

THE USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT) AMONG SECONDARY SCHOOL TEACHERS - A STUDY

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Abstract

Education is the backbone of all national endeavours Education is one most essential system for today's society and growth in life. Education is an important instrument for change in developing and developed countries. It provides a better quality of life for any citizen for their living environment. The purpose of education is not only to train people for employment and train them to cope their lives for present and future. It has the power to transform human beings into human resources. We cannot build a sustainable and prosperous nation without human resource development which mainly depends on the health and vitality of higher education. This paper focussed on the use of Information and communication Technology among secondary school teachers. Survey methodology was used for this study. Government and aided school teachers as well as science and social science teachers were taken as sample. Study reveals the result that maximum no of computers are available in the secondary schools.

Keywords: Educational Technology, Internet, ICT



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Introduction

Educational technology is an efficient organization of any learning system, adopting methods, process and procedure to serve identified educational goal. It included the development of flexible system, alternative curriculum, multilevel organization of class, low cost teaching learning materials, innovative activities continuous support system for teaching, training, and evolution etc. A current trend in educational reform requires teachers to be proficient in employing technology in their classrooms. Teacher educators have the responsibility to convince future educators of the need for technology. As a result of this trend, teachers need to be prepared to integrate technology into their teaching, and teacher's preparation programs have a responsibility to prepare their students accordingly (Hans van der Mars, 2008).

The use of Information and Communication Technologies (ICT) has become widespread. Our society is increasingly connected with rapid advance of ICT in business, homes and schools. It uses millions of blogs, social networking sites, web pages and

interactive online games. It supported that the majority of today's formal learning is delivered using a number of methods. At present, about 20% of libraries in the United Kingdom are connected to the Internet. The British government's National Grid for learning initiative will connect all British libraries and museums to the Internet (United Kingdom Department for Education and Employment, 1997). In the United States, a 1998 survey sponsored by the American Library Association found 73% of the nation's public libraries offered basic Internet access to the public (American Library Association, 1998).

Information & Communication Technology in Education

The National Policy on Education (1986), as modified 1992, stressed upon employing educational technology to improve the quality of education. The policy statement led two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and studies in the School (CLASS) paving the way for a more comprehensive, centrally sponsored scheme- Information for a more communication Technology (ICT) of schools in 2004.

ICT is a diverse set of technological tools, which are used to communicate, and create, disseminate, store and manage information. The significant role of ICT in school education has also been highlighted in National Curriculum Framework 2005 (NCF). Use of ICT for quality improvement also figures in the government of India flagship programme on education - Sarva Shiksha Abhiyan.

National Council for Teacher Education (NCTE) has already laid down guidelines about availability of ICT infrastructure in each such training institution. NCTE would prescribe appropriate curriculum in ICT corresponding to the ICT curriculum in schools, to be revised periodically, for such teachers. Teacher educators will be suitably oriented and trained to use ICT in their pre-service teacher training programs. They will also be expected to, enable pre-service teachers to be sensitized to and practice the use of ICT. All pre-service teacher education programs will have a compulsory ICT component. The existing curricula for pre-service teacher's training will be revised for including appropriate and relevant applications of ICT. All teacher trainees passing out of teacher education programs will obtain adequate levels of competency in ICT and ICT enabled education. This proficiency will gradually form a part of the eligibility criteria for teacher appointments. (National Policy on Information and Communication Technology (ICT) In School Education, Last revision: 23 March, 2012).

The International Society for Technology in Education (ISTE) has created the most comprehensive set of ICT standards for teachers, students, and administrator's .The SSA has taken initiatives to strengthen Computer-Aided Learning (CAL) in collaboration with a number of private organizations after having a look at the advantages of ICT in Education for achieving the goals of SSA. Under the SSA framework, a provision has been made for computer education district-wise and is made available to each State under CAL interventions under PPP mode. ICT can be applied for pre-service and in-service teacher training programs. Through SSA and RMSA various block resource centers (BRC) offices exist in Haryana. Through these centers and infrastructure available at these centers in service training can be provided effectively.

ICT Components

Information & Communication Technology (ICT) is a science of extracting, processing, storing, manipulating and finally communicating the desired information from one corner to another by making integrated use of computer & telecommunication. It includes:

1. Radio & Television
2. Landline Telephones and Mobile Phones
3. Digital Cameras and Video Recorder
4. Computers and Laptops
5. LCD Projector and CD/DVD"s, OHP
6. Internet and Intranet
7. Educational Satellite and Channels
8. Computer Software and Hardware
9. Voice and sound or images- microphone, camera, loudspeaker
10. Educational Satellite and Channels

Rational of the Study

Computer Education has become a compulsory subject in Teacher Education and both teachers and students started using computers in educational process. The rapid diffusion of Information and Communication Technologies (ICTs) during the last two decades has had effective impact on all the area of human efforts. ICT are seen as having a great potential for improving the human condition by creating new economic and educational opportunities. During the use of computers in teacher education, it is observed that both from the context of facilities, awareness, skill, applications and evaluation the teacher educators always felt

sensitive in integrating the computer education. Hence it is felt that this “The Use of ICT Among Secondary School Teachers - A Study” taken as.

Research Question

After studying the related reviews on use of ICT, a question arises in researcher mind, is there any association between use of ICT among different subject teachers in state board of secondary schools?

Statement of the problem

Considering the importance of ICT in teaching learning process the present study is based on what is the condition of using ICT by teachers of the state board secondary school in today’s scenario. The present study focused on “The Use of ICT Among Secondary School Teachers - A Study”.

Objectives of the study

1. To study the use of ICT components among the state board secondary school teachers.
2. To find out the problems faced by the teachers in the implementation of ICT in the teaching learning processes.
3. To study the association between Science and Social Science teachers and their use of ICT in secondary schools of Chhattisgarh board.
4. To study the association between govt. and aided school teachers and their use of ICT in secondary schools of Chhattisgarh board.

Hypothesis

Ho.1. There is no significant association between the use of ICT between, Science and Social Science teachers in secondary schools of Chhattisgarh board.

Ho.2. There is no significant association between the uses of ICT between, Govt. and aided teachers in secondary schools of Chhattisgarh board.

Review of Related Literature

Panagiotis Giavrimis (2011), conducted a research on the Teacher Training In ICT: A Critical Approach; He found that the importance of primary school teachers’ relationships and attitudes towards the institution of ICT training, is of high value to the new social and educational argument for a more effective and qualitative training in the use of modern tools like ICT, that are useful for their teaching. Teachers respond positively to lifelong education, stressing its contribution to teaching practice and to effectively settling educational inequalities’ attitudes towards.

Cassim, K. M. Obono S. D. (2011), conducted on the study On the Factors Affecting the Adoption of ICT for the teaching of Words Problems; This research found that among the teachers that are aware of the general importance of ICT in teaching, there are higher levels of ICT adoption for the teaching of word problems in urban areas compared to rural areas. The novelty of this study can mainly be credited to its focus on the teaching of word problems compared to existing literature usually concerned with ICT adoption factors either for the teaching of mathematics in general, or for general teaching.

Cox et al. (2007) conducted study on what factors support or prevent teachers from using ICT in their classrooms? The researchers argue that decades after the introduction of ICT into classrooms, there were unanswered questions about the impact of technology on students' learning, and the manner by which it affects simple and complex learning tasks. In relation to the outcomes and recommendations for their study, they highlight the absence of rigorous studies as impacting: (a) Government policies; (b) Teacher education programs; (c) Advancing national curricula; (d) Designing or reforming classroom implementation, and (e) Analyzing costs and benefits.

Milan Kubiato (2006), conducted a study on How Do Teachers Use Information and Communication Technology in Biology Teaching? He found that, the teachers strictly limited the usage of ICT in biology teaching. The reasons are as follows: a) fear of using ICT; b) teachers do not know to use ICT; c) schools are poorly equipped with ICT; d) only informatics' lessons are taught during the ICT classes. He mentions that ICT are accessible at schools and the teachers use them only by adoption of a classical learning method.

Methodology

According to objectives, survey method was adopted for the study. *Survey method*: Survey method is used to obtain descriptive information about target population. *Population*: All Social Science and Science teachers, whose were working with secondary schools those are situated in Bilaspur. *Sample*: 70 teachers were selected for the study from 18 schools of *Billha* block of Bilaspur District of Chhattisgarh state, by simple random sampling method. The instruments that are employed to gather new facts or to explore new fields are called as "tools". It is of vital importance to select suitable instruments or tools. Different tools are suitable for selecting different types of data. Since the present study is related to the collection of information from the teachers regarding the use of ICT in Teaching, Learning

Process in secondary schools. A “Questionnaire” was constructed by researcher and administered to find out the desired objectives.

The Questionnaire was constructed for the teachers to find out the use of ICT in teaching learning process. The tool was prepared to find out the preliminary information about the use of ICT in Teaching, Learning Process in the aspects of Computer Facility, Computer, Internet and other ICT media operational Skills and overall response towards use of ICT in Teaching Learning Process.

The present study is intended to study of use of ICT in Teaching Learning Process by secondary school teachers. After going through various previous studies and research articles in journals and periodicals and some of the research papers published on the subject matter, researcher constructed the questionnaire with the help of subject and language expertise and adopted the tool and collect the information's from teachers,. The questionnaire consisted of 36 questions regarding different dimensions of ICT. The five pages of questionnaire contained 36 questions divided into IV categories. The categories were: (i) availability of computers, (ii) usage of ICT, media this is further divided into three area use of computer and internet application and other ICT medium (mobile, projector, image, C.D. Cassettes) (iii) ICT training (iv) statement forms question (regarding problems and effects of ICT in teaching learning process).

Descriptive statistics such as frequency and percentage were used to summarize, organize, and describe respondents, for each respond answers. Chi-square is used to find out the statistical significance.

Analysis and Interpretation of Data

Objective

(01) To study the use of ICT among the state board secondary school teachers. This objective is studied under the qualitative analysis of data for each question. Questionnaire is divided into fourth groups of questions. The categories were: (i) availability of computers, (ii) usage of ICT, this item further divided into three categories 1. Use of computer, 2. Internet application, 3. other ICT medium (mobile, projector, image, C.D. Cassettes) (iii) ICT training (iv) statement form questions (regarding problems and effects of ICT in teaching learning process). Out of all questions each group of question analyzed by descriptive statistics.

Facilities of Computer

Availability of Computers in govt. and aided secondary schools of Chhattisgarh board; Question No. 1 indicates that what are the position of availability of computers in secondary schools of Chhattisgarh board govt. and aided schools. It reveals that 88.57% govt. School responders and 94.14% aided school said availability of computers in their schools.

Use of ICT Application

This item is further divided into three categories 1. use of computer 2. internet application 3. other ICT medium (mobile, projector, image, C.D. Cassettes).

Use of Computer Application

This item includes a number of questions about the use of power point, MS. Office, data sheet in different - different purpose.

It reveals the use of different computer applications' by Science and Social Science teachers of govt. and aided school of CG board. 80.71% govt. Science teachers and 67.29%, aided Science teachers used computer applications. In Social Science we got 46.67% govt. teachers and 39.04% aided teachers are used computer applications.

Use of Internet

This item includes a number of questions about the use of internet in the classroom, such as internet used in subject knowledge update, Animated video, Uploaded the video, Use of e-mail, Use of Social networking for different- different purposes.

It reveals the use of internet applications by Science and Social Science teachers of govt. and aided schools of CG board. 49.17% govt. Science teachers and 42.50%, aided Science teachers used different- different internet applications in classroom teaching. In Social Science subject 10.00% govt. teachers and 14.44%, aided teachers used internet applications.

Use of ICT Application

This item includes a number of questions about the use of mobile, C.D. Cassettes, projector, image in teaching learning process. It reveals the use of different ICT applications by Science and Social Science teachers of govt. and aided schools of CG board. All these items of ICT used analyzed separately.

Use of Mobiles in Classroom

85% of govt., and 70%, aided school Science teachers used mobile in the classroom for different teaching purposes. It shows that most teachers used mobile in the classroom for

dictionaries and finding images. In Social Science subject 26.67% govt. teachers and 20%, aided teachers used mobile in classroom.

Use of Cd Cassettes

70% of govt., and 60%, aided schools Science teachers used C.D. Cassettes in the classroom for different purposes. Social Science govt. and aided school teachers used only 40%, 13%, C.D. cassettes in the classroom respectively.

Use of Projector

In Science subject of govt., aided schools teachers used 70% and 40% projector in the classroom for teaching purposes. Social science govt. and aided school teachers used only 13.33%, 26.67% cassettes in the classroom respectively.

Use of Image

100% of govt., and 40%, aided school Science teachers used image in the classroom teaching. Social Science govt. and aided school teachers used only 60%, 33.33% images in the classroom respectively.

ICT Trained Teachers

In this section researcher analyzed the status of ICT trained teachers in govt. and aided schools. It reveals that there is a very low percentage of ICT trained teachers in Chhattisgarh board schools. In govt. Schools, 54.285% and in aided schools only 8.571% teachers have ICT training.

Finding.1:The result of this objective shows that the use of different ICT media like computer, internet, mobile, C.D. Cassettes, image, projector is commonly used in secondary school. In this technological era use of ICT plays an effective role in learning process. This is supported by the finding of, use of technology in this way plays an important role in the teaching and learning process (İşman, Baytekin, Balkan, Horzum, & Kılıcı, 2002). The results of the study indicated that the most of the teachers had a facility of computers in their schools.

Objective 2: To find out the problems faced by the teachers in the implementation of ICT in the teaching learning process

This objective is achieved by analyzing the statement based questions of questionnaire in which 50% teachers from govt. and 50% teachers from aided schools. The total no. of teachers is 70, in which 24.2857 % teachers have computers, 25.7114% have internet, and rest 50.00% teachers have other technical problems.

Out of 35,11 govt. teachers are having problem with computer operation, 8 from internet, and 16 were suffering from other technical problems. In aided school teachers, 6 were facing problem with computer operations, 10 with internet, and 19 from other technical problem.

Findings 2: It is related to objective first finding in a broader sense. It was revealed that most of the teachers faced a number of mechanical challenges in the implementation of ICT. They were unable to operate computer, internet projector etc. because lack of adequate training they don't have the proper technological skill of operation of these media. Malcolm et al. (2008) reported that lack of professional development programs for teachers to upgrade their skills on emerging technologies is a barrier to ICT implementation.

Objective 3: To study the association between Science and Social Science teachers and their use of ICT in secondary schools of Chhattisgarh board.

Ho.1: There was no significance association between the use of ICT in Science teachers and Social Science teachers in secondary schools of Chhattisgarh board.

For testing of this null hypothesis researcher used χ^2 non parametric statistics. In χ^2 test data need in frequency form so that used based total numbers of questions divided into three categories.

1. Maximum scores range between 15-18
2. Average score ranges between 6-13
3. Minimum score ranges between 0-5

After pooling of data into these three categories make a counting of total numbers of teachers lies in each score range. Total number of science teachers was 40, including govt. and aided both schools, in which maximum and minimum scorer was 16 and 7 respectively, remaining 17 was average scorer. Out of total 35 Social Science teachers, including govt. and aided both schools maximum and minimum scorer was 01, 14 respectively, rest 14 was average scorer. These data shows the observed frequency of teachers. It reveals observed expected frequency and calculated χ^2 (chi-square) is 14.5647.

It is df 2 and the significance level .05 χ^2 critical value is 5.991. This is less than χ^2 calculated value which is 14.5647.

1. This indicates our formulated null hypothesis is not accepted and alternate hypothesis is accepted.
2. There is a real association between subject teachers and use of ICT.

3. The variable subject teachers and use of ICT are not independent.
4. Observed frequency and expected frequency is very close with one another.

Findings 3: In this objective research, explore that Science, Social Science teachers have significant association with use of ICT application. For this study researcher used chi-square 2x3 contingency test to analyze the significance level of association between ICT use and subject teachers. Chi-square show significant real association between a subject teachers and use of ICT.

Objective4: To study the association between Govt. and aided schools teachers and their use of ICT in secondary schools of Chhattisgarh board.

Ho.1: There was no significance association between the use of ICT in Govt. and aided schools teachers in secondary schools of Chhattisgarh board

For testing of this null hypothesis researcher used χ^2 non parametric statistics. In χ^2 test data need in frequency form so that used based total numbers of questions divided into three categories.

4. Maximum scores range between 15-18
5. Average score ranges between 6-13
6. Minimum score ranges between 0-5

After pooling of data into these three categories make a counting of total numbers of teachers lies in each score range . Total number of Govt. teachers was 35, including Science and Social Science both subjects , in which maximum and minimum scorer was 11 and 7 respectively, remaining 17 was average scorer. Out of total 35 Aided schools teachers, including Science and Social Science both subjects. Maximum and minimum scorer was 06 , 14 respectively , rest 15 was average scorer. These data shows the observed frequency of teachers. Table no 4.5 reveals Observed expected frequency and calculated χ^2 (chai- square) is 3.9286.

It is df 2 and the significance level .05 χ^2 critical value is 5.991. This is less than χ^2 calculated value which is 3.9286.

1. This indicates that our formulated null hypothesis is accepted and alternate hypothesis is not accepted.
2. There is no real association between school teachers (govt. And aided) and use of ICT.
3. There are both variable school teachers (govt. And aided) and use of ICT is independent.
4. Observed frequency and expected frequency is much away from each other another.

Findings 4: In this objective research, explore that govt., aided school teaches does not have significant association with use of ICT application. For this study researcher used chi-square 2x3 contingency test to analyze the significance level of association between ICT use and school teachers. Chi-square shows no significant real association between school teachers and use of ICT.

Conclusions

In this study we can say maximum no. of computers were available for secondary school teachers in Chhattisgarh board, but only a few used this facility. They have barriers in utilizing ICT in the teaching process. They have a minimum level of opportunity in developing computer skills. It was also determined that most of the teachers agreed that lack of adequate training was an obstacle in using computer Internet and Other ICT media's. This study also says that Science, Social Science teachers have significant association with use of ICT in teaching process. This study also says that govt., aided teachers does not have significant association with use of ICT in teaching process.

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