

**TECHNOLOGY'S IMPACT ON THE TEACHING-LEARNING ENVIRONMENT A  
STUDY COLLEGE IN HYDERABAD**

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**Introduction**

The phrase "technology" has become an essential concern in many disciplines, including education, in the twenty-first century. As a result, educational institutions are responsible for preparing students to live in a "knowledge society" and must incorporate technology-based, teaching-learning into their curriculum. Teachers are viewed as crucial players in employing technology in their daily classes and preparing the students for the contemporary digital platform which got the capacity to provide a dynamic and proactive teaching-learning environment. While the goal of technological use was to improve the quality, accessibility, and cost-effectiveness of instruction delivery to students, it also refers to the advantages of networking learning communities to meet the difficulties of present situation. The adoption of technology is not a one-time event, rather, it is a series of continuing and continuous activities that fully complement teaching-learning and information resources.

In education, the technology-based teaching and learning process is directly linked to the use of learning tools in higher education. The topic of technological integration in colleges, specifically in the classroom, is critical since students are familiar with technology and would learn better in a technology-based setting. This is because the use of technology in education has a significant impact on pedagogical aspects since its usage will lead to successful learning with the assistance and support of technology-based elements and its components. It is true to suggest that technology-based tools and equipment can help students learn practically any subject, starting with mathematics, physics, languages, arts and humanities, and other key fields. Furthermore, it gives assistance and complementary support for both teachers and students when it comes to effective learning with the use of computers as learning aids. Technological advancement are not meant to be replacements for good teachers, rather, they are seen as supplementary tools for better teaching- learning and even take place when teachers and students are physically separated. Students, on the other hand, will gain from integration since they will not be constrained by a limited curriculum and resources, instead, hands-on activities in a technology-based course will be intended to encourage their comprehension of the subject, writing lesson plans that are creative to engage students, that results in active learning. For example, PowerPoint can be used to present the topic in a creative and innovative method that will lead into exchanging of ideas and thoughts effectively.

Technical challenges in most colleges have grown to be a serious issue, a source of aggravation for students and teachers, and have caused disruptions in the teaching and learning process. Teachers are unable to use the computer for temporary purposes if there is a shortage of technical assistance as a result of not receiving any advice on the subject, teachers will be discouraged from utilising computers for fear of equipment failure. Furthermore, in students concerns, technology is not in reach of every student and causes a major hurdle towards technology based learning.

***Teacher's perspective on technology-based teaching environment***

The education system has evolved dramatically with the development of learning technologies, owing to technology's ability to deliver a proactive, easy-to-access, and all-encompassing teaching and learning environment. Teachers' educational ideas, is believed, functional, as a filter for their instructional curricular decisions and activities, which can either encourage or impede progress. In the context of classroom technology use, studies have indicated that teacher views and attitudes influence the use of technology in the classroom and that there is a link between teacher beliefs and instructional decisions. If new technology can be used in conformity with existing attitudes and practices, teachers are more likely to adopt it. Furthermore, it is observed that teachers who hold student-centred pedagogical views and use student-centred constructivist teaching methods are successful in integrating technology, with the exception of cases where technical phobia stopped them from doing so. Specifically, when teachers use technology with their students, they use a variety of delivery techniques, including less planning and more spontaneity. Teachers stated that

they focused more on how students learnt rather than what they learned. Teachers referred to themselves as facilitators rather than teachers. However, the influence of integrating technology in the classroom on teaching and learning tactics varies, and in some circumstances, teaching approaches have remained unchanged as a result of technology integration. The teacher's attitude toward technology can be a major impediment to its usage in the classroom. Teachers' ideas are influenced by a range of factors, including their upbringing life experiences, and diverse procedures. As a result, teachers are more likely to adopt new classroom techniques if the concepts underlying them align with their personal educational values. Changing educational perspectives is thus a gradual process, and in the transitional stage, multiple notions coexist. Acceptance of technological innovations was also found to be related to innovative technology-enhanced teaching in a significant and favourable way.

### ***Students perspective on technology-based learning.***

Students have high expectations for technology integration in the classroom because the current generation was born and raised in an age of technology, and may be described as a digital native phenomenon. The higher the students expectations for technology integration in the classroom, the largely influence by personal characteristics, which are defined as self-perceptions. The students have a positive response towards technology- based learning as they feel it expands access to information which is unlimited and opens the doors towards self-directed learning and technical skill enhancement, building the overall development among the students' community .While on the other hand, few students also felt the pinch of negativity as they found difficulty in locating web material, technical issues when the class in progress. Students demand for their voice to be heard as they are the one who is most affected by the adoption of technology within the classrooms. They claim that not all students are comfortable in using technology but they do understand the value of technology-based learning and demand no complete replacement of technology over traditional methods of paper and pen in the classroom environment as it would be easy for them to use, it is reliable and can work as they write what is felt to be learners styles.

### ***Reflective study on Hyderabad***

Hyderabad is the largest city and capital of Telangana State, located on the Deccan Plateau, along the banks of the Musi River, in the northern portion of South India, and has an area of 650 km<sup>2</sup> (250 sq mi). With 6.9 million people within the city limits, makes Hyderabad the fourth-most populated city in India.

The State's Higher Education Department oversees higher education, including colleges, technical education and universities, undergraduate and postgraduate education. As of 31 March 2021, there are 77 colleges of Telangana Academy of Skill and Knowledge, around 88 colleges offering Post Graduate Degrees in Science, Commerce and Social Sciences respectively, and 132+ Degree colleges spread over Hyderabad providing quality of education and leading towards development.

### **Research Objectives**

1. To know the effects of technology-based teaching on student's learning
2. To study the behavioural changes in teachers with the use of technology.
3. To understand the levels of quality learning among the students.
4. To identify the factors affecting technology in education.

### **Research Hypotheses**

H1: There is a positive relationship between technology in use and the teaching-learning environment.

H2: There is a significant relationship between technology used in the classroom and the quality of learning among the students.

H3: There are significant behavioural changes among teachers using technology-based teaching practises in the classroom.

### **Research Methodology**

The current study was conducted in Hyderabad, on teachers and students of a few selected colleges as the primary source of data collection, using a questionnaire. The questionnaire included three sections and a total of 15 questions for teachers and 12 questions for students were constructed with

the aim of collecting the responses on technology’s impact on teaching and learning environment, they were few open-ended questions to understand the ground reality when technology has been introduced in a classroom environment. For close-ended questions, 5-point Likert Scale has been used where 1- Always, 2-Frequently, 3-Sometimes, 4-Rarely, 5-Never. The questionnaire was distributed by convenience sample techniques through online mode over WhatsApp groups, Google mail and in-person. Hence a total of 83 responses (including teachers and students) were obtained with 8 responses being rejected because they were incomplete. As a result, a total of 75 responses (25 responses of teachers and 50 responses of students) have been accepted for further review. For the quantitative analyse SPSS has been administered and the techniques like mean, standard deviation, Pearson’s correlation and ANOVA test were used.

**Results and analysis**

The study proposed to measure the technology impact on teaching-learning classroom environment, study using factor analysis extracted two dimensions of the current a study, even though the sample size (n=75) is too small for any conclusive results but the reliability analysis and factor analysis results suggest good factor structure for the study.

**Table-1: Reliability Test**

	Reliability Statistics		
Var	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Teacher	.897	.877	15
Student	.915	.926	12

The initial step was to assess the reliability of the questionnaire using Cronbach’s alpha test. The reliability value is presented in table-1, shows that the reliability of the questionnaire is high as the Cronbach’s alpha value .897 and .915, while the Cronbach’s alpha is based on standardized items and .877 and .926 for the items of 15 for teachers’ and 12 of students respectively. Table-2 explains the descriptive statistics on teachers responses.

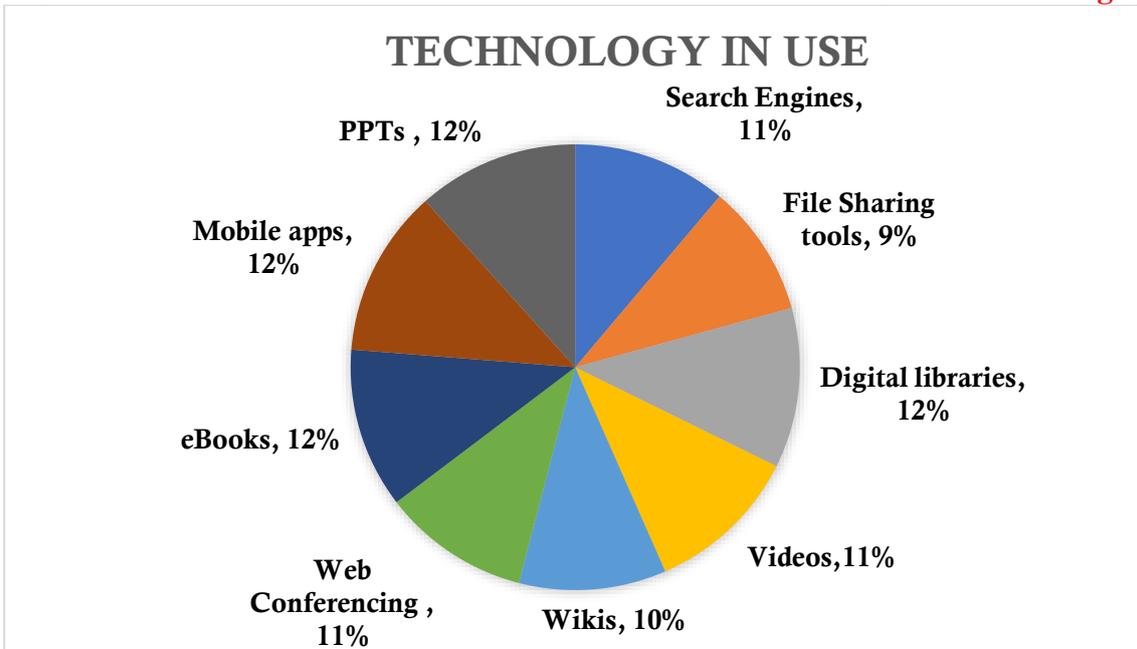
**Table:2 : Demographic background of respondents**

Descriptive Statistics			
	N	Mean	Std. Deviation
Gender	25	1.72	.458
Age	25	2.08	.759
Teaching Experience	25	2.76	1.091
Qualification	25	2.76	1.052
Valid N (listwise)	25		

**Source: “The Author”**

According to the above table, based on the gender, there is 13.7 per cent of respondents males and 35.3 per cent of respondents were females, with the mean 1.72 and SD .458, when based on teaching experiences, 7.8 per cent have less than 3 years experiences, 11.8 per cent responds have less 6 years , 13.7 per cent of respondents are having less than 9 years,15.7 per cent respondents have more than 9 years of experiences with the mean value of 2.76, and SD value 1.091, From the sample respondents, 13.7 per cent respondents holds highest qualification (Ph.D.) , 17.6 per cent of respond holds Master Degree and 9.8 per cent holds diplomas and 7.8 per cent respondents dual degree.

**Technology in Use**



Source: "The Author"

From the above graph we conclude that about 11 per cent of respondents use search engines for the collection of study material, 9 per cent of the respondents use file sharing, 12 per cent of respondents uses digital libraries for their references, 11 per cent of the respondents follow videos, 10 per cent respondents for use Wikis, 11 per cent of respondents uses web conferences for their classes, 12 per cent of the respondents agree to use eBooks ,12 per cent uses mobile apps and 12 per cent uses PPT for making teaching-learning environment easy, accessible in reach of all. As we analyse the impact of technology in teaching-learning environment the following table-3 explains the facts in practice.

**Table:3** Teaching-Learning Environment in Classroom

Correlations			
		Technology in Use	Teacher- Student perspective
Technology in Use	Pearson Correlation	1	.299**
	Sig. (2-tailed)		.009
	N	75	75
Teacher- Student perspective	Pearson Correlation	.299**	1
	Sig. (2-tailed)	.009	
	N	75	75

\*\* . Correlation is significant at the 0.01 level (2-tailed).

P-Value is .009165

Pearson correlation calculated value: .299

The result is significant at  $p < .05$

From, the above table, we state that the teachers' accepts for using various educational networking apps and tools to achieve pre-determined goals in a technology-based environment, while the majority of students strongly agree as it helped them to experience and explore in the collaborative learning process by constructing the platform for effective learning. This study found that teachers and students accepted and are willing to use technology within the classroom. Hence, we conclude that there exists a positive relationship between technology that was practised to transmit knowledge by redefining the teaching-learning environment in the classroom. Similarly, when observing only students perspective regards the technology-based learning methodology and its relationship with the quality of learning, the table-4 clearly examine the learners perspective used for attaining a significant change in their classroom practices.

**Table: 4** Technology used in the classroom and the quality of learning among the students

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Creative Learning	Between Groups	18.831	4	4.708	44.238	.000
	Within Groups	4.789	45	.106		
	Total	23.620	49			
Building Confidence	Between Groups	12.508	4	3.127	6.523	.000
	Within Groups	21.572	45	.479		
	Total	34.080	49			
Effective Learning	Between Groups	37.747	4	9.437	18.929	.000
	Within Groups	22.433	45	.499		
	Total	60.180	49			
Skill Development	Between Groups	10.880	4	2.720	.	.
	Within Groups	.000	45	.000		
	Total	10.880	49			
Better Platform for learners	Between Groups	28.109	4	7.027	67.123	.000
	Within Groups	4.711	45	.105		
	Total	32.820	49			
Broadens Thinking Capacity	Between Groups	5.211	4	1.303	8.635	.000
	Within Groups	6.789	45	.151		
	Total	12.000	49			
Best methods for exchange of knowledge and information	Between Groups	22.431	4	5.608	15.627	.000
	Within Groups	16.149	45	.359		
	Total	38.580	49			

Source: “The Author”

For the measure of sampling adequacy, the Anova test was used to analyse the relationship between a categorical independent variable and normally distributed dependent variable to understand the relationship between the technology used in the classroom environment and the its effective on the quality of learning. The Anova test on Creative learning, Building confidence, effective learning, Skill Development, Better platform for learning, broadens thinking capacity and best method for exchange of knowledge and information, was found where  $p < 0.01$  at .05 level of significance as shown in the table-4, hence we conclude and accept the hypothesis as the technology-based-learning enhance the quality of education among the students’ community. On the other hand, to determine the levels of behavioural changes that were observed among the teachers using the technology within the classroom for effective teaching showcases the test results in table -5.

**Table:5-** Behavioural changes among teachers using technology-based teaching practises in the classrooms

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Enjoys technology-based Teaching	Between Groups	6.502	1	6.502	16.734	.000
	Within Groups	8.938	23	.389		
	Total	15.440	24			
Establish Positive relation among students	Between Groups	7.290	1	7.290	17.197	.000
	Within Groups	9.750	23	.424		
	Total	17.040	24			
Easy to teach through ppts and videos	Between Groups	3.802	1	3.802	35.880	.000
	Within Groups	2.437	23	.106		
	Total	6.240	24			

Establishes effective learning platform	Between Groups	19.068	1	19.068	43.978	.000
	Within Groups	9.972	23	.434		
	Total	29.040	24			
Better opportunity to explore and experience	Between Groups	1.778	1	1.778	18.400	.000
	Within Groups	2.222	23	.097		
	Total	4.000	24			
Effective in material collection and sharing	Between Groups	8.028	1	8.028	15.422	.001
	Within Groups	11.972	23	.521		
	Total	20.000	24			
Confident in using technology in classroom	Between Groups	11.111	1	11.111	52.273	.000
	Within Groups	4.889	23	.213		
	Total	16.000	24			
Improves teachings methods	Between Groups	10.890	1	10.890	32.319	.000
	Within Groups	7.750	23	.337		
	Total	18.640	24			

Source: "The Author"

According to the above tables, the test of the variable was based on behavioural changes among the teachers while using technology in classrooms, hence the stated hypothesis has been accepted as the table explain the impact of the independent variable( technology) on the dependent variable(behavioural changes) resulting in showcasing the direct relationship between the use of technology and positive behavioural change among the teachers. The majority of the teachers felt using technological tools was very useful both in online and offline mode of teaching as the fields and forces which were harder to visualize were able to be made effective through model demonstration which simulate the interest among the learners and satisfaction among the teachers.

### Discussion

The purpose of the study was to understand and evaluate the impact of technology the in teaching and learning environment among the college students in Hyderabad. The results indicate the positive and significant relationship between the technology and students-teachers behavioural aspects. Hence, the study shows that use of technology will create a more engaging and effective learning environment and also ensure focused learning among the students, as they (students) also felt that their lessons are more effective and easy to understand which motivates them to develop their creative skills by increasing the confidence levels through better communication links to express their ideas and thoughts. The other side of the coin certainly tries to focus on technological barrier, from teachers and students perspectives, while teachers feels that there exists a certain degree of uncertainty and implementation challenges when technology is used to delivery of lecture in classroom, which includes, students do not follow all the elements when thought through a ppt or any other source, it doesn't reach all sections of students, it causes distraction among the students at frequent levels, teacher feel that their innovative skills get fades due to narrowing of the broaden ideas of teaching, while few students expresses their discontent as it shrinks their ability to read and write which was practiced in-traditional form of learning , some time they feel bored and distracted as one-to-one relations is not established in the classrooms, also narrow downs their thinking capacity when the students are over-dependent on the technology for every action performed/involved as the classroom activity. The majority of the teachers agreed that the usage of technology in the classroom should be determined by the students and other factors that influence the effectiveness in practice.

### Suggestion

In spite of success of technology in classrooms, few suggestive measures can be adopted

- Students should be trained to accelerate and exchange information in short time,
- Active learning and a variety of learning modalities should be encouraged.
- Improve learning and interaction among students, teachers, and programmes.
- Synchronous and asynchronous teaching and learning should be incorporated.

- Feedback Training Provider for students and teachers to monitor and improve performance based on current technology.

### **Conclusion**

To conclude, adoption of technology in teaching-learning environment within the classrooms has successfully been accepted by integrating it at colleges in Hyderabad, with major benefit for both teachers and students, and if this installation process of technology-based classroom is done on right guidelines, with on-going maintenance effective way, the teachers and students will make themselves available voluntarily on the platform to explore and innovate their ideas in an entirely comfortable environment. Thus, teachers play a critical role in ensuring advanced technology and communication devices are in reach of every learners in their college. As a policy suggestion, if the government ensures a new policy on technology and education it should focus on reach aspects among the learners and teachers at the grassroots level. Furthermore, in order to promote effective learning, teachers must be upgraded at regular intervals and expertise their hands-on use of technological techniques in the classroom.

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