

USE OF ICT BY THE POST GRADUATE STUDENTS IN GOVERNMENT MEDICAL COLLEGE, KOZHIKODE, KERALA

LINSHA M.

Research Scholar
Library and Information Science
CHMK Library
University of Calicut
Malappuram-673635, Kerala State
Email: linsha1992@gmail.com

Dr. M. BAVAKUTTY

Former Head
Dept. of Library and Information Science
University of Calicut
Malappuram-673635
Kerala State
Email: m.bavakutty@gmail.com

ABSTRACT

The aim of this study is to investigate the use of ICT by the Post Graduate (PG) medical students of Government Medical College, Kozhikode, Kerala. Questionnaire survey was used to collect the information. The results show that mobile phone is used always by lion's share (94.44%) of medical students. Around 3/4th of the students always use ICT to keep them up to date. The purpose of more than 3/4th (76.66%) is for communication and nearly half (45.55%) depend ICT for educational information. For half of the students ICT influenced their access to current information. Two third (66.66%) of them are moderately satisfied with ICT provision. Poor infrastructure is the main problem that hinders the use of ICT and a great majority of them (81.11%) suggested to facilitate easy access of internet.

Key words : *Information and Communication Technology, Information Technology, Government Medical College, Medical Students, College Students, Information Behaviour.*

1. Introduction

Information and Commutation Technology (ICT) has brought changes in every sector : economics, education, communication etc. Allocation and discovery of information became easy with the intervention of ICT. ICT has significant role in many aspects of health care. It is a fact that medical field has undergone changes due to the influence of ICT. ICT is used in health care broadly in four areas viz. Education, Research, Referral, and Management of Data. Information and communication technology has made medical knowledge accessible for everyone. Patients not only use ICT to better understand medical issues, but they also use networking to inform each other, rate their doctors and question

medical procedures. The internet has made the medical knowledge accessible for everyone around the world and medical knowledge is no longer a health care provider monopoly (Karsenti & Charlin, 2008). The impact of ICT on health care has been particularly significant in developing countries and in rural settings, where long distances and the quality of the infrastructure hinder the movement of physicians and patients reducing the quality of the health services delivered (Geissuhler, 2003).

Post Graduate students in Government Medical Colleges are being taught to become highly trained doctors in future and should have the capability of gathering medical information in a broad variety of settings. ICTs

help them to collaborate with colleagues and to attain timely information. ICTs are used to improve health system efficiencies and prevent medical errors. Hospital's internet connection allows physician to diagnose the diseases and treat the patient. Tele-consultation, electronic health recording system etc. help health professionals in various ways. ICT facilitated healthcare which is also known as e-health is well recognized for the collaboration and involvement of patients and medical professionals in the prevention and treatment of diseases. ICT provides better and efficient healthcare services. ICT can potentially transform the current medical scene ("Patient care", 2016). In these circumstances it is necessary to study the ICT usage of medical professionals and to understand the various dimensions and such a study has not been done so far in this part of the country.

2. Review of Literature

A number of studies on the use of ICT by medical students are seen in literature, out of which some of the recent studies in medical and allied fields are reviewed here. Cross sectional survey of medicine university of Nigeria has been done by Ekenze et al. (2017). The study by Kirkova-Bogdanova (2017) assesses the computer literacy of health care students of Central Bohemia University. Izhar Uddin et al. (2017) describes the role of ICT in the health sector of Peshawar in Pakistan. A collaborative study was conducted by Al-Hariri and Al-Hattanmi (2017) investigates the students' use of technology and achievements in physiology courses at five health colleges of University of Dammam. Rajula (2016) investigate the extent of use of ICT in medical education in Kenya. Use of ICT by the first year medical students of four different medical colleges of University of Jordan has been reported by Almarabeh et al. (2016). A cross sectional sample of 200 medical students and 50 interns in a medical college in Maharashtra has been studied by Tushar et al. (2016). An Indian study by Deshmukh et al (2013) deals with a survey on the use of ICT by medical

students of Punjabrao Deshmukh Memorial Medical College, Amravati. How medical students at the Federal University of Rio Grands de Norte use ICT has been explored by Silva et al. (2015). A joint survey has been done by Peter and Azu (2015) by taking a sample of 300 students who attended the annual conference of Society of Experimental and Clinical anatomist of Nigeria has been reported.

Few of the research studies done in the paramedical and allied medical fields are also reviewed here. A study done by Inyang et al. (2017) was meant to evaluate the knowledge and utilization of ICT resources by students in the Faculty of Allied Medical Sciences, University of Calabar, Nigeria. Use of internet and electronic information resources by teachers and students of Physiotherapy colleges of Punjab has been studied by Manhas et al. (2015). The aim of the study of Lopes et al. (2016) was to compare the familiarity profile and use of ICT by freshmen and senior dental students. The paper by Leeladharan et al. (2015) throws light on the use of mobile web by the paramedical students of Puducherry.

3. Objectives of the Study

The main objectives of the study are given below:

1. To identify the various types of ICT equipment and their frequency of use by the post graduate medical students of government medical college.
2. To find out the reasons for preference of ICT equipment.
3. To know the purpose of use of ICT equipment.
4. To recognize the nature of information accessed through ICT.
5. To identify the influence of ICT on the professional communication of medical students
6. To find out the level of satisfaction in the use of ICT.

7. To identify the barriers in using ICT.
8. To elicit suggestions so as to improve the use ICT in the medical sector.

4. Methodology

Structured questionnaire was administered to collect the details from the respondents. Hundred questionnaires were distributed among the post graduate medical students of Government Medical College, Kozhikode, out of which 90 filled in questionnaires were received back. For tabulating and analyzing data, percentage method is used. On the basis of formulated objectives, interpretation is made through analysis.

5. Analysis of Data

The analysis of the data done is discussed under the following headings:

5.1. Type and Frequency of Use of ICT Equipment

Mobile phone is the major ICT equipment used (94.44%) always by medical students (table 1). Around 3/4th of them are always use computer/laptop. Only a meager percentage (17.77%) is always using fixed line telephone. The rest of the ICT equipment are not always used.

Among those ICT equipment, often used are CD/DVD (46.66%), fixed line telephone (38.88%), video technology (35.55%), fax (28.88%), LCD projector (24.44%) etc. Those ICT equipments sometimes used are printers (32.22%), Scanners (28.88%), CD/DVD (27.77%), Computer/laptop (24.44%) etc.

Thus it is seen that lion's share of the post graduate medical students always use mobile phones and computer/lap top in their daily work.

Table 1

Type and Frequency of Use of ICT Equipment

Type of ICT Equipment	Frequency of Using ICT Equipment									
	Always		Often		Some Times		Rarely		Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Mobile Phones	85	94.44	-	-	05	05.55	-	-	-	-
Computer/ Laptop	68	75.55	-	-	22	24.44	-	-	-	-
Personal Digital Assistant	-	-	04	4.44	03	03.33	38	42.22	45	50.00
Flash Disc	-	-	08	8.88	04	04.44	42	46.66	36	40.00
LCD Projector	-	-	22	24.44	10	11.11	40	44.44	18	20.00
Radio	-	-	18	20	08	08.88	45	50.00	29	32.22
CD/ DVD	-	-	42	46.66	25	27.77	23	25.55	-	-
Video Technology	-	-	32	35.55	14	15.55	32	35.55	12	13.33
Scanners	-	-	17	18.88	26	28.88	47	52.22	-	-
Cameras	-	-	15	16.66	13	14.44	63	70.00	-	-
Printers	-	-	18	20	29	32.22	43	47.77	-	-
Optical and Magnetic Discs	-	-	06	6.66	08	08.88	49	54.44	28	31.11
Fixed Line Telephone	16	17.77	35	38.88	10	11.11	29	32.22	-	-
Fax	-	-	26	28.88	18	20.00	31	34.44	15	16.66

5.2. Reasons for Preferring ICT Equipments

Post Graduate Medical students were asked to point out their opinion about the

reasons for preferring ICT equipments for their daily activities. The data provided by the PG students are presented graphically in the Fig.1.

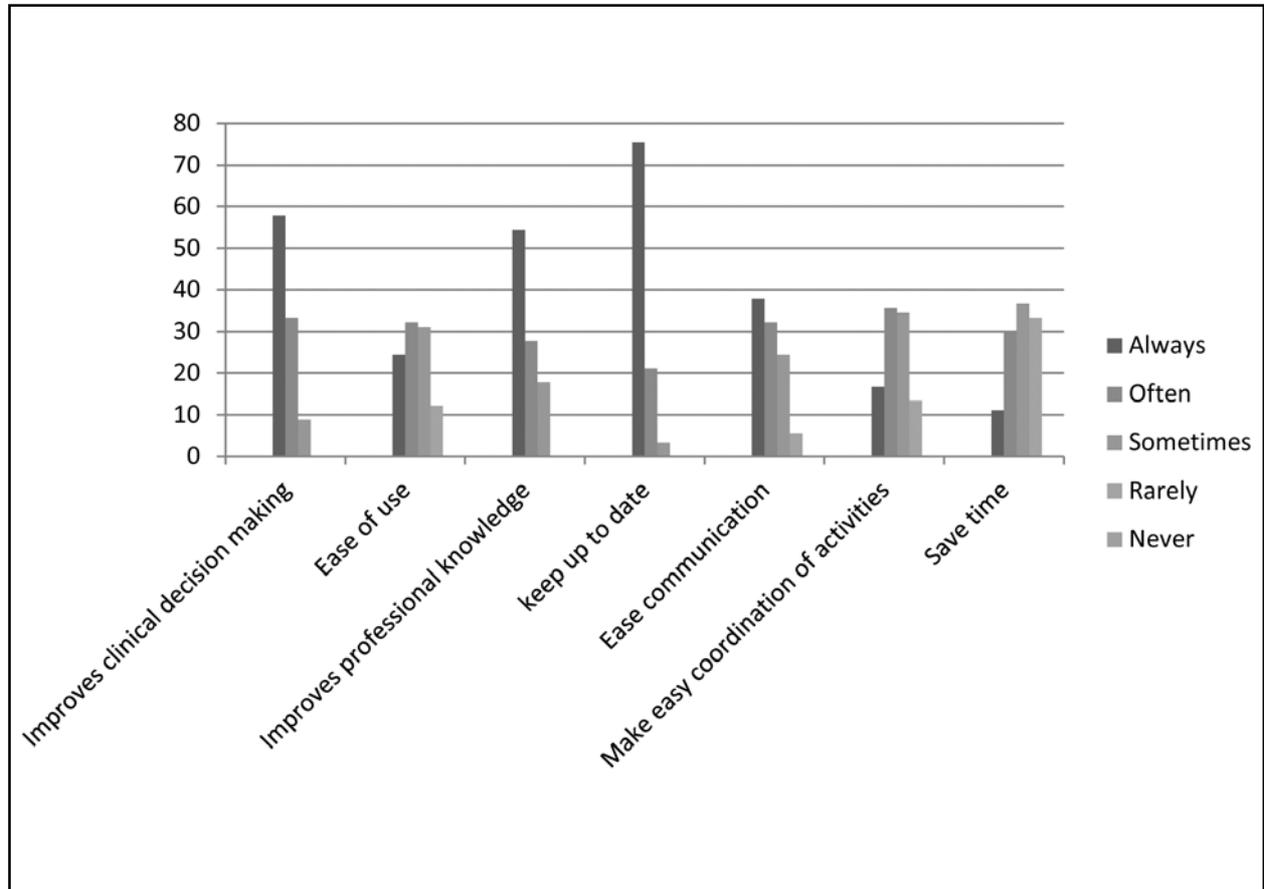


Fig. 1. Reasons for Preferring ICT Equipments

The reasons mentioned by the students (fig. 1) are that the ICT equipments helps them to keep upto date in their activities. More than half (57.7%) always prefer them because they can improve the clinical decision making. A little more than half (54.44%) prefer since it improves their professional knowledge. Ease of use is the reason by 32.22% of them. For 35.55% of the students, ICT makes easy co-ordination of their activities. A very few of them (11.11%) are of the view that use of ICT saves their precious time.

5.3. Purpose of Using ICT

It is found from the study that more than 3/4th (76.66%) use ICT for communication purpose. Around 2/5th of them (38.88%) sometimes use ICT to keep abreast with the latest developments. More than 1/3rd of them (36.66%) sometimes depend on ICT for presentation purpose. Thus from this study it is found that a major share of students are using ICT for communication.

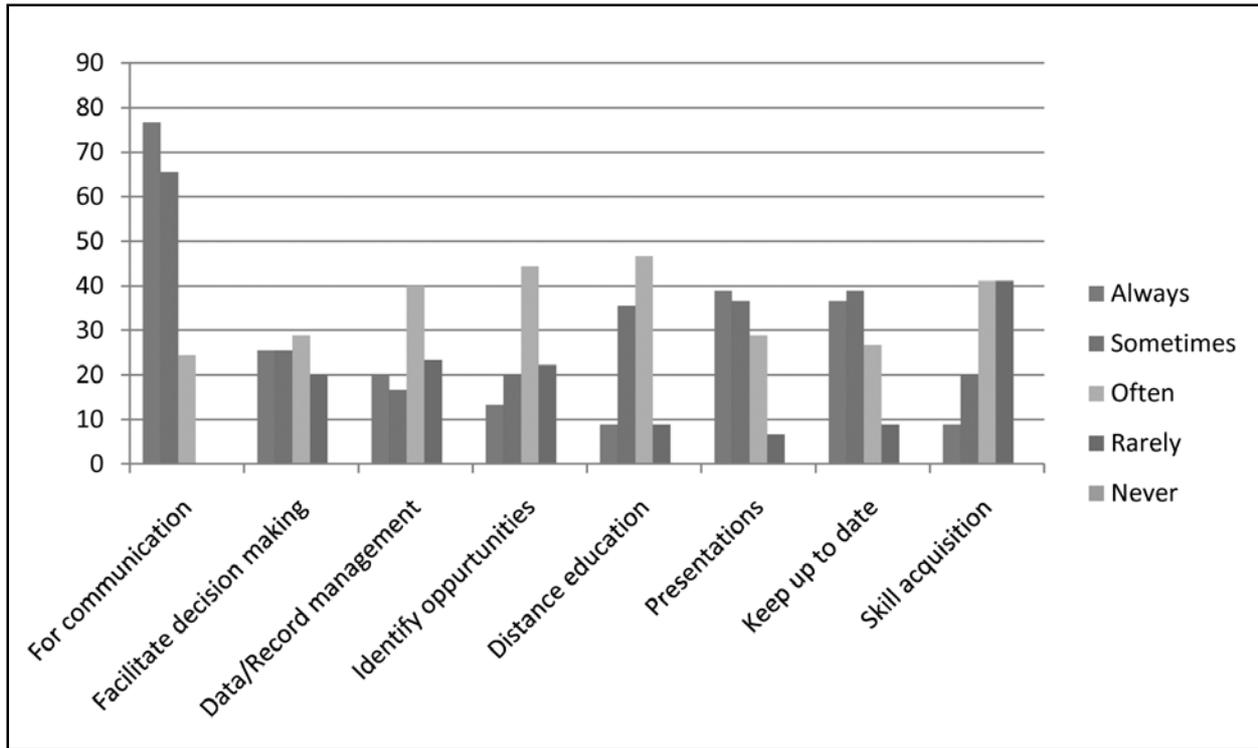


Fig. 2. Purpose of Using ICT

5.4. Nature of Information Sought through ICT

It is seen from the analysis (table 2) that nearly half (45.55%) of students always depend on ICT for getting educational information. Career information is preferred always by 43.33%. Nearly a quarter always

use it for clinical type of information. On the other hand students rarely use ICT to access information related to legal issues in medical field (46.66%) and administrative information (43.33%).

Around 1/3rd of them (36.66%) often use administrative information and 28.88% prefer medico legal issues.

Table 2

Nature of Information Accessed through ICT

Nature of Information	Frequency of Use									
	Always		Often		Some Times		Rarely		Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Clinical information	22	24.44	16	17.77	52	57.77	-	-	-	-
Educational information	41	45.55	14	15.55	35	38.88	-	-	-	-
Career information	39	43.33	6	6.66	33	36.66	12	13.33	-	-
Training opportunities	9	9.99	18	20	22	24.44	41	45.55	-	-
Administrative information	6	6.66	33	36.66	12	13.33	39	43.33	-	-
Medico legal information	3	3.33	26	28.88	19	21.11	42	46.66	-	-

5.5. Influence of ICT on Professional Communication

It is seen that half of the students (50%) responded that depending on ICT has influenced their access to current information. Around half (47.7%) opined that ICT influenced in ensuring easy communication. A little more than 2/5th (44.44%) reported that ICT influenced collaboration among colleagues. ICT enabled faster access for getting medical

information according to 42.22% of them. For 41.11% of them ICT helped in facilitating remote consultation, diagnoses and treatment. ICT has increased job efficiency among one third (34.44%) of the respondents. But according to 27.77% of the students ICT reduced face to face interaction. For a quarter of the respondents (25.55%) ICT helped in producing more number of publications, and around another quarter (23.33%) ICT helped in quicker diagnosis of disease.

Table 3

Influence of ICT on Professional Communication

Sl. No.	Influence of ICT on professional Communication	Disagree		Neutral		Agree	
		No.	%	No.	%	No.	%
1.	ICT has increased job efficiency	15	16.66	44	48.88	31	34.44
2.	Enabled faster access to relevant medical information	24	26.66	28	31.11	38	42.22
3.	Facilitated remote consultation, diagnoses and treatment	28	31.11	25	27.77	37	41.11
4.	Quicker medical diagnosis	36	40.00	33	36.66	21	23.33
5.	Ensured easy communication	22	22.22	25	27.77	43	47.77
6.	Access to current information	07	7.77	38	42.22	45	50.00
7.	Increased collaboration among colleagues	22	24.44	28	31.11	40	44.44
8.	Bettered number of publication	29	32.22	38	42.22	23	25.55
9.	Reduced face to face interaction	36	40.00	29	32.22	25	27.77

5.6. Level of Satisfaction with ICT

Out of the total, 2/3rd of the respondents (66.66%) are moderately satisfied with the current ICT provision in the government medical college (table 4). Only a meager

percentage (5.55%) are fully satisfied and around a quarter (27.77%) are not satisfied. Thus need arises for improving the existing ICT infrastructure in the Calicut Medical College.

Table 4

Satisfaction Level with Current ICT

Level of Satisfaction	Frequency	
	No.	%
Fully satisfied	05	05.55
Moderately satisfied	60	66.66
Not satisfied	25	27.77

5.7. Problems Hinder the Use of ICT Equipments

For any service there will be barriers which prevent or obstruct its flow of use. Here also the post graduate medical students

opened up the problems that hinder the use of ICT equipments in their institution. Details of problems that hinder the use of ICT equipments are presented in table 5.

Table 5

Problems Hinder the Use of ICT

Problems	Medical Students	
	No.	%
Poor ICT infrastructure in the college and hospital	66	73.33
High cost of ICT equipments and services	20	22.22
Poor power supply	08	8.88
Constant break down of equipments	35	38.88
Security/privacy issues	26	28.88
Inadequate access to ICT facilities	65	72.22
Insufficient knowledge on the use of ICT	08	08.88

The analysis given in table 5 shows that poor ICT infrastructure in the college and hospital is the major problem (73.33%). Inadequate access to ICT facilities is the problem for 72.22% of the students. Constant break down of equipments is the problem pointed out by 38.88% of them. More than a quarter of them (28.88%) complained about the security/privacy issues. High cost of ICT

equipment and services is a problem for 22.22% of them.

5.8. Suggestions to Enhance the Use of ICT by Medical Students

Respondents were requested to provide few suggestions for the improvement of use of ICTs in their professional communication activities and the details are presented in table 6.

Table 6

Suggestions to Improve the Use of ICT by Medical Students

Suggestions	Disagree		Neutral		Agree	
	No.	%	No.	%	No.	%
Provide sufficient power supply	24	26.66	48	53.33	18	20
Provision of enough ICT equipments and services	3	3.33	20	22.22	67	74.44
Proper maintenance of ICT equipments	6	6.66	24	26.66	60	66.66
Conducting ICT training programmes	5	5.55	30	33.33	55	61.11
Implementing an effective health information system	6	6.66	32	35.55	52	57.77
Facilitating easy access to Internet	3	3.33	14	15.55	73	81.11
Provide more computers	6	6.66	33	36.66	51	56.66
Expansion of internet bandwidth	7	7.77	35	38.88	45	50
Employee more IT personnel	8	8.88	44	48.88	38	42.22
Increase budget allocation to ICT	3	3.33	29	32.22	58	64.44
Provide wireless connectivity	5	5.55	18	20	67	74.44

The suggestions put forward by the medical students (table 6) shows that a great majority (81.11%) suggested to facilitate easy access to internet. An equal percentage (74.44% each) suggested to provide enough ICT equipments and services as well as to provide wireless connectivity. Two third of the (66.66%) students suggested to maintain the ICT equipments properly. Enhancing the budget allocation to ICT is suggested by around another 2/3rd (64.44%) of medical students. ICT related training programmes among the students is a suggestion put forward by 61.11% of respondents. More than half of the students suggested providing more computers and half (50%) of them suggested for increasing the internet bandwidth,

6. Findings

Major findings of the study are:

1. Mobile phone is the major ICT equipment used always by lion's share (94.44%) of the medical students. Around 3/4th of them are always using computer/lap top.
2. Around 3/4th(75.55%) of the students always use ICT because it helps them keep up to date. More than half (57.77%) prefer because it helps in improving clinical decision making.
3. The purpose of more than 3/4th (76.66%) of students in using ICT is for communication and around 2/5th (38.88%) to keep abreast with the latest developments.
4. Nearly half (45.55%) of the medical students always depend ICT for getting educational information followed by career related information (43.33%).
5. Half of the students (50%) said that ICT influenced their access to current information.
6. Two third (66.66%) of the medical students are moderately satisfied with current ICT provision.
7. Poor ICT infrastructure is the main problem that hinders the use of ICT (73.33%).
8. A great majority of the students (81.11%) suggested to facilitate easy access of internet.

7. Conclusion

The present study threw light on usage of Information and Communication Technologies (ICTs) by the post graduate medical students in Government Medical College, Kozhikode. It is a real fact that many of the students are deficient of ICT knowledge. This may be due to lack of training in the proper use of ICT. It is seen that the level of use of ICT by the students for academic activities is low even in professional colleges. Hence ICT and its allied fields should also be incorporated into the medical curriculum. Most of the students use IT facilities for social networking and recreation. Social networking if used for medical purpose can be justified. Hence the students should be discouraged from using social networking for other extracurricular purposes particularly inside professional colleges. The results outlined in this paper, with suggestions will be an eye opener to the decision makers and higher authorities of academic institutions particularly in the medical education sector. It is hoped that this paper will help the administrators of the medical colleges in this part of the country understand the need of students in ICT related areas and what improvements should be done.

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