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INFORMATION AND COMMUNICATION TECHNOLOGY IN SECONDARY TEACHER EDUCATION INSTITUTIONS OF JHARKHAND – AN ANALYSIS

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ABSTRACT:

ICT is an essential component of all disciplines now a days. The influence of ICT can easily be seen in all fields of education including teacher education . The present investigation aims at studying the status of ICT in secondary teacher education institutions of Jharkhand. The sample of the study consisted of 125 teacher educators selected from 25 secondary teacher education institutions of 5 universities of Jharkhand. The study revealed that almost all the secondary teacher education institutions (100 per cent) were having ICT laboratory, computer tables, computer chairs and UPS facilities. The ICT equipments available in all the secondary teacher education institutions include: computers, smart phones, printers, scanners, television monitor, digital cameras and radios. ICT was used in teacher education institutions for various purposes such as teaching (67 per cent), examination (12 per cent), evaluation (24 per cent), demonstration (48 per cent) etc. Teacher educators were using ICT regularly in their daily activities such as facebook, whatsapp etc.



KEYWORDS: ICT, secondary teacher Education Institutions.

INTRODUCTION

Information and Communication Technology (ICT) is an essential component of all disciplines now a days. The influence of ICT can be easily be seen in all the fields of education including teacher education. Inclusion of ICT in teacher education can enable a teacher to develop and share the teaching content globally. It also helps in connecting the rest of the world to know-how of the

recent trends in teacher education.

ICT in teacher education can be seen through two lenses.

1. **ICT in Teacher Education-** This refers to the components of technology which are being taught to the student teachers during the teacher education courses. The course module consists of ICT related components which range from preliminary knowledge of

ICT to the advanced use of technological tools in the classroom.

2. **Teacher Education through ICT-** This is the new approach of disseminating teacher education with the help of technology. It also includes various add-on courses likes MOOC's which are online courses and can be accessed by learners through the help of ICT devices consisting of required hardware and

software.

The state of Jharkhand came into existence in year 2000. There are five universities in Jharkhand under which 109 secondary teachers education institutions are available. The number of secondary teacher education institutions increased very rapidly from 2012. All these teacher education institutions are recognized by National Council for Teacher Education (NCTE). Though, the number of secondary teacher education institutions increased rapidly in Jharkhand but the quality teaching is a matter of concern.

A number of studies have been conducted in India and abroad on the use of ICT in teacher education. Some of the findings of the study are given below. A study on in-depth analysis of the literature on the variables affecting the utilization of technology by teachers in the classroom was undertaken by Mumtaz (2000). The study revealed that the obstacles affecting the utilization of technology by teachers were work pressure, restricted timetable and lack of enthusiasm. A study on technology utilization, perceptual usefulness and awareness was undertaken by Yushau (2006). It was found that the faculties who had experience with technology were engaged in technology application in classroom transaction extensively.

The study conducted by Gulbahar (2008) revealed that the students and instructors were in favour of using technology, but lack of smart classroom was restricting them in using the ICT. The study by Yaman (2008) was to analyse the degree of usage of technology by physical education teachers. It was found that female participants were using ICT effectively. The study showed that the participants with in-service training and less teaching experience were more skilled than others. Al-Zaidiyeen and Mei (2010) studied technology infusion from a rural perspective. It was found that technology utilization for academic purposes was very less. Krishnaveni and Kumari (2010) conducted a study on the importance of ICT and concluded that technology was a necessary aid to ensure the proper functioning of educational institutions.

The investigation conducted by Onasanya, Shehu, Ogunlade and Adefuye (2011) on ICT literacy and usage among teachers revealed that the low ICT literacy among the teachers was due to lack of equipment, lack of financial aid, unfavourable climate, irregular power supply and teachers incompetency. Tedla (2012) in his study found varieties of barriers such as lack of administrative support, deficit infrastructural setup, absence of financial aid, incompetent faculties, lack of proper strategies, low level of technological information, pessimistic views, improper power supply, no proper network connectivity, lack of support from stakeholders, lack of proper transport system, lack of community participation, lack of trained supervisors and lack of teaching expertise in the implementation of ICT in classroom.

A study on the degree of ICT diffusion in teacher education institutions was conducted by Avidov-Ungar and Iluz (2014). The survey revealed three stages of integration of ICT i.e. basic, focused and creative. The study by Chhatwal and Mahajan (2014) showed non-availability of computer hardware, antivirus software, digital library software, research data analysis software etc, in some of the participating universities library. To explore the extent of ICT presence and usage prescribed in the curriculum of teacher education, Gupta and Singh (2014) reported less number of computers with internet connectivity. It was also found that online interaction was nil like online courses, and online communication was used for communication purposes.

In studying the accessibility of ICT and its use in teacher education institutions Langat (2014) found that there was an acute shortage of all the basic amenities required for proper inclusion and utilization of ICT. Apagu and Wakili (2015) conducted a study on ICT availability, use, benefits and challenges faced in using ICT. The study revealed that lack of hardware facilities, less exposure to various ICT equipment for teaching-learning experience and irregular power supply were the hurdles in the implementation of ICT in the classroom. Nwana, Ofoegbu and Egbe (2017), conducted a study on accessibility and utility of educational technology resources for the classroom instruction at the secondary level. The data indicated that majority of the technical resources needed were not available. The studies cited above revealed that though a number of studies have been conducted on status of ICT

in teacher education institutions in India and abroad, hardly any study has been conducted on status of ICT in secondary teacher education institutions of Jharkhand. Hence, the study was undertaken.

OBJECTIVES OF THE STUDY

The objectives of the study were:

1. To study the availability of ICT infrastructure in Secondary Teacher education Institutions of Jharkhand.
2. To study the availability of ICT equipment in Secondary Teacher education Institutions of Jharkhand.
3. To study the different areas of use of ICT by teacher educators of Secondary Teacher education Institutions.
4. To study the frequency of use of ICT by teacher educators of Secondary Teacher education Institutions.

RESEARCH QUESTIONS

On the basis of the objectives, the following research questions have been framed :

1. What ICT infrastructure facilities are available in Secondary Teacher education Institutions of Jharkhand?
2. What ICT related equipment are available in Secondary Teacher education Institutions of Jharkhand?
3. What are the different areas of use of ICT by teacher educators in secondary Teacher education institutions?
4. What is the frequency of use of ICT by teacher educators of secondary Teacher education institutions?

Method

The study was carried out through descriptive survey Method of research.

Sample

The sample of the study consisted of 125 teacher educators teaching in 25 secondary teacher education institutions affiliated to 5 universities of Jharkhand. The sample was selected through the method of purposive sampling.

tools

The following tools were developed and used by the investigators.

1. Questionnaire for Teacher Educators
2. Checklist

Analysis and interpretation of Data

This section deals with analysis and interpretation of data. The collected data were analysed as per the objectives of the study. The analysis and interpretation of data are presented in Table 1 to 4.

Availability of ICT infrastructural facilities

The status of ICT related infrastructural facilities available in Secondary Teacher Education Institutions of Jharkhand is presented in Table 1.

Table 1
Availability of ICT Infrastructural facilities in Secondary Teacher Education Institutions

S.No.	Infrastructural Facilities	Teacher Educators	
		f	%
1.	ICT Laboratory	125	100
2.	Computer table	125	100
3.	Computer chairs	125	100
4.	Electric Generator facility	28	22
5.	UPS	125	100
6.	Networking Hub	19	15
7.	Wi-Fi router	39	31

Table 1 reveals that almost all the teacher educators (100 per cent) stated that ICT infrastructural facilities such as ICT laboratory, computer tables, computer chairs and UPS were available in all their institutions. However, electric generator facility was available in 22 per cent of institutions. It may be observed from Table 1 that networking-hub and Wi-Fi routers were available in 15 per cent and 31 per cent of institutions respectively.

It may be concluded from the results that almost all the secondary teacher education institutions had ICT laboratory, computer tables, computer chairs and UPS. However, electric generator facility, networking-hub and Wi-Fi routers were available in very less number of institutions.

The study by Anyamene, Nwokolo, and Anyachebelu (2012) revealed the obstacles related to inclusion of ICT due to limited resources, lack of connectivity and improper power supply. Tedla (2012) in his study found varieties of barriers such as lack of administrative support, deficit infrastructural setup, absence of financial aid, incompetent faculties, lack of proper strategies, low level of technological information, pessimistic views, improper power supply, no proper network connectivity, lack of support from stakeholders, lack of proper transport system, lack of community participation, lack of trained supervisors and lack of teaching expertise in the implementation of ICT in classroom.

Availability of ICT Equipment

Availability of ICT equipment in Secondary Teacher Education Institutions of Jharkhand is presented in Table 2.

Table 2
Availability of ICT Equipment in Secondary Teacher Education Institutions

S.No.	ICT Equipment	Teachers educators	
		f	%
1.	Computer	125	100
2.	Handheld computer/ tablet PCs	7	6
3.	Smart phones	125	100
4.	Telephone	63	50
5.	Printers	125	100
6.	Fax machine	44	35
7.	Copier	101	81

8.	Surveillance camera	42	34
9.	LCD Projector	89	71
10.	Over Head Projector	112	90
11.	Scanners	125	100
12.	Television Monitor	125	100
13.	Digital cameras	125	100
14.	Radio	125	100

Data presented in Table 2 reveals the availability of ICT equipment in secondary teacher education institutions. It was seen that ICT equipment such as computers, smart phones, printers, scanners, television monitors, digital cameras and radio were available in all the secondary teacher education institutions (100 per cent) of Jharkhand. However, more than 70 per cent teacher educators stated that copiers, LCD projectors and over-head projectors were available in their institutions. It is worthy to mention that, 34 per cent of teacher educators stated that surveillance camera was available in their institutions. Furthermore, 6 per cent, 35 per cent and 50 per cent of teacher educators stated that ICT related equipments such as handheld computers, fax machine and telephone were available in their institutions respectively.

It may be concluded from the results that all the teacher educators stated that computers, smart phones, printers, scanners, television monitor, digital cameras and radio were available in their institutions. However, handheld computers, fax machine, telephone and surveillance cameras were available in very less number of institutions. Ekpoh & Etor (2012), conducted a study on availability of ICT equipment in universities of Cross River estate, Nigeria and found that ICT equipment were inadequate. Anyamene, Nwokolo, and Anyachebelu (2012) conducted a study on extent of availability and use of ICT resources by university students of South East universities, in Nigeria and reported the lack of ICT facilities in the universities.

Areas in which ICT is used by Teacher educators

The different areas in which ICT is used by teacher educators is presented in Table 3.

Table 3
use of ICT by Teacher Educators

S.No.	Areas of use of ICT	Teacher Educators	
		f	%
1.	Teaching	84	67
2.	Examination	15	12
3.	Evaluation	30	24
4.	Demonstration	61	48
5.	Production of text using a word processing programme	81	65

6.	E-mailing materials	36	29
7.	Facebook	125	38
8.	Whatsapp	125	100
9.	Creation of database	16	100
10.	Organizing computer files	31	25
11.	Spreadsheet	71	57
12.	Spreadsheet to plot a graph	32	26
13.	Creating a presentation with simple animation functions	67	54
14.	Creating a presentation with video or audio clips	28	22
15.	Participating in a discussion forum on the internet	35	28
16.	Downloading or uploading curriculum resources from/to websites	19	15
17.	Participating in social networking websites	21	17

Data presented in Table 3 reveals the areas of use of ICT by teacher educators. It was found that more than 47 per cent of teacher educators used ICT for teaching, demonstration, production of text using a word processing programme, whatsapp, spreadsheet and creating a presentation with simple animation functions. Furthermore, more than 21 per cent of teacher educators used ICT for evaluation, e-mailing materials, facebook, organizing computer files, spreadsheet to plot a graph, creating a presentation with video or audio clips and participating in a discussion forum on the internet. It is worthy to mention that teacher educators also used ICT for other purposes such as examination, creation of database, downloading or uploading curriculum resources from/to websites and participating in social networking websites.

It may be concluded from the results that majority of teacher educators used ICT in teaching, production of text using a word processing programme , Whatsapp and creating a presentation with simple animation functions. Furthermore, ICT was also used by teacher educators for evaluation, demonstration and e-mailing materials etc. Very less number of teacher educators used ICT for examination, creation of database, downloading or uploading curriculum resources from/to websites and participating in social networking websites. Olibie & Nkem (2013) conducted a study on use of ICT by teachers and reported less use of computers for various purposes in classroom instruction.

frequency of use of ICT by Teacher Educators

The frequency of use of ICT by teacher educators is presented in Table 4.

Table 4

Frequency of Use of ICT by Teacher Educators

S.No.	Areas	Frequency of use					
		Every day		Rarely		Never	
		f	%	f	%	f	%
1.	Browsing materials	110	88	10	8	5	4
2.	E-mailing materials	45	36	60	48	20	16
3.	Social networking websites like facebook, Instagram, etc.	125	100	-	-	-	-
4.	Text chatting through SMS, WhatsApp, hike, etc	125	100	-	-	-	-
5.	Browsing online journals	35	28	76	61	14	11

Table 4 reveals that ICT was used by teacher educators (88 per cent) for browsing materials every day. However, 48 per cent of teacher educators used ICT for e-mailing the materials rarely. It is worthy to mention that all the teacher educators (100 per cent) used ICT for social networking and text chatting everyday.

It may be concluded from the results that teacher educators used ICT everyday for social networking and text chatting. However, very few teacher educators used ICT for browsing materials, e-mail and browsing online journals. Apagu and Wakili (2015) conducted a study on availability, use, benefits and challenges faced in using ICT. The study revealed that lack of hardware facilities, less exposure to various ICT equipment for teaching-learning experience and irregular power supply were the hurdles in the implementation of ICT in the classroom.

MAIN FINDINGS

1. All the secondary teacher education institutions (100 per cent) had ICT laboratory, computer table, computer chair and UPS. However, electric generator facility, networking-hub and Wi-Fi routers were available in very less number of institutions.
2. Almost all the teacher educators (100 per cent) stated that ICT equipment such as computers, smart phones, printers, scanners, television monitor, digital cameras and radio were available in their institutions. However, handheld computers, fax machine, telephone and surveillance cameras were available in very less number of institutions.
3. Majority of teacher educators (100 per cent) stated that they used ICT for teaching, production of text using a word processing programme, Whatsapp and creating a presentation with simple animation functions. However, less number of teacher educators used ICT for examination, evaluation, demonstration, e-mailing materials, facebook etc.
4. Almost all the teacher educators (100 per cent) were using ICT for social networking and text chatting every day. It is worthy to mention that 88 per cent of teacher educators were using ICT for browsing materials every day. However, teacher educators were also using ICT for e-mailing materials and browsing online journals rarely.

Educational Implications

The findings of the present study reveals the present status of ICT in secondary teacher education institutions of Jharkhand. On the basis of the findings of the study the following suggestions may be given for improving the status of ICT in secondary teacher education institutions of Jharkhand.

1. All the secondary teacher education institutions may possess ICT infrastructure such as ICT laboratory, computer tables, computer chairs, UPS, electric generator facility, networking-hub and Wi-Fi routers for the proper functioning of the institutions.
2. ICT equipment such as computers, smart phones, printers, scanners, television monitors, digital cameras, radio, copiers, LCD projectors, over-head projectors, surveillance cameras, handheld computers, fax machine and telephone needed to be available in all the secondary teacher education institutions.
3. It is suggested that teacher educators may use ICT in various area such as teaching, demonstration, production of text using a word processing programme, whatsapp, spreadsheet, creating a presentation with simple animation functions, evaluation, e-mailing materials, organizing computer files in folders and subfolders, spreadsheet to plot a graph, creating a presentation with video or audio clips, participating in a discussion forum on the internet, examination, creation of database, downloading or uploading curriculum resources from/to websites and participating in social networking websites.
4. Teacher educators may use ICT for browsing materials, e-mailing materials and browsing online journals for their professional development regularly.

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