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USAGE OF TECHNOLOGY BY THE STUDENTS AND TEACHERS IN BIOSCIENCE AT SECONDARY LEVEL

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Abstract

The present conceptual research focused on the study is to discuss usage of technology by the students and teachers in Bioscience at Secondary Level. Uses of modern technologies (ICT) are an important part of daily life, including the teaching-learning process. Bioscience is considered the queen of all sciences. As a Bioscience subject it help students develop and refine their critical thinking skills, but it allows them to better understand the natural world and its many complexities. For a long time, the role of Bioscience was reduced to the purely academic domain. But present education system, the role of Bioscience is not limited to the purely academic domain. It has entered the field of technology and industry. The present paper focused on the study of discuss usage of technology by the students and teachers in Bioscience at Secondary Level with prime objectives are (i) To understand the usage of technology by the students and teachers in Bioscience at Secondary level. (ii) To discuss the role of ICT in Teaching-Learning of Bioscience. (iii) To analyze the importance of Bioscience subject in the Secondary level.The methodology of the research is a different type involving an interpretative, conversation, observation and study secondary sources, like books, articles, journals, thesis, university news, expert opinion, and websites, etc.

Key Words: Usage of Technology, Students and Teachers, Bioscience

Introduction:

Generally, most of the Bioscience concepts are in abstract form. So, to understand those concepts we use (provide) concrete experiences to the children at secondary level. But it is not possible to explain all concepts like space, plane, volume etc. In such cases

and to teach all concepts in Bioscience use ICT. Through technology we can communicate effectively, with the help of multimedia features of all scientifical concepts. So, today we are known about the Role of technology in teaching and learning of Bioscience. Technology stands for Information and Communication Technology. Technology helps to store, process, disseminate, retrieve and transmit information with the aid of technological medium. Today constructivist approach of learning is practiced that help learners to develop their own understanding of subjects based on their previous experiences. In such a scenario, learners need to be supplied with multiple sources (preferably digital in nature) as a supplement to build their own knowledge and experiences of learning. Usage of technology access helps learners to obtain latest information/ knowledge in different subjects. Teachers and Students can access various online repositories, online libraries, online books, etc. Thus, usage of technology provides opportunity for extra reading and rectifying abstractness of concepts. Technology integrated education, for Bioscience teachers and students to develop adequate skills and all-round development.

Bioscience education and information and communication technology (ICT) are at present becoming one of the most important elements defining the basic competences of students. Information technology integrates medial, informative and Bioscience education, but also all the educational subjects mentioned in the curriculum basis of general education.

Meaning and Definition of Uses of Technology:

The abbreviation ICT stands for Information and Communication Technology. According to (Ajayi, (2008)), It is defined as a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. Then (Voogt & Pelgrum, 2005; Watson, 2006) explained Technology as being divided into two main approaches in education such as; Technology for education and Technology in education. Technology for education implies the development of information and communication technology for learning and teaching purpose while Technology in education involves the adoption of general components of information and communication technology in practical use in teaching and learning processes.

Characteristics of Uses of Technology:

- ✓ Acquisition, Storage, manipulation, man agreement, transmission or reception of data or information.
- ✓ Real time access to information for Bioscience subject at secondary level.
- ✓ Easy availability of updated data for Bioscience subject.
- ✓ Connecting Geographically dispersed regions
- ✓ Wider range of communication media for Bioscience subject.

Objectives of the Study:

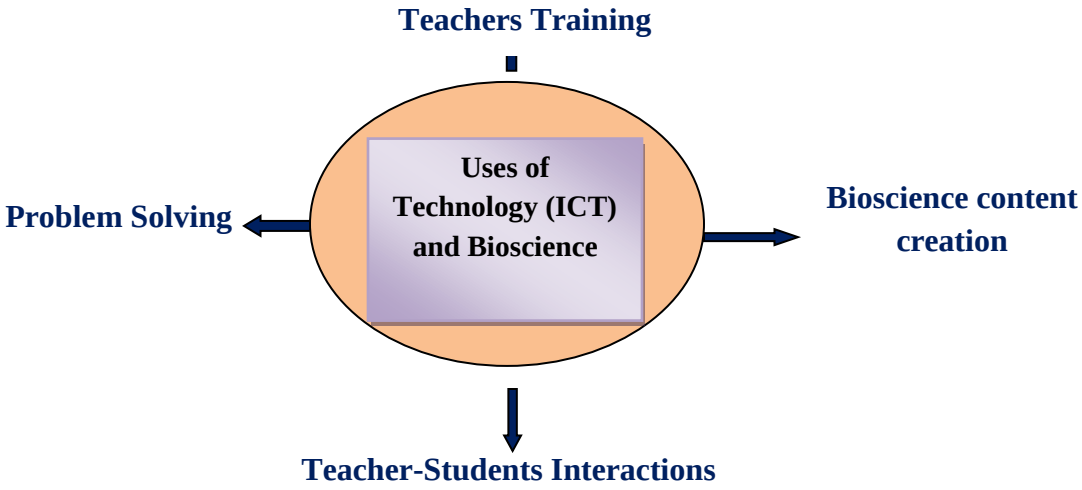
(i) To understand the usage of technology by the students and teachers in Bioscience at Secondary level.

(ii) To discuss the role of ICT in Teaching-Learning of Bioscience.

(iii) To analyze the importance of Bioscience subject in the Secondary level.

Uses of Technology (ICT) and Bioscience as a Subject:

Globalization and technological changes have created a new global economy powered by technology, fueled by information and driven by knowledge. The emergence of this new global economy has serious implications for the nature and purpose of educational institutions. As the access to information continues to grow rapidly, schools cannot be contented with the limited knowledge to be transmitted in a fixed period of time.



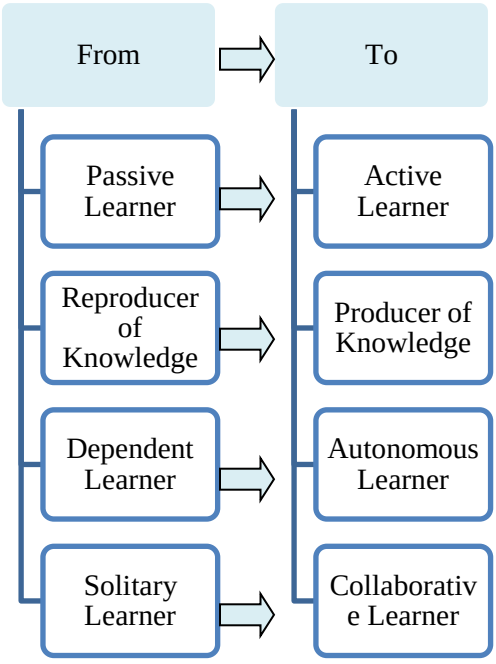
Uses of Technology (ICT) -based education is about using computer and technology as tools to enrich learning in Bioscience. They have to become compatible to the ever expanding knowledge and also be equipped with the technology to deal with this knowledge. Information and communication technologies (ICTs) which include radio and television, as well as newer digital technologies such as computers and the Internet have been proven as potentially powerful tools for educational change and

reform. When used appropriately, different ICTs can help expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by helping make teaching and learning into an active process connected to real life. For example- Bioscience is an important branch of Science which deals with the study and understanding of living organisms at various scales. The origin of this goes to the time humans changed from hunter-gatherer stage to settled life.

Teaching and Learning and Bioscience subject at Secondary level:

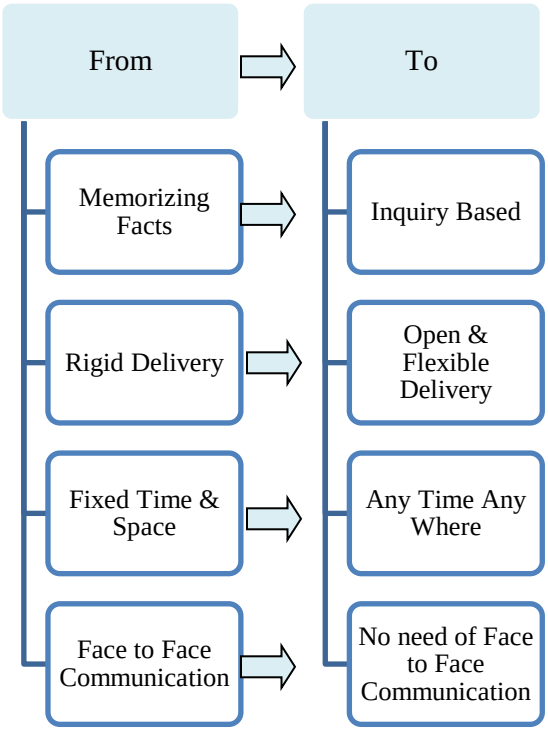
Shifting the emphasis from teaching to learning can create a more interactive and engaging learning environment for teachers and students. This new environment also involves a change in the role of both teachers and students. The role of the teachers will change from knowledge transmitter to that of facilitator, knowledge navigator and sometime as co-learner. The new role of teachers demands a new way of thinking and understanding of the new vision of learning process. Learners will have more responsibilities of their own learning as they seek out, find, synthesize, and share their knowledge with others. Uses of Technology at school level provides powerful tools to support the shift from teacher centered to learner centered paradigm and new roles of teacher, learner, curricula and new media.The major shifts have been described in a tabular form below.

Changes in the Students Role in Bioscience :



For example- By learning the scientific method, students learn how to observe, analyze, and interpret data. They also learn to evaluate evidence and draw conclusions based on that evidence.

Changes in the Teaching- Learning Strategies for Bioscience:



These generalities and operation of Technology in literacy and tutoring demand a new literacy terrain to effectively harness the power of technology to ameliorate tutoring-literacy of Bioscience. Technology has the implicit to transfigure the nature of education like where, when, how and the way literacy takes place. It'll grease the emergence of responsible knowledgeable society emphasizing life-long literacy with meaningful and pleasurable tutoring and literacy gests ; the move from reproductive model of tutoring and literacy to an independent, independent literacy model that promotes enterprise, creativity and critical thinking with independent exploration. Learners are anticipated to collect, elect, dissect, organize, extend, transfigure and present knowledge using technology in authentic and active literacy paradigm of Bioscience. preceptors are anticipated to produce a new flexible and open literacy terrain with interactive, experimental and multimedia grounded delivery system. Technology helps for Bioscience preceptors and scholars to communicate and unite without boundaries, make learners independent and allow preceptors to bring the whole world into classroom conditioning, especially the conception of on- line programs.

Components of uses of technology for Teaching and Learning of Bioscience:

a) Video conferencing:

It is a two way communication system. It is also called teleconferencing, it's the use of television video and sound technology (webcam) between people in different locations. It can be used to give and receive lectures irrespective of the location of teachers or learners.

b) World Wide Web:

The World Wide Web, known as www, w3 or simply the web, is one of the several internet resources developed to help, publish, organize and provide access to information on the Internet. The web was first developed by Tim Berners Lee I 1989 while working at CERN.

C) Blog and Wikis:

Blogs and wikis are fundamentally web2.0 and their global proliferation have enormous implication for libraries and also in teaching and learning process. Blogs may indeed be a greater milestone in the history of publishing than web pages. They enable the rapid production and consumption of web based publications. Blogs contains posts some time similar to journal entries, from a person or a group. The post are dated and listed in reverse chronological order. People can comment on posts as well as provide links to related sites, photos and blogs. Wiki is an online collaborative writing tool. According to (Richardson, 2006) a wiki is a collaborative web space where anyone can add content and anyone can edit content. That has already been published Wikis are designed to help groups collaborate, share and build online content and are especially useful for learners who are separated by time and place.

D) Social Media:

Social media are perhaps the most promising and embracing technology. They enable messaging, blogging streaming media and tagging .Some most commonly used social media are My Space. Facebook, Delicious, Frappr and Flickr networks that have enjoyed massive popularity in web 2.0. It is based on web2.0 technology. My Space and Face book enable users to communicate with each other, Del.icio.us enables users to share web resources and Flickr enables the sharing of pictures. Frappr is a bit of a blended network, using maps, chat rooms and pictures to connect individual.

Role of Bioscience Teacher:

Teachers plays a vital role in the success of any program at the school. If the teachers are not fully comfortable and confident with the new approach to teaching, then there will be a limited impact on the teaching- learning process. Teachers has to be developed their mind set to integrate the latest technology in the Bioscience classroom teaching. Teachers should also know the right attitude and values, besides being proficient in skills related to teaching. Teacher is responsible for creating the warm environment in the class .He prepares the learning opportunities that helps the students in using the lessons of communication technology. Consequently , it is crucial that all the teachers should be prepared to provide their students with these opportunities. Teachers training program helps the teachers to acquire the basic skills and competencies to become a good teacher. Technology acts as the gateway to acquire more information which helps the teacher to become update.

Outcomes:

Technology playing very significant role in Teaching-Learning.

Following are the outcomes of using the Technology in Teaching-Learning of Bioscience.

1. Bioscience background teachers have a more favorable attitude than Arts/Social Science background teachers towards Information and Communication Technology (ICT).
2. Assist seniors in accessing digital information efficiently and effectively.
3. Support undergraduate-centered and self-directed learning.
4. For educational enhancement through ICT Produce a creative learning environment of Bioscience.
4. Promote collaborative learning in a distance learning situation for Bioscience.
5. Offer more opportunities to advance critical (higher-order) thinking skills for Bioscience.
6. Through ICT for Bioscience, better education, including collecting quality.
7. Support teaching by facilitating entrance to course content.
8. Most of the teachers have a favorable attitude towards ICT.

Implications:

1. The use of Technology in Bioscience helps in developing critical and scientific thinking among the students and the teachers. It motivates the learner to participate in learning activities at any time and from anywhere.

2. Technology in Bioscience helps in exchange and shares ideas among teachers for professional growth.

3. Technology has also used to improve access and the quality of Bioscience teacher training. ICT tools enhance teaching, and facilitate learning using multimodal courseware, Integrate using Technology, pedagogical innovations to develop higher-order thinking skills among learners.

4. ICT tools such as radio, T.V., Internet, computer, laptop, tablets, and many other hardware and software applications can be appropriated in the teaching-learning process. These tools can give benefits in the areas of content, curriculum, instruction, and assessment.

5. In India, mainly education has three levels that are primary or elementary level, secondary and senior secondary level, and higher level. The quality of all these levels can be adjusted by the use of ICT tools and techniques.

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