

# Role of Educational Technologies in Improving Student's Performance in Medical Education

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## ABSTRACT

**Objectives:** To find out the opinion and experience of students about the role of educational technologies regarding improvement in their performance. **Study**

**Design:** A Cross-Sectional Study. **Study Population:** Medical Students of Punjab Medical College, Faisalabad.

**Sample Size & Sampling Technique:** 200 Students were selected by convenience sampling technique. **Study Tool:** A Pre-Tested, Semi-Structured Questionnaire was prepared regarding the opinion and experience of students about their performance due to educational technology. **Study Area/**

**Duration:** Punjab Medical College, Faisalabad, May-June, 2012. **Inclusion Criteria.** Only regular students attending the teaching classes were included in the study.

**Exclusion Criteria.** Casual and irregular Students were excluded from the study.

**Results:** Majority of the students 50%

responded that White Board teaching method was a better tool to enhance their performance in the University examinations. While in the opinion of 32.5% of students internet was a better source of knowledge. Fifteen percent (15%) students were of the opinion that multimedia teaching method improved their performance in the studies. Only 2.5% students responded that projector / transparency was a better way of teaching. **Conclusion:** Majority of the students were of the opinion that the traditional white board teaching method was a better tool to enhance their knowledge and study performance. 32.5% of the students had experience of updating their knowledge by internet. So, it is concluded from the above study that traditional white board teaching and internet facilities are better tools to enhance the performance of students in their studies.

**Key Words:** Educational Technologies, Students Performance, Enhance, Teaching Method.

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## INTRODUCTION

The concept of "learning by doing" has become less acceptable, particularly when invasive procedures and high-risk care are required. Restrictions on medical educators have prompted them to seek alternative methods to teach medical knowledge and gain procedural experience.

Fortunately, the last decade has seen an explosion of the number of tools available to enhance medical education: web-based education, virtual

reality, and high fidelity patient simulation<sup>1</sup>. Medical student should have access to medical educational materials via the Internet, computer-based training, and other effective education methods for point-of-service information, continuing medical education, and training<sup>1</sup>.

In February 2010, a working group of medical educators and physicians discussed the changing role of instructional technologies and made recommendations for supporting faculty in using these technologies in medical education. This highlighted the ways, technology is transforming the entire process of medical education and identified several converging trends. These trends include the explosion of new information; all information, including both health knowledge and medical records, becoming digital; a new

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generation of learners; the emergence of new instructional technologies; and the accelerating rate of change, especially related to technology. The working group developed five recommendations<sup>2</sup>. These recommendations are (1) using technology to provide/support experiences for learners that are not otherwise possible—not as a replacement for, but as a supplement to, face-to-face experiences, (2) focusing on fundamental principles of teaching and learning rather than learning specific technologies in isolation, (3) allocating a variety of resources to support the appropriate use of instructional technologies, (4) supporting faculty members as they adopt new technologies, and (5) providing funding and leadership to enhance electronic infrastructure to facilitate sharing of resources and instructional ideas<sup>2</sup>.

Since educators first began to use computers in the classroom, researchers have tried to evaluate whether the use of educational technology has a significant and reliable impact on student achievement. Searching for an answer, researchers have realized that technology cannot be treated as a single independent variable, and that student achievement is gauged not only by how well students perform on standardized tests but also by students' ability to use higher-order thinking skills (such as thinking critically, analyzing, making inferences, and solving problems)<sup>3, 5</sup>.

Judging the impact of any particular technology requires an understanding of how it is used in the classroom and what learning goals are held by the educators involved, knowledge about the type of assessments that are used to evaluate improvements in student achievement, and an awareness of the complex nature of change in the teaching environment<sup>4</sup>.

Evidence indicates that when used effectively, "technology applications can support higher-order thinking by engaging students in authentic, complex tasks within collaborative learning contexts". When educators use the accumulating knowledge regarding the circumstances under which technology supports the broad definition of student achievement, they will be able to make informed choices about what technologies will best meet the particular needs of specific institutions. They also will be able to ensure that

teachers, parents, students, and community members understand what role technology is playing in institutions and how its impact is being evaluated. Finally, they will be able to justify the investments being made in technology<sup>6</sup>

Researchers are now beginning to meet the more complicated research task of investigating the impact of technology use in meeting these new expectations for what students should learn. They are examining students' ability to understand complex phenomena, analyze and synthesize multiple sources of information, and build representations of their own knowledge. This model of integrated technology-supported learning emphasizes the ability to access, interpret, and synthesize information instead of memorization and the acquisition of isolated skills<sup>7, 8</sup>.

Central to this change in expectations for student learning has been an acknowledgment of the complexity of key factors that must be considered in evaluating the impact of technology on student achievement<sup>9, 10</sup>.

The term technology refers not to simply one type of technology but to a wide range of electronic materials and methods for learning. It can apply to the use of computers in education, but it also can apply to video production and distance learning classes. Each type of technology has different uses and fulfills different learning goals. Assessing the effect of technology on student achievement is a complex process. Changes in the classroom correlate with changes in other educational factors as well<sup>11, 12, 13</sup>.

#### **Objectives of the study:**

To know the opinion of medical students about their performance enhancement due to different teaching / learning methods.

To find out the experience of students about the role of educational technology regarding improvement in their performance.

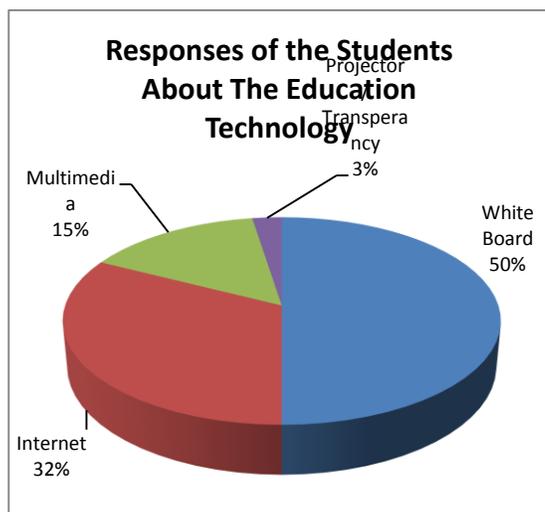
#### **MATERIALS AND METHODS**

A cross-sectional study of 200 under-graduate medical students at Punjab Medical College Faisalabad was conducted in May-June 2012. A pre-tested, semi-structured questionnaire was developed in English language to find out the opinion and experience regarding their

performance related to educational technology and used to get the responses.. A total of 200 students were selected by convenience sampling technique. Informed consent was taken from the participants of the study. Permission was got from the head of department before collection of data. The data collected was entered, cleaned and tabulated .The results have been presented in percentages for standardization and presented in textual, tabular and in the form of Pie chart. Confidentiality and security of the data was observed and highly maintained.

## RESULTS

Majority of the students 50% responded that White Board teaching method was a better tool to enhance their performance in the University examinations. While in the opinion of 32.5% of students internet was a better source of knowledge. Fifteen percent of students were of the opinion that multimedia teaching method improved their performance in the studies. Only 2.5% students responded that projector / transparency was a better way of teaching. Detail of the results is presented in the form of pie-chart Fig No. 1 and Tabular form Table No. 1 that are explaining the data.



**Fig. No. 1: Showing Responses of the Students About the Education Technology**

Q.1 Responses regarding performance of students about White board teaching method		
Actual Responses	Total Responses 200	Percentage 100%
good	100	50%
Not good	100	50%
Q.2. Responses regarding performance of students about the use of internet		
Good	66	33%
Not good	134	67%
Q.3. Responses regarding performance of students about the use of Multimedia		
good	30	15%
Not good	170	85%
Q.4. Responses regarding performance of students about the use of projector/transparencies		
good	4	2%
Not good	196	98%
Q.5. Responses regarding performance of students about the use of email		
good	0	0%
Not good	200	100%
Q.6. Responses regarding performance of students about the use of mobile phone		
good	0	0%
Not good	200	100%
Q.7. Responses regarding performance of students about the use on line teaching and examination		
good	0	0%
Not good	200	100%

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## DISCUSSION & CONCLUSION

Different studies show that new technologies like online repositories of scientific data and close circuit television had good impact on the students performance<sup>14-15</sup> but in my study most of the students responded that the traditional use of white board technology has good impact on their performance and enhance their skills. So, the results are not consistent with other studies. However, 32.5% of the students responded that internet has a very positive good effect on their learning and has enhanced their performance. As the other studies also show that the internet and e-mail has promoted communication skills of the students and has enhanced the understanding of science subjects<sup>16-17</sup>. So, the results of our study are closed to these modern studies. It is important to consider how these electronic technologies differ and what characteristics make them important as vehicles for education.

Majority of the students were of the opinion that the traditional white board teaching method was a better tool to enhance their knowledge and study performance. 32.5% of the students had experience of updating their knowledge by internet. So, it is concluded from the above study that traditional white board teaching and internet facilities are better tools to enhance the performance of students in their studies. Technology can be used as a tutor (examples are drill-and-practice software, tutoring systems, instructional television, computer-assisted instruction, and intelligent computer-assisted instructions.<sup>18,19,20</sup>

**Recommendations:** We recommend the innovation in educational technology to improve the skills and performance of the students. By upgrading the knowledge and abilities of the students; We will be able to justify the investments being made in technology for example, the distribution of laptop computers to the brilliant, intelligent and hardworking students in the Punjab. Such activities will be very beneficial and helpful for better performance of students especially in the field of science and technology.

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