ftware, satellite system and so on, as well as the various services and applications associated with them, such as videoconferencing and distant learning. ICT's are diverse set of technological tools and resources used to communicate and to create disseminate store and manage information. According to Wikipedia on-line information technology is the use of computers and so ftware to manage information, store data, and transmit the data as necessary. ICT encompasses a range of rapidly evolving technologies (telephone, cables, satellite, TV and radio, computer -mediated conferencing as well as digital technology (information networks, World Wide Web, intranets and extranets software applications. Government of India (GOI) INITIATIVE IN EDUCATIONTHROUGH ICT Education should be highest priority for the development of any country. Government of India (GoI) has taken many imitative towards better utilization of ICT in education both in schools as well as in higher education institutions. Following are the major program of ICT in Teaching-Learning. (4)

National Mission on Education through Information communication Technology. The mission has two major components: Providing connectivity along with provision for access device and Content generation..

Following are the programs under NMEIC:

NPTEL: NPTEL: is acronym of National Program on Technology Enhanced Learning is an initiative of IITs and IISc.

Virtual LabsA-VIEWSpoken TutorialB)Digital Library

INFLIBNET

The UGC-INFONET Digital Library Consortium was formally launched in December, 2003 by Honorable Dr A P J Abdul Kalam, the President of India soon after providing the Internet connectivity to the universities in the year 2003 under the UGC-INFONET program. Provides online books and journals to the college and universities at very low-cost.

Digital India: Digital India campaign launched by prime minister of India with objective to transform India into a digitally empowered society and knowledge economy. The government of India laying the education system is the great emphasis from the use of innovations. For the reforming of the education system, the Indian government constructed many education commissions at every step. From the 1970s decade, education agencies felt information and communication technology (ICT) might show much better results in the field of teaching and learning. The Ministry of Education and Social Welfare felt it the emphasis of Education Technology (ET) for qualitative improvement of education and included the ET Project in its Fifth Five Year Plan in 1971 (Loan, 2017). According to Nation Policy of Education (NPE, 1986, p.22), "ET will be employed in the spread of the useful information, the training and the retraining of teachers, to improve quality education, sharpen awareness of art and culture, and inculcate abiding values etc., both in the formal and non-formal sectors" (Kumar, 2012 and Educational Technology in India's Higher Education, 2017). Whereas in the revised NPE, 1992 has laid emphasis on the use of educational technology for improving both "quality" and "quantity" of education for the first time in the history of Indian education (Educational Technology in India's Higher Education, 2017). When in the field of education, the use of computer and Internet technology came into new forms and then ET converted into ICT. (5) ICT in schools have been included in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). Today's ICT in Schools is a component of the RMSA. It was launched in March 2009 to provide opportunities to secondary stage students to build their capacity on ICT skills and make them learn through computeraided learning processes. The National Policy on ICT (2012) initiative focused on ICT use in School Education to devise, catalyze, support and sustain ICT. It promotes the ICT enabled activities and processes in order to improve access, quality, and efficiency in the school system (Singh, 2019) (6). Information and communication technology is often considered to be a catalyst for change, changes in teaching styles, and changes in learning methods and information acquisition (Watson, 2005). It means technology that provides access to information through telecommunications. The use of ICT has changed our traditional learning methods and increased demand. Rethink education from the latest perspective (White, 2010). ICT capabilities are essential to the participation and commitment of the information society (7). Education is the first and best key area of ICT applications. ICT can help by providing other educational possibilities (Casal, 2007) The purpose of ICT in education is generally to familiarize students with the use and workings of computers, and related social and ethical issues. Moyo (1996) pointed out that advances in information and communication technology make it necessary for universities and other institutions participating in teacher training programs to actively participate in the use of ICT. According to the Organization for Economic Co-operation and Development (OECD) (2001), there are three main rationales for the importance of including ICT in education. First, the economic aspect: the OECD states that 21st Century employers' consider workers with ICT skills to be preferable. Therefore, learners are now aware that acquiring ICT skills is important for their future career. Second, the social aspect: ICT is considered to be a requirement for social participation in the community and workplace since ICT now is seen in the same position as literacy and numeracy. In addition, the wider use of ICT will lead to some benefits in education, such as a good relationship between home and school, greater parental involvement student progress and better chances for the interactive involvement of educational institutions in society. Third, the pedagogical aspect: ICT plays significant roles in broadening and enriching teaching and learning (8). Knowledge of ICT among students no doubt plays an important role in developing a nation The knowledge, skills and confidence with computer technologies are assets for those who are interested in competitive market .Furthermore, with the increasing use of ICT in education all over the world, new skill and competences among the students are necessary for them to learn effectively. Students who are not well exposed to computers and the internet technology are likely to get further behind their peers who did have such exposure.

With increasing use of ICT in schools, it becomes imperative that students should be equipped with digital literacy competencies in order to exploit information resources that the electronic age engenders (Jeff Haywood et al.2003). ICT utilization remains paramount, if a student must develop his/her technological competencies and remain relevant in her field of study, as well as compete favourably in any global setting. The key thing is not in ICT itself, but in understanding ICT and effectively employing it in learning and research. The utilization of the internet and other forms of information technology system puts the student on the driving seat on the highway ofleaming. Leaming personalized by the student and the geographical barriers to learning are removed (9). Information Communication Technology (ICT) has become a very important part of health care delivery and management processes such as teaching, communication, storage and retrieval of medical or health information. This has positively affected how students are taught, how patients are managed and the training of health workers among other things. Radiology Information Systems (RIS) covers systems supporting administrative tasks such as accounting, scheduling, lab administrations and reporting. The RIS is usually integrated with PACS. Digital Imaging and Communication in Medicine (DICOM) is the standard for communication and management of medical imaging information and related data (10)

Ist international conference on ICT for Digital, Smart, and Sustainable development was held in JAMIA HAMDARD on 15-16 March, 2019 by ICIDSS D'19.[3] Digital India mission is success fully leading the transformation of India as a modern nation this conference aims at contributing towards this mission of the Government of India to promote Information and Communication T echnologies for the success of Digital India Program and have more Smart and Sustainable cities across the country. The conference focuses on developing strategic pl ans for balanced and inclusive growth of the economy through ICT in critical, emerging, and promising areas comprising of but not limited to:

- Confluence of Mathematics, Statistics, and Computing
- Sustainable Energy Consumption
- Human Behaviour, Economic, and Social Sustainability
- Computational Biology
- Applied Technologies for Computational Sustainability
- Intelligent System and Machine Learning
- Open Data, Data Science and Data Engineering
- Neural Networks, Fuzzy Logic and Soft Computing.

Technology is best when it brings people together and help in achieving a larger goal of sustainable development. "The advance of technology is based on making it fit in so that you don't really even notice it, so it's part of everyday life." Prof M. Afshar Alam, Dean, School of Engineering Sciences and Technology was quoted saying (11)

AIM: To determine the Availability, Reason, knowledge and utilization of information and communication technology among radiography students in Jamia hamdard university.

OBJECTIVE

• To assess the availability of information and communication technology facilities to the radiography students in Jamia hamdard new delhi.

• To determine the reason for the use of ICT by the radiography students.

NEED FOR THE STUDY

• To determine Availability, Reason ,knowledge and utilization of ICT among students.

METHODS

RESEARCH METHODOLOGY: This chapter describes the methodology adopted in this study to assess the knowledge and utilization of information and communication among Radiography ICT in Jamia Hamdard university. This phase of the study included selecting a research design, variables, setting of the study, population, sample, criteria for sample selection, sample size, sampling technique, development and description of the tool, content validity, reliability of the tool, procedure for data collection and plan for data analysis.

RESEARCH DESIGN: A survey research method was adopted for this research. This survey was centered on the knowledge and utilization of information and communication technology (ICT) among South East Radiography students.

Therefore, the research is in two parts:

- The assessment of the knowledge of ICT among the students.
- The utilization of ICT among the students.

RESEARCH SETTING OF THE STUDY: This research was conducted in paramedical department at Jamia hamdard university south delhi.

STUDY DURATION: This questionnaire-based study carried out for the time period of two months from July 2021 to august 2021 at paramedical department Jamia Hamdard university new delhi

SAMPLE SIZE: Sample size of the population was 170 students who fulfilled the sample selection criteria were selected for the study.

SAMPLING TECHNIQUE: The samples were selected by convenient s ampling technique. The investigator informed the selected samples about the study and obtained their written consent to participate in the study.

STUDY POPULATION: The population of this study consisted of diploma, undergraduate post graduate Radiography students of Jamia hamdard university. The population used for this study is 170 Radiography students.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria: Paramedical students, we asked for their consent and the students who were willing to participate in the study were included.

Ex clusion Criteria: Those who were not willing to participate in the study. Students other than the paramedical department.

DEVELOPMENT AND DESCRIPTION OF THE STUDY.

The tool was constructed after an extensive review of literature and guidance from medical and nursing experts and with the investigator's personal and professional experience, a structured questioners was developed for the Assessment of knowledge and utilization of information and communication technology (ICT) among R adiography students Jamia Hamdard. The tool constructed in this study was divided into four sections

Table 1. Categories of questionnaire	Table 1.	Categories	of questionnaire
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Section	Items	No. of Question
А	Demographic	6
В	data Waranda dan harad	10
	data Knowledge based	12
С	Availability of	6
	ICT	_
D	ICT utilization by students	7
	Total	31

Section A: Demographic Variables :

The demographic variables for students were age, educational qualification, program of study marital status and family type.

Section B: Tool to assess the level of knowledge

It consisted of structured questionnaire to assess the knowledge regarding information and communication technology among radiography students.

Table 2. Categories of level of knowledge

S No.	Items	No. of Question
1 2 3 4 5.	General knowledge about ICT Ict training. Experience of using ICT Stu dent confidence while using Ict Ict contribution to personnel dev elopment	4 2 1 4 1
	TOTAL	12

Section C: to assess the Availability of ICT among radiography students: It consisted of 6 questions regarding avalability of ICT. The level of Availability of ICT was characterized by using pie chart.

Section D: Tool to assess the utilization of ICT by students It consisted of 7 questions to assess the level of utilization of ICT by students using pie chart.

METHOD OF DATA COLLECTION

Approval for this study was obtained from ETHICAL Committee Jamia Hamdard The self-structured questionnaire was prepared and reviewed by experts. Solely after their endorsement it was shared with the participants. The study was conducted among radiography students of paramedical Department in Jamia Hamdard university, south Delhi. Consent was taken from the students. The survey was online based using google Google software and the questionnaire was sent to participants via mail and SMS. The students were invited by email and SMS with personalized links. After collecting their responses, they were recorded and analyzed by descriptive statistics. Data on the students'' ICT knowledge, ICT availability to students, students'' ICT utilization as well as the personal information of the students were collected This was done using a questionnaire administered randomly to 170 Radiography students in paramedical department Jamia hamdard. After the distribution of questionnaires, sufficient time was given to allow respondents to study and fill their responses.

The data were collected studied, edited, tabulated and analyzed. The ICT knowledge level of the Radiography students was analyzed by determining how many of them have undergone any form of training. Also, the assessment of their ICT knowledge which range from poor to excellent was able to describe the students" ICT knowledge. Other areas described in the analysis are; the availability of ICT facilities to students, both the school based and the personally acquired facilities.

Major reasons for the students" use of ICT was analyzed at descriptive level, also if the quality of ICT facilities in the Jamia hamdard university determines the students" ICT skills. The data collected was presented on percentage table and analyzed as appropriate. pie chart were utilized for presentation and analysis of some data.

RESULTS

SECTION A: DESCRIPTION OF THE DEMOGRAPHIC VARAIBLE OF STUDENT.

Table 3. Percentage distribution of demographic variable

Demographic Variable	No. of participants	Percentage%	
Gender	87	58%	
Male			
Female	63	42%	
Age			
18-20	54	36%	
21-23	45.3	45.3%	
24-26	16.7	16.7%	
26-28	3	2%	
Educational	17	11.3%	
qualification			
Diploma			
Undergraduate	112	74%	
Postgraduate	21	14%	
Program of study			
Diploma	14	9.3 %	
Bmit	113	75.3%	
Mmit	23	15.3%	
Marital status Married	5		3.3%
Unm arried	145		96.7%
Family type			
Nuclear family	86		57.3%
Extended fam ily	35		33.3%
Singleparent	29		19.3%

Result of section A: It shows basic information of participants like gender, age, educational qualification, program of study, marital status and family type.







Educational qualification





Figure 3

Program of study

150 responses



Figure 4

A total of 150 responses were collected, out of them 42 % (n=63) were females and 58% (n=87) were males. There were more males than females. 45.3% (n=68) of the students falls

under the age group of 21-23. The sample included diploma (n= 17,11%), undergraduate (n=112,74%%) and postgraduate (n=21,14%). Study of program was reported by 150 students representing all paramedical students. The top represented programme was Bmit (n=113, 75.3%%), diploma(n=14, 9.3%) and Mmit (n=23,15.3%).apart from this it shows 5 student (3.3%) are married and 145 students are unmarried (96.7%).

SECTION B: ASSESSMENT OF LEVEL OF KNOWLEDGE REGARDING ICT.

ŀ	Knowledge	Correct answer (ye	Wrong (no)%	Answer	Don't know %
General	Information	91.9	8.1		

Table 4. Percentage distribution of level of knowledge of students regarding ICT

Knowledge of ICT	Good	Poor	Excelent
	63.3%	33.3%	3.4%
Contribution of ICT to student personnel development	62.7%	27.3%	10%
Experience using ICT	63.3%	21.3%	15.3%
Whether received IC Ttraining	Yes13.3%	No 86.7%	
Confident while	A lot	Somewhat	Notat all
Doing IC Ttasks :Produce text using word Edit on line text	21%	54%	20%
using word Edit of the text			
	25.3%	54%	20.7%
Create database	18%	43.3%	38.7%
Create questionnaire	17%	38.7%	44%



GRAPH 1

ave you received any ICT training? ^{i0 responses}



If you have done any ICT training which omong the following were in your 3CT Training package? 150 responses



Figure 6



Graph 2

Table 5. Showing ICT training package done by student.

Microsoft	Computer	Software installation	Desktop
office	programing		publishing
48.7%	30.7%	14.7%	6%

Table 6. How does portable computer connect to internet

Wireless internet	Mollie network Viam odem using USB		Dontknow
59.3%	21.3%	8%	11.3%

D

What specific knowledge, skills and qualities have you developed through the use of information and communication technology ?

150 responses



Thinking about your experience with digital media and digital devices: what is your level of experience?

1hD responses



What is the contribution of ICT facilities to your personal experience and development?



Result of section B: Shows (91.9%),137 student's gave correct answer and(63.3 %) 95 students were having good knowledge of ICT and 33.3%50 students were having poor knowledge,(3.4%) 5 students were having excellent knowledge. Apart from that (62.7%) 94 students said good contributions of ICT towards personnel development, (27.3%)41 students find poor contribution of Ict in their personnel development and (10%) 15 students had excellent contribution of Ict. Experience of Ict(63.3 %) 95 students were having good experience while (21.3%) 32 students were having poor experience and (15.3 %) 23 students were having excellent experience. (86.7 %) that is 130 students had not done Ict training and(13.3%) 20 students had done Ict training under package(48.7%) 73 students had done Microsoft office (30.7 %) 46 students had done computed programming, so fiware installation was done by (14.7%) and (6%) students had done training of desktop publishing. (50.7 %) students were somewhat confident in producing text using word. (21%) students were more confident in producing text using word and (28 %) students were not confident at all. (36%) 54 students improve their communication skills using Ict.

SECTION C: Assessment of Availability of ICT to students.

Table 7. Which ICT facilities are available to radiography students

Internet wireless	Computer laboratory	Online public access catalague	E-learning facilities
37.3%	34%	22%	67%

Table 8. Workshops provided by college

Notprovided	Optional activities are provided	Activities' Depending on program	Mandatory Activities are provided
46%	20%	18%	14%

Which ICT facilities are available in your III institution?



To what extent are workshops or other learning activities about technological skills provided to students by the college?





Do you think your college's computing facilities are adequate?





Figure 14

Is there a special academic department dedicated to the pedagogical use of ICT at your institution?



Figure 15

Result of Section C: its assessment regarding Availability of ICT in jamia hamdard university. It shows that (37.3%) that is 56 students were aware internet wireless is available, (34%)51 students computer laboratory is available ,(22%) 33 student's said online access catalogue is available and (6.7%) 10 students are saying E- learning facilities are available Apart from that while trying to know the availability of Ict to students (46%) 70 students said not provided ,(20%) students said optional courses or activities are provided ,(32%) students said Optional or mandatory courses or activities are provided. Training programme by university in 2 years(46.7%)students answer was may be(41..3%) 62 students said no and(12%) students answer was yes... (42.7%) students find ICT facilities maybe adequate while other(30 %) 45 students said yes enough facilities and (27.3) find inadequate...(49.3%) 74 students were saying may be university has Ict based innovation in learning practice, (29.3 %) 44 students said yes university had ICT innovation based Learning practice and(21.3%) 32students said no. (62.7%) 94 students said may be there is specific department for ICT in Jamia Hamdard, (22.7%) 34 student Said yes there is a specific department for ICT while (14.7%) 22 students said no.

SECTION D: ASSESSMENT OF level of utilization of ICT by the students



Result of Section D

Assessing the utilization of ICT by students of paramedical department jamia hamdard. It shows that (41.3%) 62 students used word processing (,24.7) 37students used power point, (8%) 12 students are using spreadsheets while (26%) 39 students doesn't use computer applications in learning practice apart from that (87.3%) that is 131 students use google for accessing information. And only (10 .7 %) 16 student's use YouTube. (38.7 %) 58 students use ICT devices for storing data, (28%) 42students use Ict devices for creating power presentations,(16.7) 25 students for other use and (16.7%) 25 students don't use ICT devices for learning purpose. (69.3%) 109 students use computer for leaning activities during lecture , (16.7%) 25 students use computers to conduct experiments, (9.3%) 14 students use it for uploading data and (4.7%) 7 students for collecting data and images. (80.7%) 121 students find positive impact during online lecture, while (19.3) 29 students did not agree.(36%) 54 students were engaged personally in project using ICT answer (64 %) 96 students were never engaged in any project.

DISCUSSION

This study ""assessment of the knowledge and utilization of information and communication technology among Radiography students in Jamia hamdard"" was triggered by the researchers interest in ICT and to assess the level of knowledge and utilization of ICT among the students. She observed that many students own and use various ICT facilities but their level of use and their proficiency in the ICT facilities were not clear. The following were revealed by the research. It was discovered that almost all the students (95%) had some level of knowledge in ICT and this corresponds to what was discovered in the study carried out by Teck S.W et el, 2011. Among this population, majority of them (90.5%) had received ICT training. The result of this study showed that among the 170 students in the research population, over(18%) students had under gone the university mandatory ICT course, implying that majority of the students had knowledge of ICT. In addition some of the students (13.3%) had informal training in ICT, . Generally this shows that the students have various levels of knowledge in ICT. The study also revealed that (48.7%) of the students did Microsoft Office package during their ICT training. While very few did desktop publishing (6%) and computer programming (30.7). This must be as a result of the lack of comprehensive inclusion of different ICT packages in the students" curriculum as stated in a survey done among medical students of VSS medical college Burla 2009, India.

CONCLUSION

Majority Radiography students in Jamia hamdard had knowledge of ICT and their level of knowledge was relatively good. Majority of the students in the research population had access to ICT facilities, Also, there were no significant gender difference in the use of information and communication technology among the Radiography students , the extent of their use of these facilities were relatively good. Lastly, there was the full utilization of ICT by the Radiography students because of adequate internet access by the university. However, the researcher strongly believes that , workshops should be provided training programs on ICT , projects on ICT innovations then knowledge and utilization of information and communication technology (ICT) among the Radiography students in Jamia Hamdard will be greatly improved.

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