The Effectiveness of ICT Enabled Teaching and Learning in Knowledge Transformation in Higher Education

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ABSTRACT

The Higher Education system in India promotes world-class education to the student community. Higher Educational Institutions had a significant impact on building the future generations of the world. In India, the performance of the institutions draws the attention of potential students, faculty of high caliber and promotes industry institutional collaborations. ICT-enabled teaching paves the platform for quality teaching and learning in recent trends. Classroom teaching becomes more effective, productive, and creative with the usage of information and communication technology. ICT-enabled teaching enriches better academic performance and promotes economic growth. The implementation of ICT tools in knowledge transformation impoverishes faculty and students to new ideas and enhances their creativity and enthusiasm to learn new concepts in many ways. ICT-enabled teaching helps the faculty to present a large volume of information instead of selecting basic and salient concepts. This paper focuses on students' perceptions of the effectiveness of the usage of ICT-enabled tools in knowledge transformation.

1.0 INTRODUCTION

Economic and social development of a Nation is built by a strong higher education system. It is the symbol of national strength and the backbone of a country. The introduction of ICT-enabled teaching and learning paves the platform for quality teaching and learning in recent trends. The classroom teaching and learning equipped with audio-visual systems, live discussions in economic forums, YouTube links, activity-based learning, interactive videos, etc would promote quality teaching and learning. The implementation of ICT tools in knowledge transformation impoverishes faculty and students to new ideas and enhances their creativity and enthusiasm to learn new concepts in many ways. ICT-enabled education enhanced the gross enrolment rate in Higher Educational

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institutions. To enhance better learning outcomes an initiative taken by the Ministry was the launch of "SAKSHAT" which contains high-quality e-content in all disciplines and subjects.

1.1 Review of Literature

Usou and Joseph (2022) in their article observed that the low rate of education in a country can be removed with the help of ICT. When ICT-enabled teaching is encouraged along with existing digital platform the barriers of fewer teachers and poor quality of education is rectified and provides quality education to all.

Prasad and Gupta (2020) observed that the implementation of ICT applications in the higher education system enables the teachers to serve the students better and provides options and choices for the students by creating competitive edges.

Sharma (2020) highlighted that the usage of ICT-enabled learning made the students more focused on learning. Proper utilization of ICT in Education enriches the learning process and provides quality education outcomes.

1.2 Objectives of the Study

- To analyse the effectiveness of ICT tools in knowledge transformation
- To study the students' perception on the usage of ICT tools in knowledge transformation.

2.0 METHODOLOGY

The study is both descriptive and analytical. The researcher collected the primary data by applying a convenient and purposive sampling method. The researcher used google forms to collect the responses from the students pursuing their graduation and post-graduation in colleges. The data is then coded and analysed using SPSS software and the findings are summarised. The students were asked to respond to questions related to the efficacy of ICT tools used in classes to enrich the teaching and learning experience.

2.1 Hypotheses

- **H$_1$:** There is no significant mean rank difference between the usage of smart classrooms and teaching learning efficacy.
- **H$_2$:** There is no significant relationship between the students' perceptions of ICT-enabled teaching and learning and knowledge transformation.

3.0 RESULTS OF PRIMARY DATA ANALYSIS

The researcher applied the reliability analysis to test the sample data.

Table 1

Reliability Testing

Reliability Analysis	N of Items
0.642	19

Cronbach's Alpha reliability test was applied by the researcher to test the validity of the questionnaire. The reliability analysis shows that the nineteen items of the questionnaire are valid

according to the statistical calculation and the results were then analysed to test the defined hypotheses. A score of above six confirms the validation of the questionnaire (Table 1).

The researcher applied the Friedman Mean Rank test to study the significant mean rank differences in the perceptions of the students on ICT-enabled classes. To find the relationship between the perception of the students on the usage of ICT-enabled tools in teaching and learning and knowledge transformation, correlation analysis was applied by the researcher. From the analysis, it is evident that ICT-enabled tools in classroom teaching provide effective transformation of knowledge among the students.

3.1 Friedman Rank Test

- **H$_1$:** There is no significant mean rank difference between the usage of ICT-enabled teaching and learning efficacy.

Table 2

Friedman Rank Test

ICT-enabled teaching and learning	Mean Rank	Chi-square value	p value
ICT-enabled classes improve Student retention levels.	12.24	132.437	0.000***
Students enjoy learning the subjects using ICT tools	10.08		
ICT-enabled teaching improves student's learning skills	8.99		
ICT-enabled lectures increase the ability of understanding.	8.91		
Students learn the subject in-depth	8.46		
Faculties are equipped to use the latest technologies in classes	8.32		
Students update themselves with recent information	8.29		
ICT-enabled classes encourage learner-centered education	7.90		
ICT-enabled classes provide scope for teacher-student interaction	7.65		
In ICT-enabled classes, students provide a platform to exchange ideas and build relations with peers.	7.44		
ICT focused classes improve the understanding of self-concept	7.04		
ICT-enabled classes are more interactive	6.64		
ICT-enabled learning challenges students in extra classroom activities.	6.51		
It facilitates the process of decision-making and problem-solving	5.85		
ICT-enabled classes focus on brainstorming sessions and develop the level of invention.	5.68		

Source: Computed from Primary Data

Interpretation: From the results of Friedman Rank analysis (Table *2*), it has been concluded that ICT-enabled classes not only increase efficiency in teaching but also increases student's learning capability and problem-solving skill. It is identified from Friedman Mean Rank analysis, that the model founds to be statistically significant, and the p-value is rejected at one percent level of significance.

3.2 Correlation Analysis

- **H$_2$:** There is no significant relationship between the students' perceptions of ICT-enabled teaching and learning and knowledge transformation.

Table 3

Correlation Coefficient

Perceptions of Students on ICT enabled teaching and learning and knowledge transformation	Fulfillment of Learning Objectives	Activity enriched Learning	Usage of ICT-enabled tools to share knowledge	Usage of ICT tools to submit assignments	The usage of ICT tools makes learning simple	Learning performance is enhanced
Fulfillment of Learning Objectives		0.533** (0.000**)	0.614** (0.000**)	0.368** (0.000**)	0.531** (0.000**)	0.549** (0.000**)
Activity enriched Learning			0.470** (0.000**)	0.452** (0.000**)	0.367** (0.000**)	0.480** (0.000**)
Usage of ICT-enabled tools to share knowledge				0.383** (0.000**)	0.504** (0.000**)	0.484** (0.000**)
Usage of ICT tools to submit assignments					0.530** (0.000**)	0.490** (0.000**)
The usage of ICT tools makes learning simple						0.763** (0.000**)

Source: Computed from Primary Data

Note: ** indicates significance at 0.01 level. Figures in brackets denote the p value.

Interpretation: From the results of Correlation analysis (Table *3*), it has been concluded that there exists a positive correlation between the usage of ICT-enabled tools in teaching and learning and knowledge transformation. It has been observed that ICT-enabled tools used in classes made the students feel comfortable in learning. The concepts are clearly understood, and the students' felt learning is simple and engaging. The model is statistically significant as the p-value is less than 0.01 and the null hypothesis is rejected at one percent level.

4.0 RECOMMENDATIONS

- Higher Educational Institutions can focus more on the usage of ICT-enabled tools for enhancing the learning ability of the students.
- Faculty members opt for more smart classes for productive teaching pedagogy.
- Students should be encouraged to register for more MOOC courses under the SWAYAM portal and other online platforms.
- Use of digital libraries and resource repositories like SHODGANGA, INFLIBNET, SAKSHAT, EDUSAT, etc to enrich the knowledge.
- Different stakeholders like Management, Faculty, Parents, and Government agencies can come forward to initiate the usage of ICT tools even in rural areas for inclusive growth and development.

5.0 CONCLUSION

The above paper gives an insight that the higher education system in the recent scenario has developed drastically. The classroom environment helps the student to mold themselves and enrich them with sound knowledge and language skills. It can be concluded that though ICT-enabled classes increase the efficiency of teaching and learning competency, they should be supplemented with the traditional teaching methodology namely chalk and board, chalk and talk, etc., to enhance effective knowledge transformation.

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