VOL- XI ISSUE- XII DECEMBER 2024 PEER REVIEW e-JOURNAL IMPACT FACTOR 8.02 ISSN 2349-638x

Effectiveness of ICT integration in secondary level education: A Study

Dr. Nishant Chandrakant Nirmale
Associate Professor
Shrimati Sushiladevi Salunkhe College of Education, Dharashiv.

Introduction

Technology and information are the key drivers in the 21st century. The utilization of technology has actively contributed to enhancing efficiency, advancement, and flawlessness in the realm of education, enabling the dissemination of vast amounts of information in a shorter span of time, thereby making the learning process more interactive. ICT promotes access to educational material in a more sustainable manner wherein individuals can access the information directly from the database in a digitized format. Additionally, it can also enable access to information beyond the traditional limitations of borders and regions. In this manner, ICT is representative of a deep and pervasive revolution that is impacting human existence as a whole by breaking down the barriers to education and access to learning and knowledge by allowing people to tap into new information sources, ultimately allowing them to expand their knowledge base while at the same time sparking student interest in new areas.

The phrase ICT is very wide in its ambit and it encompasses a wide variety of technologies within itself, including but not limited to computers, the Internet, mobile phones, e-learning, and video conferencing technologies, etc. These technological tools have brought forth a revolution in the manner in which information is generated, stored, reused, and also communicated on a global scale, thus impacting all relevant sectors of human society. ICT also functions as an integrating and enabling technology. By acting as integrating and enabling technologies, ICT plays a revolutionary role in enhancing productivity for sustainable development. Sustainable education is a phrase that aims to bestow upon children and learners of all ages the knowledge, skills or values that are necessary for holistic development of the learners. It is focused on the promotion of awareness and the understanding of environmental, social and economic issues with a focus on encouraging responsible behavior as well as decision-making. The integration of ICT has enabled the inculcation and incorporation of innovative standards of teaching into education. It has also allowed the simplification of complicated topics through audio- visual inputs and has allowed educators to dilute traditional boundaries of geography by allowing access to a vast plethora of academic resources. It can also foster collaborative learning among the students wherein the educators can focus on individualized teaching standards through ICT to cater to the various needs of the learners. Furthermore, long-distance learning is also enabled through the introduction of ICT into this domain. All this has enabled greater achievement of sustainable education standards.

In conclusion, ICT is vital for sustainable education, providing access to environmental information, interactive learning through educational apps, simulations, and virtual labs and facilitates collaborative learning through online platforms, real- time data analysis, energy-efficient technologies, global awareness, teacher professional development, equipping students and teachers with digital knowledge and critical thinking abilities. It also facilitates collaborative learning, connects teachers to global initiatives, and enhances teacher skills. The integration of ICT in education enhances accessibility, improves the quality of education, supports lifelong learning, promotes scientific knowledge, and prepares learners to tackle global challenges. By leveraging ICT, education systems can become more inclusive, effective, and adaptable, ensuring that

all individuals have the opportunity to thrive in the digital age.

Need and Significance of the Study

This study aims to inform educational designers, curriculum creators, academics, policymakers, and stakeholders, driving positive developments in Dharashiv school education. The private and aided schools chosen for its diversity, needs research on ICT's role in sustainable education. Understanding ICT access and utilization for sustainable education will aid in the overall development of students.

Objectives of the study

1. To study the application of ICT in the teaching-learning process in secondary level school education.
2. To study the problem faced by Teachers with regard to ICT integration in the teaching- learning process.

Delimitation of the study

The study is delimited to the Secondary Schools of Latur Board of Secondary Education in Dharashiv city.

Methodology

The survey study method was implemented for the present study. Data has been collected through a self- constructed questionnaire from teachers of secondary schools in Dharashiv city. The data was collected from Government Aided and Private school teachers. For the analysis of data used percentages were calculated.

Sample

The sample of the study was comprised of teachers of Government-aided and Private schools at the secondary level. A total of 26 teachers were selected for the study including 16 teachers from Govt. Aided and 10 teachers from private schools were taken as samples. Disproportionate stratified random sampling technique was adopted for the present study.

Data Analysis and Interpretation

Objective 1.

To study the application of ICT in the teaching-learning process in secondary level school education.

Table 1 Showing the allocation of ICT by teachers for teaching -learning

Management	Government Aided				Private non-aided			
Response	Yes	%	No	%	Yes	%	No	%
Smart Classroom	6	37.5	10	62.5	6	60	4	40
Computer	16	100	0	0	10	100	0	0
Projector	7	43.75	9	56.25	9	90	1	10
Internet	11	68.75	5	31.25	10	100	0	0
Presentation of software	4	25	12	75	5	50	5	50

Table 2 Showing the use of ICT by teachers for teaching -learning

Management	Government Aided				Private non-aided			
Response	Yes	%	No	%	Yes	%	No	%
To prepare lesson plans	5	31.25	11	68.75	7	70	3	30
Internet to search teaching material	10	6.25	6	93.75	7	70	3	30
To prepare and provide online work	4	25	12	75	5	50	5	50
To communicate with student	9	56.25	7	43.75	7	70	3	30
To monitor students' performance	7	43.75	9	56.25	4	40	6	60
To evaluate students' progress	4	25	12	75	3	30	7	70

Table-3 Difference Apps used by teachers for teaching -learning

Management	Government Aided				Private non-aided			
Response	Yes	%	No	%	Yes	%	No	%
Google Classroom	6	37.50	10	62.50	5	50	5	50
WhatsApp	12	75	4	50	9	90	1	10
Google meet	10	62.50	6	37.50	8	80	2	20

Objective 2

To study the problem faced by teachers with regard to ICT integration in teaching-learning process

Table -4 Problem faced by teachers during the use of ICT in teaching-learning

Management	Government Aided				Private non-aided			
Response	Yes	%	No	%	Yes	%	No	%
Infrastructure	12	75	4	25	6	60	4	40
Lack of resources	13	81.25	3	18.75	4	40	6	60
Constraints of time	12	75	4	25	7	70	3	30
Lack of electronic devices	13	81.25	3	18.75	6	60	4	40
Lack of technical support	14	87.50	2	12.50	8	80	2	20
Lack of maintenance	14	87.50	2	12.50	7	70	3	30

Findings and discussions

Objectives 1 To study the application of ICT in the teaching-learning process in secondary level school education

The findings of the study indicated that teachers from all three management were using computers in the computer lab as there were no computers in the classrooms. The teachers use PowerPoint presentations to help their students understand difficult subjects in simpler terms, which encourages creativity and improves learning outcomes. A vast number of educators have been accessing study materials over the internet.

The findings of the present study suggested that teachers from all three types of management used the internet for making lessons plans and assigning online work to students as well as to get study materials. However, a limited number of teachers were utilizing ICTs to create lesson plans, track student progress, and observe student performance. The main utilization of ICTs was for communication with other instructors and students.

The findings showed that teachers from all two kinds of management shared assignments, grades, and other information online using Google Classroom and Google Meet, which are online learning management systems. Educators also utilized WhatsApp by creating groups specifically for each class or subject and then using these groups to communicate with students regarding assignments, multimedia content, instructional films, and other visual materials. It is found that instant communication like this increases student involvement and informs them of upcoming events and deadlines.

Objective 2. To study the problem faced by Teachers with regards to ICT integration in the teaching-learning process:

The outcomes of the study indicated that teachers had a sturdy desire for the incorporation of ICT into education but they faced many difficulties with it. According to the study, teachers were having a variety of issues when integrating ICTs for teaching and learning, including inadequate infrastructure, a lack of e-resources, time constraints, and a shortage of electronic equipment like computers and projectors in the classroom. It was discovered that a lack of technical assistance, including fewer employees with ICT training and inadequate tool maintenance, was making it difficult to utilize. Aside from these, slower networks, improper power backup, and power outages were a few issues in incorporating ICTs into teaching and learning.

Conclusion

From the above study, it is clear that teachers used a variety of ICTs in the teaching and learning process. Teachers are sharing assignments and messages using social media platforms like WhatsApp and various online classroom management systems like Google Classroom and Meet. The study concludes that there are a number of problems that come up when integrating ICTs for teaching and learning, such as inadequate infrastructure, lack of electronic resources, time constraints, and a shortage of electronic equipment like projectors and computers in the classroom. It is found that lack of technical support including fewer employees with training in ICT and inadequate maintenance of ICT equipment is hindering easy access to ICTs. To make use of new opportunities offered by ICT, the school should be provided necessary infrastructure with ICT equipment to enhance quality education.

References

1. Adu, E., & Adeyinka, T. (2009). Information communication technology (ICT) and curriculum development: The challenges for education for sustainable development. ResearchGate.
2. Angadi, R. G. (2015). Information and communication technology in education. New Delhi, India: A. P. H. Publishing Corporation.
3. Bera, S. (2020, September). Enhancing quality of teaching-learning by using information and technology (ICT). Scholarly Research Journal for Interdisciplinary Studies, 3(18), 100-112.
4. Best, J. W., & Kahn, V. K. (2014). Research in education. Delhi, India: PHI Private Limited. Chatterjee, P., & Nath, A. (2015). The future of ICT education in India: A pilot study.
5. Mohanty, A., & Dash, D. (2018). Education for sustainable development: A conceptual model of sustainable education for India. International Journal of Development and Sustainability, 7(9), 2242-2255.
6. Moodly, A. L., & Adu, O. (2014). Information and communication technology (ICT) in
7. education for sustainable development (ESD): Quality teaching and learning outcomes.
8. J. Communications, 5(2), 197-202.
9. Tyagi, R., Vishwakarma, S., Alexandrovich, Z. S., & Mohammed, S. (2020, April). ICT skills for sustainable development goal 4. ResearchGate.
10. UNESCO. (2003). Decade of education for sustainable development (January 2005–December 2014): Framework for a draft international implementation scheme. Paris: UNESCO.