

**RESEARCH ARTICLE**

## Accessibility of Computer and Knowledge among Pharmacy Students at a Private University of Tamilnadu

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### **ABSTRACT:**

**Background:** A computer is an electronic advanced device that can be programmed to carry out a set of arithmetic or logical functions automatically. The main Objective of this study is to assess knowledge of computer use among pharmacy students, and to assess the attitude and perception of computer knowledge and to use technology among students.

**Methodology:** A validated, observational questionnaire was given and the participation was voluntary. This survey consists of two groups of UG, PG Students. The questionnaires were distributed in appropriate lectures and retrieved immediately after completion and time was given to fill the questionnaire and collected them next day.

**Results:** 71% of the UG students and 80% of the PG students were feeling comfortable and exciting while using computer, 88% and 71% of UG % PG students feeling that computer s better than a book for gaining knowledge. 87% of UG and 80% of PG students thought that computer helps in communicating with others through internet and 80% of students feel that computers are the necessary tools for educational resources.

**Conclusion:** This present survey was done to identify the responder's skills and knowledge about informational technology by computer. Based on this responders data it was concluded that responders having more interest in social network students were not fully aware about the educational resources.

**KEYWORDS:** Computer, Pharmacy Students, Education.

### **INTRODUCTION:**

A computer is an electronic advanced device that can be programmed to carry out a set of arithmetic or logical functions automatically. Since a sequence of operations can be readily changed, the computer can solve more than one kind of problem.<sup>1</sup>

This is the era of information and computer technology. Now a day's computer plays a major role in human's life for all types of work especially for students of all courses.

The availability of affordable computers are used to access retrieve, analyze, share and store large volumes of information regarding studies. Computer and internet use is now very prevalent among college students. Use of the internet and computer skills is now a daily routine of college students. Most of them use the Internet for social communication rather than for educational or professional purposes which is not useful.<sup>2</sup> This excessive use of computers should also be integrated to be more made use for their professional knowledge. All the fields of medical and allied sciences require adequate computer skills. This helps the students to acquire the knowledge of medical science as well as recent advances in their respective field. In order to improve quality of health care, information processing and information technology is essential in this modern world.<sup>3</sup>

Pharmacy is a professional paramedical course it is a science and technique of preparing and dispensing the

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drugs. Pharmacy is a profession of information to the students. Pharmacy students have many uses of computer and they should possess adequate computer skills and knowledge which helps them.<sup>4</sup>

#### **Computers in pharmacy:**

Now-a-days computers are used in pharmaceutical industries, hospitals and in various departments for drug information, education, evaluation, analysis, medication history and for maintenance of financial records. Effective functioning of any organization largely depends upon continuous flow of information i.e. receiving of information, processing and storage. Computers play important role in for retrieval of information. In hospitals data management involves creating, modifying, adding and deleting data in patients file to generate reports. Pharmacists now use computers to perform many critical patient care tasks. They rapidly access patient and medication data, perform critical non-distributive activities, and document their action. Now a day's use of computers in pharmacy field reduced the manpower and time. Computers are almost related to every corner of pharmacy field. These are utilized in the drug design technique, retail pharmacy shop, clinical research centers, crude drug identification, drug storage and business management, hospital and clinical pharmacy, in pharmacy colleges for computer assisted learning.<sup>5,6</sup>

Computers and information technology have become essential to pharmacy field education and teaching. Pharmacy has an established history of technology use to support business processes. Pharmacy informatics education within doctor of pharmacy programs. Pharmacy informatics knowledge and skills that all graduating pharmacy students should possess, conceptualized within the framework of the medication use process. Additionally, we suggest core source materials and specific learning activities to support pharmacy informatics education.<sup>7,8,9</sup>

The main Objective of this study is to assess knowledge of computer use among pharmacy students, and to assess the attitude and perception of computer knowledge and to use technology among students. The secondary Objectives are to assess the frequency of using computers for retrieving medical and scientific literature from website like pub med, web med, e books etc. and to assess the virtual learning, blended learning, online learning among pharmacy students.

#### **MATERIALS AND METHODS:**

##### **Study Site:**

School of pharmaceutical sciences, Vels University

**Study period:** 3months (February - April).

**Sample size:** 425 pharmacy students.

##### **Study design:**

A prospective observational study with validated questionnaire was designed to collect the required data. Questionnaire has five sections based on the computer knowledge, skill, attitude, perception and educational resources.

**Inclusion criteria:** Pharmacy students of the following courses

- Bachelor of pharmacy
- Master of pharmacy,
- Doctor of pharmacy

##### **Exclusion criteria:**

Apart from pharmacy students other department students are excluded in this study.

##### **Study procedure:**

A validated, observational questionnaire was given and the participation was voluntary. This survey consists of two groups of UG, PG Students. The questionnaires were distributed in appropriate lectures and retrieved immediately after completion and time was given to fill the questionnaire and collected them next day. An oral explanation was given to the students time period of 5-6 minutes was given to fill questionnaires for UG and PG students. Information about age, gender, course, nationality details were requested in the questionnaires.

##### **Data collection:**

A questionnaire was distributed among pharmacy students and data was collected from their responses. The data collected was having information like

- Characteristic of study population
- Computer and Internet access.
- Purpose of computer and Internet usage
- Opinion about computer or e-learning.

#### **RESULTS:**

The results of this questionnaire survey can be basically taken as an eye opener which discusses various reasons for use of the internet by UG and PG students. A survey was conducted to 425 students in that overall response rate was 94 %. 400 students were responded to the questionnaires voluntarily. Responders were of two groups UG and PG students. UG students responders were 316 (79%) and PG students responders were 84(21%). The responders were in the age group of 17-24 years mostly and females are more than males.

Based on their demographic details

- Among UG and PG students 70% of the students were having their own computer/laptop. Remaining were not having computer due to their parents low income because they are using computer in sharing or in cafe.
- Responders belonging to India were about 79.4%

and others were of 29.3% Students of different pharmacy courses were included in this survey. The courses were -bachelor of pharmacy, Master of pharmacy, Doctor of pharmacy.

From this survey the collected data and information was given as

- Computer general information
- Skills of computer
- Attitude about computer
- Perception about computer
- Internet skills and usage

85% of students were using computer for preparation of slides, text entry and preparation of word document. 60% of the responders know about educational skills like PUBMED, MEDLINE but they were not fully aware about this websites and remaining students don't know about this websites. Usage of MS office (WORD, PowerPoint, EXCEL) and PPT files in computer and as well as in mobile phones. Usage of social networks was having more impact on students about 95% of the responders were using social networks. 65% of the students know about online learning like e-learning, virtual learning.

**Table 1: Demographic details of responders**

Demographic details	Number of students(n)	Percentage
<b>Gender</b>		
Male:	181	45.2%
Female:	219	54.7%
Total:	<b>400</b>	
<b>Age in years</b>		
17-20:	215	53.7%
21-24:	155	38.7%
24 and above:	25	6.25%
Total:	<b>400</b>	
<b>Educational status:</b>		
Under graduate:	316	78.2%
Post graduate:	84	21.8%
Total:	<b>400</b>	
<b>Nationality :</b>		
Indian :	389	97.2%
Others:	11	2.75%
Total :	<b>400</b>	
<b>Parent annual income</b>		
Less than 5 lakh:	295	73%
More than 5 lakh	105	26%

Based on above given demographic details of the responders number of students participated in the survey was 400 out of this, 181 students were males and 219 students were females having percentage of 45.2% and 54.7%.students of the age group were mostly 17-20 i.e 215 of 17-20 years and 155 were of 21-24 and 25 students were belonging to 24 years and above. 316 students were of belonging to UG percentage was 78.2% and PG students were 84 having percentage of 21.8%. Nationality of the responders involved in the survey

were 73% of Indians and 26% of responders were belonging to other countries.

**Table 2: Responders general computer knowledge**

S. NO	Basic computer questionnaire items	UG Students (n=316)		PG Students(n=84)	
		YES	NO	YES	NO
1.	Have personal computer/ laptop	225 (71%)	91 (30%)	68 (80%)	16 (19%)
2.	Under gone any computer software course	195 (61%)	121 (38%)	50 (59%)	34 (40%)
3.	Utilization of computer for time saving and smart working	260 (82%)	56 (17%)	69 (82%)	15 (17%)
4.	Internet access at home/college	175 (55%)	141 (44%)	60 (57%)	16 (19%)
5.	Usage of computer and smart phone for educational resources	200 (63%)	116 (36%)	58 (69%)	26 (30%)

Based on the results obtained from responders 71% of the UG students were having their own laptop/computers and while in PG about 80% and remaining students were not have owning computer they were sharing with friends or using in cafes. About 61% of UG and 50% of PG students were undergone computer software courses, 82% of both UG and PG students were using computer for time saving and smart working. Only 55% of UG students and 60% of PG students were having internet access at home.

**Table 3: Skills and accessibility of computer and internet among responders**

S. NO	Questionnaire items	UG Students (n=316)		PG Students (n=84)	
		YES	NO	YES	NO
1	Usage of computer applications for preparation of slides, text entry	195 (61%)	121 (38%)	69 (82%)	15 (17%)
2	Preparation of word document	225 (71%)	91 (30%)	60 (71%)	24 (28%)
3	Usage of internet for social networks	299 (95%)	17 (5%)	80 (95%)	5 (5%)
4	Usage of educational websites like Pubmed, Medline.....etc	178 (56%)	139 (44%)	70 (83%)	14 (16%)
5	Usage of MS office(word, PPT, EXCEL) and PDF files in android mobile	220 (70%)	85 (28%)	68 (75%)	16 (21%)
6	Having any mobile apps in smart phone related to education	175 (55%)	141 (44%)	45 (53%)	39 (46%)

Based on the skill and computer knowledge among the responders the data collected was 61% of UG and 69% of PG students were using computer applications for preparation of slides, preparation of word document and text entry. 95% of both UG and as well as PG students were using social network, whereas usage of the educational websites like PUBMED, MEDLINE were 56% and 70%. Usage of MS office like PPT, WORD, EXCEL and PDF among UG students was 70% and in PG was 75%.

**Table 4: Responders attitude towards usage of computer**

S. NO	Questionnaires	UG Students(n)		PG Students(n)	
		YES	NO	YES	NO
1	Feeling comfortable and exciting while using computer	225 (71%)	91 (30%)	80 (95%)	5 (5%)
2	Computer is better than a book to gain knowledge	280 (88%)	36 (11%)	60 (71%)	24 (28%)
3	Computer helps in communicating with others via internet	275 (87%)	41 (12%)	68 (80%)	16 (19%)
4	Do you feel computers are necessary tools in educational resources	250 (80%)	76 (19%)	68 (80%)	16 (19%)

The data collected from the responders were seem to be 71% of the UG students and 80% of the PG students were feeling comfortable and exciting while using computer, 88% and 71% of UG % PG students feeling that computer s better than a book for gaining knowledge. 87% of UG and 80% of PG students thought that computer helps in communicating with others through internet and 80% of students feel that computers are the necessary tools for educational resources.

**Table 5: Perception of responders about computer**

S. NO	perceptional questioners	UG Students(n=316)		PG Students(n=84)	
		YES	NO	YES	NO
1	Computer fascinates students and makes learning interesting	225 (71%)	91 (30%)	75 (89%)	9 (11%)
2	Computer makes it easier to access educational resources	198 (60%)	119 (37%)	68 (80%)	16 (19%)
3	Pharmacy students require adequate computer skills	300 (94%)	16 (5%)	80 (95%)	5 (5%)
4	Web based learning helps students for gaining knowledge	280 (88%)	36 (11%)	79 (94%)	5 (6%)

Based on the information given by the responders 71% of the UG students and 75% of PG students thought that computer fascinates students and makes learning interesting, 95% of the UG and PG students told that pharmacy students should require adequate computer skills and web based learning helps students for gaining knowledge.

**Table 6: Responders knowledge about educational resources**

S. NO	Questionnaires	UG Students(n)		PG Students(n)	
		YES	NO	YES	NO
1	Aware about online learning like e-learning, virtual learning	210 (65%)	206 (35%)	50 (59%)	34 (40%)
2	Know about digital libraries	198 (60%)	119 (37%)	68 (80%)	16 (19%)
3	Preference of e-classes	275 (87%)	41 (12%)	75 (87%)	10 (12%)
4	Usage of smart phone and internet for educational purpose	169 (53%)	147 (46%)	60 (71%)	24 (28%)

This table gives details about 65% of UG students and 59% of students were aware of online learning, virtual learning where as 60% of UG and 80% of PG students know about digital libraries and its uses.87% of both UG and PG students were preferring e- classes for learning and teaching purposes.

**Table 7: weekly usage of computers among responders**

Questionnaires	Every day	Once in a week	Twice in a week	More than twice in a week
Usage of computer in a week				
UG students –	65%	9%	10%	16%
PG students-	80%	3%	7%	10%

Weekly usage of computers among the responders in students were 80% of PG students and 65% of UG students mostly used every day, some students will use computer twice in a day and less number of students will use once in a week.

**DISCUSSION:**

The present study highlights certain points, some of which are congruent while few vary from earlier studies. In the present study, an overall response rate of 84.8% (284 out of 335) was obtained from UG students whereas it was 57.14% (112 out of 196) from PG students. Our survey responses reflect the pharmacy students to improve their computer knowledge and skill they required in this modern world. The UG students were in the age range of 17-24years and PG students were in the age range of years20-24 in the present study. This is consistent with the findings of previous study conducted in India where the majority of the respondents were in the age range of 17-25 years. Gender-wise

comparison revealed that among UG students, the female population (54.75%) was more as compared with the males (45.55%). Among PG students, there was almost equal representation of gender i.e., 52.23% of the participants was females and 47.7% responders were males.

As compared to the earlier studies the overall response rate of the students was increased. The present study showed that among UG and PG students, 71.04% and 80.5% respectively had personal computers/laptops. 55% of UG students and 80% of the PG students have internet access at home, the present study showed that among all the students, the internet was accessed most commonly from home and only a small percent of students used computers at college. The principle purpose of the internet use in the present study for majority of the participants was using computer for social network using and less number of people using computer and internet for academic purpose. 83% of the PG students were well known about educational websites like Pubmed, Medline, Google Scholar and only 56% of the UG students know about this websites. Weekly usage of computer was more in PG responders while in UG students was less compared to the PG students. Although responders rated their computer skills as good and average these skills were identified as need to further improvement for purpose of improving their knowledge. This study shows the general computer knowledge, shows the usage of computer among responders, shows the skills and accessibility of computer among responders, shows the responders attitude towards computer, shows the responders knowledge about educational resources used in computer shows the weekly usage of computer among pharmacy students of both UG, PG courses

As compared from the previous study conducted by James W. Tysinger the demographic details of the responders were vary from the present study, the overall response rate was found to be increased up to 10% from the previous study.<sup>10</sup>

The overall impression of the present study was that UG and PG pharmacy students who participated in the study seemed to be computer literate but they used the computer and internet more frequently for personal work than academic purposes.<sup>11</sup>

### CONCLUSION:

Technology is reinventing the world, and pharmacists need to keep updating the technology.. The internet is a marvelous communication tool that definitely has a place in the world. From the results it was found that the students of pharmacy both UG and PG at a private university the computer skills among PG students was more compared to the UG students because PG students can undergo project work an many research works than

UG students. The responders mostly of UG and PG courses were in interested in using internet in computer for social networks than academic purposes like browsing educational websites like PUBMED, MEDLINE the relationship between the technology and student academic performance is very significant. Students of both courses were interested in e-learning and online learning, they thought that web based learning will help them in improving their knowledge and skills in future use.

This present survey was done to identify the responder's skills and knowledge about informational technology by computer. Based on the responders data it was concluded that responders having more interest in social network instead of educational resources

So, as to improve awareness among pharmacy students an educational awareness programs should be introduced and implemented among pharmacy students in future to improve their skills and knowledge about computer for a good expected outcome.

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