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Bulu Maharana
Sambalpur University, Orissa, bulumaharana@gmail.com

Swarupanjali Biswal
Sambalpur University, Orissa

N. K. Sahu
North Orissa University, Baripada

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Bulu Maharana
Lecturer

Swarupanjali Biswal
Ex-Student

P.G. Department of Library and Information Science
Sambalpur University, Orissa

N. K. Sahu
Lecturer, P. G. Department of Library and Information Science
North Orissa University, Baripada (Orissa)

Introduction

New technology has brought significant changes in education (Bates, 2005). Medical education has also undergone profound changes due to recent technological advancements (Harden, 2002; Davis and Harden, 2001). Medical schools, particularly in the developed countries, have invested heavily in Information and Communication Technologies (ICT), not only to deliver education, but also to improve the quality of services that health professionals provide. Developing countries like India, where a scarcity of human resources in the health sector is a serious problem, can be a particular beneficiary of ICT-mediated education. Lack of educational institutions and qualified medical educators, poor distribution of facilities and poor access to the latest educational infrastructure are some of the issues to be addressed to improve the quality of medical education in developing countries. Advanced technology can address at least some of these problems. In fact, international organizations such as the United Nations (UN) and the World Health Organization (WHO) have acknowledged ICT as a useful tool to address education in health care sector in developing countries (WHO, 2005; Drury, 2005). United Nations Millennium Development Goals have articulated the significance of the use of ICT to address education and health issues (UN Millennium Development Goal, 2004).

Aims and Objectives

The primary purpose of the present study is to investigate use of the state-of-the-art ICT in library of VSS Medical College, Burla. In addition, the study also aims to achieve the following objectives:

- To explore the role of ICT in medical education and research;
- To assess the use of electronic information resources by medical students;
- To identify and analyze specific factors that have hindered the use of electronic information resources by medical students;
- To examine students' attitudes towards use of ICT in medical education and research;

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- To suggest measures for improvement of existing ICT-based resources and services in the medical library.

Methodology

The study used a questionnaire, with 32 questions spread over eight sections: (A) General profile of the respondent, (B) Attitude towards ICT, (C) Use of ICT, (D) ICT enabled teaching and research, (E) ICT training provision, (F) ICT skill of medical students,(G) Access to Medical Information on the Web, and (H) Constraints. To facilitate quantification and analysis of data, mainly close-ended questions were used along with checklists and rating scales. To capture a response and to have fewer missing responses, options such as "no opinion", "don't know", and "don't know about it" are also included. A random sample of 150 (25%) of 600 medical students of VSS Medical College, Burla, was selected and questionnaires were distributed among them. Of those, 128 (85.33%) questionnaires were returned completed.

Literature Review

Asqari and Haywood (1997) assessed the attitude of Edinburgh University medical students toward computers and found that 86 percent agreed that computer skills will be beneficial to them in their future career, and that 62 percent wanted a structured course in computer use. Another study by Nurjahan and others (2002) was undertaken to obtain a self-reported assessment of the use of ICT by medical students at the International Medical University, Malaysia. The survey revealed that 27 students (5.7 percemt) did not use a computer either in the university or at home. Most students surveyed reported adequate skills at word processing (55 percent), email (78 percent) and web searching (67 percent). The study suggested formal inclusion of ICT instruction in the teaching of undergraduate medicine, to enhance medical students' ability to acquire, appraise, and use information to solve clinical and other problems.

Veer Surendra Sai (VSS) Medical College and the Library

In Orissa, there are three government medical colleges situated in three different regions of the state. In the east, the "Sriram Chandra Bhanja (SCB)" Medical College at Cuttack started in 1944; in the south, "Maharaja Krushna Chandra Gajapati (MKCG)" Medical College at Berhampur started in 1962, and in the west the "Veer Surendra Sai" (VSS) Medical College at Burla began in July 1959. The VSS Medical College primarily serves the health care needs of western Orissa. At present, the college has 7,020 square feet, with 27 departments and 635 MBBS students, 137 post-graduate students, 220 doctors, and 200 other employees. This college is affiliated with Sambalpur University and is financed by the State Government. It also receives occasional grants from WHO for its overall development.

Data Analysis and Discussion

## Attitude of Medical Students towards ICT

The survey found that a majority of respondents believe that ICT is essential for medical education. In order to assess the attitude of medical students towards ICT, they were asked whether they felt that medical education would not be effective without ICT.

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Table 1. Effectiveness of medical education and research

Medical education will not be effective without use of ICT tools and techniques	Frequency	Percent
Agree	100	78.12%
Disagree	22	17.18%
Don't Know	6	4.68%
Don't use it	0	0%

Nearly 80 percent of respondents agree that medical education and research will not be effective unless ICT tools and techniques are used in the educational process. Further, it is evident from this data that the students realize that ICT tools and techniques should become a part of medical education.

Diagram 1. Effectiveness of medical education and research
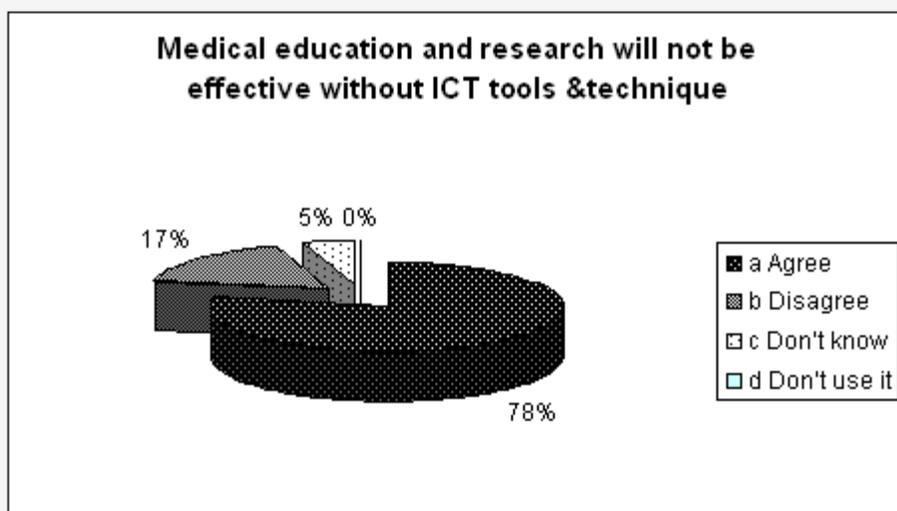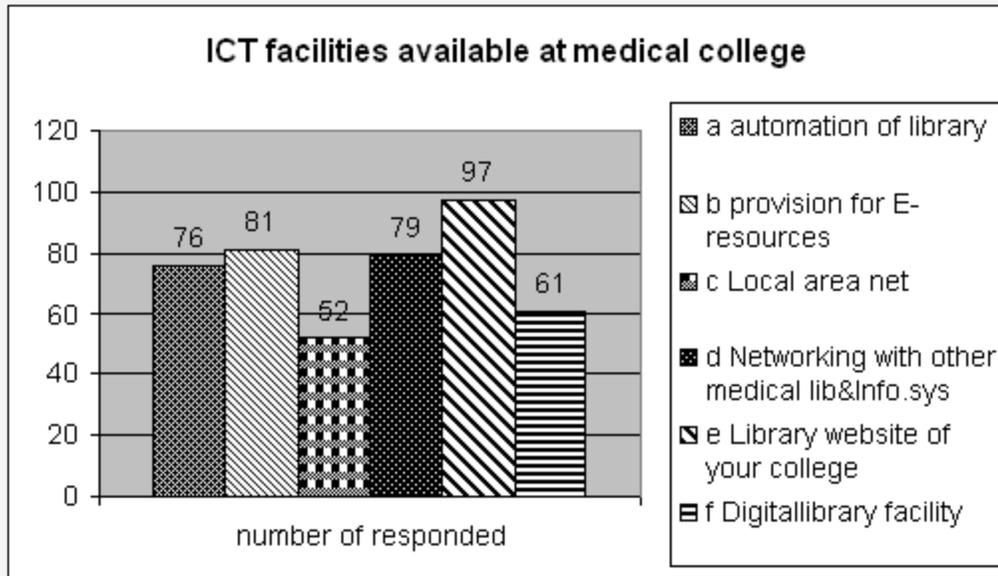

Need for ICT enabled Library facilities

Students were asked to put forth their recommendations about ICT facilities.

Table 2. ICT facilities recommended by students

ICT facilities	Frequency	Percent
Library website	97	75.78%
E-resources	81	63.28%
Networking with other medical library and information systems	79	61.72%
Automation of library	76	59.57%
Digital library facilities	61	47.65%
Local Area Network for library	52	40.62%

Three quarters of respondents recommend a library website for remote access to library resources and services. More than 60 percent recommend e-resources and an equal number recommend networking with other libraries and information system.

Diagram 2. ICT facilities recommended by students

ICT facilities available at medical college

Legend:
- a automation of library
- b provision for E-resources
- c Local area net
- d Networking with other medical lib&Info.sys
- e Library website of your college
- f Digitallibrary facility

number of responded

Bar values: 76, 81, 52, 79, 97, 61

Use of ICT by Medical students

The state of computer use by students is not encouraging. Nearly half use a computer at least monthly, with another quarter weekly and only about 20 percent using a computer daily. Nearly 10 percent never use a computer, which is quite discouraging. Although the students consider computers an integral part of medical education, their overall use is infrequent.

Diagram 3. Frequency of computer use

Frequency of computer use


Legend:
- a Daily
- b Weekly
- c Monthly
- d Never

Pie values: 20%, 26%, 45%, 9%
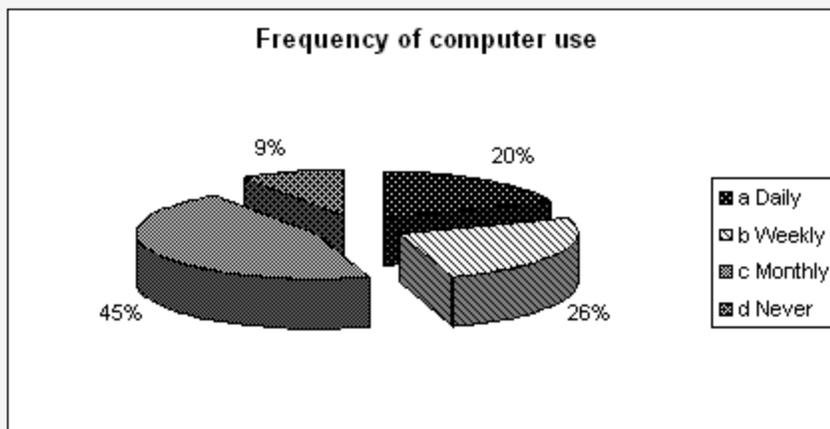
Use of Internet

More than 80 percent of respondents use the Internet. The table summarizes the purpose and frequency.

Purpose for using Internet	At least daily	Weekly	Monthly	Occasionally	Never
Literature search	7 (5.47%)	28 (21.87%)	9 (7.03%)	35 (27.34%)	25 (19.53%)
E-mail	11 (8.59%)	49 (38.28%)	17 (13.28%)	26 20.31%)	6 (6.25%)
Information for patient	9 (7.03%)	11 (8.59%)	12 (9.37%)	12 (9.37%)	47 (36.71%)
Reading recommended coursework	11 (8.59%)	19 (14.84%)	9 (3.03%)	30 (23.43%)	26 (20.31%)
Chat	14 (10.94%)	42 (32.81%)	7 (5.47%)	26 (20.31%)	20 (15.62%)

Most students use the Internet weekly to send and receive email and chat with friends online. More than one quarter, however, use the Internet for accessing reading material recommended by their teachers.

Diagram 4. Purpose and frequency of Internet use
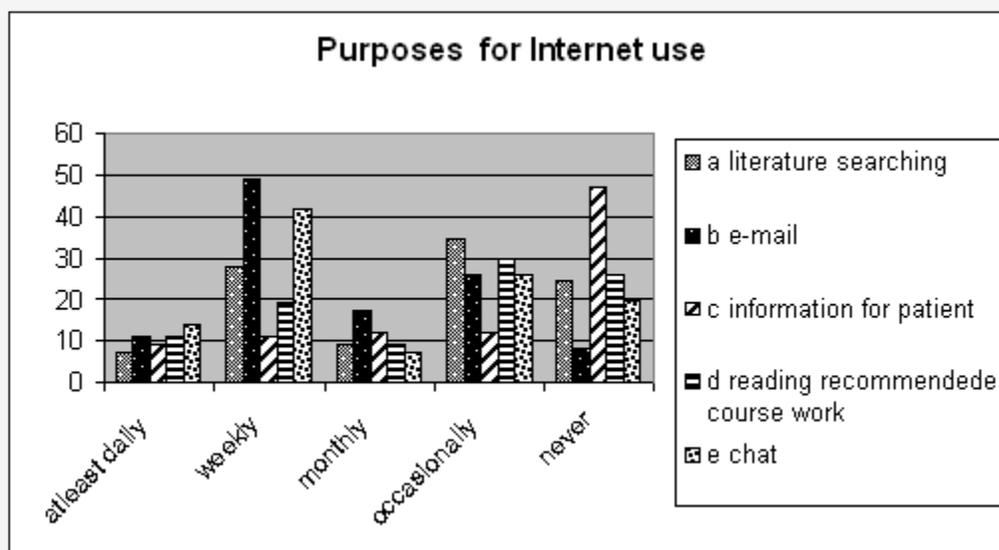
ICT Literacy of Medical Students

Of the 128 students who responded to this survey, nearly all are at least "somewhat confident" about using the mouse and keyboard. Surprisingly, there are still 3 (2.34%) medical students who are not confident either in handling the mouse or the keyboard of a computer. About one third of the students are not confident in using any word processing program. Nearly all are confident about web searching, and a majority are able to deal with computerized patient records.

Table 5. Students' knowledge of computers and IT

| ICT tools and applications	Not confident	Quite Confident	Confident	Very confident
Mouse	3 (2.34%)	26 (20.31%)	43 (33.59%)	47 (36.72%)
Keyboard	3 (2.34%)	34 (26.56%)	43 (33.59%)	38(29.69%)
MS-Word or other word processor	42 (32.81%)	22(17.19%)	27 (21.09%)	26(20.31%)
Excel/other spread sheet	51 (39.84%)	19 (14.84%)	21 (16.41%)	17(13.28%)
Internet	7 (5.47%)	34 (26.56%)	39 (30.47%)	36(28.13%)
E-mail	9 (7.03%)	29 (22.66%)	37 (28.91%)	32(25%)
Computerized patient record	52 (40.63%)	16 (12.50%)	22(17.19%)	16(12.50%)

Constraints in use of ICT

More than half of respondents stated that application of ICT not present in their course syllabus, with a nearly equal number who saw a lack of support from IT staff. Half indicated lack of time, and significant numbers also mentioned the lack of computer labs and a campus network, with a smaller number mentioning a lack of availability of e-resources in the library.

Table 6. Problems accessing electronic information

Reasons	Frequency	Percent
Inadequate number of PCs	59	46.09%
Lack of support from IT staff	71	55.46%
ICT not present in syllabus	72	56.25%
Lack of time to use	64	50%
No computer lab	60	46.87%
E-Resources not available in library	40	31.25%
No campus computer network	55	42.96%
No Internet connectivity	27	21.09%

Diagram 6. Problems accessing electronic information
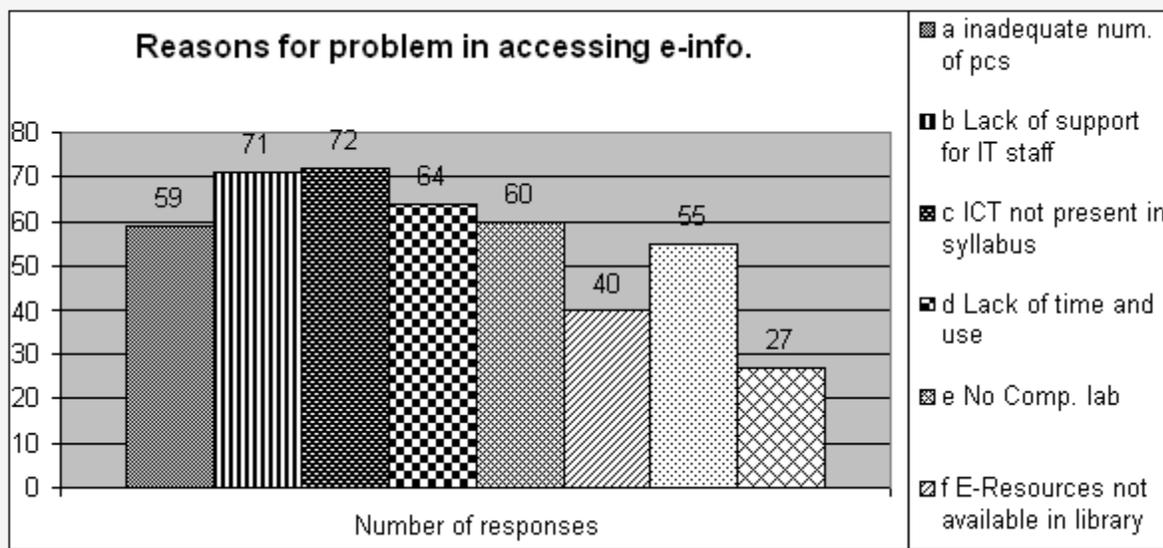
Major Findings

After a careful analysis and interpretation of the data, the following major findings were noted:

- 99 (77.34%) students are of the opinion that ICT should be included in the undergraduate MBBS Syllabus
- Nearly all respondents, i.e., 125 (97.65 percent), students expressed the desire for a computer lab in their college.
- 69 (54%) students recommend that the medical college library subscribe to e-resources for effective study and research.

- 100 (78.12%) students are of the opinion that medical education will not be effective without ICT-based study and teaching.
- A majority of students recommended that a library website be launched and the library should acquire electronic information resources.

Conclusion

ICT provides students with a broad perspective. This important topic was selected as the focus of this study. The study found that ICT can be a useful tool to address problems in medical education, but the lack of technology and resources is still a serious limitation. The noteworthy point is that even after three decades, the inadequacy of qualified technical staff has stood in the way of users' satisfaction. Further, there is ample evidence that most users are deprived of access to the vast medical literature available in electronic format. The Medical College library has not been able to use the services available at a national and international level. Another obvious finding is the absence of co-operation among the medical libraries in Orissa or at the national level, including the lack of even interlibrary loan. Attention to these broad areas of weakness will go a long way toward improving the use of ICT in the library.

References

Asquari, J. N., & Haywood, J. (1997). Computer awareness among medical students: A survey. *Journal of Medical Education 31* (3), 225-229. Available: http://www.pubmed.com/cbi.nlm.nih.gov/entrez

Bates, A. W. (2005). Technology e-learning and distance education. 2nd ed. *Routing 13* (2). 121-125

Davis , M. H., &Harden, R. M. (2001). E is for everything in e-learning. *Medical Teacher 23* (5): 441-444

Drury, P. 2005. E-health: A model for developing countries. *Health International 2* (2): 19-26

Harden, R. M. (2002). Development in outline based education. *Medical Teacher 24* (2): 117-120

Millennium Development Goal. [Online] Available: http://un.org/millenniumgoals

Nurjana, M. I., Lim, T. A., Yeong, S. W., Foong, A. L., & Ware, J. (2002). Utilization of information technology in medical education: A questionnaire survey of students in a Malaysian institution. *Medical Journal of Malaysia 57* (Suppl E): 58-66.

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