

USE OF ICT IN GOVERNMENT COLLEGES OF UTTARAKHAND: CHALLENGES AND GAPS

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ABSTRACT

ICT is a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage vast amount of information. (Prasadh, 2013). The use of ICT is very extensive in education like teaching, research, extension activities, employability's opportunities and much more. While using ICTs in higher education, it can improve and enhance quality and the quantity of educational conditions (Sarkar, S, 2012). Number of studies shown a range of challenges, gaps, constraints and difficulties, like acquiring, installing, operating, maintaining and infrastructural investment are apparent to integrate use of ICT in higher education institutes in India. In Indian scenario the use of ICT is not homogenous according to geographical area of particular state like Uttarakhand. The topology of state of Uttarakhand is very different according to its division of districts in two "Mandals" that is Garhwal Mandal and Kumaun Mandal .

The focus of this review research paper was to examine and analyze previous research studies on basis of the gaps and challenges faced by government higher education colleges for use of Information and communication technology in education in the state of Uttarakhand. Apart from this the paper was also explored the reason behind these challenges and gaps facing by government colleges.

Keywords: ICT, Digital Divide, Infrastructure, e-resources

INTRODUCTION

Uttarakhand was formed as the 27th state of India. Though many programs have been conducted in the state though, a lot of effort has to be done in the form of execution for the higher education status. In Uttarakhand, according to data from the website of higher education Uttarakhand (2019) that government Degrees and Post Graduate colleges are affiliated to Sridev Suman Uttarakhand State University and Kumaun University exist in Uttarakhand. New other colleges also open but they are in extremely initial phase. These government colleges are located in 13 districts of Uttarakhand. As a new curved state there are relatively sufficient numbers of government degree and post graduate colleges.

The effective utilization of Information and Communication Technology (ICT) has emerged as a key indicator of a nation's economic prosperity, progress, and overall development.

Countries that fail to adopt and effectively integrate ICT into various sectors risk losing their competitive position in the global arena. Recognizing the transformative potential of technology, the National ICT Policy emphasizes the use of technology-driven approaches to address major developmental challenges in areas such as education, healthcare, skill development, social services, financial inclusion, employment generation, and governance. The policy aims to enhance efficiency, accessibility, and productivity across different sectors of the economy (IT Policy, 2018). In the context of higher education, ICT offers a wide range of applications that facilitate teaching, learning, research, administration, and knowledge dissemination, thereby contributing significantly to the improvement of educational quality and effectiveness.

The ICT is a core differentiator in higher education system. ICT use and technological innovation enhances teaching methodology and learning outcomes. Apart from this refined learning-management systems, the opportunity to collaborate with research partners, number of activities associated with higher education system and directly and indirectly beneficial to college students i.e. database of all students, entry level process, admission portals, distance education, soft skills programs and placement programs, counselling services, global connectivity, digital education, supply of e-resources etc. ICT has significantly transformed the educational landscape by facilitating the widespread dissemination of educational content and expanding access to learning opportunities. It has enabled educational institutions to strengthen connections with alumni, support career development services, foster corporate-academic collaborations, offer online degree programs, and promote digital and remote learning environments. As a result, ICT has enhanced the accessibility, flexibility, and effectiveness of higher education. Number of studies shows evidences on significant beneficial role of technology in shaping the outlook and future of higher education.

Enormous and multifaceted impact of ICT on higher education and the job preparedness are apparent in today's world but it is not equally and homogenously distributed in each and every geographical area in Uttarakhand. In Uttarakhand lack of uniform distribution of facilities are prominent due to its geographical parities. The "Digital Divide" is the gap between people who have access to computers, the Internet, telephone services, information sources, and digital training, and those who do not have access to these facilities because of social or economic reasons.

A study on the Digital Divide in Uttarakhand found that less than 4% of the state's population had Internet access. About 70% of the population lives in rural areas, but most rural people do not have access to the Internet and other important digital services. As a result, they are unable to benefit from modern information and communication technologies. (Kukreti, 2009).

At college level use of ICT in the form of Computers, Electronic Board, EDUSAT, Laptop, Electronic devices, Computer Software, Digitalization of Records and Library(E Granthalaya), Research incubation cell, Internet and Wi-Fi facility, projector and other peripheral devices linked with teaching-learning processes. Faculty is in centre in the whole process whereas ICT based education, various ICT tools are supplemented to make the teaching-learning process effective. Teachers can utilize ICT tools to get benefits from using these tools in the areas of content, curriculum, instruction, research, communication with broad academic community and assessment in teaching learning process. These ICT tools also utilized for the knowledge creation and dissemination in the present world. These devices also used in imparting education and training for teachers and students.

The report of Uttarakhand Higher Education Department Report (2019) emphasized the promotion of ICT-enabled teaching and learning in government colleges through digital

libraries, online resources, and e-governance initiatives. It highlighted the need for improved ICT infrastructure and faculty training to ensure effective technology integration.

The All India Survey on Higher Education (2020-21) reported the expansion of higher education institutions in Uttarakhand and highlighted the growing importance of technological infrastructure. The report indicated the need for strengthening digital facilities to improve access and quality in higher education.

The report of RUSA State Higher Education Plan, Uttarakhand (2021) identified ICT integration as a key strategy for enhancing quality and equity in higher education. It recommended the development of smart classrooms, digital learning resources, and improved internet connectivity across government colleges.

NAAC reports (2018-2023) assessed ICT infrastructure, internet access, and technology-enabled teaching practices in colleges. The findings revealed variations in ICT readiness and emphasized the need for continuous improvement in digital resources and faculty competencies.

The challenges related to digital inclusion, infrastructure deficiencies, and limited faculty training in higher education institutions. It recommended greater investment in ICT facilities, particularly in remote and hilly regions of Uttarakhand.

The present review research paper focused that use of ICT, infrastructure availability, faculty competency, student accessibility, and implementation challenges in Government Colleges of Uttarakhand. Very limited and comprehensive empirical study specifically examined the challenges and gaps of ICT utilization. Existing literature mainly focuses on general higher education, digital learning, or policy initiatives rather than government colleges as a distinct category.

CHALLENGES AND GAPS

Number of challenges, gaps and constraints are apparent in use of ICT in government degree colleges of Uttarakhand. These challenges and gaps can be properly understood when we are classified in these major categories:

(i) Operational Challenges

Operational challenges may hinder and delay the full benefits of resources which also exist in the system. But lack of missing element is functionality of these resources properly. In operational challenges government colleges are facing: lack of proper facility of electricity, financial assistance, proper allocation of budgets for ICT, lack of trained and qualified staff, lack of adequate manpower and trainings of faculties and staff. Many institutions struggle with these challenges of rising ICT budgets and the need to avoid technological barriers. Internet connectivity in rural and remote areas are very poor thus difficult to utilize this facilities properly.

(ii) Infrastructural Challenges:

Infrastructural challenges and gaps are related to the constraints related to space, building and physical resources. Broadband internet and Wi-Fi facilities is not high-quality due to service provider and typological constraints. Some areas are categorized by the service provider as a shadow area. Thus a very limited facility of internet to the college's faculty, staff and students is there. Lack of adequate number of lectures room and conference hall equipped with LCD's projectors, other audio visual aids and other ICT devices are prominent in government degree colleges. Website of directorate of higher education of Uttarakhand

shows that the ICT tools like multi-media projectors, Internet communication equipments and VCD are very low availability in the government colleges.

Application of ICT in college libraries of government colleges of Uttarakhand has not reached high level. Lack of digitization and automation of library obstruct other activities like digital cataloging, global connectivity and supply of e-learning materials for faculties and students. According to state data only 8.0% college libraries are partially computerized. In Library automation traditional barriers like insufficient funds, lack of space, lack of e-resources for faculty and students (research Scholar) and lack of trained staff are the problems faced by many libraries of government colleges of Uttarakhand. Very limited facilities government colleges have computerized digital library, cataloging and automation activities. More than 70.0% government colleges having facilities of EDUSAT in the colleges and in this percentage but approximately 10-20% of systems not in working conditions due to various reasons like lack of funds, difficulty in supply of electricity etc. Lack of budget, trained and skilled staff are main constraints for utilization of ICT in the government higher education institutions. Moreover, inadequate structural design expertise and limited technological support can act as significant barriers to the successful adoption of new technologies (The Economist Intelligence Unit, 2008).

ATTITUDINAL CHALLENGES

The use of ICT is limited and a some number of teachers and other staff are not very much comfortable to using computers and others technological utilities in the college for imparting education, research work, online work and for maintain various types of database of records. Few number of college teachers have not shown adequate interest and also not having encouraging attitude towards learning ICT and applying it for classroom teaching learning process. Setting up ICT lab is very expensive to afford, it is hard for teachers to use with a lack of experience using ICT tools. These reasons destroy the available quality of education (Sharmila D, Mohammad R, Subhash, C 2012).

Apart from these constraints insufficient number of PCs, lack of support from IT staff, lack of time to use these facility for students and staff, lack of computer lab, e-resources not available in library, no campus computer network and limited internet connectivity are very prominent (Parveen Kumar(2012).

(iii) Others Challenges

Apart from above mentioned gaps and challenges digital divide is a major issue in ICT use in government degree colleges. Another major but not unavoidable concern is that most of the students from periphery and remote areas are comfortable with Hindi language. But most of the ICT devices and for computer work the basic language is English, thus these students having hesitation in use of ICT devices. This is one the challenge how to involve these students in ICT literacy.

CONCLUSION

To attract students, staff, corporate partnership institutions need to demonstrate a commitment to advanced ICT. Without use of ICT we can't prepare our students for global world or demands of globalization. Provision of structured computer and information technology training for faculties, staff and students would equip them with the skills they need to practice. Attitudinal and operational barrier should address. Moreover a lot of qualitative and quantitative improvement like training of staff, faculty and students is needed so digital divide will minimize and students mainstreams for ICT world.

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