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# Use of Information technology among Physiology postgraduates in Tamilnadu and Pondicherry

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***Abstract:***
***Background:*** *The internet provides abundant information in the field of medicine. E-learning is gaining popularity among medical students,that needs access to computers and sufficient knowledge about information technology. The aim of the present study was to assess the current level of knowledge on the computer and internet usage among Physiology post graduate medical students in Tamilnadu and Pondicherry.*
***Materials and Methods:*** *A cross-sectional, descriptive study was conducted in Tamilnadu and Pondicherry from February 2015 to August 2015 to assess computer and internet usage among Physiology postgraduate medical students.*
*A pretest questionnaire was used to collect information on variables related to computer and internet use, pattern of utilization of the internet, duration of internet use, barriers to using the internet, computer skills and training. Statistical analysis of the data was done.*
***Results:*** *The response rate in the selected samples was 96%. Basic skills for internet usage were present in 89.5% of postgraduates. 96.2% have their own laptops and 88.9% had access to a computer either at home, college or café. 88.8% of participants use the internet for communication, 92.6 % of them view medical videos through internet. News and information were acquired by 66.7% of students, 63% of students availed banking facilities by internet usage. 59.3 % of them had insufficient time for net usage. The internet was accessible to 63 %. 96.2 % of the participants were not satisfied with the speed of the net. 81.5% felt they have required skills for using the net.*
***Conclusion:*** *Students actively used the internet and other resources throughout their academics. The study revealed good computer usage among students with the existence of good facilities in and around campus. Students are interested in incorporating internet usage for leverage in their academic performance. Knowledge and attitude of students about internet usage and e-learning behavior was reflected in this study. Incorporation of formal training programs about computer usage into medical curriculum will help postgraduate students in the long term.*
***Keywords:*** *Computer, education, internet, postgraduate students*

## I. Introduction

In modern days, information exchange, knowledge and news is facilitated by the internet usage. The usage of computer and internet technology results in effective medical education. E-learning among medical students is playing an important role in recent days. The internet is a user friendly communication medium, which is cost-effective. With the internet, the required information can be accessed from anywhere without time limitation. The information on the internet is usually updated, which helps in updating the recent knowledge and motivate students to undertake research activity (1). The Internet has become the world's biggest library, where retrieval of scientific resources can be done within minutes (2). Use of the internet to support learning and teaching are growing exponentially as more and more educational organizations are recognizing the potential that it offers (Norzaidi et al., 2007a, b) (3,4). E-learning comprises of all forms of electronically supported learning and teaching (5). It has a lower cost compared to paper-based dissemination of information and also has an added advantage of being available worldwide instantly on demand. Therefore, there is a need not only to equip medical fraternity with adequate skills for use of the Internet, but also to make Internet facility available in institutions providing medical education and health care (6).

For medical students, the Internet offers a great potential to meet their academic needs and to promote learning (7). One of the major goals of medical education is to encourage students to maintain their knowledge of medical science by becoming lifelong learners. Adequate skills in information seeking and regular use of original scientific sources are key elements in this process (8).

Several studies have shown that the use of computerized information system in the medical field can improve the quality of care, enhances the use of evidence-based treatment and helps in updating the current knowledge (9). Medical educationists have identified e-learning as an effective way of delivering medical

education (10). Educationalists have been encouraged to evaluate the impact of e-learning in the medical setting and to develop an evidence base that can inform and shape future developments (Cook 2005; National Workforce Group 2006) (11).

Some institutions are using e-learning as a part of their blended curriculum in which e-learning is playing a role of supplementing or as an adjunct tool (12). Medical education institutes such as The International Virtual Medical School (IVIMEDS) based in Dundee, U K has already tried using e-learning as a stand-alone solution (13).

Online databases such as PubMed, Medline and Google are key tools to search for the best evidence and their use depends on computer knowledge and internet access. Recent studies have shown that use of online information systems by medical professionals can improve the quality of care (14).

Current uses of information technology in medical education with regard to e-learning include, Computer Assisted Learning (CAL), Online learning platforms/Distance Education, Instructional Material Designing (IMD), Online journals, Simulations, and Teleconferencing etc., (15). Much still is unknown about how university students use the internet information systems for academic work (Aiken et al., 2003) (16). In order for learners to engage with e-learning, they require accessibility of relevant technologies and the appropriate IT skills. However a lack of such skills and inadequate technology provision have been identified as potential barriers to e-learning both for health care professionals and students (Childs et al. 2005; Cook 2007) (17).

This study has been conducted with the objective to know the E-learning behavior, patterns and barriers to Internet use among the medical students.

**Objectives**

1. To assess the E-learning behavior level of Physiology postgraduates in Tamilnadu and Pondicherry during the current year.
2. To evaluate internet awareness and attitude of postgraduate medical students.
3. To know the availability and usage of internet among medical students.
4. To find out the difficulties faced by students using e-learning tools.
5. To know the place and time of preference for accessing Internet.
6. To evaluate the purpose and frequency of Internet usage.

## II. Methods:

**Study design:** A cross-sectional questionnaire based descriptive study.

The current study was conducted at Sri Ramachandra Medical College, Chennai, and south India from February 2015 to August 2015

**Study participants and sampling**: Physiology post graduates in different medical colleges of Tamilnadu and Pondicherry were invited to participate in the study through direct approach and through email. Informed consent from the participants and Institutional ethical clearance were obtained.

**Study tool:** An expert validated pretested questionnaire was self-administered to all participants. Data was collected from the participants personally for good response rate and also through email. Acquired data were analyzed using different quantitative techniques and presented in suitable formats.

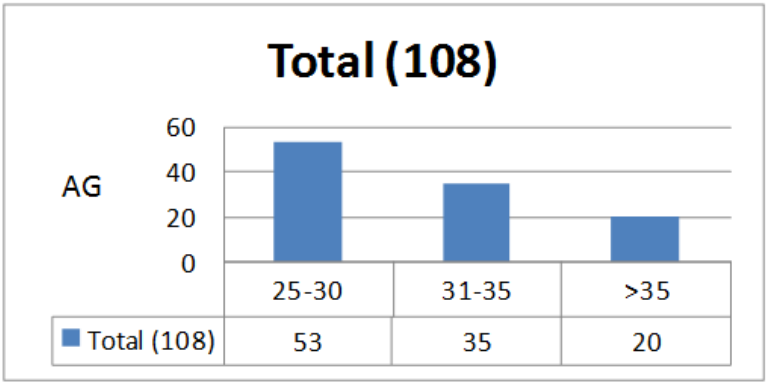
## III. Results:

**Data analysis and interpretation**

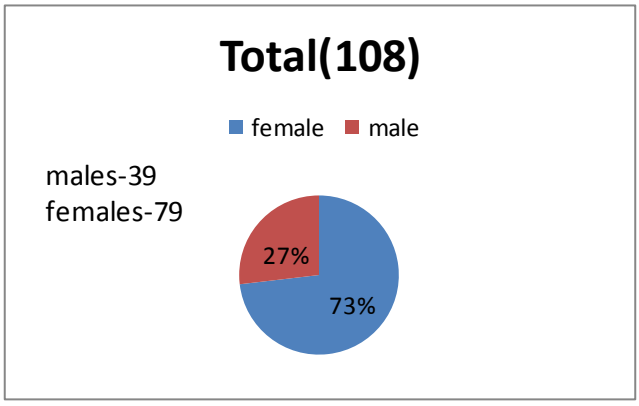
Out of 108 Physiology post graduates 79 were females and 39 were males. With respect to age, 53 are in the age group of 25-30yrs, 35 are in between 31-35 yrs., and 20 are above 35 yrs. According to the year of study of their post-graduation 18 belong to first year (5 males, 13 females), 37 belong to second year (11 males, 26 females), and 53 belong to third year (13 males, 40 females).

**1. Biosocial characteristics of the study subjects**

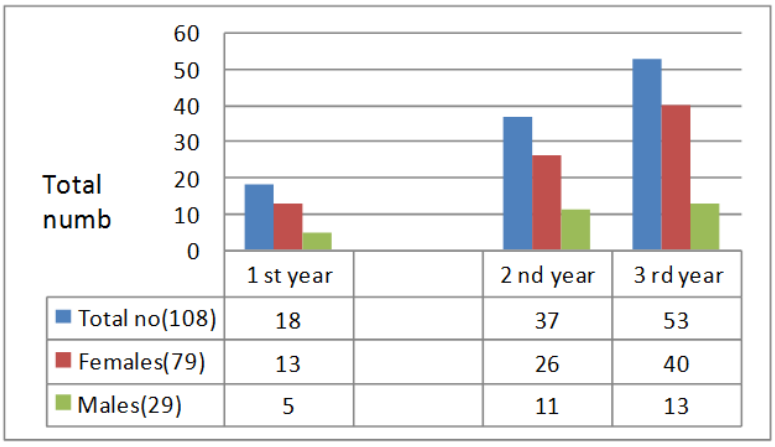
**A. Students Age:**




**B. Gender of participants**



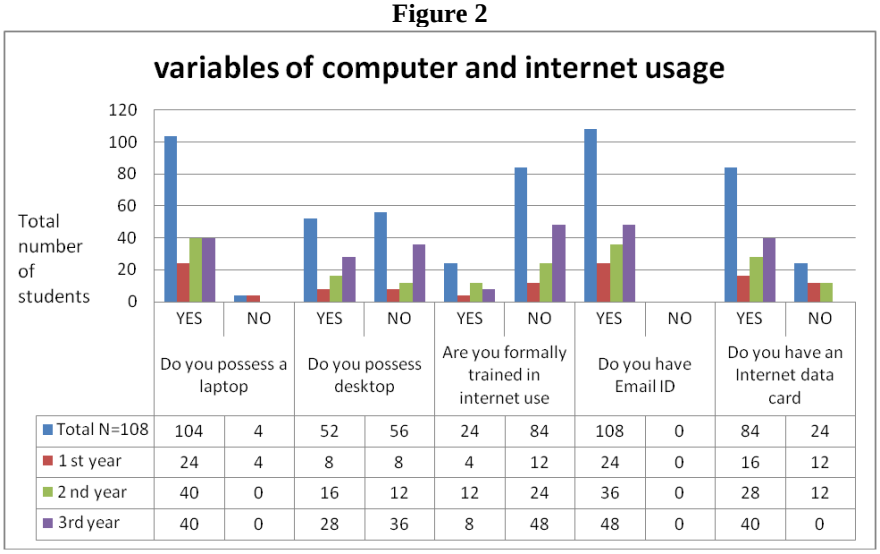

**C. Year of study**




**2. Variables related to computer and internet use**

Table 2 shows that 96.2 % (104) of post graduates possess laptops while 4.8 (4) do not have laptops. Desktop systems are used by 48 % (52) and 52 % (56) don't use desktops.

**Figure 2**

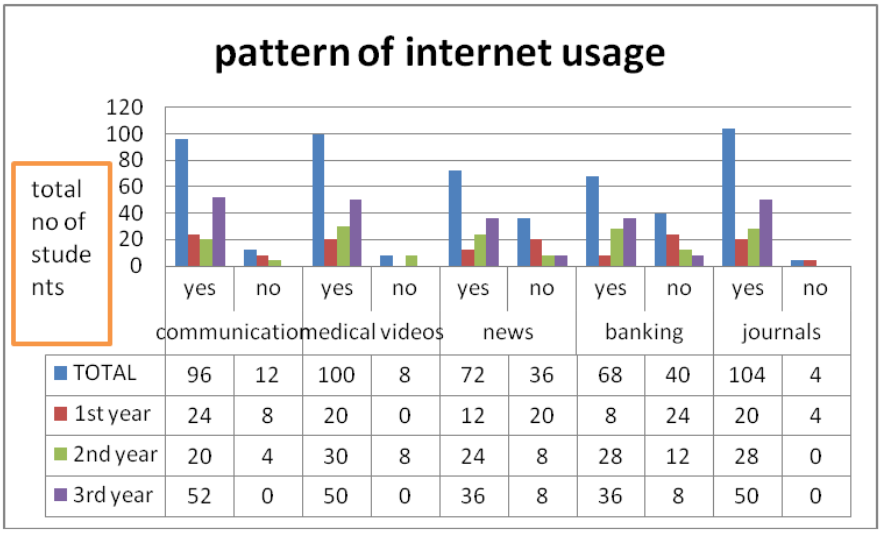



Formal training in internet usage was seen in 22.2 % (24) and 77.8 % (84) are not formally trained. All the participants (108) regularly communicate through email. The internet data card is used by 77.7 % (84) and not used by 22.3 % (24).

**3. Pattern of utilization of internet among the students in different years of their courses**

The results depict that 88.8% (96) of participants use the internet for communication while 11.2 % (12) do not use. 92.6 % (100) of them view medical related videos through internet, and 7.4 % (8) reported of not using the internet for this purpose. News and information was obtained through net by 66.7% of students, while 33.3 % (36) of students were not interested. 63% (68) of students availed banking and reservation facilities available on the net whereas 37% (40) could not make use of these facilities. 96.3% (104) of students accessed e-journals and other medical literature via the internet and a minor 2.7% (4) were not using the net for literature searches.

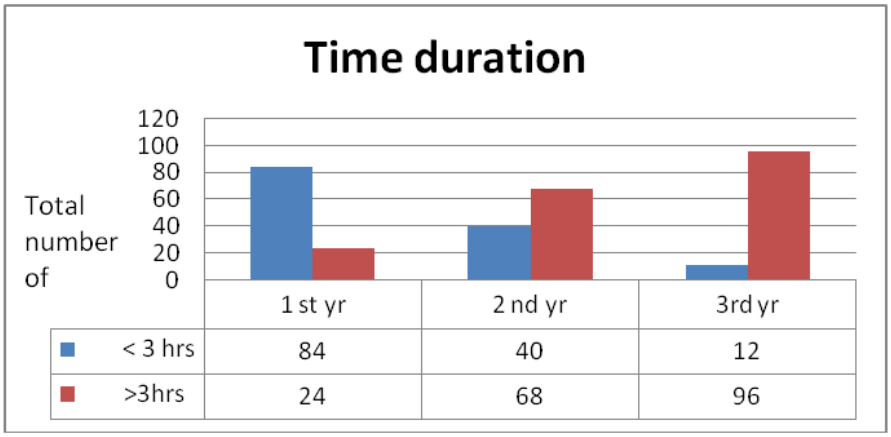
**Figure 3**




**4. Duration of internet use per week**

The participants used the internet for a variable period of time through their course. In the first year, 77.8% (84), second year, 37% (40) and in the third year, 11% (12) of students spent less than three hours daily before computers. 22.2% (24) of first year, 63% (68) of the second year, and 89% (96) of third year spent more than three hours daily before computers. The time duration of third year students has increased due to their thesis and research work.

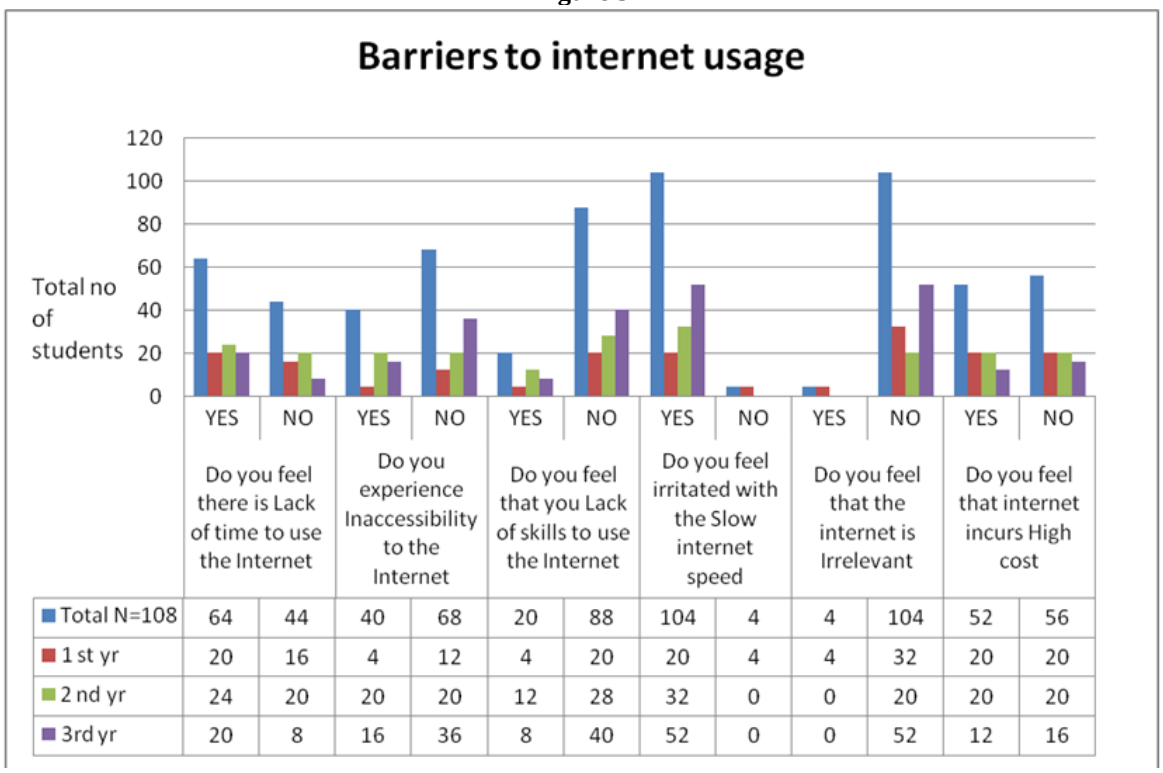
**Figure 4**




**5. Barriers to using internet among the students**

The common barriers that students complained for internet usage were lack of time. 59.3 % (64) had complained of insufficient time while 40.7% (44) did not complain. Access to the internet was difficult for 37 % (40) of students, while it was accessible to 63 % (68). Majority 96.2 % (104) of the participants were not satisfied with the speed of the net, while only 3.8% (4) had no complaints about the speed of internet. Minor group 18.5 % (20) of people feel that they lack required skills for internet access, while 81.5% (88) felt they have required skills for using the net. 3.8% (4) of students considered internet usage as not relevant whereas 96.2% (104) have agreed that net usage is relevant for academics and other activities. 48.1% (52) of students considered usage of internet incurs high cost, whereas 51.9% (48) had no issues with the cost.

**Figure 5**



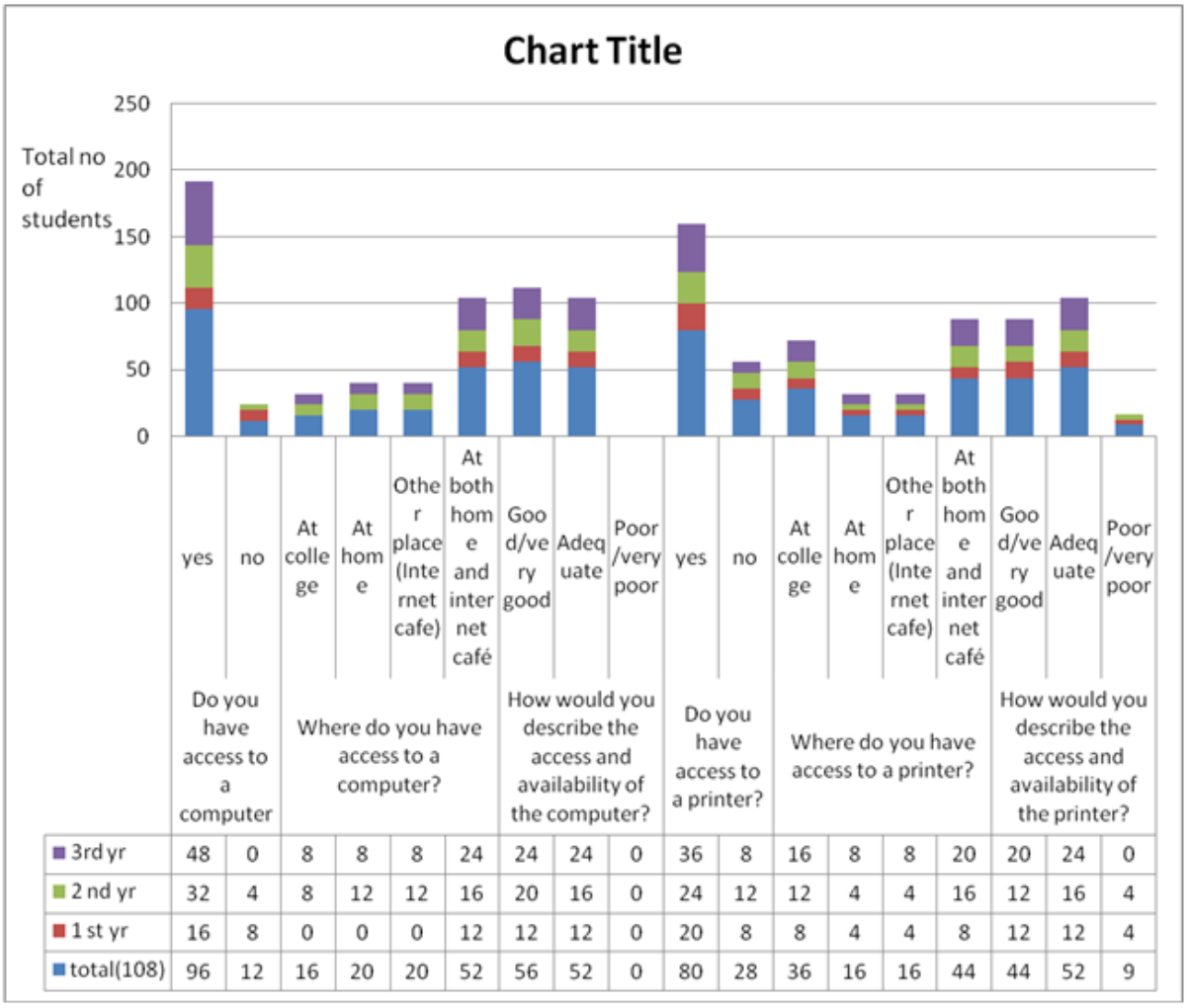

| | YES | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES | NO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Do you feel there is Lack of time to use the Internet | | Do you experience Inaccessibility to the Internet | | Do you feel that you Lack of skills to use the Internet | | Do you feel irritated with the Slow internet speed | | Do you feel that the internet is Irrelevant | | Do you feel that internet incurs High cost | |
| Total N=108 | 64 | 44 | 40 | 68 | 20 | 88 | 104 | 4 | 4 | 104 | 52 | 56 |
| 1 st yr | 20 | 16 | 4 | 12 | 4 | 20 | 20 | 4 | 4 | 32 | 20 | 20 |
| 2 nd yr | 24 | 20 | 20 | 20 | 12 | 28 | 32 | 0 | 0 | 20 | 20 | 20 |
| 3rd yr | 20 | 8 | 16 | 36 | 8 | 40 | 52 | 0 | 0 | 52 | 12 | 16 |

6. **Usage of Computer and Printer accessories**

A total of 88.9% (96) students had access to computers while 11.1% (12) did not have access. 48.1% (52) of students had access at home, and internet café, whereas 14.8% (16) had at home, 18.5% (20) at college and 18.5% (20) at internet café. Good access to computer and internet usage was there for 51.9% (56) and adequate access and availability of computers was reported by 48.1% (52) of students. Similarly, availability of

printer was taken into consideration as they form an important accessory of a computer. 74% (80) of students had access to printers and 26% (28) did not have access to printers. 40.7% (44) of them had printer access at home and internet café, 33.3% (36) had access at home, 14.8% (16) at college and 14.8% (16) at net center. Good access and availability to printer was reported by 40.7% (44) of students, adequate by 48. 1% (52), and poor availability by 11.2% (9) of students.

**Figure 6**

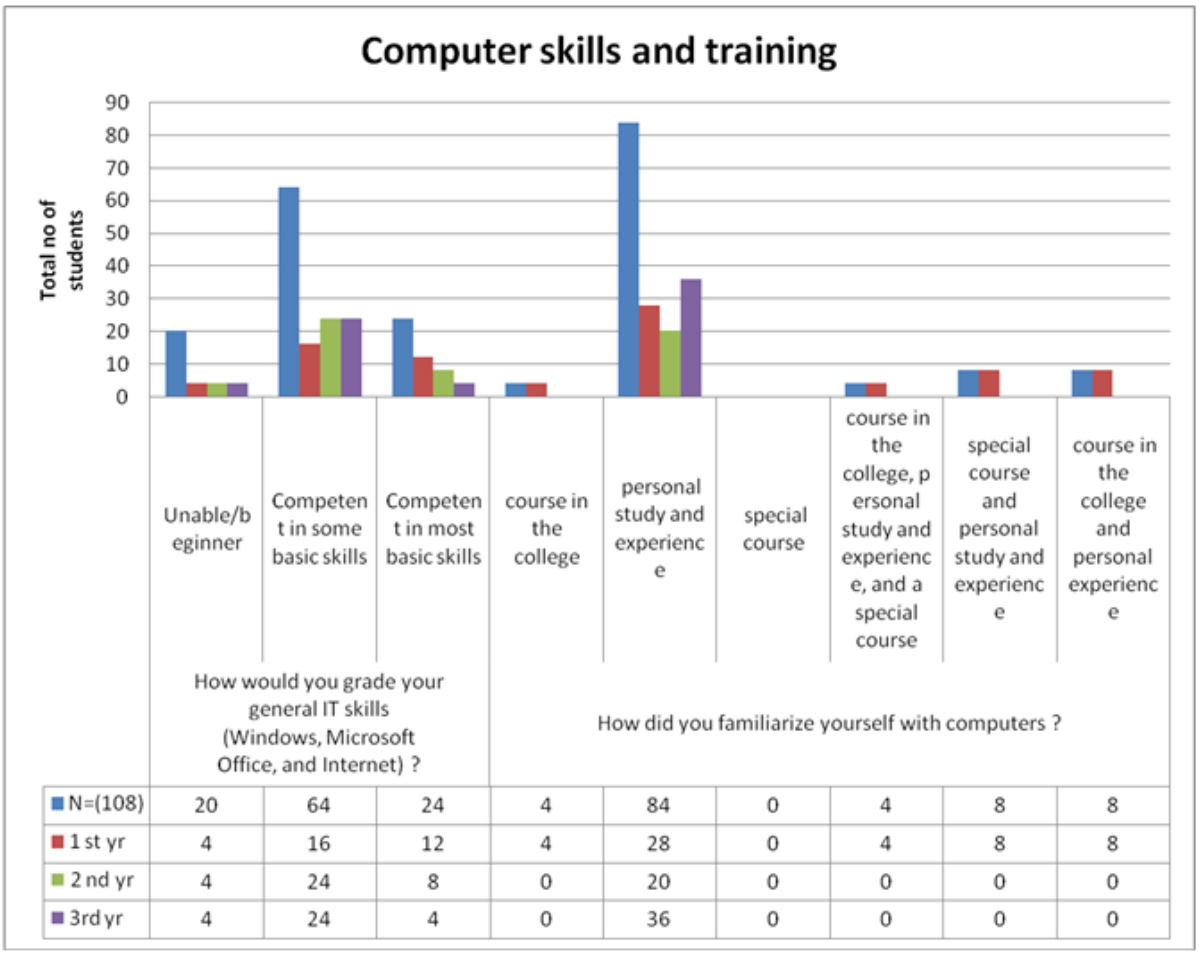



| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3rd yr | 48 | 0 | 8 | 8 | 8 | 24 | 24 | 24 | 0 | 36 | 8 | 16 | 8 | 8 | 20 | 20 | 24 | 0 |
| 2 nd yr | 32 | 4 | 8 | 12 | 12 | 16 | 20 | 16 | 0 | 24 | 12 | 12 | 4 | 4 | 16 | 12 | 16 | 4 |
| 1 st yr | 16 | 8 | 0 | 0 | 0 | 12 | 12 | 12 | 0 | 20 | 8 | 8 | 4 | 4 | 8 | 12 | 12 | 4 |
| total(108) | 96 | 12 | 16 | 20 | 20 | 52 | 56 | 52 | 0 | 80 | 28 | 36 | 16 | 16 | 44 | 44 | 52 | 9 |

**7. Computer skills and training**

Out of 108 participants, 30.2% (24) are competent in most basic computer skills like windows, office and internet, 59.3% (64) are competent in some basic skills and 18.5% (20) are in beginner stage of computer usage. 77.7% (84) have familiarized with computers by personal and study experience. 3.7% (4) through a course in college, and remaining 18.5% (20) through special course, college courses, personal study and other experiences.

**Figure 7**




| | Unable/beginner | Competent in some basic skills | Competent in most basic skills | course in the college | personal study and experience | special course | course in the college, personal study and experience, and a special course | special course and personal study and experience | course in the college and personal experience |
|---|---|---|---|---|---|---|---|---|---|
| N=(108) | 20 | 64 | 24 | 4 | 84 | 0 | 4 | 8 | 8 |
| 1 st yr | 4 | 16 | 12 | 4 | 28 | 0 | 4 | 8 | 8 |
| 2 nd yr | 4 | 24 | 8 | 0 | 20 | 0 | 0 | 0 | 0 |
| 3rd yr | 4 | 24 | 4 | 0 | 36 | 0 | 0 | 0 | 0 |

## IV. Discussion

Almost all students possess laptop and half of them have a desktop. Very few students are formally trained in internet usage. All of them use email identity for communication and majority use data card for internet. The time spent on the internet increased from first year to third year.

Most of the students depend on the internet to view medical related videos and to search the literature. More than half tend to use the internet for news and information, whereas some students utilize online banking system and ticket reservation.

The majority of students felt they had adequate skills, but there was a lack of time to use the internet and they had no difficulty in accessing the internet. Slow internet speed was a major irritating factor and high cost of internet was considered by almost half of them. Most of them have access to computer mostly at home and internet café followed by college. The majority of them have access to printer at home and café and college. Competency in most basic skills like windows, office, IT skills were present in fewer students, whereas in 50% of students competency in some basic skills was present. Very few were in the beginner stage of computer skills.

The majority of students familiarized with computers by personal study and experience. Others did familiarize through course in college, special course and personal experience. An increase in computer usage among students from first year to third year for activities on general information, thesis and research work was observed.

## V. Conclusion:

This article extracted Information on crucial factors influencing internet usage among students. The approach of Physiology post graduate students towards internet and technology usage has been well understood by this study. This study imparts empirical support that adequate technology usage has a significant relationship with academic performance of students. Sufficient internet and technology requirements create positive perception leading to better usage among students. Focus and implementation on some key areas is essential for optimum usage of internet. The concerned management should provide the functionalities of internet system to

improve students' performance. A formal training for students in internet usage helps them to modify their perspective towards technology usage. The campus should provide complete access to download information, printers, and fax for beneficial effect on students. Common barriers reported include poor skills, high costs of data card charges, unable to find exact information, lack of time and slow internet. Further research should focus on providing quality internet training and facilities in medical college campus for academic improvement of students.

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