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A study on status of ICT use in various teacher training institutes of tribal areas

Dr. Ranjan Kumar Biswas
Assistant Professor, CIET, NCERT, Sri Aurobindo Marg, New Delhi, India

Abstract
The present article highlights the **'**Information and Communication Technologies(ICTs)' which are unusually defined as a diverse set of technological tools and resources to communicate, create, disseminate, store and manage the information. In relation to the use of ICT, the collected data from DIETs of tribal areas all over the country depict the present ICT infrastructure facilities, equipments and frequency of its uses specially by the faculty members. It is substantial that all the DIETs are not well equipped by the required ICT instruments and even the ICT instruments which are available in DIETs are not used properly. Taking into consideration the situation, study further reproduces various suggestions, given by the faculty members of DIETs for overall improvement.

Keywords: concept of ICT, use of ICT in education, infrastructural facilities

Introduction

ICT standing for 'Information and Communication Technologies' is defined as a 'diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information'. As best example, internet and broadcasting technologies such as radio and television and telephony are come under these technological jurisdictions. ICT is considered as an umbrella term which consists of any communication device or application such as radio, television, cellular phones, network, computer hardware and software, satellite systems and so on whereas various services and applications are associated with videoconferencing and distance learning. (Rouse, 2005) [26]. It is sometimes considered as a branch of engineering which deals with the use of computer and telecommunication equipments to store, retrieve, transmit and manipulate data (Daintith, 2009) [10]. In other words, 'ICT is the digital processing and utilisation of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information' (Okauru, 2011) [25]. 'It is commonly used as a synonym for computers and computer networks but it also encompasses other information distribution technologies such as television and telephones' (Chandler & Munday, 2012) [8].

Policies of Information and Communication Technology (ICT) are thought as part of educational renewal. Therefore, ICT is used in education to provide the prospects and trends for integrating it into the general educational activities. Scope of ICT is expanded rapidly and consequently, it is required to reform strategy which must make a balance between ICT infrastructure facilities and utilization of ICT as an integral part for promoting educational activities. ICT, specially internet facility provides the open source tool which may change the learners from the manual source activities to the open source ones. Culture and infrastructure facilities of school provide a mediating role which influences actions, beliefs and attitudes of teachers (Chai, *et al*, 2009) [7]. Being influenced, ICT facilities are installed at institutional level so that teacher educators or teachers must change their teaching strategy from the conventional method to the modern one by using ICT. Through such ICT-based teaching, it is expected that learners must be interested to actively involve in classroom learning processes and then they must mostly be self-dependent to take decisions and plan to their own strategy (Lu, *et al*, 2010) [20].

Methodology

Use of ICT specially in educational institute is depended on adequate ICT infrastructure facilities and professional experience and interest of teachers. ICT infrastructure facilities are mainly given by different Government agencies whereas training for professional development of teacher educators are occasionally organised by both Government and non- Government organizations. Teacher educators or teachers are professionally developed by two types of training programme such as conventional training and training by using technology. DIET in every district of the country is also facilitated with ICT infrastructure and there, ICT-based training programmes are organized intermittently for the professional development of its faculty members and for using in teaching-learning processes. But many DIETs are established specially in backward tribal areas and as a result, these DIETs are to be deprived from the advanced ICT facilities. Beside this, faculty members of those DIETs are not having privilege to take part in ICT-based training programme so that they cannot appropriately use ICT facilities in their profession. In that context, it was planned to visualise the reality in relation to the frequency of use of ICT by teacher educators of those backward DIETs. Valuable suggestions for enhancing frequency of use of ICT in profession of teacher educators of those DIETs were also envisaged under this study.

Regarding the main theme of the study, first of all a well-planned research design was prepared consisting of the

population size, type of tool, procedure of data collection and data analysis. At initial stage of the study, research materials were collected from different sources to get an overview about the ICT infrastructure facilities and its use in teacher training programmes. These collected materials were used to develop research questionnaire for teacher educators of those DIETs. Afterwards, initially developed questionnaire was finalized by incorporating the suggestions of experts. Taking in to consideration the second round activities, the finally developed questionnaires were mailed to total 111 DIETs, selected purposively and requested to fill up the questionnaires separately by minimum five teacher educators of each DIETs. But the duly filled up questionnaires were returned from 342 teacher educators. After coding, all these questionnaires were got entry in the computer. Then different tables were formed by quantitative data and side by side, percentage was calculated. The existing activities of DIETs were figured out through the analysis of data. At the last stage, interpretation was done to explain the factors in the context of the diversified research findings, conferred by others.

Results and Discussion

Data, collected from different DIETs of tribal areas were systematised and used to develop various statistical tables by the help of electronic device. Statistical tables were made and analysed each one in a systematic manner. Then the findings of analysis were interpreted in perspectives with the findings of other studies which are as follows:

1. Frequency of ICT equipment uses

ICTs denote the convergence of computers, video and telecommunications. Its' effective use prepares learners for living and working in an increasingly information-rich institution as well as society. Therefore, it is tangible that ICT-based trainings play a great role to bring knowledge for the use of ICTs which ultimately lead to a positive attitude toward the ICT equipments. This may be mentioned here that it is a new era of regular introduction of new technologies and people are essentially required to pick up the gear with its' running developments. Personnel always prepare themselves for parallely running with the developing ICT world. In spite of this, they are in fear for supposing their failure to match with the wider development of such digital devices. In this regard, it is suggested that institutions, yet to be automated should have a rethink. Therefore, training is not only the first step to reduce fear of frequent use of ICT but also it encourages them to use ICT and to implement ICT in all sectors of education.

In this concerns, the collected data under the study depict the frequency of uses of ICT equipments by the faculty members of DIETs (Table: 1). Study reflects that all the DIETs are not well equipped by the required ICT instruments. Even the ICT instruments which are available in DIETs are not used properly. Study in this connection, reveals that out of total computers, 69.5 per cent is used always whereas 6.1 per cent and 6.6 per cent are used occasionally and sometimes respectively. Study also reproduces that 17.8 per cent computers are not used totally. Likewise, use of radio, RCCP, CD player, inkjet printer and web camera are far less common in DIETs. Laptop, public address system, digital camera, LCD projector, laser Printer, headphone and scanner are more or less available but its adequate uses are not noticed in accordance with the collected data.

Different studies in this context discuss that in one side, availability of new technology attracts the individual for its wider use and in other side, positive attitude towards ICT influences behavioural intention to use technology for achieving the multidimensional benefits (Fine, 1986; Davis, 1989; Dillon & Morris, 1996; Maddin, 1997) [14, 11, 12, 21]. Appropriate use of different ICTs is phenomenon to acquaint with various components of education, strengthen the relevance of education to the increasingly digital workplace and raise educational quality by making teaching and learning (Cox, *et al*, 1999; Muntaz, 2000; Tinio, 2002) [9, 23. 27]. Technologies increase efficiency in planning and preparation of educational activities with respect to a more collaborative approach among teachers and inspire teachers to cooperate more and share curriculum plans with the colleagues and managers and also implement their plans for the maximum benefits of the students (Beebe, 2004; Yusuf, 2005; Balanskat, *et al*, 2006) [6, 4]. In this context, some studies also recapitulate that as regular activities, new technologies are introduced and therefore, it is essential to install all in separate wing of all institutions and to speed up all those with the momentum of technology developments for its relevant use. Keeping in view, studies further emphasise to organize frequent training programmes which in one side bring knowledge and in other side make enthusing for the use of ICT in promoting education (Lau & Sim, 2008; Eguavoen, 2011; Bansal, 2016) [18, 11, 13, 5].

Table 1: Frequency of the Use of ICT Equipments in DIETs of Tribal Areas

S. No.	Items of Equipment		Always	Occasionally	Sometimes	Not at all
	Equipment	No.	%	%	%	%
1.	Radio	36	5.6	11.1	11.1	72.2
2.	Television	83	20.5	21.7	9.6	48.2
3.	RCCP	12	16.7	00.0	12.0	58.3
4.	CD Player	52	17.3	23.1	9.6	50.0
5.	Computer	544	69.5	6.1	6.6	17.8
6.	Laptop	61	72.1	11.5	3.3	13.1
7.	Pub. Add. System	74	55.4	8.1	5.4	31.1
8.	Digital Camera	52	44.2	9.6	11.5	34.6
9.	Web Camera	19	36.8	10.5	15.8	36.8
10.	LCD Projector	61	45.9	14.7	8.2	31.1

11.	Laser Printer	83	80.7	4.8	9.6	4.8
12.	Inkjet Printer	31	38.7	6.4	12.9	41.9
13.	Headphone	62	27.4	12.9	11.3	48.4
14.	Scanner	51	37.2	9.8	5.9	47.0

2. Suggestions for Effective Use of ICT Equipments

Availability of ICT equipments and connection of networks encourage to develop ICT skills for its wider use. There, people get a platform to regularly enjoy technology-based activities by using Blog, WhatsApp, Twitter, Facebook or Linkedin, Google, YouTube, Pinterest, etc. Taking into consideration the overall activities, every institution is empowered to frame clear guidelines for effective use of ICT equipments. But most of the institutions are having with poor infrastructure facilities, insufficient fund, unavailability of technician, etc. In this regard, present study is found to accumulate various suggestions for effective use of ICT equipments in different DIETs of tribal areas. Study (Table:2) imitates that most of the suggestions for effective use of ICT are related to the development of laboratory with modern infrastructure facilities (14.5 per cent), followed by appointment of technicians to functionise ICT lab (11.3 per cent), development of training package and provision for internet & power backup facilities (9.7 per cent each), availability of latest ICT equipments & enough time allocation to participate ICT exercise (8.1 per cent each), etc. whereas rarely suggestions are found to relate with arrangement of training programme for in-service teachers, ICT based assignments for both faculty & students, mandatory of using LCD projector in training programmes and motivation for using ICT lab (4.8 per cent each).

Studies in this regard recount that by effective use of latest ICT equipments, the trained teachers are enabled to teach better, create pleasure and motivate the learners and also increase their frequency of exercise practice (Van Dusen & Worthen, 1995; Afolabi, *et al*, 1999) [28, 2]. There is obligatory to purchase the required ICT equipments and to use in classroom teaching for enhancing the understand ability specially in science subjects. Studies further divulge that ICT is used to support constructivist pedagogy for exploring and understanding mathematical concepts. This type of approach not only promotes higher order of thinking but also solves different teaching-learning problems (Mahathir, 2002; Ittigson & Zewe, 2003) [22, 16]. Teachers are not fully utilizing ICT facilities in their teaching due to lack of enough space in the tight time schedule of their schools, insufficient teacher training, inadequate technical support, etc. These barriers may be solved by proposing an e-portal which consists of two modules, one is a resource repository i.e. collection of mathematical tools, a question bank and other is resource in digital form for using in teaching-learning (Keong, *et al*. 2005; Klinger, 2006) [17, 18]. Some studies also represent that scarcity of fund and intermittent disruption of electricity are considered as the major problems for installing ICT equipments and initiating its usage. Remedial measures in this connection insist to make available the necessary ICT equipments, provide the facility of power back up and orient the principals, teachers and others through seminar, workshop and in-service trainings for the use of computers and other ICT equipments (Gulbahar & Guven, 2008; Adeyemi & Olaleye, 2010; Asif, 2013) [15, 1].

Table 2: Suggestions for Effective Use of ICT Equipments in DIETs of Tribal Districts

S. No.	Suggestions for Effective Use of ICT Equipments	Fre.	%
1.	Development of ICT Lab in every Institute	9	14.5
2.	Availability of latest ICT Equipments in Lab	5	8.1
3.	Availability of ICT in Curricular activities	4	6.5
4.	Development of ICT based Training packages	6	9.7
5.	Arrangement of In-service Teacher Training Prog.	3	4.8
6.	ICT based Assignments to the Learners	3	4.8
7.	Enough time allocation to take part in ICT Exercise	5	8.1
8.	Mandatory of Projector use in Classroom	3	4.8
9.	Appointment of Technicians to Functionise ICT Lab	7	11.3
10.	Replacement or Repair the Faulted ICT Equipments	4	6.5
11.	Provision for Internet and Power Backup	6	9.7
12.	Motivational approaches for using ICT Lab	3	4.8
13.	Formation of Authority for monitoring all ICT activities	4	6.5
	Total	62	100.0

Summery and Conclusions

Foregoing discussions concise that ICT is considered as divergent technological tools and resources which are usually used for communicating, disseminating, storing and managing varieties of information. These technologies indicate radio, television, computer, mobile, internet, etc. and are used to reform and improve overall education system. Integration of these technologies in education system is phenomenon as very complicated processes which in one side ensure technological involvement and in other side converse to attach curriculum and pedagogy. Availability of sufficient infrastructure facility and knowledge of teacher educators in the area of ICT play a great role to use technology for preparing themselves and for using technology in classroom teaching. In the perspective the use of ICT, study was conducted in various educational institutes of tribal areas all over the country. Under the study, data related to the frequency of ICT use were collected from 342 teacher educators by sending questionnaire. Then the

collected data were processed and computerised and after that analysis and interpretation were done with references of other studies.

Discussions reiterate that ICT infrastructure facilities in almost all DIETs is measured deficient and knowledge of teacher educators in the area of ICT use is also very poor. ICT-based training programmes are rarely organised for teacher educators in all those DIETs and as a result, they do not have scope to acquaint with latest technologies. Even they are also not inspired to use ICT for enhancing their own experience and for classroom teaching. Therefore, frequency of ICT use is curtailed in a greater extent. As remedial measures, many of their suggestions exhibit that in all those DIETs, there are urgent needs to develop ICT laboratories, make available the latest ICT equipments in labs, prepare ICT-based training packages, allocate enough time to take part in ICT exercise, appoint technicians to functionise ICT labs, provide internet and power backup facilities, etc. In nutshell, it may further be defined that there is required to install latest ICT facilities in all DIETs in tribal areas. Side by side, orientation programme in a shorter time interval is mandatory to organize for the teacher educators so that they will not only acquaint with the latest ICT equipments and practise in large range but also use in classroom teaching.

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