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Research Article

**A CROSS-SECTIONAL STUDY TO ASSESS THE  
EFFECTIVENESS OF INFORMATION  
TECHNOLOGY AMONG MEDICAL STUDENTS IN LAHORE****<sup>1</sup>Dr Jawaria Tariq Farooqi, <sup>2</sup>Dr Jamshed Saddique, <sup>3</sup>Dr.Hafiz Muneeb ur Rehman**<sup>1</sup>Jinnah Hospital, Lahore, <sup>2</sup>Jinnah Hospital, Lahore, <sup>3</sup>RHC, Kala Shah Kaku,  
District Sheikhpura**Abstract:**

*Information Technology refers to the deliverance of learning modes through internet resources and technologies in order to enhance the performance, skill and learning of the learners. This research deals with the impact of Information Technology techniques on medical education. Using cross-sectional study design we evaluated the impact of Information Technology on medical education of 200 medical students (sample size) in three months. We analyzed data through SPSS. The evidence is available for the acceptance of Information Technology in the field of medical science. Among the various means of IT based learning, video lectures are the most popular among medical students. Our study has revealed that Information Technology offers learners' control over content, the pace of learning, and time thus it is more preferable than traditional learning. Results of this study reveal that there is a positive association between usage of Information Technology techniques and better academic performance among medical students. In a nutshell, Information Technology may be termed as the right knowledge at the right time in the right place.*

**Keywords:** *Impact, Information Technology, Medical Education, Medical Students.***Corresponding author:****Dr. Jawaria Tariq Farooqi,**  
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**INTRODUCTION:**

Information Technology also refers to distributed-learning, web-based-learning, computer-assisted instruction, online-learning or internet-based-learning which uses technology to enhance the educational levels of the students [1]. Information Technology is simply the marriage between education and technology [2]. Termed as 'digital natives', the new generation of students is held to be experiential-learner, dependent on internet technology for accessing information and interacting with others [3]. Koochang and Paliszkievicz (2013) proposed that Information Technology enhances active learning, which in turn enhances knowledge construction [4].

Two modes of learning the electronic-learning unfold are:

1. Distance learning; providing information to students in remote areas
2. Computer-based-learning; providing standalone multi-media packages [5].

The advantages of Information Technology include enhanced learning, time conservation, cost preservation, eco-friendly-system, and self-empowerment [6]. Moreover, a survey of 400 students in the University of Taiwan showed that Information Technology is equally beneficial for instructors as for students, equipping them with modern teaching techniques thus improving their teaching efficiency [7]. Lack of contact isolation concerns about quality and dependence on technology are among the few cons of Information Technology [8]. In Pakistan, mostly conventional method of study is being used. Allama Iqbal Open University, CIIT, and Virtual University are among the few prominent universities, stepping ahead and adopting the modern learning methodology i.e. Information Technology. The future demands enhancement of this technique for a better knowledge base [9]. Information Technology is widely used in medical education globally. Medical students consider it a supplement to conventional learning techniques. According to an estimate, more than thirty percent of the time of a physician is spent in the search of proper information through internet technology.

Our research aims to study the impact of Information Technology on medical education, student performance and comparison of traditional learning approach versus modern information technology.

**MATERIAL AND METHODS:**

This cross-sectional study was conducted at different Medical Colleges of Lahore in the timeframe of three months starting from November 2017 to January 2018. The research sample consisted of 200 medical students which were selected through a non-probability sampling technique. These students were of both genders studying from 1<sup>st</sup> to the final year of MBBS. We did not include those students who have done Web Designing and Management Courses as they would be already convinced.

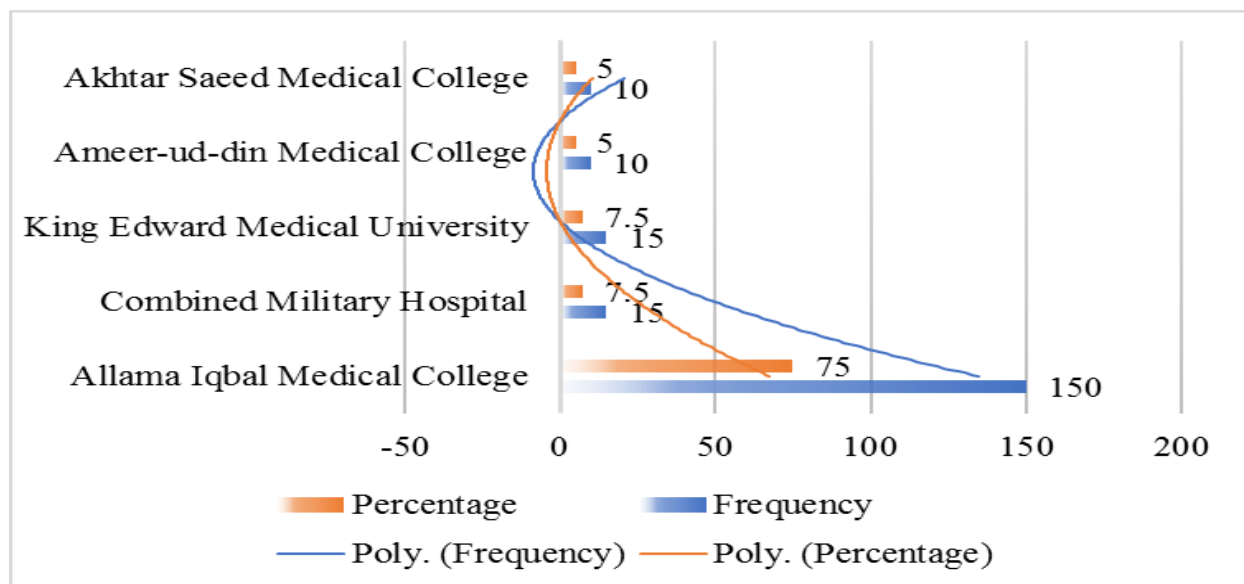
150 subjects those fulfilling the inclusion criteria will be included in our study. After a verbal informed consent and approval from the ethical committee of AIMC, every subject socio-demographic profile will be collected and we will inquire about the impact of Information Technology techniques on medical education. All the information will be collected in a structured questionnaire. Research used SPSS for data analysis and also calculated Mean, SD, Frequency and Percentage for different variables such as age, duration and experience in the dissection room. Cross-tabulation will be done for variables of interest like gender.

**RESULTS:**

200 subjects fulfilling the inclusion criteria were included in our study. 75% from Allama Iqbal medical college, 7.5% from King Edward medical university, 7.5% from Combined military hospital, 5% from Ameer-ul-din medical college and 5% from Akhtar Saeed medical college. Among 200 subjects 52.5% were males and 47.5% were females. Among 200 subjects 97.5% knew about Information Technology and 2.5% did not know. 53% of students used video lectures, 6.5% used slides, 22% used medical websites(dictionary) and 18.5% used medical application as Information Technology techniques. 52.5% were in favour of Information Technology while 47.5% supports traditional learning. According to 83.5%, their academic performance was improved by using Information Technology while 16.5% thought it has no effect. The p-value shows that there is a positive association between the use of Information Technology and the performance of the medical students of medical colleges of Lahore.

**Table – I:** Frequency among medical students of medical colleges using Information Technology

College Name	Frequency	Percentage
Allama Iqbal Medical College	150	75
Combined Military Hospital	15	7.5
King Edward Medical University	15	7.5
Ameer-and-din Medical College	10	5
Akhtar Saeed Medical College	10	5
Total	200	100

**Table – II:** Frequency of gender among medical students using Information Technology

Techniques	Number	Percentage
Video lectures	106	53
Slides	13	6.5
Medical Websites	44	22
Applications (Dictionary)	37	18.5
Total	200	100

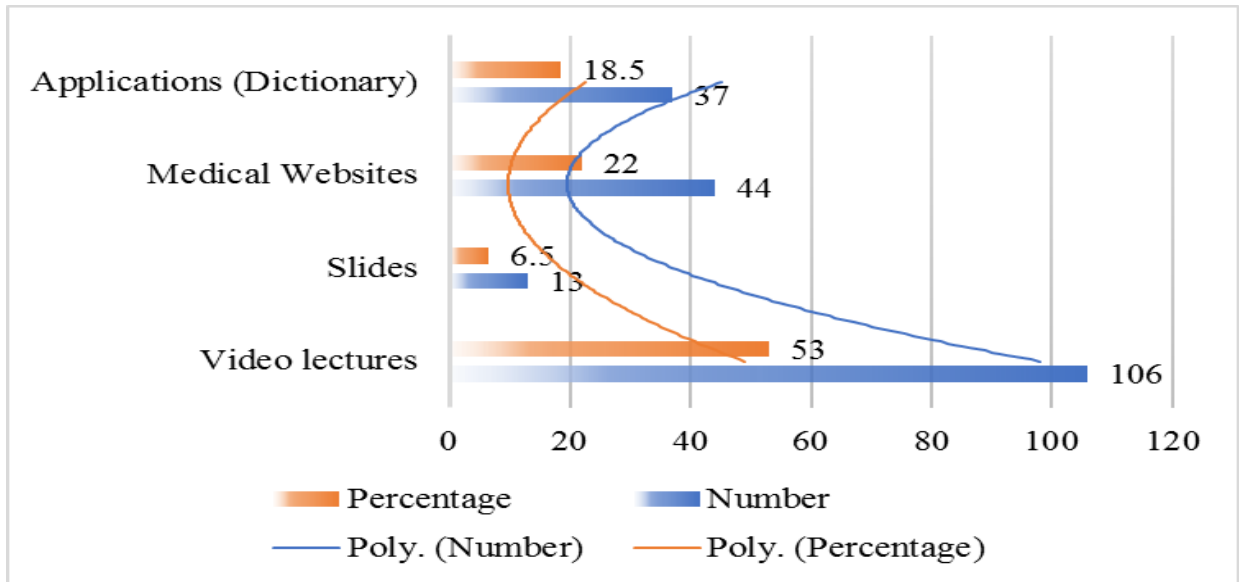
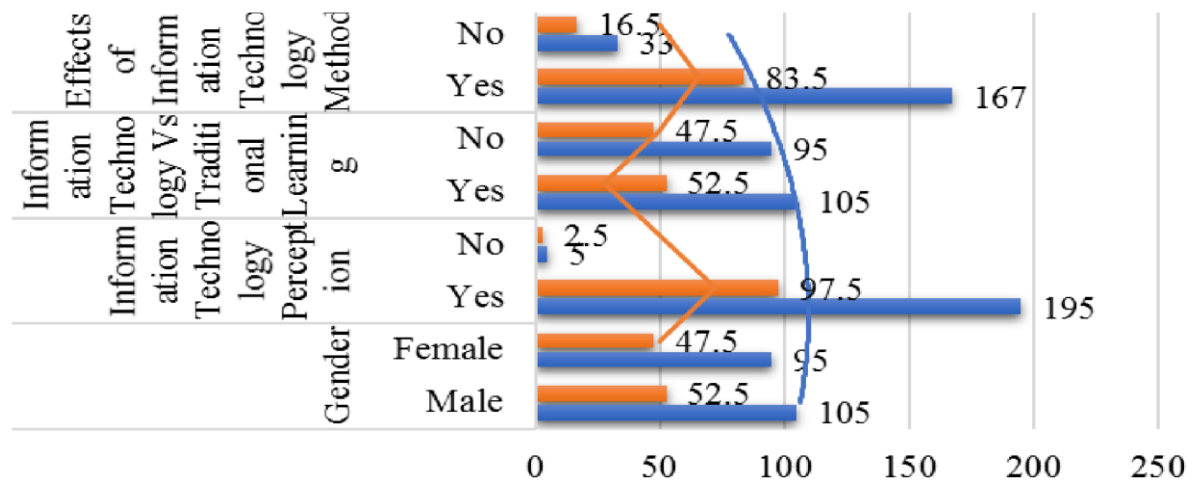


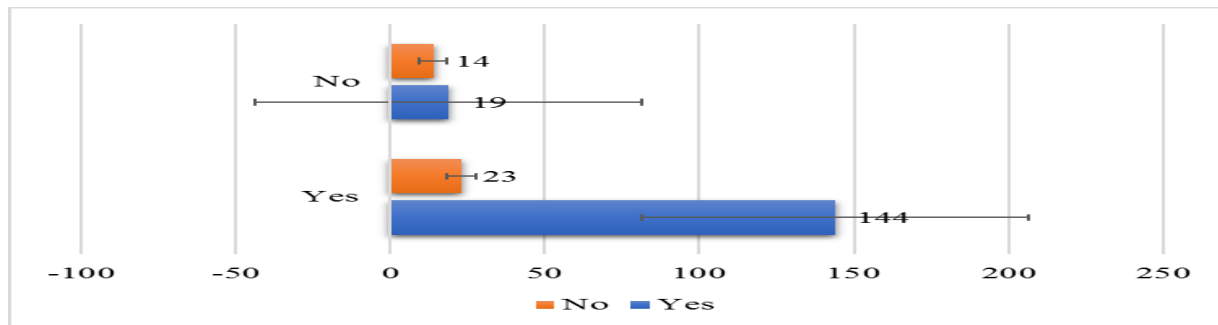
Table – III: Variables (Frequency and Percentage)

Variables		Number	Frequency
Gender	Male	105	52.5
	Female	95	47.5
Information Technology Perception	Yes	195	97.5
	No	5	2.5
Information Technology Vs Traditional Learning	Yes	105	52.5
	No	95	47.5
Effects of Information Technology Method	Yes	167	83.5
	No	33	16.5



**Table – IV:** Cross tabulation

Performance	Yes	No	Total
Yes	144	19	163
No	23	14	37

**DISCUSSION:**

A cross-sectional study was conducted by using a questionnaire for gathering information about Information Technology and 200 students (52.5% were males and 47.5% were females) volunteered.

Male students filled the questionnaire better than females and were more interested and more responsive. This result disagrees with the result of a study done among undergraduate male and female students of Taibah University, KSA according to which the female students were more interested (67.2% were females and 32.7% were males) [12].

With the advancement of knowledge and technology (Internet-based learning) has become popular among different fields and is gaining equal popularity among Medical students. It has become an essential part of their learning. It was observed that out of 200 students from different medical colleges of Lahore 195 students knew about Information Technology while only 5 were unaware. While according to a study targeted on higher education institute in Sri Lanka concluded that among 174 students 58 were having a high awareness about Information Technology 44 had moderate knowledge and 72 knew only how to operate. The drastic increase in the use of Information Technology techniques is due to easy access to the internet.

There are various means of Information Technology i.e. Video Lectures, Slides, Websites and Medical Applications. When the students were asked about their favourite means they were more inclined towards the video lectures as compared to all other means (53% students used video lectures, 6.5% used

slides, 22% used medical websites and 18.5% used medical applications). According to Kearney et al. the use of visual aids such as videos increases the learning opportunities of the students. A study was done in Taibah university also showed that their students value online lectures to supplement their reading [12]. Information Technology has positive effects on the academic results of the medical students as 83.5% of the students involved said that their academic performance was improved by using Information Technology while 16.5% thought it had no effect, Guilan University research concludes that virtual medical teaching than traditional teaching strategies as they compared 75 students versus 37 students respectively using virtual technology and traditional learning approach with a significant P-Value of (0.0001) [5]. The p-value shows that there is a positive association between the use of Information Technology and the performance of the medical students.

**CONCLUSION:**

Majority of the students are aware of the Information Technology techniques. Information Technology based learning has been proved to be better than traditional learning. Information Technology usage has improved the academic performance of the students. Information Technology should be made accessible in all fields of education. Information Technology techniques should be incorporated into traditional teaching methods.

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