



Performance of ICT Implementation—A case study for a Northwest District of J&K.

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Abstract

Information and Communication Technology (ICT) has become an indispensable tool in higher education worldwide, revolutionizing teaching, learning, and research processes. This paper aims to investigate the use of ICT in higher education institutions of a District, located in the northwest side of Kashmir valley. The study explores the current state of ICT integration, its impact on teaching and learning, challenges faced, and recommendations for improvement. Through a combination of surveys, interviews and data analysis, the research aims to provide a comprehensive understanding of how ICT is transforming the educational landscape in this region. The findings suggest that while there has been significant progress in ICT integration, challenges such as ICT literacy persist. Recommendations are provided to enhance the effective use of ICT in higher education within the district, UT of Jammu and Kashmir.

Key Words: ICT, Higher Educational Institutions, Skilled teachers, Data set, Quality Education.

1. Introduction

Higher education in the district has undergone significant transformations in recent years, with the integration of Information and Communication Technology (ICT) playing a crucial role. The use of ICT in education has the potential to enhance teaching and learning processes, facilitate access to quality education, and improve overall educational outcomes. However, the extent to which ICT has been adopted and its impact on higher education in the district has a chance for improvement. As the world was enjoying the adventurous advantages of digital media, so in the same way its role in educational system becomes increasingly important [1]. ICT integration in education has revolutionized teaching and learning, while colleges of UT strongly work for the integration and are getting highly successful. The main challenge is proper training in using new resources. They must prioritize efforts to address these issues for the future of students [2]. The study reveals that ICT play a crucial role in education, particularly in higher education. These findings should encourage stakeholders to develop policies that better integrate ICTs and address the gap [4]. The use of ICTs in higher education is transforming teaching

and learning, enhancing quality and enabling online and virtual environments. ICT improves classroom experiences, supports e-learning, and expands access to education, including distance learning. It is crucial for teachers to integrate technology into their teaching to achieve pedagogical benefits. Successful ICT implementation focuses on empowering teachers and engaging students, rather than just acquiring technical skills. Ultimately, ICT-enabled education will improve learning. It has transformed the way how knowledge is disseminated today in terms of teacher's interaction and communication with the students and vice versa

Role of ICT in changing the teacher-student interaction: With the help of ICT, the role of teacher can be seen as:

- (1) Learning facilitator.
- (2) Collaborator, coach and mentor
- (3) Knowledge navigator and co-learner.
- (4) Teacher gives students more options and Responsibilities for their own learning.

In the same way the role of students has also seen unprecedented changes which are appended below:

- (1) Active participation in the learning process.
- (2) Producing and sharing of knowledge.
- (3) Collaborative learning with others.

So, it can be said that the application of ICT in the field of education has been proved very beneficial both for students and teachers. In addition, it can also be harnessed for multiple purposes such as increasing the capacity and cost effectiveness of education and training systems and enhance the quality of higher education. This paper seeks to address this gap by examining the use of ICT in higher education institutions in this region.

2. Purpose of the Study

The main purpose of the proposed study is to investigate the impact of ICT on students of higher education. Under the proposed study the following objectives have been framed and will be specifically investigated;

- 1) To investigate and compare the use of Information Communication Technology (ICTs) among College students.
- 2) To investigate the impact of Information Communication Technology (ICTs) on the academic achievement of College students.
- 3) To provide some possible suggestions to strengthen the integration of Information Communication Technology (ICTs) in HEI's.

3. Research Questions

In the proposed study, the following research questions were formulated.

- 1) How much does the College Students use ICTs in their studies?
- 2) How much does ICTs impact the academic achievement of College Students?
- 3) How much does a college student differ in using ICTs in their respective areas?

4. Methodology

This study employs a mixed-methods approach, combining qualitative and quantitative research methods. Surveys will be conducted among students and faculty members in higher education institutions across the district under survey to assess the current state of ICT integration, identify challenges, and measure its impact on teaching and learning. Additionally, semi-structured interviews will be conducted with key stakeholders, including educators, administrators, and policymakers, to gain deeper insights into the issues surrounding ICT integration in higher education.

5. Current State of ICT Integration

The findings reveal that while there has been significant progress in ICT integration in higher education institutions in the district under survey, few challenges persist. Most institutions have very good ICT infrastructure, including Lecture halls, computer labs, Auditoriums, meeting halls, Conference rooms and with high tech ICT facilities. However, there is opportunity for improvement, such as virtual classrooms for online broadcasting of lectures and learning management systems (LMS). Moreover, digital literacy among students and faculty members requires improvement, hindering the effective use of ICT for teaching and learning.

6. Result and discussion

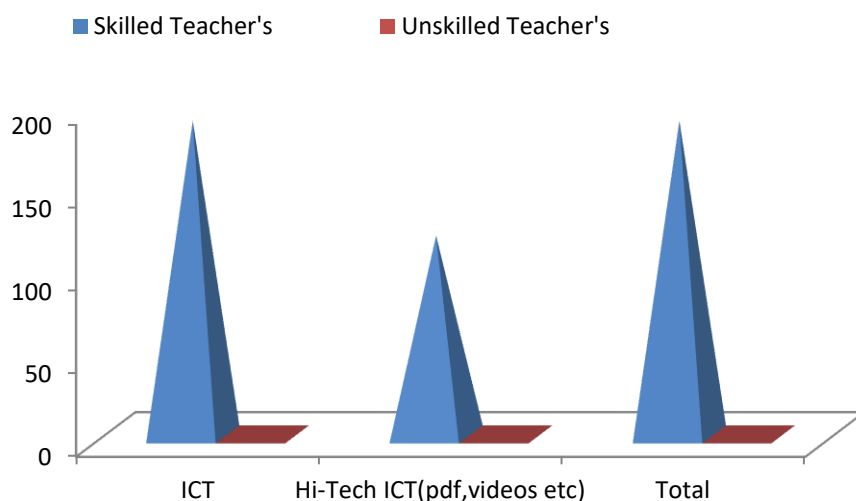
The study revealed that while there has been substantial progress in integrating ICT in higher education institutions in the district under review, few challenges persist. Most institutions have very good ICT facilities, while facilities like virtual classrooms and modern type Learning Management Systems (LMS) should be included. A significant digital literacy gap among students gets in the way for effective use of available ICT resources, with ICT primarily used for basic tasks rather than enhancing interactive and collaborative learning. Students who actively use ICT show better academic outcomes. To address these challenges, implementing comprehensive digital literacy programs, providing ongoing professional development for educators and developing student friendly policies is required. These measures can significantly enhance the role of ICT in higher education, leading to improved educational outcomes and contributing to the academic development for students. Table 1 displays skilled and unskilled teachers of institutions that have been chosen for this study.

Hi-Tech ICT in higher education refers to the integration and utilization of advanced digital tools and technologies to enhance teaching, learning, research, and administrative processes within academic institutions. This includes using computers, software applications, internet resources, multimedia tools,

and other digital platforms to improve educational outcomes, promote collaboration, and support efficient management of educational activities.

Table 1: Skilled and Unskilled teachers.

	ICT	Hi-Tech ICT videos, Online resources etc.)	Total
Skilled Teacher's	189	120	189
Unskilled Teacher's	0	0	0

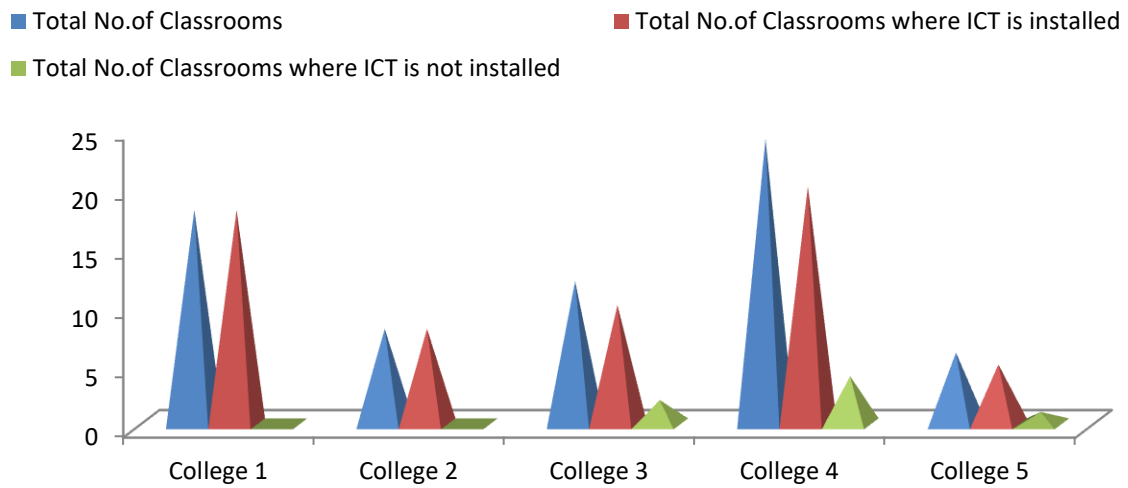


Graph 1: Skilled and unskilled teachers.

Table 2 displays the Classrooms where ICT is installed.

Table 2: Classrooms with ICT facility.

Name of the college	Total no. of classrooms	Total No. of the classrooms where ICT is installed	Total No. of the classrooms where ICT is not installed
College 1	18	18	0
College 2	8	8	0
College 3	12	10	2
College 4	24	20	4
College 5	6	5	1



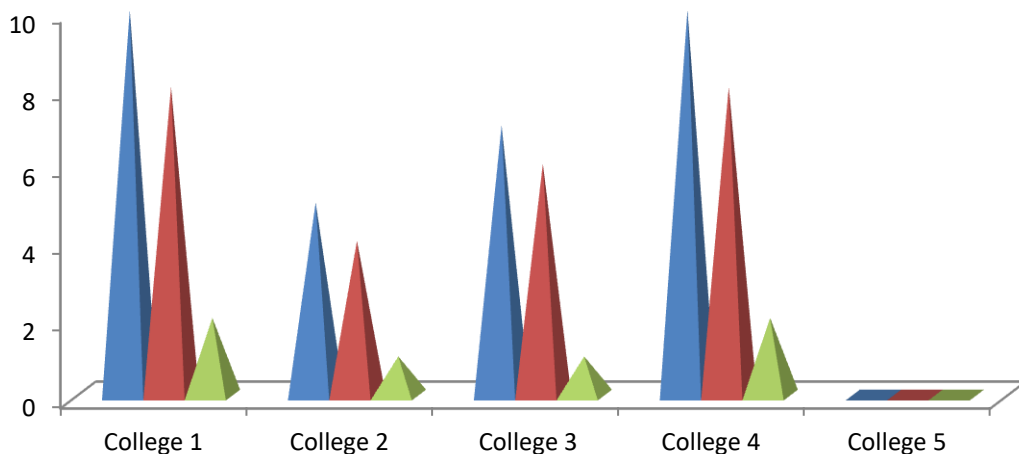
Graph 2: Classrooms with ICT facility.

Table 3 displays Laboratories where ICT is installed or not chosen for the survey.

Table 3: Laboratories with ICT facility.

Name of the college	No. of labs	Labs with ICT	Labs without ICT
College 1	10	8	2
College 2	5	4	1
College 3	7	6	1
College 4	10	8	2
College 5	0	0	0

■ No. of Labs ■ Labs with ICT ■ Labs without ICT



Graph 3: Shows labs with ICT.

Table 4 displays teachers using ICT and Hi-Tech ICT (videos, pdf, online resources etc.) In the colleges that have been chosen for the survey.

Table 4: Teachers using ICT and Hi-Tech ICT.

Name of the college	Total no. of Teacher's	No. of Teacher's using ICT	No. of Teacher's using Hi-Tech ICT (Pdf, Videos, online resources etc.)
College 1	65	65	56
College 2	19	19	19
College 3	28	20	20
College 4	68	68	68
College 5	9	9	9

■ Total No. of Teacher's ■ No.of Teacher's using ICT ■ No.of Teacher's using Hi-Tech ICT(Pdf,Videos etc)

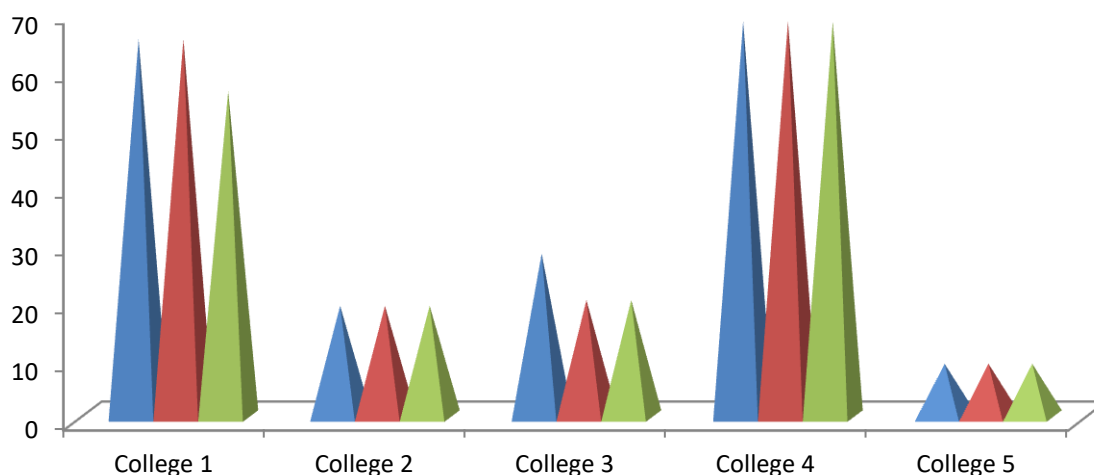
**Graph 4: Shows teachers using ICT and Hi-Tech ICT (videos, pdf, online resources etc.).**

Table 5 displays student's feedback about ICT facility in the colleges that have been chosen for the survey.

Table 5: Students Feedback on ICT in Higher Educations.

Name of the college	ICT available Yes / No	Beneficial Yes / No	Writing Time Saved Yes / No	Uninterrupted Power Supply Yes / No	Internet Connectivity available yes / No	Average Time power supply availability per class
College 1	80%	100%	100%	100%	100%	100%

College 2	80%	100%	100%	66.67%	80%	100%
College 3	73.34%	100%	100%	66.67%	85%	100%
College 4	73.34%	100%	100%	80%	80%	100%
College 5	60%	100%	100%	55%	0%	50%

7. Challenges and Barriers

Several challenges and barriers to effective ICT integration in higher education in the district under review are identified. These include:

- 1. Digital Literacy Gap:-**All the students and faculty members require extra ordinary skill for effective use of ICT tools and resources for better teaching and learning.
- 2. Operational Expenses: -**The ICT has huge running and maintenance expenses.
- 3. Lack of Effective training: -** Insufficient training opportunity for students to integrate ICT in educational settings is one the major barriers to integrate ICT in the process of Teaching and learning.
- 4. Lack of accessibility to resources: -** The common barrier that demotivates stakeholders for effective use of ICT into classrooms practice is lack of access to resources.

8. Recommendations

To address the challenges and maximize the benefits of ICT in higher education in the district under survey, the following recommendations are proposed:

- 1. Development:** upgrading already available best ICT infrastructure to the world class facilities, providing access to advanced ICT tools and technologies.
- 2. Training:** Conducting ICT literacy programs for students and faculty members to enhance their digital skills and enable them to effectively use ICT for teaching and learning.
- 3. Professional Development:** Provide training and Professional Development opportunities for educators to familiarize them with Hi-Tech ICT tools and methodologies
- 4. Guidelines:** Develop guidelines to promote the effective use of ICT in HEI's and provide incentives for institutions and educators that reveal excellence in ICT.

9. Conclusion

In conclusion, ICT has the potential to transform higher education in the college under survey by improving access, quality, and relevance. While significant progress has been made, challenges like ICT literacy gaps need to be addressed to fully realize the benefits of ICT in Education. The colleges have mostly skilled teachers all of whom are capable of using ICT facilities. However, Hi-Tech ICT facilities are predominantly utilized by skilled teachers, even though their use is highly required for the students. The current survey recommends skill training for partially skilled human resources at HEI in district under

survey to successfully reap the benefits of Hi-Tech ICT facilities. This training is crucial for fulfilling the mentorship roles as envisioned by NEP2020. By implementing the recommended strategies and interventions, HEI in the district under survey can effectively harness the power of ICT to enhance teaching and learning outcomes and contribute to the region's academics development.

Suggestions

After getting the deep insight from the proposed study, the following suggestions can be brought out to bring enhancement in higher education by integrating ICT in HEI's.

1. There is a room for improving Hi-tech ICT infrastructure in HEI's and hence needs to be taken care of.
2. HEI students should be given suitable training for ICT facilities in their colleges so that the students may get attracted towards ICT which may ultimately enhance their academic achievement.
3. The study also suggests that the HEI's should provide free workshops and seminars to students regarding the benefits of ICTs in Higher education.
4. Training programs should be organized for both teaching and non-teaching staff to ensure they can effectively use and support ICT facilities.
5. Specific training for non-teaching staff is necessary to uphold backup and internet facilities, ensuring the smooth functioning of ICT resources.
6. Regular maintenance of ICT equipment should be carried out to prevent technical issues.
7. Providing an uninterrupted power supply is crucial to avoid disruption in the use of ICT facilities.
8. High Speed internet is required to access online resources and services.
9. All lecture theatres should be upgraded to modern day Hi-tech ICT facilities.

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