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Original Research Paper

Education

THE ROLE, USEFULNESS AND IMPACT OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) IN SCIENCE EDUCATION IN SCHOOLS

Bidhan Chandra Pramanik

M.Ed trainee of Ramakrishna Mission Sikshanamandira, Belur Math, Howrah (W.B.), India

ABSTRACT

Now a day's Information and Communications Technology (ICT) has become an essential educational learning-teaching material for the effective learning. Especially in Science education ICT is very helpful to the teacher as well as students to understand the critical theories, equations, chemical reactions, different laws etc. The objectives of this study are to find out the role of ICT in science education, to find out the usefulness of ICT for developing a quality of science education and to find out the impact of ICT in science education. The descriptive Analytic method has been adopted for this study. The major findings are the ICT plays an important role to develop interests, skills and creativity in classroom situation, science laboratory, methodology of teaching and evaluation system. It has positive impact in the field of globalization, up gradation and students career.

KEYWORDS : ICT, communication, theoretical knowledge, practical knowledge, quality, virtual lab, social disparities, computerized grade book Programme.

INTRODUCTION:

Education has the vital role in making a society. It has the most important need not only making a well being but also to develop a society. There are many ways to increase the knowledge of the learners. The technology is the most effective way. ICT is the one of the most important way of teaching as well as learning.ICT stands for "Information and Communication Technology ". It refers to technologies that provide access to information through telecommunication. According to UNESCO "ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters". Using ICT in education it moved to more student-centered learning. As the World is moving rapidly towards digitalization, the role of ICT in education becoming more and more important and this importance will continue to grow and develop in 21st century. Appropriate use of ICT can transform the whole teaching-learning processes leading to paradigm shift in both content and teaching methodology.

OBJECTIVES OF THE STUDY:

1. To find out the role of ICT in science education.
2. To find out the usefulness of ICT for developing quality of science education.
3. To find out the impact of ICT in science education.

METHODOLOGY:

The method is used in descriptive analytic method with the qualitative approach.

SOURCES OF DATA:

This present study is based on secondary sources like books, articles, journals, thesis, University news, expert opinion and websites etc.

FINDINGS:

O1: To find out the role of ICT in science education.

The earlier concept of the use of teaching materials has become a concept of old wine in a new bottle by using technology. By the advancement of the technology the ICT has plays a great role in the teaching-learning process. The roles of ICT are as follows-

(I) Role of ICT in Classroom Situation

In classroom the role of ICT is vital for teaching-learning process. ICT captures the reality of the classroom, a video-tape of a teacher conducting an actual class an "anchor" pre-service students to the complex and real life interactions of students and teachers. It helps the students simply understood a complicated topic. It is too much time consuming to express any scientific thought in a classroom. In classroom situation ICT supported learning was gaining the attention for better understanding of the ideas of equations and laws. Nowadays the virtual classroom is a gift of ICT based learning.

(II) Role of ICT in Science Lab

The role of ICT in science lab in schools is driven by rather than transformative of the prescribed curriculum and established pedagogy. Nowadays virtual lab is a most familiar term, which is commonly used in science teaching.

(III) Role of ICT in teaching methodology

The teaching methodology is what makes a teacher be a professional. ICT helps to improve them to provide a quality education. The ICT based learning; means child-centric education dropped the teacher centric education. Example - The methodology is creating an effective learning situation for better understanding of a topic.

(IV) Role of ICT in Evaluation System

ICT helps massive changes in evaluation system. The teachers record the data or performance scores of the students and get statistical information by using ICT. After that the teachers treat the students properly. Teachers provide the weight age, credit scores through computerized grade book Programme. The software can automatically recalculate each student's grade averages. By printing out the grading history of the students and using it as a vehicle for discussing with the students and parents what that student needs to do to improve.

(V) Role of ICT in Communication System

One of the important roles of ICT is Communication System between senders and receivers among the world. Through global connectivity one can gain information about various matters related to science as well as any other subjects.

(VI) Role of ICT in Inclusive education

ICT assists different type of students in their studies which can fulfill the concept of inclusive setting of a School. It is another role of ICT.

(VII) Role of ICT for preparing a lesson plan

A lesson plan is a planning tool. By which a teacher can deliver information and decisions need to consider before setting foot in a classroom. Considering a live stage show -the director will plan the show using a script which will include dialogue, stage set-up, scene transitions, lighting cues, props, music and sound effects and so on. When the actor is on stage

the information they need is prompt cards to remind them of key lines of dialogue. As a teacher you can acts as director and actor. A topic of any subject the teacher shows the facts by an animation with the help of ICT.

(VIII) Role of ICT outside the classroom

Learning outside the classroom can be achieved through creative use of the resources and facilities around us. Educational visits provide good opportunities for pupils to learn and acquire knowledge in subject's area. ICT can take place in a number of ways and it does not always involve a visit off side. Students can also learn from a visiting speaker, video conferencing, using school's Virtual Learning Environment (VLE) or going out of the classroom to take photographs or video around the school ground. Sometimes schools conduct educational tour in different places related to concern subject. After that teacher discuss the different ideas or the theories of the concern subjects. Through ICT we search the present status or condition of those places. And also know that the limitations of the visiting places.

O2: To find out the usefulness of ICT for developing quality of science education.

There are many uses of ICT in science education. Nowadays most of the teachers generally use ICT for power point presentation and showing educational videos. Most of teachers of science education agree with ICT based teaching-learning process. According to teachers integration of ICT in science teaching plays an important, central and core role in supporting development of scientific thinking and critical analysis skills and it provides them to creative teaching. Students supported with ICT based learning rather than black board method in classroom situation. They are more motivated in learning of science subjects especially in Biology, Chemistry and Physics. ICT develops the self-confidence between teachers and students both. ICT developed interests, skills, creativity, high level thinking. In classroom ICT can bridge the gap between theory and practice situations and it makes a connection between the theoretical knowledge and practical knowledge. Using ICT one can access the educational items, which motivate to learn, facilities and acquisition of basic skills. One can transform the learning environment thus help improving the quality of education. ICT encourage the teacher to teach effectively and efficiently. It helps teachers and institution more modern and dynamic.

O3: To find out the impact of ICT in science education.

ICT integrates multiple media into single educational applications, it include the capacity to control, manipulate, and contribute to the information environment, it is flexible, offering freedom from right scheduling and from barriers of time and location, through connectivity. It provides access to every students or other person on the world. The students search thousands and thousands of information archives, and to millions of web pages. It helps the student's interests towards Internet accessibility around different countries. ICT helps to global connectivity or global changes in education system. It can help individuals learning throughout their lifetime. It can help teachers also in store their students' performance records year after year. Grade book or their record keeping software can provide a "hook" that gets otherwise unwilling teachers interested in using ICT tools. Electronic grade books become a teaching tool as well as a personal time saver. The impact of ICT based instruction is changing the traditional curriculum into modern curriculum. It always updates both the teachers as well as the students.

CONCLUSION:

ICT influencing all aspects of life, in which the impacts of ICT is significant. The role of ICT in the education system is unspeakable. Ultimately the use of ICT will enhance the learning experiences of students. Also it helps them to think independently and communicate creatively. It helps the students or learners to building the successful career and lives, in an expanding technological world. Recently the Govt .of India has lunched SWAYAM portal which given the online reading materials, videos, in different courses and using ICT tools to provide education to the outreach. ICT helps to reduce the social disparities between students since they work in term in order to achieve a given task. ICT increases the excellent relationship between students and teachers. The ICT is beneficial for both teachers and students. It increases the quality of science education in learning outcome. And the teachers have strong desire for the expanding of ICT in science education.

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