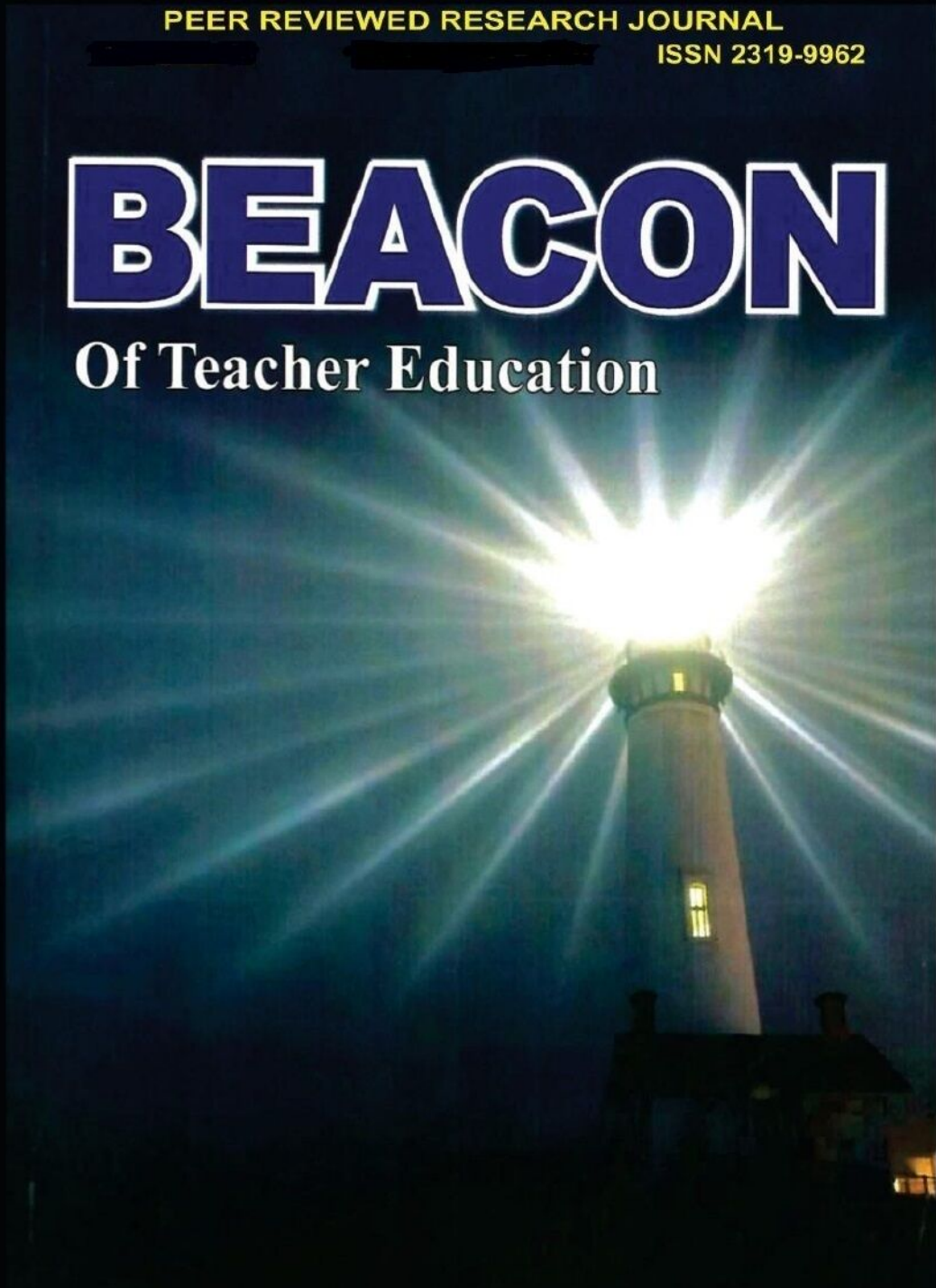


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# BEACON

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**Government College of Education (CTE) Pannel,  
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# **BEACON**

**of Teacher's Education  
December 2018**

**Govt. College of Education (CTE)Pavel.  
Dist. Raigad (Maharashtra) Pin 410206**

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Of Teacher's Education  
December 2018

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## Editorial

*Information and Communication Technology (ICT) has significant potential in Education to support, enhance and optimize the delivery of information. Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods. Students today do not shy away from exploring technology for the purpose of learning at their own pace, among various other reasons. They may do so because of increasing individuality, increasing availability of resources, or in fact because of the dire lack of sufficient resources. Regardless, the use of ICT in the teaching learning process has immense scope to reduce the cost of education and increase its value. ICT can increase portability, improve accessibility, aid socialization, provide comprehensive learning tools with diverse options, and project visualizations. In recent years, there has been significant interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. When teachers are digitally literate and trained to use ICT, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace. Teachers can use ICT for teaching, formative learning assessments, individualized instruction, accessing online resources and for fostering student involvement, interaction and collaboration.*

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# 1. Importance of ICT In Evaluation

*Shri. Hegade Navnath Dharmaji  
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## **Abstract :**

Information and Communication Technologies (ICTs) have widely gained acceptance over the years by students, lecturers and institutions, thus playing various roles in teaching and learning processes in tertiary institutions. These roles ICTs play in learning environments have a relationship with their perceived usefulness thus acceptance. This then became the basis for identifying the prevalent roles and underlying student perceptions which necessitated usage of ICTs in a tertiary institution. The study used a survey conducted on samples chosen from the student population engaged in ICT-related courses in the conveniently selected tertiary institution. It also revealed that students use the internet for communication, learning and research more than other mentioned ICTs. The results also showed that students had positive perceptions about the use of ICTs in their academic activities and processes. This suggests that the reception is favourable for the integration of more ICTs in the school learning environment.

## **Introduction**

A new approach to ICT evaluation in a development context would also be convergent with transformations in the notion of development itself. While early notions of development simply equated it with economic growth and transfer of technology from developed countries to underdeveloped ones, theories of development have long abandoned such simplistic and mechanistic approaches in favor of a more holistic view. Such a view includes meeting basic needs

in an endogenous process that builds participatory democracy, strengthens self-reliance, promotes structural changes, and fosters empowerment and liberation (Servaes, 2008; Melkote, 2001). But the changes in approaches and theories of development do not seem to have affected the field of ICTD, which seems to be still in the development as modernization paradigm. Today, thirty years after the ICT productivity paradox was highlighted, the challenges faced in evaluating impact and productivity are as relevant in the ICTD context as they were in the business environments back then. This underscores the difficulties associated with measuring ICTs regardless of the area of application and not least of which relates to the issue of impact measurement. The 'productivity' resulting from ICTs in respect of facilitating socio-economic development of the large numbers of impoverished and underserved communities are still to be properly understood. This is underscored by Heeks (2008:27), who in evaluating the initial ICTD era argues that insofar as evaluation is concerned the work in this field was "held aloft by hype and uncorroborated stories, which fostered a new interest in objective impact evaluation.

## **THE PROMISES OF ICT**

One of the most prominent early proponents of the benefits of ICT to human development was then Vice-President Al Gore, who professed that "...we will derive robust and sustainable economic progress, strong democracies, better solutions to global and local environmental challenges, improved health care and ultimately, a greater sense of stewardship of our small planet... [ICT] will help educate our children... it will be a metaphor for democracy itself..." (Gore, 1994).

Two decades ago statements such as this gave both the developed and developing worlds great hopes based on the potential of modern ICTs to assist an acceleration of development efforts and impacts. This sort of rhetoric was in line with the classic view of development as a ‘fast track’ to modernization, and of technology as an inevitable driver of social change (‘technological determinism’). These views of development and technology were coupled with an implicit threat to “get wired, or else”, based on the idea that “although the costs of using ICTs to build national information infrastructures which can contribute to innovative ‘knowledge societies’ are high, the costs of not doing so are likely to be much higher” (Mansell & Wehn, 1998: 7). However, just as the technology world was jolted into reality when the e-bubble burst in early 2000 (Remenyi, Grant & Pather, 2004), and the business world was shaken by the financial meltdown of 2008, the development sector has seen a slow melting of the dream of technology bringing about accelerated development, wealth, and opportunity to the majority of the world’s poor. With the dawn of the new millennium, and notably the two-phased World Summit on Information Society (WSIS) shortly thereafter (Geneva, 2003 and Tunis, 2005) we have witnessed a proliferation of research output in ICTD, supported by research agencies, nonprofit organizations, and academics. British researcher Richard Heeks (Heeks, 2009b) suggests that hundreds of millions of US dollars are invested each year in ICTD projects, and that the ICTD research area is growing significantly faster than other cognate areas. Furthermore, he posits that the ICTD outputs to date reflect: (i) a bias to action and not a bias to knowledge, (ii) a preference for what is narrowly descriptive, and (iii) a field that is not analytical enough. Others suggest that shortcomings of this research area include a lack of theory, conceptual definition, interdisciplinary approach, qualitative research,

and longitudinal research (van Dijk, 2006).

## **INFORMATION AND COMMUNICATION TECHNOLOGY**

IT was limited only to the textual mode of transmission of information with ease and fast. But the information not only in textual form but in audio, video or any other media is also to be transmitted to the users. Thus, the ICT = IT + Other media. It has opened new avenues, like, Online learning, e-learning, Virtual University, e-coaching, e-education, e-journal, etc. Third Generation Mobiles are also part of ICT. Mobile is being used in imparting information fast and cost effective. It provides e-mail facility also. One can access it anywhere. It will be cost effective. The ICT brings more rich material in the classrooms and libraries for the teachers and students. It has provided opportunity for the learner to use maximum senses to get the information. It has broken the monotony and provided variety in the teaching learning situation. The ICT being latest, it can be used both at school and higher education levels in the following areas:

- o **Teaching**
- o **Testing**
- o **Remedial Teaching**
- o **Evaluation**
- o **Psychological Testing**
- o **Development of Virtual Laboratory**
- o **Online Tutoring**
- o **Development of Reasoning**
- o **Development of Thinking**
- o **Instructional Material Development.**

## **USE OF ICT IN TEACHING**

Teaching at School as well as Higher Education, mostly, concentrates on giving information which is not the sole objective of Teaching. Along with giving information, the other objectives are:

- o Developing understanding and application of the concepts

- o Developing expression power
- o Developing reasoning and thinking power
- o Development of judgment and decision making ability
- o Development Improving comprehension, speed and vocabulary
- o Developing self-concept and value clarification
- o Developing proper study habits
- o Developing tolerance and ambiguity, risk taking capacity, scientific temper, etc.

With the present infrastructure, class size, availability of teachers, quality of teachers, training of teachers, etc., it is difficult to achieve all the objectives. Further, most of the teachers use Lecture Method which does not have potentiality of achieving majority of above mentioned objectives. The objectives are multi-dimensional in nature, so for their achievement multiple methods should be used in an integrated fashion. At present ICT may be of some use. It is a well known fact that not a single teacher is capable of giving up to date and complete information in his own subject. The ICT can fill this gap because it can provide access to different sources of information. It will provide correct information as comprehensive as possible in different formats with different examples. ICT provides Online interaction facility. Students and teachers can exchange their ideas and views, and get clarification on any topic from different experts, practitioners, etc. It helps learners to broaden the information base. ICT provides variety in the presentation of content which helps learners in concentration, better understanding, and long retention of information which is not possible otherwise. The learners can get opportunity to work on any live project with learners and experts from other countries. The super highway and cyber space also help in qualitative improvement of Teaching Learning Process. ICT provides flexibility to learners which is denied by the traditional process and method. Flexibility is a

must for mastery learning and quality learning. On INTERNET many websites are available freely which may be utilized by teachers and students for understanding different concepts, improving vocabulary, developing Reasoning & Thinking, etc. ICT can help in preparing students for SAT, GRE, TOEFL, etc.

#### **Need and Significance of the study:-**

The present scenario of the classroom is changing. There is a technological gap between the progress of the society and instructional activities of the teacher in the classroom. If we see in our society on the one hand technology has revolutionized our society and on the other hand the teaching learning activities at school level have remained so far away from technology. In our classroom the knowledge is imparted by the teacher in an ancient way, a teacher centric mode which is most of the time boring and not to gain interest to the student. But present 21st Century's education is student centric education. Students learn from multi sources and for this reason use of ICT & Multimedia is very much essential in educational field and simultaneously teacher's knowledge of ICT and Multimedia also required. So present study has great need and significance .

#### **Multiple Use of ICT in 21st Century -**

- o ICT helps teachers in both pre-service and in-Service teachers training.
- o It helps teachers to interact with students. It helps them in preparation their teaching, provide feedback
- o .ICT also helps teachers to access with institutions and Universities, NCERT, NAAC NCTE and UGC etc.
- o It also helps in effective use of ICT software and hardware for teaching learning process.
- o It helps in improve Teaching skill, helps in innovative Teaching.



o It helps in effectiveness of classroom. It also helps in improving professional Development and Educational management as well as enhances Active Learning of teacher Trainees. It is now replacing the ancient technology. As we know now-a day's students are always have competitive mind. So teacher must have the knowledge of the subject. This can be done through ICT.

o ICT helps teachers in preparation for teaching. In order to introduce ICT in pre-service teacher education different methods and strategies are applied. Different tools are used such as word processing, Database, Spreadsheet etc. Various technology based plans are used to help the teachers for their practice teaching.

o It prepares teacher for the use of their skills in the real classroom situation and also make students for their future occupation and social life

o ICT used as an „assisting tool“ for example while making assignments, communicating, collecting data & documentation, and conducting research.

o ICT is used independently from the subject matter.

o ICT as a medium for teaching and learning. It is a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn. It appears in many different forms, such as drill and practice exercises, in simulations and educational networks

o ICT as a popular tool for organisation and management in Institutions. Teachers must provide technological support to learn using motion picture, animation, simulation training which helped student teachers to give model presentation. If the teacher is highly equipped with technology, the student will also be equipped with technology. It removes the traditional method of teaching and prepare teacher to apply modern method of teaching.

o ICT is plays an important role in student evaluation. ICT is store house of educational institution because all educational information can safely store through ICT.

o ICT helps Teacher to communicate properly with their students. So ICT bridge the gap between teacher and students

o ICT helps Teacher to pass information to students within a very little time.

o It helps Teacher to design educational environment

o ICT helps Teacher to identify creative child in educational institute.

o ICT helps Teacher to motivate students and growing interest in learning.

helps Teacher for organizational preconditions (vision, policy and culture). It is also helps Teacher for their personnel support (knowledge, attitude, skills)

o ICT is helpful for technical preconditions (infrastructure)

ICT is helpful for designed learning situations which are needed for both vocational education and the training of future teachers (in the teacher training institutes). Teacher training institutes can develop their curriculum using ICT. With the help of ICT Teacher training institutes can develop communication network. Teachers learn most from their own networks (learning from others) with the help of ICT.

### **Conclusion. :**

As with the finding of this study where Internet was predominantly used for research, many other studies have documented a positive correlation between computer use and various positive educational outcomes, including math and reading test scores [25], school enrolment (Fairlie, 2005), and high school graduation [26]; [27]. Although learners access the Internet from a variety of geographical locations, home access allows a degree of flexibility and autonomy difficult to replicate elsewhere

[28]; [29]. Since access to the internet is mainly achieved through computer systems and/or handheld devices which possess a positive correlation to learning outcomes, learners successfully also undertake research through these means. Having looked at the Internet as a means for undertaking academic research, its purposes as subsequently viewed as a means of expanding and applying knowledge. The use of various forms of ICTs in education has greatly transformed traditional academic activities and processes. Its role to the overall function of a tertiary institution is crucial and should not be taken for granted as results showed a high reliance on the Internet for their communication, learning and research. Gradually, there is a noticeable shift from teacher-centred forms of instruction because learners have access to even better resources and learning aids. The Internet facilitates these and has to a great extent proven to be comparatively efficient when integrated into academic activities and procedures. Both learners and teachers are innovatively incorporating ICTs into teaching-and-learning activities which send cues to tertiary institutions to realign themselves policy-wise and ICT-provision-wise. This is necessary because there was a noted positive perception towards ICTs and their perceived usefulness in the study.

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## 2. Digital Learning and Automation of Evaluation Process

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### **Abstract:**

ICTs are making digital and dynamic changes in the world. Everyone is influenced by technology, it has great impact on daily activities of human life whether its education, learning, research, evaluation, medical field, architect field, business, entertainment etc. ICT is ubiquitous. ICT helps in digitization of manual work in to automated processes. ICT is used in CAD i.e. for designing blueprint of infrastructure and CAM i.e. manufacturing of Products. This paper presents role of ICT in academics viz integrated and interactive learning through LMS EDMODO creating digital class, creation of E-portfolios, blogs, and automation of evaluation process of various quizzes created online. ICT helps in digitization of manual work in to automated processes.

### **1. Introduction**

LMS (Learning management software) : LMS provides integrated functionality that can be used by Academicians and Students, Parents to facilitate digital class rooms and virtual distance Learning in web based environment. Examples of LMS are moodle, Blackboard, Wiziq, Edmodo.

#### **1.1 LMS Edmodo:**

Edmodo is Social media Platform having Educational Applications, Attracting academicians and Students their parents. It enables exceptionally secure cloud based collaboration, a teacher or school and colleges can manage a system through internet.

Typical features are:

Teacher's students and parents can collaborate in a secure, closed environment.

It's easy to monitor students participation interaction progress.

Teachers can post assignments quizzes that are online

submitted and evaluated automatically grades badges awards are given instantly.

Teacher can maintain Personal digital library in which information is saved in different folders systematically links are also available or teachers can load assignment or quiz from Google drive

- Course Management, e.g. lists of courses, registration, credit information and syllabus, pre-requisites
- Teaching Materials, i.e. courseware
- Self-assessment quizzes
- Asynchronous Communication: email, forums
- Synchronous Communication: chat, whiteboard, teleconferencing
- Student tools: Home page, self tests, bookmarks, progress tracking
- Student Management Tools: progress tracking, on-line grading (assessment)
- Learner feedback: course evaluation surveys, test evaluation surveys etc
- Usually LMS are closed circuit platforms (logins, restricted access to classes), so the idea of sharing contents and reusing products generated during classes does not exist in the world of "LMSs"

#### **1.1.2 Types of Log in:**

- a) Teacher b) Student c) Parent

##### **a) Teacher Login:**

Teachers can create and manage the class, also they can create groups, groups have group code that can be locked and reset for privacy purpose so that no other student can join. There are two different access level for group members.

Read only: Group members can view only the posts and the content within the group, they can't contribute any post.

Contributor: Group members can contribute as well

as view the posts; they can access the content within the group.

### **Features of Teacher Login:**

#### **❑ Posting assignment:**

Teachers can load the assignment from library in edmodo, set the due date and assigns to the class. Teachers can view who turned in the assignments on time and can grade them respectively.

#### **❑ Posting note:**

Teachers can Display notice through this feature.

Create and assign quiz: Multiple choice questions, fill in the blanks, match ups etc can be loaded as a quiz. Teachers can set the correct answers while creating the quiz so that evaluation of the quiz can be automated, students will get instant results of these quiz.

#### **❑ Poll:**

Polling is used for voting purpose.

#### **❑ Library:**

Teachers can Store important content, notes in the form of PDF, PowerPoint, word doc or links. Teachers can create folders, manage the content, share the folders to other teachers in their connection or to students also. Images, videos can also be stored but each content must be up to 100 Mb.

#### **❑ Calendar:**

Important events are announced, assignments, reminders are shared with students through Edmodo calendar. Events can be filtered by groups.

#### **❑ Grade book:**

Teachers can view grade books group wise also they can create grade books for the assignments which are not submitted through Edmodo.

#### **❑ Export Grade in Excel spreadsheet:**

Export (CVS) option is for saving all grades in to excel spreadsheet.

#### **❑ Award Badges:**

By awarding badges teachers can inspire the students, there are inbuilt badges like good citizen, perfect attendance, hardworker, Student of the month, star performer etc, Teachers can create new badges also.

#### **❑ Join communities :**

Teachers can join different communities based on

their area of subject, domain knowledge and academic curriculum. They can share ideas and resources.

#### **❑ Students Login :**

Students can get group code from teachers and joins the class of respective teachers if the group is locked students will be placed in queue, till teachers accepts their request, Students will be able to solve the assignments, quiz, poll etc assigned by different subject teachers. Results of quiz are generated instantly once quiz is submitted, Students can earn the awards and badges depending on their performance.

#### **❑ Parent's login :**

From students login parent code is created, through this code parents can sign up, parents can track the students activities when they leave class or join the class, grade books, attendance etc.

## **2. Automation of Evaluation process:**

### **Online Assessment Software**

#### **2.1 Computer Assisted Assessment (CAA)**

Computer-assisted assessment refers to the use of computers to assess students learning and performance. Computer-assisted assessment is a term that covers all forms of assessments, whether summative or formative, delivered with the help of computers.

#### **2.2 Tools of Computer Assisted Assessment**

##### **❑ Hot Potatoes:**

The Hot Potatoes includes six applications, enabling us to create interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and fill-ups exercises for the World Wide Web.

##### **Online Assessment**

Online assessment is the process used to measure certain aspects of information for a set purpose where the assessment is delivered via a computer connected to a network. Most often the assessment is some type of educational test.

**a. E-Box:** E-Box is a Technology Enabled Active Learning and Assessment platform. Apart from the basic LMS components like quizzes, assignments, lesson components, resource components etc it has numerous



activity components pertaining to technology and engineering concepts that could be used for design and analysis oriented learning. These components are also used for assessing the design and analysis skills of candidates, apart from the regular knowledge level testing.

b. Myexambox: We can create our own online exams and share privately for free. We can share quality online exams publicly.

### 3. Developing E-portfolios

An electronic portfolio also known as an e-portfolio, digital portfolio, or online portfolio is a collection of electronic evidence assembled and managed by a user, usually on the web. Such electronic evidence may include inputted text, electronic files, images, multimedia, blog entries, and hyperlinks. E-portfolios are both demonstrations of the user's abilities and platforms for self-expression and if users are online, can be maintained dynamically over time.

An e-portfolio can be seen as a type of learning record that provides actual evidence of achievement. Learning records are closely related to the learning.

#### 3.1 Tools for Creating e-portfolio

##### Google Sites

##### **Google sites:**

How Do Teachers Use Google Sites?

##### **Teachers can:**

- Create a class webpage and post assignments, upcoming events, rubrics and tutorials for students to watch as supplementary resources for their courses.

- Identify and articulate learning outcomes via e portfolios.

- Gather and analyze information about how well students are achieving outcomes.

- Use the information for course improvement.

##### **How Do Students Use Google Sites?**

##### **Students can:**

- Create an e portfolio of their personal, professional and academic work.

- Collaborate with other students around the world to share ideas, create content and communicate ideas.

- Assemble, present, and share information online

for documenting academic growth, career evaluation, and course preparation.

- Maintain and expand individual eportfolios over the duration of a class and beyond university years.

##### **Other tools available are:**

##### Mahara :

Mahara is a fully featured web application to build electronic portfolio. we can create journals, upload files, embed social media resources from the web and collaborate with other users in groups.

##### Kidblog :

Portfolios contain a wide range of digital files, including but not limited to, text or PDF documents, videos, sound files, images and links to other websites or online resources.

### 4. ICT for professional growth of teachers

Application of ICT can be grouped in three categories:

- A focus of study that develops teachers' abilities to use specific ICT tools, such as online platforms.

- A delivery system providing teachers with information to improve pedagogy and content mastery.

- A catalyst for new forms of teaching and learning, such as inquiry-based learning, collaborative learning, and other forms of learner-centred pedagogy.

##### **Conclusion:**

Today's Education system is being transformed from chalk and talk method to project and present; there are drastic changes in teaching learning process, its carried out by smart board thus creating interactive sessions geographic boundary is not a constraint through video conferencing, webinars knowledge can be shared to rural area students, instant information exchange is possible through technology and apps viz. Edmodo.

Online tests, surveys are possible through Google forms. Tutors can create E portfolios as digital evidence where they can store knowledge in the form of Multimedia i.e. text, images, links, videos. ICT act as a catalyst in teaching learning process.



### 3. Blended Learning: An Integrated Learning Experience

*Mrs. Anjana Tawani*  
*Assistant professor*  
*Pal Rajendra B. Ed College Abstract*

Blended learning is the blend of online learning and face to face learning. It is an instructional strategy which facilitates a student to study online on his space, anywhere, anytime and provides opportunity to learn in supervised brick and mortar location away from home. The blended learning approach contains three core elements of a successful teaching learning process. Engage students, enhanced learning, and increase efficiency are the three core elements of the blended learning. .

Face to face learning includes group activities, project, and discussion etc. various tools can be used in online learning viz. discussion forum, blog, lecture video, web-based articles, Google sites, and LMS etc. Rotation model, Flex model, A La Carte Model and Enriched virtual model are the different model has been identified under blended learning approach. This strategy provides more flexibility in terms of path, pace and place. It helps in enhancing the active participation in the teaching learning experience.

#### **Key Terms:**

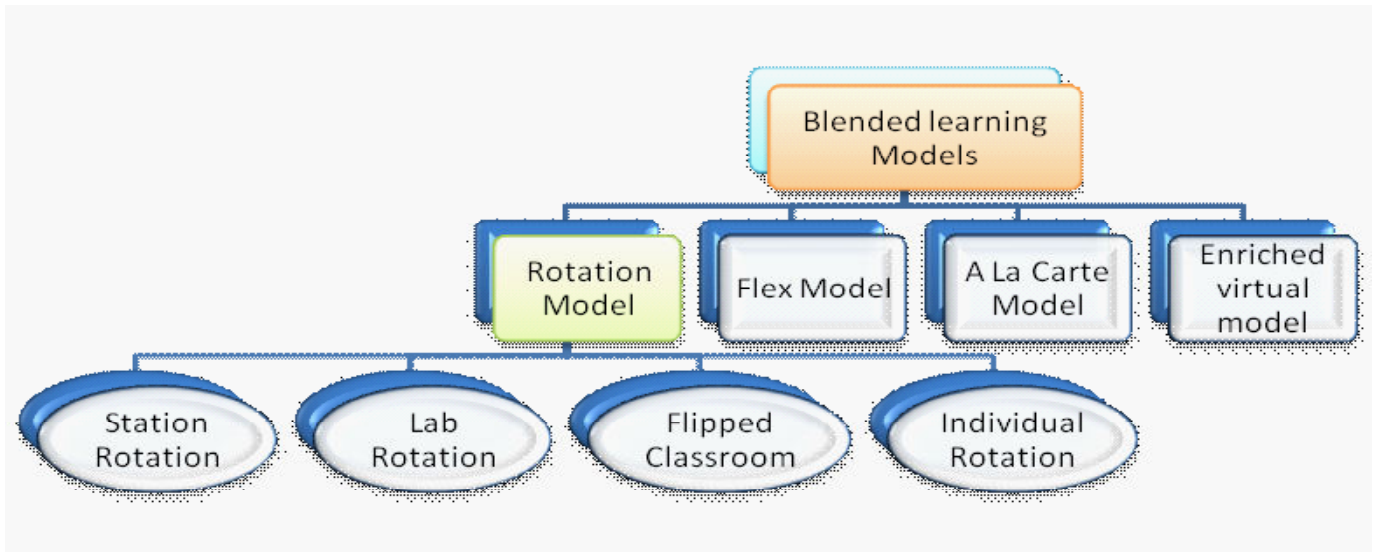
Blended learning, rotation model, flex model, flipped classrooms, enriched virtual model, and A La Carte Model

21st century is the era of technology and there are lot of challenges in education due to diverse need of the students. So an essential requirement is to cater the need of all the students and keep them engaged. The traditional approach teaching does not

serve the purpose and consequently failing achieving the educational goals. Blended learning is identified as a powerful tool to overcome the educational problems to the large extent. It helps to engage learners which promote the deeper understanding of the content. It also helps educators to save their time and enable them to focus on the students' learning. The blended learning approach contains three core elements of a successful teaching learning process. Engage students, enhanced learning, and increase efficiency are the three core elements of the blended learning.

Blended learning refers is a blend of online learning and offline learning. It is an instructional methodology where face to face and computer based learning activity is combined to teaching learning process. Blended learning helps children learn at any time, any place and at their own pace. Face to face learning includes group activities, project, and discussion etc. various tools can be used in online learning viz. discussion forum, blog, lecture video, web-based articles, Google sites, and LMS etc.

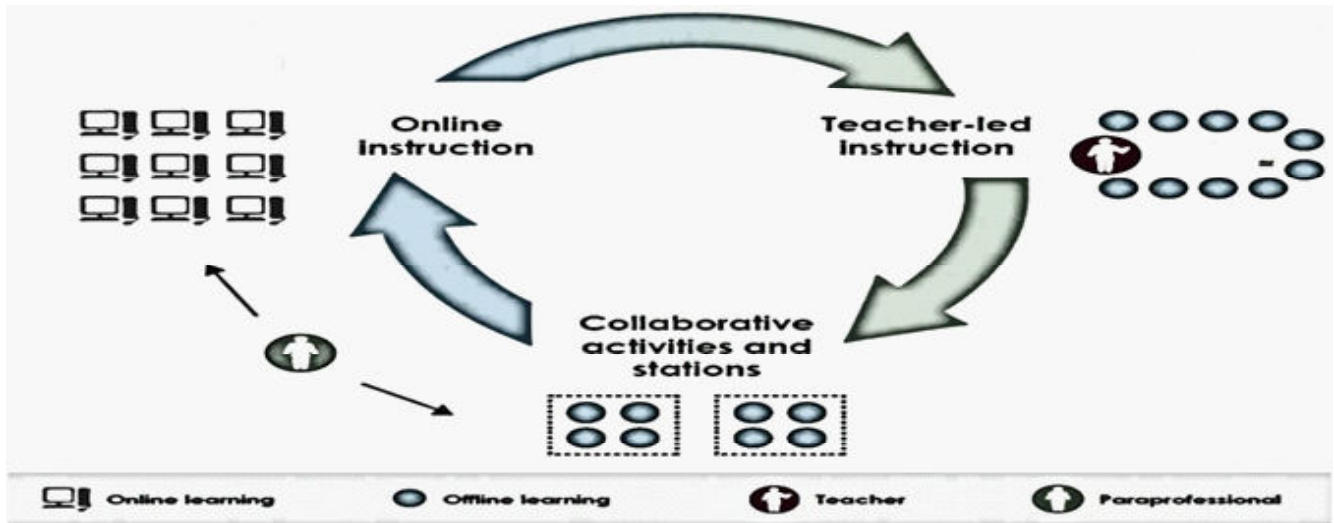
“Blended learning offers improved pedagogy, increased access to knowledge, and fostered social interaction between learners. Easy use of multiple modalities in blended learning approach provides better support for different learning styles among students” (Ayala 2009; Osguthorpe and Graham, 2003,



1. Rotation Model In this models various learning experience are being organised including at least one line learning activities. Other learning experiences may include group discussion, individual instruction, teacher led instructions and peer interaction. The four sub models have been identified under the rotation model which is as follows:

**Station Rotation:**

This model suggests including different learning experience in the traditional setting. Each learning experience forms a station in which Students have to rotate to gain learning experience out of these at least one should be technology based learning activity should be there. All the students have to compulsory visit to all the station. This model is basically useful to acquire the deeper understanding of the concept and it caters the need of the diverse crowd. The learning experience in each station includes group projects, discussion and paper pen assignments etc.



**Procedure of station rotation model:**

- ❑ Identify the learning outcomes of the course or subject
- ❑ Assign the students in the group
- ❑ Identify the different station to provide different learning experience keeping in view the diverse participants of the course.
- ❑ Plan carefully the activities of each station based on the needs and learning objectives which may include projects, group activities, assignments, peer interaction or teacher led instructions.
- ❑ Plan for online learning experience like modes of online learning and learning experience as well.
- ❑ Decide the rotation sequence of all the students for the effective functioning and fruitful results
- ❑ Evaluation or assessment should be devised to assess the students' performance and to evaluate the course too.

**Lab Rotation:**

In this model students are engaged in Traditional classroom settings for the some part of the day and then they move to the computer lab for the rest part of the day for further learning. Simply we can say that rotation takes place from traditional classroom settings to computer lab which may be equipped with I-pad, podcast, tablets and computers etc. It is differing from station rotation model because in lab rotation students move to lab where as online learning takes place in traditional class room settings in station rotation model. This model is suitable to teach all the subjects and all grade levels as well. They get opportunity to clarify the concepts and to explore the content for the deeper understanding too.

**Individual Rotation:**

In this model each student has their own list to be moved on to the different station. All the students do not have to visit to all the stations as each students will get the individual list of the stations to be visited and this is decided keeping in view the individual difference of the learner. It is most appropriate model as it serves the individual needs of all the students. Hence students can learn the content on their pace. An instructor should be very careful as he must be aware of the individual need and learning style of the learner.

**Flipped class room.**

It is the reverse position of the traditional classroom teaching style like delivering the instructions and then homework which need to be completed at home after the school hours. This model gives opportunity to the learner to participate in online learning at any place and anywhere preferably at home and then attend the school for face to interaction with teacher and peers as well. In this approach teacher delivers the content and instruction online and the students gain knowledge about the content at the place of his convenience. Then they attend school to discuss the content for completion of the assignment and project under the guidance of a teacher. Students can discuss and ask their doubts about the content learnt online. This approach basically suits for the higher class.

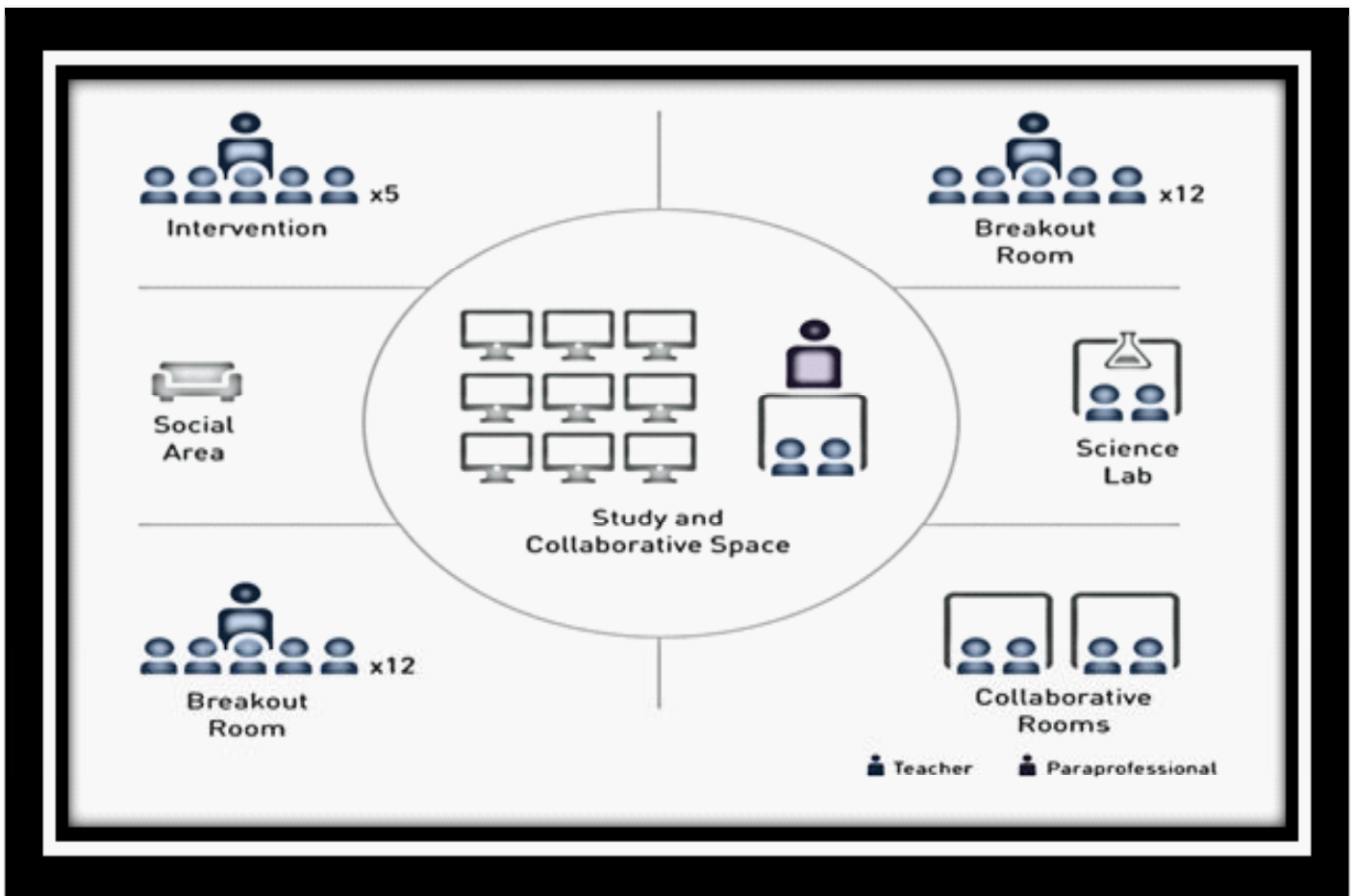
**2. Flex model:**

On line learning is the back bone of in this model. This model provides the greater flexibility in terms of pace and content to the student. The learner can customise his/her learning according to his need.

Here, they receive the list encompassing varied learning experiences and the students need to choose the learning experience based on their specific needs. Teacher of record is on site and teacher of record provides face to

face support and based on their needs through different learning modalities like small group instructions, group projects and individual tutoring etc.

In this model includes breakout rooms, laboratory work, collaboration room, teacher led instructions and social area on one side and other side students remain engaged in online learning. Students can choose any of the breakout rooms based on his/her needs or else they can directly go for the assessment process.



### 3. A la Carte model:

This model basically useful in higher education system. In this approach a student can choose a course to supplement his learning and which is not offered by the school such as language course, soft skill training course etc. This course can be taken completely on line or partly online. This is why it is different from virtual school. Here students take the benefit of face to face interaction with peers and teachers.

#### **4. The enriched virtual model:**

As its name suggests it is enriched model that means online learning will take place to the large extent but it is not fully virtual. Face to face sessions are the essential elements in this approach. Simply we can say that this model provides opportunity to the students to learn with their own pace but it is different from fully virtual model as it is supplemented by the teacher in brick and motor modes. Students can spend their time for the learning by visiting library, working in cafeteria or school cyber café to enhance their learning.

#### **Benefits of Blended learning:**

Individual instructions can be provided to the students

Caters the need of all the diverse students

Learning becomes interesting and fun full.

It gives freedom to students to learn any time anywhere and with his/her pace.

It provides the teacher to focus on the classroom activities and accomplishment of the learning objectives.

It facilitates the active participation of teacher and students as well.

It gives the more flexibility to change the programme as needed.

It facilitate better quality instructions

It prepares students for the future by learning to use technology in the classroom, both teachers and students will develop skills essential for the 21st century

This approach is suitable to the students of all grade levels.

#### **Teachers Role In Blended Classrooms:**

- Help to guide students
- Manage their activities
- Direct their learning
- Help develop their skills

Teachers are essential in the success of the classroom



## 4. Use of ICT while teaching Geometrical Constructions to 7th Standard Students- A critical study.

*Santosh Daund  
Lecturer  
D.I.E.C.P.D., Panvel,  
Dist-Raigad.*

### **Introduction :**

Maths is very important and compulsory subject at Elementary Level. The performance of Std. 8th to 10th students is very low in Maharashtra. (NAS 2017) i.e. The achievement of 8th Std. Students is 40.04% & The achievement of 10th Std. Students is 33.57%. In NAS (National Achievement Survey) the achievement of 8th & 10th Std. Students is 40.14% & 36.70% gradually.

Digital technology in education is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources. The base of secondary level students should be strong at primary level. That's why this subject selected for research.

### **Title :**

Use of ICT while teaching Geometrical Constructions to 7th Standard Students- A critical study.

### **Need and Importance of Research :**

If students get command on basic concepts & skills of Geometry they become more confident in that particular subject. Maths is queen of all sciences. In Every subject maths takes place an important role in different manner. Geometrical constructions are also very important in routine life. So it is very important that student must do the geometrical construction.

### **Objectives :**

1. To use QR (Quick Response) Codes and digital

curriculum for teaching Geometrical Constructions.

2. To Study the effectiveness of digital technology.

### **Variables :**

#### **Independent Variable :**

##### **1. QR Codes :**

QR code (Quick Response Code) is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed in 1994. This technology is used in school curriculum from last two years.

##### **2. Digital Curriculum of Geometrical Construction :**

Digital Curriculum is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources.

#### **Dependent Variable :**

Student's achievement in Geometrical Construction.

#### **Assumptions :**

1. Student involves in Education through digital technology.

2. ICT attracts student's concentration.

3. Students practice through technology again and again without any mistake.

#### **Null Hypothesis :**

In post test there is no change in achievement of the student in controlled group and experimental group.

**Research Method :**

Experimental Method is used for this research.

**Research Design :**

Post test equivalent group design.

**Sample :**

Experimental Group	–	20
Controlled Group	–	20
Total	–	40

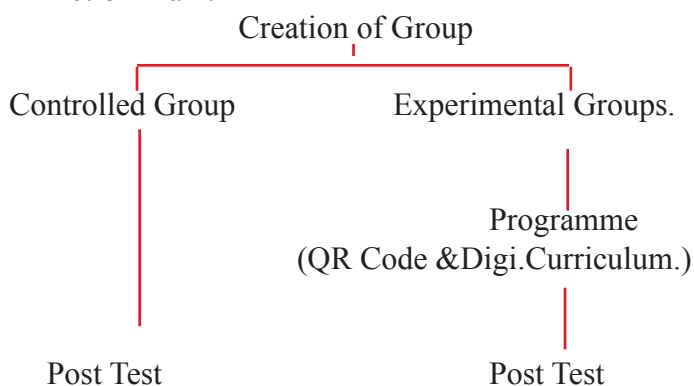
**Scope and Limitations of the research :**

This research is related to the students of 7th Std. of ZP School Jambhivali.

This research is limited for the content i.e. Geometrical Constructions.

Findings of the Research will be limited for the student who participates in this research.

**Action Plan :**



**Data Collection Tools :**

**1. Test :**

A short written or spoken examination of a person’s proficiency or knowledge.

**2. Observation :**

The action or process of closely observing or monitoring something or someone.

**Statistical Tools :**

- 1. Mean
- 2. Standard Deviation

**3.t-value**

**Pre-test Observation :-**

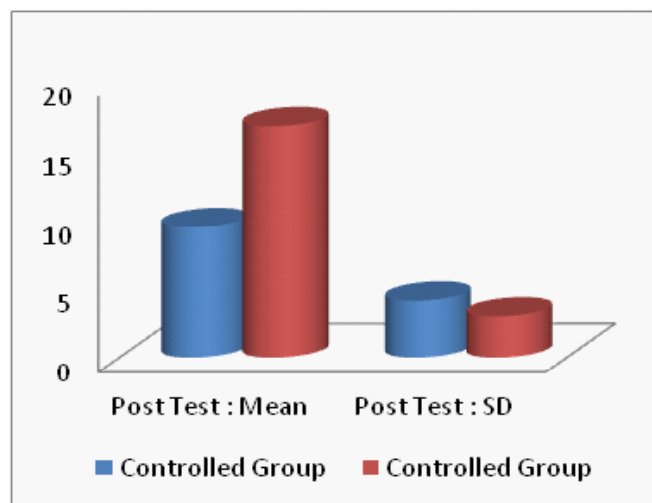
Students faced various difficulties in geometrical construction. They don’t do geometrical construction properly. They forgot some steps in doing geometrical constructions.

**Post Test Observation :**

**Chart - 1**

Particulars	Controlled Group	Experimental Group
Post Test : Mean	9.5	16.8
Post Test :	4.14	2.99

**Students Skill – Geometrical Construction**



**Conclusion :**

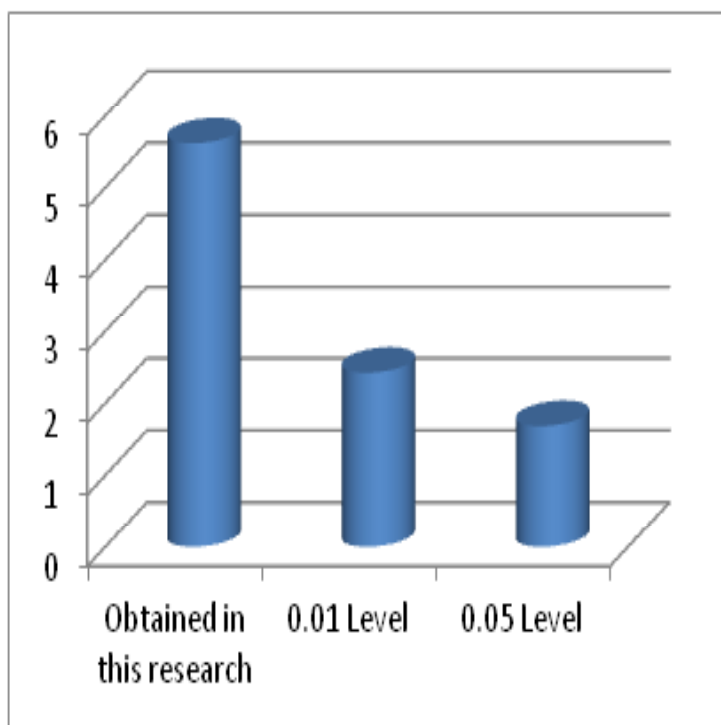
1. The mean of experimental group is more than controlled group.

2. Standard Deviation of Experimental Group is less than controlled group.

**Chart - 2**  
**t-value**

t-value	t-value
Obtained in this research	5.615
0.01 Level	2.423
0.05 Level	1.684

**Graph - 2**  
**t-value**



**Conclusion :**

The t-value obtained through T test is more than 0.05 level and 0.01 level.

**Findings :**

- 1.Null hypothesis is rejected.
- 2.If we use QR codes and Digital technology for teaching of Geometrical Construction it affects positively on students concentration.
- 3.QR codes and Digital technology is more effective than traditional method of teaching.
- 4.ICT tools help student practice in classroom and at home.
- 5.Slow learners of Maths can increase their achievement with the help of ICT tools.

**Recommendations:**

While teaching teachers should use the QR Codes and other ICT tools.

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## 5. A study of effectiveness of ICT in Raigad zilha prishad primary school Amtem , pen, Raigad.

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### **Abstract:-**

ICT has been the most talked of the game changer in education in recent ERA. The most ambitious project by the Maharashtra government digital school and E-learning in Maharashtra primary schools for that government provide digital equipments,oft wear hardwear for some schools.so many schools did this with CSR funds and loksahbhag means with help of community support and help or contribution . Here in these digital schools teachers use laptop,projector, smart TV, mobile, internet,YouTube,mobile apps,tab and other digital tools and E-content for primary educations In schools specially in zilhaparishd schools. The present study is an attempt to understanding effectiveness of ICT .in teaching learning process as well as quality education of Raigad zilha prishad primary school Ametm .

### **Important of this study .**

Today's era is era of IT, BT, NT, so in this era we have to use ICT in our classrooms for quality education because these ICT tools help teachers and students to deal nicely while teaching learning processes it helps teacher to explain dedicated text content and concepts of subject and its provide help to the students for practice and drill.

### **Objectives; -**

To provide ICT tools in classroom for primary education

Improve teaching learning process with help of ICT

To give quality education

### **Variable;-**

ICT tools and student study group.

### **Research Method/methodology**

Experimental method is used in this research

### **Hypotheses**

ICT helps for quality education in primary schools.

### **Scope and delimitations of study.**

This study is limited for Raigad zilha prishad primary school Amtem. Students from first to seventh std student for educational year 2017 and 2018.

### **DEFINATIONS;-**

School School it is primary school run by Raigad zilha prishad in Amtem village at pen block Raigad district

ICT .information and technology tools which base on computer and other digital tools and technic

### **Introduction and importance:-**

Today's era is era of science and technology era in this era everyone use technology in day to day life,because it helps us to save time and money .use of technology in education help us to improve our teaching learning process and quality education if we use ICT in classroom it helps for developing LSRW skills because it provide audio visual experienthis audio video experience impact on learning process. ICT helps for conceptual understanding. Its helps teachers to help and guide each and every student. Its provide students guidance and help in their own learning speed and path. it helps larger class and time even ICT provide help students for self-evaluation's . ICT provide more and more opportunity for drill and practice .we can save responses of the students help them and to

give proper answers and understand the content easily .for example we teach word duck while teaching, we write it on black board pronounce it show them picture of duck, live video of duck its sound quack .movement surrounding of duck . its help to understanding the concept.it create healthy and child centered atmosphere in classroom .while dealing with primary class students basically constructivism is used ICT also help for this process to learn by fun.

In multi graded classrooms teacher try to pay attention to every child but every time it's not possible. ICT help those teachers and students also to learn with their learning and grasping speed .audio video,animations,moving objects ,use of sound, music colorful appearance attract students and create interest and concentration in that content or text . while doing evaluation CCE(continues comprehensive evaluation) is use ICT also help teacher and student in that process .while using ICT teacher can record students oral , practical, written response of evolution .students can also check their self-progress and correct their mistakes with practice if the student record is maintain by using ICT . some ICT software give them motivation prays them for good work .bye giving them stars claps Ext ICT tools create engaging enjoyment and give students opportunity to revise, recall and practice on one click .if teachers use ICT tools in their classrooms its help in teaching learning process .and get better result it provide help for quality education .

While teaching reading skill ICT helps how to pronounce the word .its intonation pattern and all .it's also very use full while working with child with special need .(CWSN)students. There are so many application, software ,open source free offline educational study material on internet now it's easily available on our mobile phones also. Mission digital school create great impact on primary schools in Maharashtra, laptops, projectors, tabs, LCD led TV .android TV help .teachers and students for ELearning.

There are so many free offline apps are available on play store for educational use like Alphabets, grammar, maps, formulas, animal anatomy, science, geography apps mathematics which is usefull to all bud-

dies. Even there are so many soft wears are available which include text content and more advance reference content for study and competitive exams .we can get better result in academic and all over students development with the help of ICT tools in classroom. ICT tools help teacher's in maintain their daily classroom routine work like school records and official works. It is more helpful in maintain summative records of every students and formative evaluation. These are all positive things of ICT. But it's very important each and every time we need to keep proper balance of using ICT in classrooms ,for that we need to keep on asking question ourselves why, when where, for whom and how much use of ICT tools in classroom. It gives better result than traditional method .while using ICT positive attitude is must and focus must be on objectives of curriculum.

#### **Review of research work**

While doing this research experimental method is use .in our whole school we took pretest of language and mathematics of all students as well as did formative evaluation and keep its record after that we use ICT tools like interactive projectors ,LED, LCD TV ,laptop, computers ,tabs and mobiles, educational software, open source educational materials mobile applications ,YouTube videos and internet resources . we use MITRA and DIKSHA apps which launch by Maharashtra government and Indian government. Using combination of traditional methods and regular use of ICT tools and E-Learning practice and feedback it helps us lot and. we observe lot of improvement in students achievement of language and mathematics skills and allover progress.

Most important thing is time management. Concentration span of children is 7 to 10 minutes so use these ICT tools in proper way .it can be consume in many ways like use of ICT before teaching after teaching, remedial teaching while teaching in between for particle and evaluation its depend upon teachers creativity and students age group.

Findings, Outcomes and some observations of this research



Students enjoy learning with ICT tools.

They took active part in activities and quick response

time bond must be needed

Teacher used these tools with creatively for better result for example

For motivation singing dancing dramatization for conversation presentation of practical and project work. Story telling.

Digital technology is important but active participant and presentation of teacher is very important it's not substitution of living teacher it is a supplementary tool.

Practical and live teaching experience is most important thing while daily teaching there is no option to these experiences

Teacher must be update and take active participation in searching new tools and technology and awareness of its uses.

Each and every time it's not need to use readymade educational materials teacher should prepare E Content as per student's requirement and locality for that

teacher must attend CPD workshops and ICT workshops government and school authorities must provide them these opportunity and platform for teachers and give them motivation for progress.

In short we can say digital technology is very essential in education but while using this technology and ICT parents and community support play very important role it is a pathway of progress and quality education with proper awareness. Its empowering parents teachers to empower their students.

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## 6. Use of ICT for Viewing Learners from different dimensions

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### **Abstract**

**Each individual is different in various aspects of their life which includes physical, social, Intellectual and emotional as well. They have different needs as differences present among them, but it is not paid due attention in our education system. They all are considered as same pearls of a single necklace. It is very important for teacher to know the individual difference present in students. If it is not paid attention, child gets deviates from the regular teaching learning process. Teacher should understand the intelligence of each child and accordingly teacher has to use various methods, techniques and approaches in his/her teaching process. There are various ways of serving different learners with the use of group learning methods, task based methods, activities based method etc. These all together encompasses elements of Cooperative learning, and help them in constructivism of knowledge. In this article presented theoretical perspective of Cooperative learning and its benefits in the classroom learning by using ICT.**

**Key Words: Individual Difference, Cooperative Learning, Constructivism, ICT**

### **Introduction**

The use of ICT improves learning process, engages students in the learning process. Today we live in the post modern world. India has made tremendous progress in the field of science and technology. They should be well trained and they should have soft skills. Teaching methodologies that combine traditional along with ICT based teaching learning can make students employable. Next generation student show a low

level of interest in traditional teaching methods They depend heavily on computer technology for seeking information and learning process.

In present education system learners are viewed as possessing single learning style or intelligence but in reality they are not exposed to other styles of learning which makes them recognised in other dimensions too. Exposing learner to single learning style restricts the development of students and also makes them stick to the use of single intelligence. To explore their skills and to make them globally competent, it is important to expand their potentialities and their intelligence in all dimensions. Learners do not possess only the quotient of intellect but they also have intelligence to deal with emotional imbalance or with social interactions effectively. If learners are provided with such opportunities where they develop other intelligence also then it would not be difficult for any learner to make their recognition in the society. There has been improvement in the field of information technology, e-journals are new ideology and boon to the documentation system of libraries. The features e-journal are easy access, time saving and economical with better efficiency.

Initial concept of intelligence presented that learner possess a single intelligence which deals with the cognitive domain but now in the modern concept learners are not viewed only for their cognitive ability but also for their intelligence in various dimensions like interpersonal relationship, ability to recognise natural entities, creative ability and many more. With this concept, one of the psychologists, Dr. Howard Gardner has given the theory of Multiple Intelligence where each learner is viewed for his innate intelligence and then enhancing the level of possessed intelligence

through environmental exposure in teaching learning. This theory has its practical applicability in school where with the acceptance of this concept learners are developed as a whole individual which leads to the attainment of the major goal of our education system i.e. Overall Development of Learners. Many schools adopted Continuous and Comprehensive Evaluation to reach to the goal but without making them experienced for such environment how can we evaluate their performance. Every child is a star with some or the many hidden abilities; the role of education is to bring it out so this is one way of knowing learners with different perspectives.

Now a day's people are talking about various pedagogical approaches and techniques to cater students' need, in which participatory approach and constructivist approach has taken core area of application. Cooperative learning is also a way to reach out to the constructivism. There are basically three learning situations which can be designed within a classroom- Individualistic learning, Competitive learning and Cooperative learning. In Indian education the individualistic and competitive learning situations are predominantly focused upon. In these situations students are made to learn individually and then subjected to competition within the four walls of the classroom. In such a scenario somewhere we are focusing only on academic success and not overall excellence. As of now when the focus is shifting towards child centered education and constructivism, educationists have started taking note of cooperative learning and its inclusion in the transactional process.

### **Theoretical Perspective and Classroom Implications**

Cooperative learning is a systematic pedagogical strategy in which small teams each with students of different levels of ability, use a variety of learning activities to improve their understanding of a subject. Each member of the team is responsible not only for learning what is taught but also for helping the team learn, thus creating an atmosphere of achievement. Students work through the assignment until all group

members successfully understand and complete it. In cooperative learning, it is believed that learning best occurs through reflecting inquiry with others who help the learner negotiate his or her own degree of potential under the best condition. In cooperative learning setting, students are encouraged to discuss challenging tasks and take part in problem solving activities in well-designed heterogeneous teams with the intention of subjecting them to diverse ideas and thus developing in them habits of minds such as objectivity and critical thinking. Cooperative learning makes students not only learn through experience but to feel and internalize different solutions and strategies for facing and tackling problems in well-designed meaningful contexts set by the teacher who plays the role of an integrative rather than dominating teacher. Cooperative setting helps students feel more value in comparison with the situation in traditional systems of teaching. They have the liberty to form their teams, assign one another roles, assess their partner, and even in some methods of cooperative learning negotiate the course objectives with teachers. Students are provided with different challenging activities, which encourage them to learn different solutions to the problem at hand via critical thinking in a meaningful and reciprocal interaction. They also have opportunities to feel and enjoy the results of their shared learning in class wide discussion.

In the ideal classroom all the three learning patterns i.e. Competitive, Individualistic and Cooperative learning should be appropriately used. All students should learn how to work cooperatively with others, compete for fun and enjoyment and work on their own. No aspects of teaching are more important than the appropriate use of different learning patterns. But, unfortunately, most students perceived school as predominantly competitive enterprises as for the past half century, competitive and individualistic learning patterns have dominated our education system. Competitive and individualistic learning situations instill in learners such value systems which form a part of the hidden curriculum beneath the surface of school life i.e. when students are exposed to such learning,

the unknowingly, indirectly, involuntary acquired such values which are not a part of real school curriculum to be followed for the all-round development of the students.

Whenever students engaged in competitive efforts for the example, they learn the value of Commitment to getting more than others. In such type of learning Success depends on beating, defeating and getting more than other people, what is important is winning, not mastery or excellence. Students were thought that others are a threat to one's success. The values which students inherently learn when they are exposed to Individualistic experiences are Commitment to one's own self-interest. For such type of students success depends on one's own efforts. The pleasure of succeeding is personal and relevant to only oneself.

In contrast to these, the values inherently taught by cooperative efforts are commitment to own and other's success and well-being as well as to the common good. Success depends on joint efforts to achieve mutual goals. Facilitating, promoting and encouraging the success of others is a natural way of life. They thought the potential of other as a contributor to one's success.

#### **Fundamental Applications of Computers:**

1. Whether I am able to perform various fundamental computer applications efficiently: How does it help me?
2. How does it benefit in my cause?
3. Applications of computers for self-learning:
4. Applications of computers for peer group learning
5. Applications of computers for evaluation:
6. Applications of computers for research activities:
7. Applications of computers for co-curricular purposes:
8. Applications of computers for extension activities
9. The new things I learnt about computer applications in the current year:
10. How do I see myself as a user of computers in

my profession and scope for improvement?

#### **(REFLECTIONS)**

Above all about the use of computer if we apply for Cooperative learning with all the essential ingredients that can bring about a qualitative change in education because it is based on new paradigm of teaching which considered that knowledge is constructed, discovered, transformed and extended by students. Education is a personal transaction among students and between teachers and students as they work together and that teacher efforts are aimed at developing students' competencies and talents. It assumes teaching to be a complex application of theory and research.

Hence, it equally takes into consideration the cognitive as well as the affective domains of learning. It lays emphasis on the mastery of knowledge, comprehension, application analysis synthesis and evaluation of materials under cognitive domain as well as takes into account all the five major categories of affective domain which includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivation and attitudes.

The importance of cooperative learning goes much beyond maximizing outcomes such as achievement, positive attitudes towards subject areas, and the ability to think critically, although these are worthwhile outcomes. The elements of cooperative learning viz. teamwork through positive interdependence, communication, effective coordination, and division of labour by exhibiting individual accountability are keystone which characterizes most real life setting. The same is true about our school as school is considered to be a miniature society.

It is time for schools to reflect the reality of adult life. Incorporating cooperative learning experiences in the classroom will both reinforce the skills necessary to cope with future courses and provide students with the qualifications that will make them employable.

#### **As the Chinese proverb suggests:**

“When I here I forget, when I see I remember, When I do I learn”

Adults and children learn by “doing” and it makes sense that instructor need to offer opportunities for students to participate in cooperative learning tasks. If we learn with computer web based internet then it is more beneficial in real context of 21st century.

### Conclusion

One way in which educators could expand the amount of time learners are exposed to cooperative learning would be to implement it in the each class for a full year or any other learning area to allow time for the positive effects to become more noticeable. Another and likely more effective approach would be for the Education Department to implement cooperative learning programmes in schools by inviting schools to participate in pilot projects and by organizing workshops for teachers to conduct cooperative learning in their schools.

Furthermore, in large classes it is often better to group the learners due to financial constraints, and lack of learning material. The key is to change the educational culture as a whole so that cooperative learning becomes the norm for all learners in all learning areas. The result would undoubtedly have a ripple effect beyond the walls of the school itself for example adolescents usually spend a lot of their free time with friends.

Usually they learn to get along. In learning, team building can occur. This is an important social aspect needed to get tasks accomplished. Each day in business and industry, people are required to work together to

get the job done. All too often the task is too large for a single individual to accomplish. Therefore, cooperative team building can have positive effects in school, but also build cooperative skills that will assist the learner later in life.

There is a shift of focus from teaching to learning because of ICT. Students can learn the content through self-study. Online learning courses, situational learning and programmed learning are some of the examples of self-learning strategies.

In a crowded class the teacher cannot consider the need of every student in the class. ICT can meet this challenge by catering to individual needs of the students as per their interest and capabilities

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## 7. ROLE OF ICT IN SCHOOL CURRICULUM: TEACHING AND LEARNING

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### **Abstract:**

Teaching is becoming one of the most challenging professions in our society where knowledge is expanding rapidly and much of it is available to students as well as teachers at the same time. Modern developments of innovative technologies have provided new possibilities to teaching professions, but at the same time have placed more demands on teachers and students to use these new technologies in the teaching and learning process.

*Key words: ICT, Teaching and Learning Process, Education.*

### **Introduction:**

Teaching is becoming one of the most challenging professions in our society today where knowledge is expanding so rapidly that modern technologies demand the use of Information and Communication Technology (ICT). ICT has become within a short time one of the basic building blocks of a modern society. Many countries now regard understanding ICT and mastering its basic concepts as part of the core of education.

### **Role of ICT in Education:**

□ ICT has become a very important part of the educational delivery and management processes. ICT to a great extent facilitates the acquisition and absorption of knowledge, and hence can provide extraordinary opportunities to developing countries for enhancing their educational systems particularly for the underprivileged constituency, and thereby for raising the level of quality of life of their people.

□ ICT is changing processes of teaching and learning by

adding elements of vitality to learning environments including virtual environments for the purpose.

□ New technologies make it possible for complicated collaborative activities of teaching and learning by dividing it in space and time, with seamless connectivity between them.

□ Due to its capability to offer anytime and anywhere, access to remote learning resources.

□ ICT offers educational opportunities, both to previously underserved constituencies including persons with disabilities. It helps disabled students in reading, writing, hearing and seeing process.

□ ICT is not single technology but combination of hardware, software, multimedia, and delivery systems.

□ Today, ICT in education encompasses a great range of rapidly evolving technologies such as desktop, notebook, and handheld computers, digital cameras, local area networking, Bluetooth, the Internet, cloud computing, the World Wide Web, streaming, and DVDs; and applications such as word processors, spreadsheets, tutorials, simulations, email, digital libraries, computer-mediated conferencing, videoconferencing, virtual environment, simulator, emulator etc.

□ ICT is playing very important role in communicating with peers, thereby promoting collaborative and social learning environment.

□ The use of ICT will not only enhance learning environments but also prepare next generation for future lives and careers.

□ ICTs also allow for the creation of digital resources like digital libraries where the students, teachers and professionals can access research material and course material from any place at any time.

□ ICT eliminates geographical barriers as learners can log

on from any place.

□ ICT may also make complex processes easier to understand through simulations that, again, contribute to authentic learning environments.

### **ICT in Teaching Learning Process:**

It is the skill and attitude of the students and teachers that determines the effectiveness of technology integration into the curriculum (Bitner & Bitner, 2002). Once teachers and students developed skills, they could begin to find ways to integrate technology into the teaching and learning process and demonstrate its use to others. If learning was the impetus that drove the use of technology in the school, teachers and students could be partners in the learning process, altering traditional paradigms of the teacher providing wisdom and the student absorbing knowledge. Motivation to endure the frustration and turmoil of the process of change needed to be intrinsic.

ICT if used positively enhances learning processes and outcomes. Findings assert that both the learning environment and curriculum pedagogy and content are central to the effective use of ICT. However, teachers and students need to be confident in their subject knowledge as well as in basic ICT literacy's so that they can effectively integrate ICT into teaching and learning programmes. A large number of studies have found that students are often more engaged and motivated to learn when using relevant ICT to support specific intentional learning.

What students generally do on the way to becoming computer literate is how to memorize the components of ICT and their functions. It is a mistake to believe that if students can memorize the hardware parts and software then they will understand and be able to use them. Learners do not acquire a repertoire of learning strategies for successfully accomplishing different kinds of learning tasks. Too often, they apply a memorization strategy and when that fails to work they lack alternative strategies to employ. This is especially problematic with ICT, for which memorization strategies simply do not work. The researcher believes that the most pandemic, yet most insidious, cause for underachievement in ICT is lower expectations on the part of lecturers, which reduces expectations of students and the entire educational system.

The integration of ICT with teaching and learning has produced some of the significant positive gains in learners' knowledge, skills and attitudes by providing the following key advantages:

- 1) Explore and represent information dynamically and in many forms
- 2) Become socially aware and more confident
- 3) Increase motivation
- 4) Communicate effectively about complex processes
- 5) Develop better understanding and broader view of processes and systems
- 6) Greater problem solving and critical thinking skills.

### **Conclusion:**

A number of studies have shown benefits from the use of ICT in education. The role of ICT in education is vital, and the question is no longer if ICT enhances learning, but rather how do we improve our use of ICT to enhance learning? Despite the fact that today's learners are digital natives, the use of technology for e-learning can be overwhelming and provide student motivation challenges however, with the proper supports from instructors, learners can be successful within these ICT & e-learning environments.

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## 8. Use ICT in subjects teaching by primary school teachers in Kolhapur.

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### Introduction:-

The use of information and Communications Technology (ICT) in education is relative new phenomenon, educators, researchers and thinkers have taken up the challenges of using ICT since the 1980s with varied success. The advent of the internet and the world wide web has pressured new productivity and service demands as well as expectation on these endeavors although research to guide best practice remains scant and elusive. The brief history of ICT raises a number of issues that provide options for thinking about the future and the pathways that ICT may take in an education context.

### ICT trends :-

The trends of ICT in India, it is almost impossible not to focus globally because of the reach of the internet and its services like the www. The development of social web and its various such as relational networking, personal networking and social networking all have ICT in common.

Today's age is related to ICT. So it is used in Education, ICT is an effective tool in supporting teaching and learning process. The primary school does by itself improve the quality of education, but emphasizing teacher development as the key to effectively implementing educational policies and curriculum to using ICT to enhance teaching and learning quality and standard. Effectively introducing ICT into school is also largely dependent upon the availability and accessibility of ICT resources. ICT provides facilities for e-learning, e-books, audio and video conferencing with the help of Internet. ICT is

compulsory paper in syllabus of B.Ed. curriculum.

So researchers want to know present situation and facilities available related to ICT, to study present situation of use of ICT by primary teachers and problems in use of ICT in teaching learning process. Now the title of mathematics subject is science and Technology. So teachers must be aware of use of ICT in their day to day teaching learning process. So researcher suggests remedies to overcome these problems. The purpose of this paper is to know present situation of use of ICT by primary teachers.

### Significance of Research :-

The present research will create new attitude towards ICT among the primary school teachers amongst students is essential for success in life. Result of this research is useful for teacher educators to know the present situation of ICT in primary education.

### Scope :-

Present research is study of use of ICT in teaching by primary teachers. This study is related to all Marathi medium primary school scope at present research is bound to use ICT in teaching by primary teachers. Present research is related to all Marathi medium primary school in Kolhapur municipal.

### Objectives of Research Study :-

- 1) To know the present situation of ICT in teaching of primary school subjects.
- 2) To study present situation of use of ICT by primary teachers in teaching.
- 3) To study problems in use of ICT in teaching

various subject.

4) To suggest remedies in use of ICT in classroom teaching.

### **Research methodology :-**

Many types of methods of research are used for researchers in the field of education. These method of educational research are classified on the basis of objective of research. The present study is survey method among the primary school teachers in Kolhapur city. Its main focus to elucidate the teachers, perceptions, competencies in ICT and its relationship with actual use of ICT in classroom teaching.

### **Sample :-**

Sampling is the fundamental process in the educational research for this study of research, researcher has randomly selected fifth primary school in Kolhapur city by lottery method for present research to 50 teachers of above various primary school in academic year 2018-2019 were selected purposively from Kolhapur city.

### **Data Collection Tools :-**

**Questionnaire and Interview was used for data collection.**

### **Analysis and Interpretation of data :-**

In any research after collecting related a data, results and conclusion are drawn on scientific base to draw conclusions according to objectives of the research problems. The data was analyzed using frequency distribution, percentage, tabulation, graph and mean as basic statistical measures. Total 30 questions are interested in this questionnaire. All the questions are related to use of ICT in teaching by primary teachers.

### **Conclusion :-**

1) Most of the primary schools having separate computer laboratory, But very few schools have interest facilities and availability of interest to

students.

2) Very few teachers of schools having E-mail ID.

3) Most of the teachers of primary schools have completed computer training.

4) Most of the teachers of primary schools have completed MSCIT course. Very few teachers have completed other course as DCM, DTM, ICT ADDCC etc.

5) Most of the teachers of primary schools are not using ICT for teaching.

6) Most of the teachers of schools are using mobiles and computers for interest.

7) Most of the mathematics science teachers of primary school are known about websites related to science.

8) Few of the maths and science teachers are using PPT for teaching and topic mostly Algebra, Geometry, Zoology, Botany etc.

9) Very few science teachers of schools are using social networking in science teaching.

10) Language, social science teachers did not use ICT aids in regular teaching, for drilling and for evaluation.

11) Ignorance of use of ICT and availability of Internet facilities in school, lack of time, lack of electricity are main difficulties in use of ICT in teaching.

### **Remedial measure :-**

About 90% teachers said that lesson and time planning is required, extra and effective training for development of ICT particles are required.

### **Recommendation :-**

1) Every school should develop well equipped completed lab.

2) Internet connection is compulsory for every school.

3) School must purchase the software related to various subjects.

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## 9. IMPACT OF ICT IN TEACHING AND LEARNING IN ORGANIC CHEMISTRY

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*Mandar Lele*

### **Abstract**

The purpose of this work is to equip chemistry educators with practical activities and logistical training to incorporate Information and Communication Technologies (ICT) into their chemistry curriculum. The current work presents a view of using and incorporating Information and Communication Technologies (ICT) into teaching and learning of chemistry. Studies that investigated students' ICT skills in chemistry in particular and in science in general established that ICT-based learning environment plays a significant role in education.

### **KEYWORDS**

**Science Education, Computer based teaching, Students Response, ICT in Education.**

### **Introduction:-**

India ranks 2nd in terms of population. India is also considered as young nation. But the major drawback in our country is its reach of education as well as inefficient use of technology. With the help of Information and Communication Technologies (ICT) in educational field we can increase the reach of communication as well as enhance the quality of education provided by including interesting facts, videos, animations and other audio as well as visual content. Using ICT, we can demonstrate a practical experiment at one location and broadcast it at various destinations. Also we could organize live as well as recorded sessions for any particular topic. We could take help of animations in order to demonstrate how a particular experiment is

conducted or how different elements attach to each other during a reaction to produce a new compound.

### **Objective:-**

The objective of this initiative is to increase the reach of education while maintaining quality of education provided and helping students to understand the concept in better way.

### **Experimental:-**

The experiment described below was conducted on a class of 35 students of HSC. Initially we implemented conventional method of teaching using blackboard. We then asked them few basic questions about the concept taught to them students being brilliant answered a few questions but it was concluded at the end of session that there were many parts where the students were confused. We then taught the same concept by including ICT factors like video, audio and animation to those students. The concept of SN11 and SN22 reactions were the main concepts where ICT components played major role in making students understand how the components bonded with each other and how the properties of compounds depend on what angle the components join each other.

We did same experiment while teaching Nitrogen testing experiment<sup>3</sup> from the syllabus. This reaction was quite confusing and difficult to understand for students in just theory. So we demonstrated Nitrogen Testing experiment in the lab. Even after demonstrating the reaction practically, students were still unable to understand the practical completely. So with the

help of animation we displayed how the gases produced, played important role in nitrogen detection.

**Result and Discussion:-**

**Tell me, I'll forget. Show me, I'll remember. Involve me, I'll understand.**

**- Philosopher Xunzi**

As the above quote states, the best results we got were when the concept was demonstrated to students and when they themselves did the experiment. Conventional method of teaching is good, but when any method is good, it does not mean that there is no scope for improvement. This logic applies here too, when the animated program was shown to students, they understood SN1 and SN2 mechanisms better resolving their doubts on their own.

Also, including ICT components, we could organize the session online as well as offline, resulting in drastically increasing the number of attendees and hence improving the reach of education at same time.

**Conclusion:-**

From recorded observation we conclude that teaching student by using ICT parameters such as video, audio, animation students understood the concepts in better way and even able to answer difficult questions ask on those topics.

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## 10. ICT integration in School Curriculum

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### **Abstract:-**

The schools today are no child's play. The stress on students is increasing as they are pushed by their peers and parents to perform better. An average student doesn't have the luxury to sit back and relax when he is continuously reminded that his whole life is depended on his school grades. As the concern to gain a higher percentile is increasing, so is the physical and mental strain on the students. The student have to carry more and heavier books than ever before. They have to learn and retain the study material as efficiently as possible. In order to achieve these goals, one has to introduce new learning techniques into the school curriculum. ICT can be that learning technique, that boost which is required to ease some of the burden from students' shoulders.

**Key word:-** ICT, integration, School Curriculum

### **Introduction:**

The schools today are no child's play. The stress on students is increasing as they are pushed by their peers and parents to perform better. An average student doesn't have the luxury to sit back and relax when he is continuously reminded that his whole life is depended on his school grades. As the concern to gain a higher percentile is increasing, so is the physical and mental strain on the students. The student have to carry more and heavier books than ever before. They have to learn and retain the study material as efficiently as possible. To do that, they need to develop higher order thinking skills. In order to achieve these goals, one has

to introduce new learning techniques into the school curriculum. ICT can be that learning technique, that boost which is required to ease some of the burden from students' shoulders.

ICT, or information and communications technology (or technologies), is the infrastructure and components that enable modern computing.

Although there is no single, universal definition of ICT, the term is generally accepted to mean all devices, networking components, applications and systems that combined allow people and organizations (i.e., businesses, nonprofit agencies, governments and criminal enterprises) to interact in the digital world.

The list of ICT components is exhaustive, and it continues to grow. Some components, such as computers and telephones, have existed for decades. Others, such as smartphones, digital TVs and robots, are more recent entries.

ICT commonly means more than its list of components, though. It also encompasses the application of all those various components. It's here that the real potential, power and danger of ICT can be found.

### **Ways of implementing ICT in classrooms:**

Of the several ways of implementing ICT in classrooms, some are as follows:

❑ One laptop per child: Less expensive laptops have been designed for use in school on a 1:1 basis with features like lower power consumption, a low cost operating system, and special re-programming and mesh network functions. Despite efforts to reduce

costs, however, providing one

### **laptop per child may be too costly for some developing countries.**

❑ Tablets: Tablets are small personal computers with a touch screen, allowing input without a keyboard or mouse. Inexpensive learning software (“apps”) can be downloaded onto tablets, making them a versatile tool for learning. The most effective apps develop higher order thinking skills and provide creative and individualized options for students to express their understandings.

❑ Interactive White Boards or Smart Boards: Interactive white boards allow projected computer images to be displayed, manipulated, dragged, clicked, or copied. Simultaneously, handwritten notes can be taken on the board and saved for later use. Interactive white boards are associated with whole-class instruction rather than student-centred activities. Student engagement is generally higher when ICT is available for student use throughout the classroom.

❑ E-readers: E-readers are electronic devices that can hold hundreds of books in digital form, and they are increasingly utilized in the delivery of reading material. Students—both skilled readers and reluctant readers—have had positive responses to the use of e-readers for independent reading. Features of e-readers that can contribute to positive use include their portability and long battery life, response to text, and the ability to define unknown words. Additionally, many classic book titles are available for free in e-book form.

❑ Flipped Classrooms: The flipped classroom model, involving lecture and practice at home via computer-guided instruction and interactive learning activities in class, can allow for an expanded curriculum. There is little investigation on the student learning outcomes of flipped classrooms. Student perceptions about flipped classrooms are mixed, but generally positive, as they prefer the cooperative learning activities in class over lecture.

### **Factors to Consider:**

**Digital Divide:** The digital divide refers to disparities of digital media and internet access both within and across countries, as well as the gap between people with and without the digital literacy and skills to utilize media and internet. The digital divide both creates and reinforces socio-economic inequalities of the world’s poorest people. Policies need to intentionally bridge this divide to bring media, internet, and digital literacy to all students, not just those who are easiest to reach.

**Minority language groups:** Students whose mother tongue is different from the official language of instruction are less likely to have computers and internet connections at home than students from the majority. There is also less material available to them online in their own language, putting them at a disadvantage in comparison to their majority peers who gather information, prepare talks and papers, and communicate more using ICT.

Yet ICT tools can also help improve the skills of minority language students—especially in learning the official language of instruction—through features such as automatic speech recognition, the availability of authentic audio-visual materials, and chat functions.

**Students with different styles of learning:** ICT can provide diverse options for taking in and processing information, making sense of ideas, and expressing learning. Students learn best through visual and tactile modalities, and ICT can help these students ‘experience’ the information instead of just reading and hearing it. Mobile devices can also offer programmes (“apps”) that provide extra support to students with special needs, with features such as simplified screens and instructions, consistent placement of menus and control features, graphics combined with text, audio feedback, ability to set pace and level of difficulty, appropriate and unambiguous feedback, and easy error correction.

### **Conclusion:**

ICT is something that should not be ignored but embraced by the school curriculum. It has already permeated our society, we should look towards new ways of using ICT to solve classroom problems.

## 11. Role of ICT in Promoting Professional Development

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### **Introduction :**

We are living digital world and technology is embedded in every facet of our lives. There is no denying the fact that information and communication technology has significantly impacted the field of education.

ICT is used to conduct online professional development, which are very interactive. Professional development is very essential need in the profession of teaching. It strengthen teachers' teaching performance level ICT helps teachers to improve their teaching learning process. Because of ICT outside resources come to class and students go outside the classroom. Technology allows engagement, review and especially assessment in border, deeper ways.

Teacher professional development is a key factor to successful integration of computers into classroom teaching. Several studies have revealed that whether beginner or experienced, ICT related training programs develop teacher competencies in computer use.

### **Objective of the Study :**

1. To understand the role of ICT in professional development of teachers.
2. To explore the ways in which ICT is used by the teachers for professional development.

3. To explore the benefits drawn from ICT interaction for professional development of teachers.

4. To find out the professional development of teachers because of use of ICT.

### **Research Methodology :**

The nature of this research is descriptive. The present study is based on observation and interview.

### **Sample :**

A group of 50 teachers selected in which the researcher was involved. It was decided mutually that there should be use of ICT related to content, involvement of students, presentation for the content analysis and evaluation also.

### **Data Collection :**

The data collection for the study was basically using the techniques of participatory observation.

The use of notebook and video recording of teaching - learning process provides storage of data.

### **Findings :**

It underlines that the use of ICT become a successful for professional development.



There has to be a shift in the focus from being student centric to content centric.

The teachers agreed that it helped them to update themselves about the latest developments in the teaching field. It was also seen that, it needs proactive provocation to carry out reflective thinking. This is an essential aspect of professional development.

Teachers when given time to practice with the ICT, learn, share and collaborate peer, it is likely that, they will integrate technology into their teaching. It was found that most of teachers strongly agreed that ICT is necessary in teaching-learning process.

It has made it easy for the teachers to update teaching-learning materials by reading and learning more about the latest materials which improve their professional development.

#### **Conclusions :**

The rapid growth in ICT has brought remarkable changes in the twenty-first century, as well as effected teachers

professional development. The use of ICT in education have a positive impact on professional development. ICT provide the rich environment and motivation for teaching learning process which impact on teaching performance.

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## 12. 'USE OF I C T FOR TEACHING OF MATHEMATICS'- A STUDY

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### **ABSTRACT**

**Mathematics is an abstract science and it involves mans high cognitive power .Also Mathematics is a science of logical reasoning. For better understanding of Mathematical concepts and to maintain students interest in Mathematics, it is necessary to use ICT for teaching .Geogebra and virtual Manipulatiare useful software for teaching of Mathematics. So researcher selected 8 thstandard Mathematics book and analysed it's content. so that it is possible to use these softwares for these contents while teaching.**

### **Inrtoduction:-**

ICT stands for information and communication Technologies. Information and Communication Technology in education deals with use of Information and Communication technologies ( ICT ) with educational technology. ICT in education means implementing of its equipment in teaching and learning process as a media . If ICT is used creatively, can make big differences in the way teacher teach and students learn . ICT helps students to acquire 21st century skills like digital literacy, creativity and effective communication .ICT can transform the nature of education where and how learning takes place .ICT transform the role of education, role of students and teacher in the learning process.

Use of ICT in Mathematics teaching is need of hour because Mathematics is an abstract Science. Mathematics involves mans high cognitive power . Mathematics is a science of logical reasoning. NCERT has recommended computer Mathematics from class 1st to class 12th. .Main reason is that all individuals are prepared to enter the 'world of work ' with adequate knowledge of computer Mathematics. In Mathematics to arouse and maintain student's interest is a difficult job for teacher .students as a rule readily become interested in things which are new and exciting for which they can perceive practical value. For better understanding of Mathematical concepts and to sustain interest in Mathematics teacher can use ICT for teaching .

### **Need of the study:**

The important task of the Mathematics teacher is to create and maintain interest among students. It is one of the most difficult problem faced by teachers of Mathematics. Students get attracted to the things which are new and exciting. In the today's world of Technology teacher should use resources from ICT for teaching of Mathematics. Geogebra and virtual Manipulatives are useful softwares for teaching of Mathematics. so researcher selected 8th standard Mathematics book and suggested for which content it is possible to use these

softwares.

### **Objectives:**

- 1) To study the Geogebra software used for teaching of Mathematics.
- 2) To study the use of Geogebra software for teaching concepts in the Textbook Of Mathematics of Standard 8.
- 3) To study virtual Manipulative software used for teaching of Mathematics.
- 4) To study the use of virtual Manipulative software for teaching content in the Textbook Of Mathematics of Standard 8.

### **Scope and limitations:—**

- 1) Present study is limited to 8th standard textbook of Mathematics.
- 2) The content in Mathematics textbook of 8th standard is studied with reference to the use of Geogebra and virtual Manipulatives softwares only.

Method:—in the present study content analysis technique is used .

Tool Used:—in the present study checklist is used as a tool of research

### **Data Analysis: -**

#### **Objective 1:--**

To study the Geogebra software used for teaching of Mathematics.

Geogebra is a dynamic Mathematics software that integrates Geometry , Algebra and

calculus. It runs on any platform that supports Java. It is intended for learning and teaching

Mathematics and Science from Primary School to university level. It's creator is Markus HohenWarter . He created software for primary and secondary school students.

It can be free downloaded from [www.geogebra.org](http://www.geogebra.org)

Geogebra.org . it was created to help students to gain

a better understanding of Mathematics. To explain Mathematical concepts Geogebra screen is divided into three sections.

1) Graphic View -is useful for Geometrical Constructions and graphs.

2) Algebra view – we can see Mathematical operations and equation in this section .

3) Input bar - Provides necessary information for Mathematical calculations and Geometrical construction .Using construction tool ,it is possible to solve any Geometrical example .Different

Geometrical Constructions like angle bisector, constructions of triangles , quadrilaterals,

circles can be done by using Geogebra. Geogebra is useful for explaining concepts of

segment, Parallel lines, perpendicular line etc .With the help of Geogebra , it is possible

to draw graph of equation and also to find mean, mode and median

**Objectives 2:—**To study the use of Geogebra software for teaching content in the Textbook Of Mathematics of Standard 8.

We can use Geogebra software for explaining following concepts from Mathematics text book of standard 8 .1) chapter 2 -Parallel lines and transversal

In this chapter concept of parallel lines ,properties of angles formed by two Parallel Lines,construction of parallel lines can be explained using Geogebra

**2) Chapter 4- Altitude and medians of**

triangle

concept and construction of altitude and median of a triangle can be explained by using Geogebra.

**3) Chapter 8—** Quadrilateral construction and types

construction of quadrilateral and types of quadrilateral can be explained by using Geogebra.

**4) Chapter 11—** Statistics

Calculation of mean can be done by using Geogebra.

**5) Chapter 13--** Congruence of triangles

Congruence of triangles can be taught by using Geogebra

**6) Chapter 15—** Area

For explaining formulae of areas of different Geometrical shapes Geogebra is useful.

**7) Chapter 17-Circle , chord ,and arc**

Concept of chord and arc and their properties can be explained by using Geogebra.

**Objective 3:—To study Virtual Manipulative software used for teaching of Mathematics.**

As Mathematics is an abstract science, it is very difficult for students to understand the concepts in Mathematics. A popular approach to help students understand abstract concepts in the use of concrete materials often referred to as Manipulatives. Manipulative help students and teachers concretely represent abstract Math concepts. They also enable students to link these concepts to prior knowledge. virtual Manipulatives are digital objects that resemble physical objects. We can manipulate them with mouse as the same way with real objects.

Many virtual Manipulatives are available for free online. Many Virtual Manipulatives

are described by lesson plans for teacher describing how to use them effectively in teaching Mathematics. virtual Manipulatives are often accompanied by usage instructions and hints to help students use them successfully.

**Objectives 4 :--**To study the use of virtual Manipulative software for teaching content in the Textbook Of Mathematics of Standard 8 .

We can use virtual Manipulative software for explaining following concepts from Mathematics textbook of Standard 8 .

**Chapter 16-** Surface area and volume  
In this chapter concept of cube and cuboid , their volume, concept of cylinder can be explained by using virtual Manipulatives .

Conclusions:- Geogebra and Virtual Manipulatives both are useful softwares for teaching and learning of Mathematics. Teacher can also use these softwares for 9<sup>th</sup> and 10<sup>th</sup> standards effectively. It is also helpful for college teachers and students .

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## 13. ICT in Methodology

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### **Introduction**

ICT stands for “Information Communication Technologies”. Information and communication technologies are an umbrella term that includes all technologies for the manipulation and communication of information. ICT considers all the uses of digital technology that already exists to help individuals, business and organization. It is difficult to define ICT because it is difficult to keep up the changes they happen so fast.

The Teaching Skills Initiative recognized that there was little point in putting computers in schools unless teachers were trained in their use. This initiative provided for teacher training in three distinct areas, namely ICT skills and awareness, professional skills development in ICT, and pedagogical skills development.

ICT enhance the teaching and learning environments. ICT enables self-paced learning through various tools such as assignment, computer etc. As a result of this the teaching learning enterprise has become more productive and meaningful. ICT helps facilitate the transaction between producers and users by keeping the students updated and enhancing teachers capacity and ability fostering a live contact between the teacher and the student through e-mail, chalk session, e-learning, web-based learning including internet, intranet, extranet, TV audio-video aids, CD-ROM. Edusat technology has become very powerful media for interactive participation of experts and learners and it reaches the unreachable. Emerging learning Technology (ELT) of blogging, Integrated Learning Modules, a pod cast, Wikis, Enhancement of Browsers, e-learning, M-learning, U-learning have

started making rapid strides in teaching learning processes.

ICT can be defined as the use of hardware and software for efficient management of information. ICT refers to the forms of technology that are used to transmit, store, create, share or exchange particular task.

A person from village also can refer the latest information and research everyday. • Television broadcast is one of the best communication media to educate students, farmers, sportsman. • The difficult experiments, advance surgery for medical students etc. can be viewed. • LCD projectors can be used for effective training. • The man power problem, the human mistakes can be avoided by on-line examination.

### **Positive Impact of ICT on Education.**

1. Ensures life long learning: Life long learning can be ensured by E-learning or E-Education

2. To enables distance learning : A teacher teaching his students through the use of ICT even though geographically dispersed.

3. We can access teaching materials and experts from all over the world.

4. We can consult to many experts by video conferencing.

5. It has the ability to perform impossible experiments by using stimulations.

6. Some of the impossible experiments in the field of medicine, engineering and industry can be performed easily with the help of ICT.

7. Possibility for students to have individual learning.

8. Man power problem and human problems can



be avoided by conducting online examinations.

9. The curriculum, information about text books, reference books and references are available using ICT.

### **Advantages of using ICT in lessons**

Increased commitment to learning works. It Enhanced enjoyment and interest in learning and the subject Enhanced sense of achievement in learning and pride in the work Increase in self-directed learning and independence Enhanced self-esteem leading to expectations of achieving goals. Getting a lot of information and ideas. Learning computer skills. It helps to analyzing information .

ICT can have on learners learning, including . Increased motivation to stay on-work, behave better and produce higher. It produce higher quality work. Learn more independently and at their own place .

Do things they cannot do using traditional methods and resources. Do more work and work more quickly Impact on Curriculum & Teachers Curriculum.

- Based on fixed content which students are required to learn and reproduce.
- Focuses on the skills needed to build and communicate knowledge.
- Goal oriented curricula and syllabuses can be changed according to learner's needs.

### **ICT for Teachers:**

That teacher's expertise in ICT was an important factor in its successful use in lessons the ways that teachers have their students use computers are certainly affected by their own level of technical expertise The representations of software of many non-specialist teachers are idiosyncratic, fragmentary and transient with imperfectly learnt links and false assumptions and that these teachers are concerned that the skills of their students are more advanced than their own. It is hardly surprising that teachers are reluctant to experiment with ICT if they are concerned that their students' knowledge is greater than their own. It is helpful for preparing

Lesson plans. • Make the Network of teachers. It also provide Pedagogical techniques and connect to the Information resources. The need for teachers to change their pedagogy.

### **Time saving and less expensive**

Incorporating ICT across the curriculum requires careful timetabling and cooperation among departments. Generally we point out that in science in particular, it may not be possible to move practical classes to ICT suites because of health and safety considerations or to site computers in science Laboratories because of space constraints. In other subjects, the times when the ICT suites are available may not suit the schemes of work planned by the teachers. Consequently, much more cross-curricular and departmental planning is required than most schools & colleges have been used to in the past.

### **Changing pedagogy**

□ Teachers have to accept that the widespread use of ICT in schools & colleges is having an impact on teaching pedagogy and requires a significant rethinking of approach. Two main teaching methods and their effect on the way in which ICT is used in lessons: □ traditional transmission instruction assumes that pupils will learn through teacher explanation or reading from texts. Skills are learnt through Practicing each skill in a sequence prescribed by the teacher. □ Constructivist instruction assumes that understanding comes from relating new ideas to the learner's prior beliefs. Skills acquisition comes in an unstructured way as new skills are used as required to solve practical problems. □ we concludes that when ICT is used in lessons, the constructivist approach is more likely to lead to successful outcomes. Furthermore, his study showed that teachers with the most constructivist philosophies tend to use computers more often and in a more challenging way both in their classrooms and as users themselves.

### **Pedagogy**

Introducing technology alone will not change the teaching and learning process

The existence of ICTs does not transform teacher practices in and of itself. However, ICTs can enable teachers to transform their teacher practices, given a set of enabling conditions. Teachers' pedagogical practices and reasoning influence their uses of ICT, and the nature of teacher ICT use impacts student achievement.

ICTs seen as tools to help teachers create more 'learner-centric' learning environments

In OECD countries, research consensus holds that the most effective uses of ICT are those in which the teacher, aided by ICTs, can challenge pupils' understanding and thinking, either through whole-class discussions and individual/small group work using ICTs. ICTs are seen as important tools to enable and support the move from traditional 'teacher-centric' teaching styles to more 'learner-centric' methods.

ICTs can be used to support change and to support/extend existing teaching practices

Pedagogical practices of teachers using ICT can range from only small enhancements of teaching practices using what are essentially traditional methods, to more fundamental changes in their approach to teaching. ICTs can be used to reinforce existing pedagogical practices as well as to change the way teachers and students interact.

Using ICTs as tools for information presentation is of mixed effectiveness

The use of ICTs as presentation tools (through overhead and LCD projectors, television, electronic whiteboards, guided "web-tours", where students simultaneously view the same resources on computer screens) is seen to be of mixed effectiveness. While it may promote class understanding of and discussion about difficult concepts (especially through the display of simulations), such uses of ICTs can re-enforce traditional pedagogical practices and divert focus

from the content of what is being discussed or displayed to the tool being utilized.

### **Conclusions :**

The overall conclusion who rightly challenges ICT is largely incompatible with the requirements of teaching. Under the right conditions – where teachers are personally comfortable and at least moderately skilled in using computers themselves, where the school's daily class schedule permits allocating time for students to use computers as part of class assignments, where enough equipment is available and convenient to permit computer activities to flow seamlessly alongside other learning tasks and where the teacher's personal philosophies support a student-center, constructivist pedagogy that incorporates collaborative projects partly defined by student interest – computers are clearly becoming a valuable and well-functioning instructional tool .

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## 14. Use of ICT in History Teaching

*By Dr. Sunita Londhe  
and  
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### **Abstract**

History subject is often associated with the traditional ways of teaching and learning. Therefore in this paper we shall highlight how aspects of Information, Communication and Technology (ICT) can be used as materials for History Teaching and Learning (T & L).

Teaching and Learning of History can use four techniques - (i) Tutorials, (ii) Exploration, (iii) Communications and (iv) Applications.

Usage of ICT in R & D also has an impact and challenge for us in terms of propaganda and onslaught of globalization, the ability to access information, lack of software and courseware, the history of teacher training issues, equal opportunity to access materials, and teaching-learning issues.

This paper examines the role of Information and Communication Technology in the Teaching and Learning of History in the Senior Secondary School.

ICT is a potential powerful enabling tool for effective teaching and learning. The paper argues that the central role of ICT is to provide additional strategies that can be used to address major educational challenges being faced by teachers and students of Secondary and Higher Secondary.

**Key words: ICT, History, Teaching, Learning, Education.**

### **INTRODUCTION**

In Today's life, each and every department has some touch of technology and Education

is no exception. The impact of ICT on various fields of human endeavours such as medicine, tourism, business, law, banking, engineering and architecture over two to three decades has been enormous. Control of these technologies due to their extension to all spheres of daily life (including education) are nowadays the key competencies.

Electronic learning systems allow many forms of learning and interaction, especially encouraging discussion between students and teachers and among students themselves. One could say that ICT in education is a system which is implemented through a systematic effort to modernize education, and there are efforts to develop the information in society.

Teachers can use technology to support learning humanities or sciences and other educational areas and disciplines. It is primarily educational content along with innovative, effective and quality teaching methods. The usage of ICT in teaching by itself does not have a direct positive impact on the process of education. If teachers integrate technology into daily teaching, then it acts as a catalyst to strengthen the active involvement of students in their own education. When the above conditions may be achieved, then definitely the usage of ICT will improve learning and teaching.

The usage of ICT in education at schools is not only tied to one specific subject. The biggest plus point becomes the interaction between students and teachers and to prevent the existing stereotypes in education. Students are no longer just passive listeners, but also have the opportunity

to shape the teaching and are actively involved in the process of education.

ICT has great potential to influence school key phenomenon in a school culture. Implementation of the technology thus significantly contributes to the development of schools. The key is therefore the integration of ICT into education programmes. Technology is often seen as something outside of the school but can continue to be seen as an integral part of the school.

The study of History does not only serve as bedrock for other disciplines but also furnishes man with the understanding of the process of change and continuity in human affairs. In fact, there is no discipline without history. The relevance of History in the school curriculum is enormous.

It promotes the habit of serious and critical examination of situations and ultimately offers opportunity for a special intellectual experience which sharpens the imagination and deepens one's knowledge about the developments of the society. It enables people to orient themselves amidst the bewildering currents of human diversity.

Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. With the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important.

### **A. Definition of ICT:**

ICT is an abbreviated term for Information Communication and Technology. It is difficult to give precise interpretation due to too rapid development of ICT. However, we will focus on three words behind ICT:

- Information
- Communication
- Technology

Although many methods can be used in teaching with the usage of ICT, let us consider

the following four techniques:

1. Tutorial
2. Exploration
3. Application
4. **Communication**

### **1. Tutorial:-**

By this method the teacher will explain carefully how to use computers and software available on CD ROM, hard disk or website .At the same time the students can use materials with guidance from teachers. The situation is made easier because of all the existing software using multimedia aspects.

The method is applicable when there are differences in the usage of ICT capabilities among the students or number of students in one class is large. Preparation of material through the courseware will be the solution for shortage of teachers, allowing various levels of training and to enable students with different abilities to test their ability according to the levels provided.

### **2 Exploratory system:-**

Exploratory learning website was introduced by Jack Thorpe and U.S. Department of Defence to train American troops in an operation. For this, provision of appropriate CD ROM or DVD ROM with History T & L apart from using the Internet were used. In the module provided, students are asked to make the questions and submit their findings. Students talk about that project and present the results through Power Point. Many discoveries have been made by students and found that they were very happy with the results of their survey.

By this method the students themselves decide the information and receive it through the medium of ICT. Hence the explanation is obviously very important that students use ICT to learn history.

This method is very suitable with constructive learning approach that emphasize on critical



thinking, problem solving, authentic learning experience and knowledge is constructed through social interaction.

### 3 Application :-

Internet is a huge source of information but not everything can be used as a source of valid information from the eyes of history. In fact, the same information can be interpreted in different ways by the author's website.

Aspect of 'bias', the political and economic propaganda can influence the interpretation of history. A valid search for history information is not an easy task.

Browser is a suitable search engine and widely used such as Internet Explorer, Mozilla Firefox and Netscape Navigator. All these browsers can store website accessibles (Bookmark). While searching on the internet will use search engines like Yahoo, Google, Mozilla firefox and others.

- Teacher lists the web address for the sought information.
- Prepare the list of questions that need to be resolved by searching information on the website.
- Students will present their findings.

The most significant deficiency in the implementation of ICT in teaching and learning of history in secondary and higher secondary school is that there is no information sharing aspects of the school or other institution in finding materials. Even if there are aspects of limited partnership in connection with the construction of examination questions or questions bank. ICT applications in history may involve use of Internet, E-Mail, CD ROMs, databases and **word processing**.

### 4 Communication:-

For communication aspects of the ICT, equipment is only produced when the source of history, teachers and students can receive, send and share a history of substance in a different

location. Communication is made in the form of Personal Computers (PCs), notebooks and mobile phones. Differences in the distance between resources, teachers and students are, or even across national borders and boundaries of time. Shared material can exist in the form:

1. Text
2. Graph
3. Audio
4. Video
5. Multiple modes of combination

### B. Teaching History:

Teaching is a highly complex activity. This is because teaching is a social practice that takes place in a specific context (time, place, culture, socio-political-economic situation etc.) and therefore reflects the values of that specific context. Factors that influence what is expected (or required) of teachers includes history and tradition, social views about the purpose of education, accepted theories about learning.

Several methods and techniques in teaching and learning of history have been proposed.

#### Among the proposed techniques are:

##### a) Lecture / Sermon :-

Traditionally teacher teaches to student on lecture basis (chalk and talk) but there is no use of any gadget like computer, projector or other IT equipment. Lecture means one big hall with students, teacher and blackboard. This is traditional approach of teaching. In 21st century this approach has been modified by ICT. Use of various ICT gadgets in teaching-learning method makes teaching-learning method most impactful.

##### b) Tell:-

In this method teacher can use various internet sites as well as applications like you tube to show



to students various topics. He can ask questions beforehand and ask students to find answers before using the application or ask questions later to evaluate what the students have learnt from the activity.

**c] Simulation:-**

Students experience the reality of the scenario and gather meaning from it. A simulation is a form of experiential learning. It is a strategy that fits well with the principles of Student-Centred and constructivist learning and teaching.

**d] Case Study:-**

Case study method is a powerful student-centered teaching strategy that imparts students with critical thinking, communication, and interpersonal skills.

(Davis & Wilcock). Working on cases requires students to research and evaluate multiple sources of data, fostering information literacy.

**e] Experiment:-**

The experimental method is usually taken to be the most scientific of all methods, the 'method of choice'. The main problem with all the non-experimental methods is the lack of control over the situation. An experiment is a study of cause and effect. It differs from non-experimental methods in that it involves the deliberate manipulation of one variable, while trying to keep all other variables constant.

**f] Brainstorming:-**

Brainstorming is a large or small group activity that encourages students to focus on a topic and contributes to the free flow of ideas.

1. The teacher may begin a brainstorming session by posing a question or a problem, or by introducing a topic.

2. Students then express possible answers, relevant words and ideas.

3. Contributions are accepted without criticism

or judgement and usually summarised on a whiteboard by the teacher or a scribe as the ideas are called out.

4. These ideas are then examined, usually in a open class discussion.

**g] Usage of Resources:-**

Sustainable development is a pattern of resource use, that aims to meet human needs while preserving the environment. Sustainable development means that we should exploit our resources carefully to meet our present requirement without compromising the ability of future generations to meet their own needs.

**h] Drills:-**

A drill is a classroom technique used to practise new language. It involves the teacher modelling a word or a sentence and the learners repeating it.

**INTEGRATING ICT WITH HISTORY  
TEACHING AND LEARNING:**

□□ Garrison and Anderson (2003) argue that the application of ICTs in the teaching-learning process can enhance the quality of education in several ways such as increasing learner motivation and engagement, facilitating the acquisition of basic skills, and enhancing teacher training.

□□ Since History is one of the major subjects being offered at both secondary and tertiary levels, its relevance and sustenance in the 21st century requires the adequate application of ICTs like video tapes, television and multimedia computer software that combine text, sound and colorful moving images which can be used to provide challenging and authentic content that will not only engage the student in the learning process but as well make learning concrete.

□□ Despite the encouragement of science subjects at the expense of arts subjects, the fact remains that the relevance of History in nation

building cannot be overemphasized. The study of History does not only serve as bedrock for other disciplines but also furnishes man with the understanding of the process of change and continuity in human affairs. In fact, there is no discipline without history.

□□ The role of ICT in the teaching and learning of History in the 21st century can be seen in four major angles, namely, the impact on teacher, learner and the image of history as a discipline.

### ADVANTAGES OF USING ICT IN HISTORY

Much has been written on the benefits of using ICT to develop pupils' skills in history, and numerous suggestions are made in the literature about how specific ICT applications can be used to develop specific history skills. Although robust academic research into this area is limited, the following benefits have been identified:

□ ICT can provide pupils and teachers with access to a wide range of historical source material which can be analysed in detail using readily available ICT tools.

□ ICT can help pupils develop historical enquiry skills, and help pupils realise the importance of these skills in the study of history.

□ ICT promotes collaboration between pupils, which in turn can help to develop historical thinking.

□ ICT can enable teachers to present historical materials in ways most suited to individual and personal needs.

□ ICT provides opportunities for the teaching of historical enquiry including the generation and

testing of historical hypotheses and problems as opposed to only learning historical facts.

□ ICT and multimedia fit well with the multi-source nature of history – they can give a 'total picture' and can allow pupils to integrate evidence into their work.

### EFFECTIVE USE OF ICT IN HISTORY TEACHING

□ Computer simulations allow complex historical processes to be represented in a more dynamic way, and allow students to gain a better understanding of how key decisions in history were affected by the environment and the pressure of time.

□ Teaching pupils to critically evaluate electronic sources of information and make judgements about their reliability.

□ Digital video can provide students with a model for gathering oral history before they conduct their own oral history interviews allowing them to develop and retain the required skills more effectively.

□□ Giving pupils projects that involve processing information online and presenting it through presentations and seminars.

□ The use of computer-mediated communications (CMC), including online discussion groups, allows teachers to identify misconceptions in pupil's historical thinking, which might not otherwise have been apparent in more structured classroom discussions.

□ Teachers can explain the family hierarchies of various Kings through flowchart.

□ Teachers can play interactive games with

students after a topic has been taught to evaluate how much students have understood.

□ Teacher can show documentaries and short films of various historical events and uprisings to make the topic easy and interesting for students to understand.

### CONCLUSION

The place of information and communication technology in education and training cannot be overemphasized. Its full integration in education helps to ensure quality education at various levels of education such as primary, secondary and higher secondary. Despite the fact that some educators do not support the introduction and adoption of ICT into the school curriculum, majority of educators strongly feel that ICT is the most valuable tool to overcome the problem being faced in the teaching-learning process.

ICT has become a major key tool in acquiring, processing and disseminating adequate knowledge especially in the secondary and higher secondary. In fact, its effective use has become an imperative tool for measuring development of a nation in the 21st century. Today, the academics are now being challenged by the rapidly growing new information technologies of multimedia, internet, worldwide web and other virtual computer technologies, which demand changes in the styles, attitudes and skill towards information handling and dissemination. The 21st centuries teacher must be tech savvy as well as presentable .

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As argued above, conventional teaching of History has emphasized content. Thus, contemporary settings are now favouring curricula that promote competency and performance which require appropriate use of ICTs. This is because ICT acts as a powerful agent that can change many of the educational practices.

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# 15. OCCUPATIONAL STRESS OF SECONDARY SCHOOLS TEACHERS IN RAIGAD DISTRICT

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## **Abstract**

Progress of nation and quality of education has good relation. Teachers are backbone of education system. Occupational stress is a serious work hazard which has the power to bring crisis on teachers in recent time. The major reason of occupational stress experienced is due to increase in work load, a hostel environment, large classes, delay and non payment of salaries.

**Key words:- Occupational Stress, Secondary Schools Teachers**

## **Introduction**

Progress of nation depends on the quality of Education in respective country. Quality of Education depends on physical and human resources available and optimum utilization of these resources. Teacher is most important human resource in this chain of progress. So it is important to know about factors affecting teacher progress. One of those factors is stress. Anything that poses a challenge or threat to our wellbeing is a stress. Stress may be positive or negative. Positive stress is important for progress of human being.

## **Teacher's Occupational Stress**

Teacher's stress on the other hand has been a topic of much discussion over the years. While the positive effect of stress is seen to be fruitful. Unproductive levels of stress might be harmful to teachers and can affect their teaching, personal lives and most importantly, their students. Teaching is a challenging task which can generate stress.

## **Need and significance of the study**

This study aims to find out occupational stress of secondary school teachers. Since various studies across the globe have referred that stress of faculty members affects their performance. This study tried to improve the quality of secondary school teachers in Raigad districts.

## **Importance of the study**

1. To know about occupational stress among secondary school teachers.

## **Statement of the problem**

The problem for research is therefore stated as follows:

Occupational Stress of Secondary Schools Teachers in Raigad District

Definition of the terms in the statement of the problem

In the statement of problem there are three terms, which are taken for sake of clarity and also for limiting scope of research. Operational definitions of terms in the statement of the problem are as follows.

## **Occupational Stress.**

“Occupational stress” is a major area of concern. It is a stress taken away to home from work place. ‘Occupational Stress’ indicates the pressure in job tension which may aggravate conflict in the family which is a clear evidence of a kind to carry over effect from work to home and back.”

### **Secondary Schools Teachers**

A person engaged in teaching profession in secondary school

Secondary Teacher :-The teacher who teaches to the students of Secondary section in school (9th & 10th std)

### **Raigad District**

Raigad is one district in Maharashtra.

### **Aim of research**

Occupational Stress of Secondary Schools Teachers in Raigad District

### **Objective**

To study the Occupational Stress of secondary school teachers in Raigad district.

### **Hypothesis**

Research hypothesis is a prediction or hypnotized relationship to be tested by scientific methods.

Ho: There is no significant relationship between Occupational Stress of Secondary Schools Teachers in Raigad District

### **Limitations of the study**

The purpose of the present investigation is to study the occupational stress of Secondary Schools Teachers in Raigad District.. Hence the appropriate sample for the study was the teachers of secondary school from Raigad District and the tool was administered on them .The data was collected by using the tools.

### **Research Design**

For the present study, Descriptive survey method is adopted.

Occupational stress level is calculated using occupational stress index

Raigad district is selected for the study

### **Sample of study**

The present study is conducted in Raigad district. 100 secondary school teachers are selected using simple random sampling.

### **Tools of the study**

Any device or instrument that helps in collection of data for measurement of individual difference is called a research tool. Here tool used is Occupational Stress Index and interview.

#### **Occupational Stress Index**

The data of the research is collected with the help of the occupational stress among secondary school teachers, a standardized scale developed by Dr. A K. Srivastava and Dr. A.P. Singh.

- This instrument is used for the study of occupational stress Index of secondary school teachers.
- The scale has 46 items each to be rated on the five point scale.
- out of 46 items, 28 are true keyed” and the balance 18 are “false keyed”.
- The items related to almost all relevant components of the job life which causes stress in some way or the other such as role-overload, role-ambiguity, role conflict group and political pressure, responsibility for persons, under participation, powerlessness, poor peer relationship, intrinsic impoverishment, low status, strenuous. working conditions and unprofitability.

### **Statistical analysis and interpretation**

The Data analysis was done in the following way.

Descriptive analysis :The descriptive analysis of data ascertains normality of the distribution.

The descriptive analysis included the measure of central tendency computed included mean (M) and corelation coefficient ‘r’

### **Data analysis and interpretation of data**

In this research 100 teachers of Raigad district have been selected. Marks were collected for calculating Mean, ‘co-relation coefficient r’, and Percentage. Conclusion is drawn according to the objectives.

#### **Interpretation of the data**

Objective no. 1 :

To study the occupational stress among secondary school teachers in Raigad district .

Researcher used the ‘Occupational Stress Index (OSI)



test to collect the information related with teacher’s occupational stress. It has shown in the following table

**Table no. 4.1.**

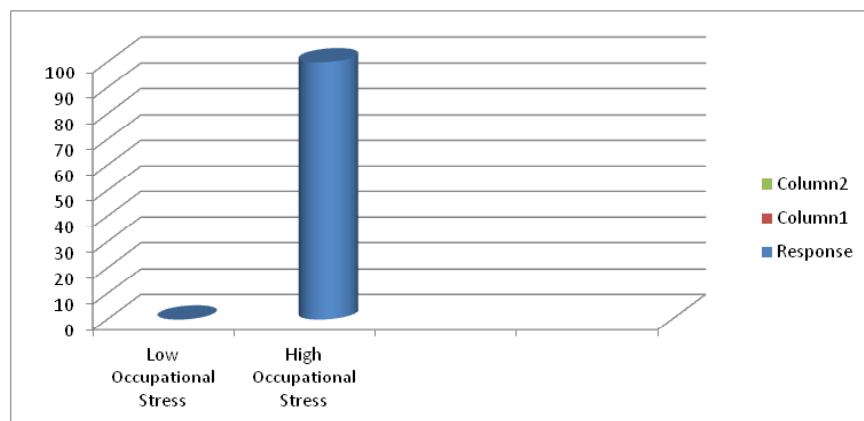
Sr. No	Level of Occupational Stress	Response	Percentage (%)
1	Low Occupational Stress	00	0%
2	High Occupational Stress	100	100
	Total	100	

**Level of occupational stress among secondary school teachers in Raigad district**

The following figure shows the level of occupational stress among secondary school teachers in Raigad district

**Graph 1**

**Graph showing occupational stress among secondary school teachers in Raigad district.**



**Interpretation**

- from above Table and Figure No 1 we have seen that all most 100 (100%) Teachers are having High Level Occupational Stress.
- Teachers are not happy with their occupation. They

should be provided practical training in human relations to achieve good rapport with their colleagues.

**Findings**

From the above Table No 4.1.5.1 it is shown that the mean of Occupational Stress is 171.14 which is very high.

**Conclusion**

1. all Teachers are having High Level Occupational Stress correlated with the intention to quit teaching.
2. For an individual any environment has a certain degree of stress, though of varying duration, when stress is sustained for a long period of time, the problem becomes significant.
3. Sometimes people entres in wrong job which adds to high occupational stress .
4. Beside teaching, teacher has to conduct so many cocurricular activities and need to keep record of all curricular and cocurricular activities. keeping and conducting record of activities creates occupational stress.
5. The major reason of occupational stress experienced is due to increase in work load and family environment.
6. large classes and class control creates occupational stress.
7. Sometime delay payment of salaries create occupational stress.

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## 16. ICT IN RESEARCH.....IT'S NEAR REACH

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### INTRODUCTION

Information Communication Technology (ICT) is on the lips of every nation of earth because it brings innovation into information seeking and knowledge acquisition. The rapid development of Information and Communication Technology (ICT) is one of the most fascinating phenomena characterizing the Information Age. It is undeniable that, day by day researches and learning is being done by novel communication systems. Therefore, today's world is considered an informational literacy and digital worlds; using communication technology creates an added value that is the result of knowledge, creation and mental researches. The Increase demands of the researchers that seek long ways to accomplish knowledge, could be shortening with ICT. At present ICT are widely used for various purposes and almost every field, research field is one of them. In research work computers are not only used in searching information but also in analytical performing calculation computer have become one of the most useful research tools.

### WHAT IS ICT ?

Information and Communication Technologies (ICTs) are referred to as the varied collection of technological gear and resources which are made use of to communicate. They are also made use of to generate, distribute, collect and administer information. Information and Communication Technologies consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. ". Information and communication technology include computer, the internet broadcasting technology, radio and television all has contributed a lot in accelerating research and enhancing the quality of research. UNESCO has played a major role in spearheading the "Education for All "initiative to harness the potential of ICT. The widely subscribed Dakar

Framework for Action recognizes that, these technologies (ICTs) have great potential for knowledge dissemination, effective learning and the development of more efficient education services.

### ICT IN RESEARCH

Applications of ICTs are particularly powerful and uncontroversial in higher education's research function. Four areas are particularly important:

1. The steady increases in bandwidth and computing power available have made it possible to conduct complex calculations on large data sets.
2. Communication links make it possible for research teams to be spread across the world instead of concentrated in a single institution.
3. The combination of communications and digital libraries is equalizing access to academic resources
4. Taking full advantage of these trends to create new dynamics in research requires national policies for ICTs in higher education and the establishment of joint information systems linking all higher education institutions.

### The Role of ICT in Research

The application of ICTs in academic research has grown steadily in the past 10 to 15 years in both developing and developed countries, although there are wide variations in usage both within and between countries and regions. The most straightforward use of ICTs in research is in data processing. Three main Research areas 1) research data; 2) research tools and methods; and 3) data management, preservation and sharing.

In data analysis researchers are essentially concerned with huge storage of data, their faster retrieval when required and processing of data with the aid of various techniques. The use of ICT in research is of great help; they have reduced the human drudgery and added to the quality of research activity. They can perform many

complex statistical calculations easily and quickly. The different information are made available to the researchers by computers in no time. The storage facility can make use of stored up data whenever required to do so. The results obtained from the computer are generally correct and reliable. Although the ICT has provided all the research facility even then the ethical practice in maintaining the quality is required in avoiding the plagiarism.

#### **Electronic publishing and digital library Using research software:**

Important dimension of ICTs in research is the use of online full text databases and online research libraries/virtual libraries. These databases and libraries provide researchers with online access to the contents of hundreds of thousands of books from major publishing houses, research reports, and peer-reviewed articles in electric journals. With the increase of publications in scientific societies and maintenance problems and lack of space in libraries, electronic resources will help libraries and this caused libraries to have access to a lot of information. Until a few years ago electronic publishing use computers for facilitating and accelerating paper publication but now with concretizing concepts such as electronic magazine, book and also databases, final electronic products enter the scientific society. Now information technology moves gradually toward producing the book itself and documents, and creating electronic book and consequently creating electronic library has been possible.

Currently, in libraries basic services such as collecting, data recovery and providing service for users is done with automatic tools. Some libraries are actually moving toward electronic libraries. These libraries scan resources and change them to electronic resources, doing that will assist them to have digital library and by World Wide Web they provide IJCSNS International Journal of Computer Science and Network Security, VOL.16 No.10, October 2016 95 public access to the collection of their library resources. With the spread of internet and having access to digital library via internet, users gain access to required information resources from everywhere in the world. Digital library and websites can be directly and

indirectly effective in strengthening the subject selection resources. By using research softwares and having access to electronic resources that are available on the web, better conditions are provided for making use of written, visual and audio resources In a scientific society. Libraries have a significant role in producing researcher's scientific information by providing required information resources.

#### **Advantages of using ICT in research:**

1. Universality: by using ICT achieving and referring to more resources will be possible and researchers could have a wide range of information.

2. Reducing time: high speed in searching, collecting and analyzing information are advantages of researching based on ICT. In addition to process speed and searching information, this technology prepares tools for depiction, transcription; compare edit and archiving information, which accelerate different stages of research.

3. Accuracy: even tiniest points and information don't remain hidden with the help of computer, which helps researchers to be safe from many common human errors and increases the accuracy of the research work

4. Discipline: organized structure and classification and archive features, some tools, planning and time management software in organizing the activities, notes and doing various stages of research is effective.

5. Motivation strengthening: attractions and various features of computer and Internet can be effective in strengthening researcher's motivation and reducing the researching tiredness.

6. Teamwork: communication facilities and the opportunity of using networks in this technology, provides proper conditions for organizational activities, large and group researches.

7. Durability: such good conditions that this technology provides for result storage, easy maintenance and low volume of information, increases durability of achievements and research results. Furthermore, this feature makes the bills and notes which are obtained during each research, to be used easily in the next researches.

8. Being multimedia: in researches that are done based on information technology, in addition to written

information, multimedia information could be used and increase efficiency and attraction of the study.

9. Easy publish: with ICT capacities and internet no more researchers wait for publisher or different institutes to publish and use their works and easily and without any cost they can publish every section of their research in world level and with unlimited editions. This feature can strengthen motivation and efforts of students and novices in the field of research and make their studies durable

10. Independency from time and location: various and many resources could be carried easily in every condition in the form of CD or any other memories; so, for conducting research and collecting information, researcher is less dependent on specific time and location.

11. Impossible works: ICT provides facilities and capabilities for researchers that we can say without this technology, achieving that is almost impossible. Comparative studies, various technical lists, statistical graphs, virtual experiments and basic searches are examples of these facilities.

12. Being Update. Using this technology will make the research up to date and in accordance with the latest information and scientific findings. It's really very easy updating and avoids duplication.

#### Summary:

From all over discussion it is clear that to make the research sustainable. It is very important to make the research survive and grow by adding value to it. Adding value of the research is the outcome of research that can provide value to some end users. Without value there is no future for the research and the activity of the research and sustainability of the research can be achieved by quality maintaining. ICT has great contribution making avail the e-journals access, e-libraries, all other information and new changing of the education pattern. ICT for the research builds the innovative capacity and inventiveness and to the development of the country. ICT has provided many tools for researchers. Researchers with the aid of search engine and scientific Web based search software can be choose their research subject more comfortable. Online Scientific databases and digital library provides researchers access to

research findings associated to their topic and also related works. And finally Tools such as online forums and virtual social networks have created a wide variety of facilities for researchers to communicate with each other and be aware of their scientific activities. The paper focused on the present role of digital technologies and their potential in research. It aimed to find out how various digital technologies are important in different research fields and what services and technologies researchers may need to support their work, now and in the future e research exists to support the advancement of research. By providing access to a suite of advanced technology solutions and services that are reliable, easy to use and secure,

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## 17. ICT in Education: Challenges and Measures

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### **Abstract**

**ICT stands for Information and Communication Technology. It is an umbrella term which refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. ICT is often studied in particular context of how modern communication technologies affect society such as ICTs in education, healthcare, or libraries. There is need to make use of ICT in education. This paper is an attempt to throw light on some aspects of ICT in education, ICT tools , ICT Approaches as well as challenges faced while using these ICT tools.**

**Key Words:ICT, ICTtools, Benefits , challenges and Measures**

### **Introduction**

ICT stands for Information and Communication Technology. It is an umbrella term which refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. It includes any communication device or application, encompassing radio, television, cellular phones, computers and network hardware and software, satellite systems etc. as well as various services and applications associated with them like video conferencing and distant learning.

In the past few decades, information and communication technologies have provided society with a vast array of new communication capabilities. For example, people can communicate in real-time

with others in different countries using technologies such as instant messaging, voice over IP (VoIP), and video-conferencing. Social networking websites like Facebook, Twitter, Instagram allow users from all over the world to remain in contact and communicate on a regular basis.

ICT is often studied in particular context of how modern communication technologies affect society such as ICTs in education, healthcare, or libraries. Hence, many countries in the world have established organizations for the promotion of ICTs.

### **ICT in Education**

Information and Communication Technologies in education refers to teaching and learning the subject matter with ICT. It enables understanding the functions and its effective use of information and communication technologies (ICTs). Effectiveness has improved by leveraging of newer sets of tools and methodologies/ approaches made possible by advances in technology.

### **ICTTools in Education**

Over the years, various ICT tools have been in use for education. Older technologies like radio and television have been in use for long time. However, with the advent of Computers and Internet, new innovative methods and tools have come to the fore for improvising education quality and scaling distances in both developed as well as developing nations.

**Education ICT tools can be broadly shown as below.**

- Tablet
- Personal Computer
- Application Software



- Visualizer
- Student response system
- Projector
- Displays, Monitors
- TVs
- Interactive Whiteboard
- Digital Recorder
- Digital Camera

In view of ICT, education can be classified in three main categories:

With newer tools and technologies available, newer approaches have come in practice e.g. E-learning, Distant learning etc

E-learning includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. E-learning can occur in or out of the classroom. It can be self-paced, asynchronous learning or may be instructor-led, synchronous learning.

Distance learning is a learning approach in which teacher and learner are separated in time or place and uses a variety of media, including print and electronic, to ensure a two-way communication that allows tutors and learners to interact.

### **Benefits of ICT in education**

ICT has benefitted all the stakeholders in one or the other way. It has benefitted in qualitative as well as quantitative form. The benefits are given below:

- **Student community :**

- 1) Easy and increased access
- 2) Flexibility of the content
- 3) 24\*7 access to the information
- 4) Learner centered approach and proceed as per once pace
- 5) New way of interaction with high quality of education

- **Teachers :**

- 1) Upgrading teaching skills

- 2) Enrichment and enhancement of knowledge
- 3) Quality teaching learning process, sharing expertise.
- 4) Developing a new work culture.
- 5) Orienting oneself about the new trends in research

**Source: UNESCO, 2002**

In absence of ICT, most of the responsibility of teaching and learning lies on the teachers. However, with the help of ICT one can transfer the responsibilities to the students so that they can self manage. It helps to individualize the teaching or guidance method as per the student's need. It also boosts the confidence level and the self-esteem of the students who acquire the ICT skills through the process of being exposed to such kind of learning also puts forth the view that ICT-based registration, evaluation, and administration help to link different levels of information and facilitate an overall view of the whole educational setup. It facilitates the evaluation and examination of the learning process and results by the students and the parent's in a flexible and convenient way. The globalization process has also created a large market of offshore students. To reach them, information technology is the only convenient medium, which can offer education as a service (Bhattacharya and Sharma, 2007). It increases education provision substantially and can contribute to mass education. It also creates competition among the institutions for providing education and hence improves the quality (Cross and Adam, 2007).

### **Potential Drawbacks-cum-Challenges to Using ICT in Education**

Though ICT holds the potential to transform the education system of a country to a great extent, its implementation in terms of developing countries remains a challenge to an extent.

#### **Significant challenges need to be overcome for integrating ICTs optimally into Education system.**

The biggest challenge for effective implementation of ICT in the schools is the high expenditure in the installation and running of the tools. Similarly there are some other challenges which are related to infrastructure

& financing, capacity-building, educational policies and planning etc.

1) Infrastructure challenges include availability of electricity, telephony, appropriate rooms/ buildings to house the technology, proper electrical wiring, ventilation, cooling/heating, safety & security.

2) Enhancing and reforming existing educational policies will need rigorous analysis of the present state and identity barriers and drivers to ICT use including those related to curriculum and pedagogy, infrastructure, capacity-building, language and content and financing.

#### **The four most common mistakes in introducing ICTs into teaching are**

- i) installing learning technology without reviewing student needs and content availability;
- ii) imposing technological systems from the top down without involving faculty and students;
- iii) using inappropriate content from other regions of the world without customizing it appropriately; and
- iv) Producing low quality content that has poor instructional design and is not adapted to the technology in use (UNESCO, 2009).

#### **Risks while using ICT:**

Although ICT offers a whole lot of benefits there are some risks of using ICT in education which have to be mitigated proper mechanisms. They are:

- It may create a digital divide within class as students who are more familiar with ICT will reap more benefits and learn faster than those who are not as technology savvy.
- It may shift the attention from the primary goal of the learning process to developing ICT skills, which is the secondary goal.
- It can affect the bonding process between the teacher and the student as ICT becomes a communication tool rather than face to face conversation and thus the transactional distance is increased.
- Also since not all teachers are experts with ICT they may be lax in updating the course content online

which can slow down the learning among students.

- The potential of plagiarism is high as student can copy information rather than learning and developing their own skills.
- There is a need for training all stakeholders in ICT.
- The cost of hardware and software can be very high.

#### **Measures:**

- 1) In order to use technology effectively, educators will also need to be trained in using technology and they need to develop a good understanding of it.
- 2) ICT awareness sessions to be conducted as well as enough training to be provided to teachers for using ICT in teaching learning process.
- 3) ICT enables the teaching fraternity like supporting new pedagogical methods, accessing remote resources, enabling collaboration, extending educational programs and developing skills for the workplace
- 4) Proper Usage of ICT tool at proper time will enhance learning process.
- 5) Public-private partnerships and user fees are important components of financing ICTs in education initiatives in many countries.

Hence, it will need clear and specific objectives, guidelines and time-bound targets, mobilization of required resources, and political commitment at all levels to achieve the goal.

#### **Conclusion**

ICT in education have vastly improvised education quality and also enabled reaching remote areas with availability of newer advanced tools and methods. However, more efforts will be required from all the stake holders to fully realize its potential. Educators need to be educated about technology. It is important to better understand the costs and benefits associated with different types of ICTs and their uses in various educational situations so that resources can be targeted effectively.

## 18. USE OF ICT IN MATHEMATICS

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### **ABSTRACT:**

**This discusses some very important points about how ICT embraces the student's creativity, enabling them to 'generate ideas rapidly' within subjects, such as Mathematics, that would not traditionally be through of as creative subject.**

**Choosing the right technical equipment for education is crucial for the use of Information and Communication Technology (ICT). This section provides information about the various technologies that can be used to get information, and it is also discussed in detail about what constraints the use of these technologies in Mathematics.**

### **INTRODUCTION:**

Information and Communication tools, especially computers and the Internet have been very helpful for students. With the help of computers and the Internet, teachers and students can go beyond the knowledge of books and learn new subjects related to their subjects as well as other topics, and can add to their knowledge. This has resulted in a new change of teacher-centric education system so far. Till now only the teachers imparted knowledge to the students, but now students can also find information using the internet and they can use it in the classroom. Hence, education system is gradually becoming more focused on the learner.

Now students can get information of their interest and study them in different ways, practice it in daily life events, and thereby help them to understand the subject more easily. With such methods, information and communication tools help to increase the interest of students in education and in various subjects such as science, environmental studies,

statistics, mathematics etc. rather than encouraging study methods.

Technology and Mathematics are correlated subjects of each other. Thus, information and communication tools help to create the role of communication and cooperation between students, teachers and experts. Moreover, these tools help identify people of different cultures, their culture, and spread the class of their knowledge. All of these are definitely beneficial for their future.

### **MEANING OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) :**

ICT stands for information and communication technology and can be defined as a communicative device or application. This includes radio, television, video, DVD, telephone, mobile phone, satellite based services and facilities, computers and related hardware and software. In addition to this, it includes techniques such as video conferencing, email and blog.

In Mathematics ICT includes digital technologies such as Calculators, Spreadsheets, GeoGebra, Dynamic Geometry Software, Computer Algebra and Graphic Software, Internet Activity, Search Engines, Presentation software (ppt), Hypermedia/Multimedia, Databases, Graphical applications, Simulation Programmes, Desktop Publishing, Flash Presentations, Java Applets Geometer's sketchpads, CD-ROMs that accompanied mathematics textbooks, Graphmatica, Maths Blaster, other Mathematics-specific software.

In order to understand the educational goals of the current "information age", it is necessary to include new forms of information and communication technology (ICT) in education.

To make this all effective, educational employers, headmasters, teachers and technicians should take several decisions in various fields such as training, technology, finance, education, communication, etc. This is a work for many people to learn a new language and learn to teach them to toil.

ICT includes everyone from the satellites connecting the countries, to the equipment used in the student's classroom. It is generally said by all the academics and researchers that the use of information and communication technology (ICT) can improve the quality of education in a remarkable and positive way.

#### **OBJECTIVES:**

- To improve teaching and learning methods.
- To build the course on basic principles of modern conception of education (e-learning).
- To know how to use ICT as a tool for designing new learning environments for their own subject-specific purposes to help their future students to use ICT.
- To develop and facilitate ICT-based learning activities in the context of teaching Mathematics.
- To analyse and evaluate appropriate content and context for the use of ICT in Mathematics teaching.
- To use appropriate and varied communication and multimedia tools (emails, websites etc) in teaching and learning Mathematics.
- To use ICT efficiently in research, problem solving and project-based learning in Mathematics.
- To use ICT efficiently for professional development in the context of teaching and learning Mathematics.
- To integrate ICT appropriately into Mathematics curriculum activities that will foster students ownership of their ICT-rich learning environment.

#### **ADVANTAGES OF ICT:**

ICT is very beneficial to teach Mathematics concepts within the classroom. The three main

reasons are

- Individualistic approach in teaching and learning
- Practical application of knowledge
- Enhancing creativity.

There are number of places where ICT is beneficial to assist students in knowledge and understanding.

ICT is a way in which teachers present and combine the technological knowledge, the pedagogical knowledge and content knowledge.

#### **For instance:**

- Teachers and students represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies
- Collect data, organise into categories and create displays using lists, tables, pictures, graphs with use of digital technologies.
- Teachers can explain the steps of the proof for any theorem.
- Using 3D effects students can visualise the exact shape/figure of the object.
- In mensuration using graphs students can easily calculate the area of the given figure.
- Using simulations different applications, the conceptual knowledge of trigonometry can be clarified.
- Showing YouTube clips anyone can explain the use of mathematics in day to day life.
- Using interactive whiteboards any concept or term can be explained at a time with showing video, image and its applications.
- Due to virtual lectures teachers can get same knowledge as well as queries regarding that can be solved.
- Missing or remedial lectures can be covered next day with A.V. lectures.
- During vacations or leisure time students can download notes or assignments, also solve the topic wise test and get assess from the teachers through some software applications.
- Formulate a conceptual framework to

integrate spreadsheet into the teaching and learning of Financial Mathematics.

### **BENEFITS:**

ICT promotes greater collaboration among students and encourages communication and the sharing of knowledge. ICT gives rapid and accurate feedbacks to students and this contributes towards positive motivation. It also allows them to focus on strategies and interpretations of answers rather than spend time on tedious computational calculations. ICT also supports constructivist pedagogy, wherein students use technology to explore and reach an understanding of mathematical concepts. This approach promotes higher order thinking and better problem solving strategies which are in line with the recommendations forwarded by the National Council of Teachers of Mathematics (NCTM); students would then use technology to concentrate on problem-solving processes rather than on calculations related to the problems (Ittigson & Zewe, 2003).

The study aimed at identifying the most common ICT applications used by these teachers and how ICT was used in the class. It also aimed at understanding how the Internet was used by teachers, analysed their training needs and further assessed the level of ICT usage in instructional programmes. The barriers faced by teachers during the integration of ICT into mathematics lessons and their perception of the usefulness of an e-portal were also investigated.

It is more important for students to be able to see how they can apply the knowledge in real world situations.

### **BARRIERS:**

According to one of the survey seven barriers existed while integrating ICT into lessons. These barriers are (i) lack of confidence among teachers during integration (21.2% responses), (ii) lack of access to resources (20.8%), (iii) lack of time

for the integration (16.4%), (iv) lack of effective training (15.0%), (v) facing technical problems while the software is in use (13.3%), (vi) lack of personal access during lesson preparation (4.9%) and (vii) the age of the teachers (1.8%)

A survey was conducted to study the barriers preventing the integration and adoption of information and communication technology (ICT) in teaching mathematics. Six major barriers were identified:

- lack of time in the school schedule for projects involving ICT,
- insufficient teacher training opportunities for ICT projects,
- inadequate technical support for these projects,
- lack of knowledge about ways to integrate ICT to enhance the curriculum,
- difficulty in integrating and using different ICT tools in a single lesson and
- unavailability of resources at home for the students to access the necessary educational materials.

To overcome some of these barriers, this paper proposes an e-portal for teaching mathematics. The e-portal consists of two modules: a resource repository and a lesson planner. The resource repository is a collection of mathematical tools, a question bank and other resources in digital form that can be used for teaching and learning mathematics. The lesson planner is a user friendly tool that can integrate resources from the repository for lesson planning.

### **TEACHING AND LEARNING MATHEMATICS THROUGH ICT :**

This collection of resources from the National Strategies includes resources for activities and lessons that make effective use of ICT in teaching and learning secondary mathematics.

Our society often talks that their kids at school are taught using old educational methods. It is boring



for kids and hence they lose interest in learning. New generation of kids are different – more provocative, intuitive, sensitive, mental, in some cases more aggressive than previous generations. That is what parents and teachers now see.

### CONCLUSIONS :

Therefore the aims of nowadays education demand to choose educational methods promoting active process of cognition that develop skills of learning, creative use of knowledge, skills of self-assessment, cooperation, indulgence to different points of view. Interactive educational methods help to realize those tasks and provide cooperation among teachers and students.

Our pedagogical experience for 20 years in secondary school, regular observation of students in lessons and out-of-lessons activities, teaching teachers as well as continuous contact with students draw us to conclusion that students interest to lessons of Maths raises if the lessons are organized by using interactive methods and ICT tools. Those forms of work promote better understanding of theme because they go “through the student”, they are not pressed from outside.

The research shows that technologies make learning environment alive and more attractive. We show the preferences of ICT methods in teaching math as well as show examples how interactive

educational methods and ICT tools are used in teaching Maths in schools in Latvia and how they promote teaching Mathematics.

Numerous ICT's allow the students to work at their own pace, within a task set by the teacher. By individualising learning, it will build students confidence, allow students to apply their knowledge more practically through ICT and also enables students to embrace their creativity in applying their knowledge.

Mathematics programs such as Mathseeds, Mathletics and ixl.com, allows the teacher to set learning objectives, as well as keep up to date with how the students are progressing with the content.

Programs like these allow the students to use higher order thinking skills (HOTS), such as Bloom's taxonomy.

This encourages students to do more than just recall knowledge, which in turns provides them with a deeper understanding of the content. These programs also encourage the students with rewards and incentives to keep them engaged.

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## 19. A Comparative Study of Academic Stress among Secondary School Students of Working and Non-Working Mothers

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### **Abstract:-**

**Secondary school students are facing with Academic stress. They are dealing with that stress either positively or they feel depressed. Academic stress is the major source of stress among secondary school students and it may lead to low self-esteem.**

**A progress of particular student's is based on his/her hard work as well as their parents support. Out of school going children some mothers are working and some are not. The main aim of this study is to find out, among working or non-working mothers which students are facing more academic stress. It's a comparative study between both type of mothers working mothers and non-working mothers of secondary school students.**

**Key words:- Academic Stress, Working Mothers, Non-Working Mothers**

### **Introduction**

The present era of technologies and competitions leads competition among children. Obstacles and barriers come in the way of fulfillment of needs causing stress and tensions in the minds of children. So, there is a great need of mental stability to overcome mental or academic stress. Sometime stress due to their academic burdens is also their . Children can overcome academic stress with the help of emotional stability and proper care, love

and affectionate attitude of parents. But some time children lack care of mothers due to their involvement in either house hold works or in job etc.

### **Need and Significance**

Since secondary school students continue to interact with their mother and alteration of family system. Adaptive parenting behavior would provide the children with the capacities to help themselves and to prevent them from developing emotional as well as academic problems. The researcher wants to know which students out of working mother's children or non-working mothers children face more academic stress,

Today curricular and co-curricular activities schedule may be more stressful for the students. Academic stress among secondary school student is different. Its degree may very due to working status mothers or busyness of mothers in their house hold works. secondary school student need love, care, and attention from both parents specially from mothers. The Researcher wants to compare and know which type of mothers pay more attention to their children's study and reduce their wards academic stress. The researcher felt the need to study of academic stress among secondary school students of working and non-working mother.

### **Causes of Academic Stress on Students**

There are so many causes for academic stress but the main are academic pressure , peer pressure , family environment participation in various curricular and co curricular activities.

Academic pressure is a significant source of stress for much school students..in today's competitive world everyone wants to become successful .to become successful need good academic record and participation in various activities is required creates stress.

### **Title of the Research**

**“A COMPARATIVE STUDY OF ACADEMIC STRESS AMONG SECONDARY SCHOOL STUDENTS OF WORKING AND NON WORKING MOTHER”**

### **Definitions of Terms**

#### **Academic Stress:-**

Academic stress is mental distress with respect to some anticipated frustration associated with academic failure or even unawareness to the possibility of such failure. Students have to face many academic demands, for.

#### **Secondary School Students:-**

The combination of classes of the school system constitutes secondary stages comprising classes VIII, IX, X.

#### **Working Mothers:-**

In this study working mothers refers to women working in private or public sectors, who work for about 6-8 hours a day to support family income.

#### **Nonworking Mothers:-**

In this study nonworking mothers refers to those women managing household activities and not involve by any external sector for an employment to support their family.

### **Objectives**

1. To assess the level of academic stress among secondary school students of working mother.

2. To assess the level of academic stress among secondary school students of non-working mothers.

3. To compare the level of academic stress among secondary school students of working and non-working mothers.

### **Assumptions**

The study assumes that academic stress among secondary school students of working mothers and non-working mothers are same.

### **Hypothesis**

There will be no significant difference in level of academic stress among secondary school students of working and non-working mothers.

### **Variables**

Following are dependent and independent variables of study

#### **\* Independent variables:**

Working Women

Non Working Women

Dependent variables

#### **Academic Stress**

.Scope and Limitations

**Following is the scope and limitation of study:-**

1. The study is carried out in four schools of Mumbai suburban.

2. From each school 50 students are randomly selected for study.

3. This study is carried out for 200 students randomly selected from five schools.

### **Research Method**

The researcher adopted exploratory survey method.

### **Method**

- Survey method was adopted for collection of data from the selected respondent with the help of the developed questionnaire schedule.

**Tool**

Students Academic stress is measured by Bisht Battery of Stress Scale

*By Abha Rani Bisht*

**Research Design**

Research design used in this study is Comparative research design.

**Population and Sample**

☐ The population of the present study will be comprised of secondary school students of VIII standard to X standard of working and non-working mothers.

☐ From Mumbai suburban kurla area is selected for research.

☐ From schools in kurla four schools are randomly selected for research.

☐ From each school 50 Students are randomly selected for research.

☐ Total 200 students are selected for research.

Statistical techniques to be used

☐ Analysis and interpretation of the data has been done in the form of tabulation, percentage and also used ‘t’ test to analyse the data of the present study.

☐ **Analysis and Interpretation of Data**

**Table no.1**

Variable	Mean	S D	number	t value
Academic Stress among children of Working mother	130.65	7.8	100	11.3
Academic Stress among children of non Working mother	133.78	6.7	100	

Academic stress among f secondary school students

**Observations**

The calculated value of ‘t’ is 11.3 which is significant at 0.05 and at 0.01 level. It is concluded that there is significance difference between Academic Stress among children of Working mother and non working mother.

**Interpretation**

Academic Stress among children of non Working mother is more compare to working mother.

**Conclusion**

1. This study has established that secondary school students experience a high level of stress

2. There is the need to provide essential strategies for management of stress at the secondary school level as well as their mother’s love care and support in their study.

3. Confirm that the effects of maternal employment in the areas of school performance are generally more positive during adolescence than during the elementary school years. Maternal employment has been found to affect both mothers and childrens .

Employed women process a greater degree of self-reliance and self-esteem with respect to child care skills Working mothers being broad minded are aware of the emotional requirements of their children promote positive motions attachment and lavish affection and warmth on girls and boys.

4. Protecting attitudes of parents were positively and significantly related to academic success of children..

**References**

<http://iasir.net/AIJRHASSpapers/AIJRHASS14-150.pdf>

## 20. The Utility of Information and Communication Technology in the life

*Prof. Mangesh Arjun Patil*  
*M.A(Eco,Mar,Edu) B.Ed. M.Phil. SET*  
*Navjeevan Education Society's*  
*B.Ed College Neral , Tal-Karjat ,Dist-Raigad.*

### **Introduction**

Information has been a vital part of human being's life. We cannot be at a fix if we are information friendly. The teachers in 21st era the syllabus has been included with Information and Technology. Because of which we can conceive an experimental innovative and creative teacher.

This is the age of computer in each and every field we are using computer like education entertainment defence, research trade and agriculture computer friendly users would be need of the future. That's why the subject computer has been included in the syllabus.

In respect of the use of computer we were sceptic and fearful. That's why computer is the only resource of information given the teachers and students should have perfection respect on knowledge of computer understanding and kll and its application. We are how multimedia users like mobile internet telephone, Fax, email in order have communication.

The whole world have been local because of the revolution of internet and computer. However in the field of education, for instance teaching learning process, extra co-curricular activities we have the abunelant use of Information and Technology.

In order to shoulder the responsibilities and to face the challenges. We should have have the computer friendly learners being the need of everyone. All the aspects of life have been hugely occupied by the vital field that is information and technology. We have been using the information and technology in the field in education. Entertainment trades and banks, defence

and various offices.

### **Information:-**

A computer is an electronic device that can restore a huge quantity of information. This information can be preserved for a long time.

The Information that is not necessary to have can be deleted instead of this we can upload the information and restore it. We can have the stored information at the time required. We can have a lot of information from the website. This process of uploading the information is regarded to information and technology.

**Rough data facts and statistical data can be processed and can be converted into information.**

### **1) Commerce:-**

A tremendous change took place in the field of commerce. in respect of banking and others faculties. By using internet and mobile most of the bank transactions we used to do at home. From anywhere in the world and any corner in our country we can do this.

### **2) Trade and Industry:-**

In order to develop the country and its progress we should have the development of trade and industrial development. Various trades industries economical forums can access the information and technology.

In the field of trade and industry day to day happenings the record of the labourers and human resources accounts we have the management of this things. We can access the telephone, mobile, computer, fax, printer, calculator these instruments remain at our hands with the help of internet. We can advertise our



goods easily.

### **3) Agriculture:-**

In order to live man is in need of foods creates and pulses. Food is the primary need of the man. India is the agricultural, farming dominated country. Near about 70% people rear the farms. Computer can be used abundantly in the field of agriculture. Computer and mobile can help to in respect of climate, seeds, chemicals and fertilisers, insecticides, replants.

We can have a lot information and of course it would be update. Farmer knows Price of goods in international market, Import and export policies with the help of computer and mobile.

### **4) Transportation:-**

We have been too close because of the internet. In respect of transport net plays a vital role. We can have at an easy hand our railway ticket, time table of air service, bus reservation can had by accessing the information and communication technology. System of Railway signal and signals on highway can be easily computerised. In the service of local computer plays a very important role. In order to achieve railway ticket planning for signals and planning for local it plays a very important role.

### **5) The literary field, Entertainment and Sport:-**

These fields have been also occupied by the computer and internet. Planning of the various cultural programmes various contests can be easily had by the help of the computer. In order to keep the records. We can have computers.

We can publicise various books by doing various websites updates can be delivered by computers. Even the education field has not been spared because use of the information and communication technology.

### **The Utility of Information in Education:-**

**Information and technology also affected on Educational field like other fields.**

#### **1) The Teaching-Learning process:-**

The vast field of education has been occupied by the Information and technology. In the teaching and learning process this plays an important role. Teaching-learning procedure has been accessed by using software. The student can start self learning. Teachers are using

computers for the education.

### **2) Evaluation and the Progress of the students:-**

The evaluation of the child can easily be had by using Information and Technology for instant results of various exams, preparing mark sheets. The works can easily done with the help of computers. Answer sheets scanning can be made inspected. Transparency has been strictly maintained.

### **3) Admission:-**

The rather difficult process of admission has become very easy by filling admission forms on computer, preparing merit list. Admission processer have been well maintained with various records can be maintained easily.

### **4) Libraries:-**

These are important sources of getting information newly published books. Various information about the writer is available various reference materials, soft copies of novels are available.

### **5) Educational Research :-**

While getting the researches and doing various types of the school work information technology helps to teachers. Reference books are easily available on internet. Various information is needed to do the action researches. Need of information can be available by doing Information and technology.

### **6) Distant Education:-**

Due to satellite we are going to have severe information and technology. The satellites insent-3 and edusat have been activated for educational purpose due to which we have been able to make the educational programme reach in the rural and remote areas.

Radio, Television, Mobile and Computer are successfully accessing the satellites. Open universities programmes and Informal Education programme are accessing the Information and Computer Technology.

### **Bibliography:-**

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*Fadake Production.*

2) Dr. Kishor Chavan "Information and Technology" Insait Production.

## 21. IMPORTANCE OF 'QR' CODE IN LANGUAGE LEARNING

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*Incharge Principal,*  
Govt. College Of Education, Ratnagiri  
Shri. Ankush Kharavtekar  
*Lokmanya Tilak Vidyalyay, Ratnagiri*

### **Abstract**

The development in science and technology has occupied almost all spheres of human life including education. It has brought about significant changes in the way of doing things by replacing the traditional ways. The field of education is not exception to it. The impact of technology is seen deeply on education. The development in technology has introduced many devices and advanced ways of teaching – learning process giving new dimensions to it.

Nearly 20 years back from now text books, print paper material, models were the only source of teaching material. The print paper material had to take great care as there was hazard of pest. Moreover the teaching method was rather teacher centered. But today the process of education is shifted from teacher centered to learner centered. In this age of learner centered education process the learner has a large exposure to learning. The teachers and learners can use latest technology in teaching – learning process. Educational websites, blogs etc. are found important in education. These modern ways of learning make the learning process interesting, inculcate self – learning value in the learner and appeal to the imagination, creativity, innovative power, decision making, critical thinking power of the learner. Again it they make the learning

process joyful and natural which is expected in 'Sarvashiksha Abhiyan'

The investigator firmly believes that the use of technology can definitely enhance the quality of teaching – learning process. Therefore he introduces and elaborates the importance of QR code in learning process especially in language learning.

### **Introduction**

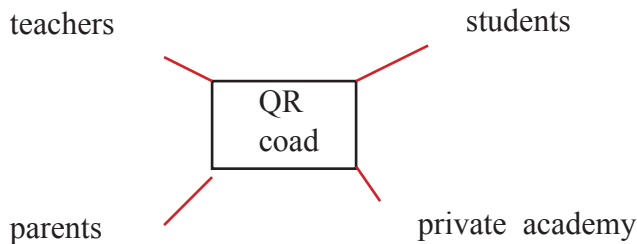
Learning a language means acquiring fourfold skills of it. ( i. e. listening, speaking, reading and writing ). In case of language learning a learner needs ample activities that aim at development of language skills. Sometime, during their learning process the learners are supposed to use reference material to get extra knowledge. They want their learning innovative and not monotonous. All these things are possible along with QR code. It is said that a language cannot be learnt until it is put in practice. The teacher oriented traditional way of learning language cannot fulfill the objectives language learning. They cause failure in achieving objectives. Therefore the credit goes to modern ways which involves technology. QR code is the latest technique introduced in the text books of std. 6th and 7th of Government of Maharashtra. It paves the way to different activities related to the lessons. It can be used by teachers, parents and students. The learning material in the form of reference books, texts, images,

audio of poems, videos of conversation, plays, science related content can be made available with the help of QR code. It gives access to effective learning. For language learning it provides ample practice in language skills for there are different skill oriented activities like conversations, anagram, riddles, puzzles, passages, cloze test etc. A teacher of language can scan the code using his smart phone and go to the useful web link where this material is made available. The websalso provide guidelines about exercises in the textbook and their objectives. The learner can listen to the audio of poems and sing accordingly for correct pronunciation. He can enact the story with the help of respective video, solve written activities suggested on the website.

**What is QR code ?**

QR code stands for quick response code. It is a tiny, scramble – looking, black and white box. This box acts like a shortcut to a web link when you scan it with your smartphone. It is similar to bar code in the sense that it provides information to the user. When you scan QR code it will direct you to a webpage, video or file. Teacher finds it easy because there is no need to type whole web address. QR code takes the students directly to where the teachers want them to go without having type web address.

Users of QR code



**How QR code enhances language learning ?**

Learning a language means mastering

the skills of language. The four major skills of language and their objectives are as following. ( English )

**1) Listening -**

Objective – a) To enable the pupils to listen to English with proper understanding.

**2) Speaking-**

Objective – a) To enable the pupils to speak English correctly.

**3) Reading -**

Objective – a) To enable the pupils to read English text correctly and understand it.

**4)Writing -**

Objective – a) To enable the pupils to write English correctly.

The investigators have observed that QR codes given in the language text books of std. 6th and 7th are replete with useful material to develop these fourfold skills of language. Skill wise material that QR code makes available through web links is as follows –

**Listening –**

To develop this skill audio of poems in text books are given on the web sites. Content related audio material has been up loaded on the web

**Speaking –** animation of stories, plays, conversations

**Reading -**

Passages for comprehension, model reading of the lessons, words, loud reading of poems,

**Writing –**

Different written activities (making words, sentences, creative writing etc. )

**Title of the Problem**

Study of Effectiveness of use of QR Code tool in Language Learning

### **Explanation of the problem**

The use of QR code technique is the latest and expected to be widely used in Maharashtra. It is new to us and slowly adapted by teachers, It has been proved by experts that this technique can be used for all subjects and from KG to PG classes. It becomes essential to enable trainee teachers thoroughly understand the technique so that they can use it as future teachers.

### **Logical justification of the study**

Researches on QR code technique are few as concept is very new. A holistic approach to the problem could present a more comprehensive picture on the use of QR code technique in schools. Therefore the researcher thought it is necessary to undertake a holistic study on Effectiveness of QR code technique

The need for this study is imperative so as to bring to light the extent to which QR code tool is used by Teachers, Students and Parents. The study would also try to bring into focus whether the technique is used only for name sake.

The study of this type is needed to bring into focus the best management practices of using QR code technique in schools. This in turn would make it possible to offer suggestions to improve the management of 'QR code technique. Therefore the present study is intended to give guidelines to schools in the establishment and working of successful use of 'QR code tool'

### **Objective of the Study –**

1. To study the effectiveness of use of QR code tool in language learning.

### **Methodology of the Study:**

In this study the researcher employed survey method. He selected 8 primary schools for sample. The data was collected

through interviews and questionnaires. The questionnaires were consulted with experts and given to the teachers and students.

Locale of the study: The study was conducted on different types of Junior colleges in Mumbai district of Maharashtra state. Mumbai district is the Locale of the study

1. Sample of the study: Researcher has purposefully selected 64 teachers from Ratnagiri Municipal School Board.

Sampling technique: Purposeful sampling technique was used to collect the data

Tools of the study The researcher has developed opinionaire to collect information about usage of QR tool

1. Opinionaire
2. Interview schedule for Teachers

The scope of the study

1. The scope of the study is vast. All those who are teachers, and future teachers

2. This study is related with the Language teaching.

3. This study is related mainly with Use of QR code tool.

4. The study can be undertaken for all the subjects

The delimitation of the study

1. This study is restricted to Primary teachers of Ratnagiri Municipal Board

2. This study is restricted to around 64 teachers of 8 schools from Ratnagiri.

3. This study is restricted to 6th and 7th std English teaching Learning Process

To study the effect of QR code given in language text books of std. 6th and std. 7th of Maharashtra Government the investigator undertook a survey of 8 primary schools belonging to Ratnagiri Municipal Board as a sample. The data collected from the schools is as follows–

**Table 1: Use of QR Code tool**

Name of the School	Number of teachers working	Number of teachers using QR code	percentage of use of QRcode tool
LokmanyaTilakVidyalay, Ratnagiri	8	7	87%
Nana Surve School, Mandvi, Ratnagiri	7	5	71%
Ratnagiri Nagar Parishad School No. 5 Paratwane	5	4	80%
BhageshwarVidyamandir School No. 8	7	6	85%
Ratnagiri NagarParishad School No. 10	10	7	70%
DamaleVidyalay, Ratnagiri	15	14	93%
Mahatma Gandhi Vidyalay, Konkannagar, Ratnagiri	12	11	91%
Ratnagiri Nagar Parishad School No. 22	12	10	83%

The above data reveals that average 82.5% teachers use QR code in their teaching.

The investigator checked the language attainment (English ) of students in all schools by employing different tools of evaluation. The attainment of language of the students ( std. 6th and 7th ) in different schools is as shown below.

**Table 2: Skill attainment of language by the Students**

Name of the School	skill attainment of students ( % )			
	listening	speaking	reading	writing
LokmanyaTilakVidyalay, Ratnagiri	80%	65%	70%	65%
Nana Surve School, Mandvi, Ratnagiri	70%	60%	70%	60%
Ratnagiri Nagar Parishad School No. 5 Paratwane	80%	65%	70%	65%
BhageshwarVidyamandir School No. 8	75%	60%	70%	65%
Ratnagiri Nagar Parishad School No. 10	70%	70%	65%	65%
DamaleVidyalay, Ratnagiri	80%	70%	80%	70%
Mahatma Gandhi Vidyalay, Konkannagar, Ratnagiri	80%	70%	70%	70%
Ratnagiri NagarParishadSchool No. 22	80%	70%	60%	60%

Table: 2

The above data makes it clear that the students in the concerned schools are much benefited by the use of QR code in language learning. The average order of attainment of the skills is as follows.

Listening>Reading>Speaking>Writing  
(76.87>69.35>66.23>65>)



### **Findings**

1. Listening skill has been improved the most with the use of this tool.
2. Improvement is seen in Reading followed by Listening
3. Improvement in speaking needs more of practice other than activities suggested in QR code tool.
4. Writing also needs practice.

### **Suggestion:**

After using this QR code tool for consecutive classes teachers said that they feel relax as they need not to prepare for every class every day. Teachers gave following suggestions

1. Students can use this tool provided they are oriented for it.
2. The parents can also use this tool at their home and guide their children in their studies.
3. Orientation and awareness program for parents and students of higher classes need to be organized so that students can start learning of their own.

### **Conclusion:-**

QR code plays a significant role in language

learning. Most of teachers use QR code in their teaching. General observation is that confidence level of students is increased. Students are enthusiastic and ever ready to learn with this tool.

It makes teaching – learning process joyful and interesting offering diverse skill oriented activities. It brings uniformity in Teaching Learning Process. QR Code tool has played a dominant role in the development of skills.

### **References**

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- Best, J.W. & Kahn, J. V. (2005) Research In Education.(9th Ed.) New Delhi: Prentice Hall of India Pvt. Ltd.*
- Buch, M.B. (1983-88) Forth Survey Of Research In Education, New Delhi. National Council of Educational Research & Training.*

## 22. Comparison of Visual aids prepared by regular B.Ed. students and Y.C.M.O.U. B.Ed. students.

*Dr. Ujwala Done.*

*Assistant Prof.*

*Govt. College of Education, Ratnagiri.*

*National Conference – 22 December, 2108*

*Govt. College of Education, Panvel.*

### **Introduction :**

Teaching is to communicate an idea, Richard(1981) in his study found that a normal human being remembers 10% of what they read, 50% of what they saw and heard, above 70% of what they heard, seen and done. An old Chinese proverb also explains the same view :

I hear and forget,

I see and remember,

I do and I understand.

Teaching aids plays very important role to enhance the teaching learning process.

### **There are 3 types of teaching aids :**

1) Visual : Includes charts, maps, pictures, etc.

2) Audio : Includes and develops sense of hearing.

3) Audio – Visual : Involves sense of vision as well as hearing.

Understanding this importance of teaching aids, a workshop was arranged in Government College of Education Ratnagiri.

**Title : Comparison of Visual aids prepared by regular B.Ed. students and Y.C.M.O.U. B.Ed. students.**

1) Regular B.Ed. students – B.Ed. Batch 2018-20 Government College of Education, Ratnagiri.

2) Y.C.M.O.U. B.Ed. students – B.Ed. batch 2018-20 Government College of Education, Ratnagiri.

### **Objectives :**

1) To arrange a workshop regarding preparation of visual teaching aids.

2) Planning for the workshop.

3) Visit of regular B.Ed. course students to an exhibition of visual teaching aid prepared by Y.C.M.O.U. B.Ed. students.

4) Demonstration of visual teaching aid preparation conducted by Y.C.M.O.U. students for regular B.Ed. students.

5) To arrange an exhibition of visual teaching aids prepared by regular B.Ed. students.

### **Sample :**

1) regular B.Ed. students – 32

2 Y.C.M.O.U. B.Ed. students – 44

Researcher use the non-probability sampling method for these study. In non-probability sampling purposive sampling is used.

**Research Method :** Researcher used descriptive research for this study. In descriptive research the survey method is used.

**Research Tools :** In various research tools, the researcher used Interview Technique – Non constructed interview is used for this study.

**Interpretation of Data :** This Research is in qualitative research so researcher used the non inferential statistical method is used for the analysis of data.

### **Implementation :**

A workshop was organized for preparation of visual teaching aids during 16th and 17th of November, 2018.

Regular B.Ed. students visited and exhibition of teaching aids prepared by Y.C.M.O.U B.Ed. students, on 16th of November 2018. The students observed the aids and decided own topic of a particular unit and a particular standard for making teaching aid of own method.

On 17th of November 2018, Y.C.M.O.U. students gave demonstration of some teaching aid preparation to regular B.Ed. students, and helped them in preparing their aid.

Adequate time was given to regular B.Ed. Students for preparing at least 2 teaching aids of own teaching method.

On 26th of November 2018, an exhibition was arranger including all the teaching aids prepared by F.Y. B.Ed. (regular) students. The workshop and exhibitions was arranger by Dr. V. M. Done Madam and inaugurated by Dr. Thakur madam, honourable principal of Government College of Education, Ratnagiri.

Comparison of teaching aid preparation by both types of students :

Y.C.M.O.U. B.Ed. students      Regular B.Ed. students

- |                                                              |                                                      |
|--------------------------------------------------------------|------------------------------------------------------|
| 1. Have experience of teaching.                              | 1. Do not have experience of teaching.               |
| 2. Have experience of using teaching aid.                    | 2. Do not have experience of using teaching aid.     |
| 3. Have experience of preparing teaching aid.                | 3. Do not have experience of preparing teaching aid. |
| 4. Well acquainted to the syllabus.                          | 4. Not well acquainted to the syllabus.              |
| 5. Well acquainted to the students psychology and interests. | 5. Not well acquainted to students                   |

psychology and interests.

6. Process of teaching aid preparation is easy and less time consuming. 6. Process of teaching aid preparation probably not easy and may be more time consuming.

**Conclusion :**

It seems that preparation of teaching aids (visual) is not so easy and quick process for regular (non-experienced) B.Ed. students as compared to Y.C.M.O.U. B.Ed. students (experienced).

But, regular B.Ed. students used own creativity and potential which actually worked successfully. Within 2 weeks, regular B.Ed. students prepared 2 teaching aids (visual) and presented in form of and exhibition.

Many creative crafts were seen in the exhibition which includes various floral crafts, electronic circuit based chart, use of woollen threads in Geometrical view, use of biodegradable waste (best out of waste) in an eco-friendly manner, etc.

Thus, teaching aids prepared by regular B.Ed. students were equally good as those of Y.C.M.O.U. B.Ed. students.

Regular B.Ed. students also used some advanced techniques, They are found to be techno savvy, hence could prepare good Teaching aids with the use of multimedia.

They were advanced in content knowledge and technology.

References : 1) Educational technology – S.S. Kulkarni.

2) Educational Technology – K. L. Kumar.

## 23. Innovative Teaching Method in History Subject

*Prof. Neha Mhatre  
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The biggest challenge for any teacher is capturing each student's attention, and conveying ideas effectively enough to create a lasting impression.

As a teacher, to tackle this challenge effectively, you should implement innovative ideas that make the classroom experience much more lovable for your students.

So here are 16 innovative ideas that will help you reinvent your teaching methods and make your classes more interesting.

### 1. Creative Teaching

Take the help of tools to stimulate creativity. Include playful games or forms of visual exercises that will excite young minds and capture their interest.

This is a time-tested method to identify every young student's creative abilities and encourage creative contributions.

Bring aspects of creativity into all your subjects, be it mathematics, science, or history. Think of ways to develop their creative ideas.

Encourage different ideas, give them the freedom to explore.

### 2. Audio & Video Tools

Incorporate audio-visual materials to supplement textbooks during your sessions. These can be models, filmstrips, movies, pictures, infographics or other mind mapping and brain mapping tools.

Such tools will help their imagination thrive and grow.

These methods will not only develop their ability to listen but will also help them understand the concepts better.

For example, you can get some oral history materials, conduct live online discussions or playback recordings

of public lectures.

If you are tech-savvy, there are also a number of preschoolers that you can utilize to create awesome slideshows or presentations.

### 3. "Real-World" Learning

Infusing real-world experiences into your instructions will make teaching moments fresh, and enrich classroom learning.

Relating and demonstrating through real-life situations will make the material easy to understand and easy to learn. It will spark their interest and get the children excited and involved.

### 4. Brainstorm

Make time for brainstorming sessions in your classrooms. These sessions are a great way to get the creative juices flowing.

When you have multiple brains focusing on one single idea, you are sure to get numerous ideas and will also involve everyone into the discussion.

These sessions will be a great platform for students to voice their thoughts without having to worry about right or wrong.

Set some ground rules before you start. You can go for simple brainstorming or group brainstorming or paired brainstorming.

### 5. Classes Outside the Classroom

Some lessons are best learnt, when they are taught outside of the classroom. Organize field trips that are relevant to the lessons or just simply take students for a walk outside of the classroom.

Students will find this fresh and exciting. Without taking much effort, they will learn and remember what you teach them.

## **6. Role Play**

Teaching through role-playing is a great way to make children step out of their comfort zone and develop their interpersonal skills.

This method comes in handy, especially when you are teaching literature, history or current events.

The role playing approach will help a student understand how the academic material will be relevant to his everyday tasks.

Role playing is most effective for students of almost any age group. You just need to customize depending on the age group.

You can even use this method for teaching preschoolers. Just make sure you keep it simple enough to capture their limited attention span.

## **7. Storyboard Teaching**

Rudyard Kipling rightly said, "If history were taught in the form of stories, it would never be forgotten."

Storyboarding is a great way to teach any subject which requires step-by-step memorization or visualization highly-conceptual ideas.

History teachers can use a storyboard to recreate a famous event. Such visually stimulating activity will ensure that even complex ideas are easily put across to students.

You can also encourage the use of storyboards as a form of communication and let the students tell a story in pictures using their imagination.

## **8. Stimulating Classroom Environment**

A classroom environment that is well-decorated, fun, and engaging will help stimulate a student's mind and will help think and learn better.

Such a creative and stimulating environment will help them explore and will encourage them to learn about the subject.

Children, especially young ones cannot be expected to sit all day and learn. An environment that positively impacts the children is beneficial for you as well.

Schools associated with Early Years Foundation Stage(EYFS) will vouch for the fact that the learning environment has a prime role in learning and

development

## **9. Welcome New Ideas**

An open-minded attitude can help you in innovating new teaching methods. Though you might claim to be open-minded, its human nature to resist change.

Evaluate yourself and ensure you try out new ideas in the classroom.

## **10. Think About A New Hobby**

Sometimes, a hectic workload may affect your engagement in teaching.

If it happens to you, it's natural.

You can take a break for a couple of hours and engage in some other activity that you're interested in.

This will rejuvenate you and you can return to your work with more passion and interest.

## **11. Work Together As a Team**

As everyone knows, the end result of the collaborative effort is always immense.

Think about spending some quality time with your colleagues. Ask them to share their views on improving teaching methods, you can see many of them come up with interesting strategies.

So, collaborate and introduce innovative teaching methods.

## **12. Puzzles and Games**

Learning is fun when puzzles and games are part of education. Children may not require taking conscious effort when their lessons are introduced through games.

Puzzles and games help children to think creatively and face challenges.

## **13. Start School Clubs or Groups**

What about starting an after-school club or group?

Being a teacher you may not get enough time to work on interesting topics that you are passionate about.

You can share your views and learn more from



others when you have school clubs or groups.

#### **14. Refer to Books On Creativity**

To be a creative teacher, you need to do some research on creative ideas and techniques.

There are a lot of books on creativity.

Choose some of the best works and start learning, it will be helpful for your professional development as well.

#### **15. Love What You Do**

You can give your best only if you truly love what you do.

When you are not stressed, you will be more creative and inspired.

Loving your work keeps you relaxed and gives you

room to experiment with new ideas.

#### **16. Introduce Lessons Like a Story**

Just think, why do you watch movies with much interest?

You like to watch movies because there is always an interesting story to keep you engaged.

Like that,

Learning sessions become more interesting when you introduce it as a story. If you are creative, even math lessons can be related to interesting stories.

With even the Knowledge and Human Development Authority (KHDA ) emphasizing on schools to take measures for improving the quality of teaching and learning, these innovative ideas are sure to make teaching methods more effective. 386 7000

## 24. ICT IN SCHOOL CURRICULUM

Information & Communication Technology (ICT) has become ,within a very short time, One of the basic building block of modern society, Many countries now regard understanding ICT & mastering the basic skills & concept of ICT as a part of the core of education , alongside reading , writing & numeracy.

UNESCO aims to ensure that all countries, both developed & educational facilities necessary to prepare young people to play full roles in modern society & to contribute to knowledge nation . Because of the fundamental importance of ICT in the task of schools today , UNESCO has previously published books in this area as a practical means of helping members states : for example informatics for secondary education . A curriculum for school (1994) and informatics for primary education (2000). Rapid development in ICT now demand a completely new documents in place of the first of these publications .

### **Characteristics of schools related to ICT Development.:**

There are various characteristics of schools, or aspects of school leadership, that relate to a schools progress in ICT Development. Below are general descriptions of the more important of these characteristics of schools that have an effect on ICT development within schools.

Vision – Vision refers to the aspirations and goals of both individuals within a school and the school system as a whole . As the school advances, the mission statements should become a learner and provide a basic for decision making . Mission statements should help individual members of the learning community visualize a schools aspirations for the future and act in harmony.

Philosophy of learning and pedagogy – Ways in which teachers & students interact & how the school is managed for learning are part of what is meant by a schools philosophy learning and pedagogy. These philosophies will necessarily characterize the ways in which ICT is incorporated into a school. A setting that is dominated by the teacher as the main provider of subject content is adopting a teacher centre philosophy . The teacher controls the use of ICT in such a setting as well. A learner centre philosophy, by contrast, describes a setting where content comes from a variety of resources and where projects are chosen & designed by the students. ICT tools and resources are selected by students in ways that match the aims of a project best. These contrasting approaches to pedagogy are sometime referees to as instructive and constructivist respectively.

### **Development plans and policies–**

How a schools vision and teaching philosophies are carried out is translated into development plans and policies . In the detailed steps of such plans& policies , goals & objectives are further defined providing interim and long term targets. Policies are set, a budget is allocated, facilities are determined , roles are defined, tasks are delegated, and an evaluation plan is created to define the direction ICT development will take.

### **Facilities and resources –**

The learning environment in which ICT is used requires certain facilities and resources. Facilities include basic infrastructure such as electrical wiring , Internet access, lighting, air conditioning , & space . Decision on inclusion or lack of ergonomic design & choice of furniture impact not only on use of ICT, but also on the health and well being of users

. Resources include various types of technological devices from computers with peripherals , video equipment , and specialized tools like digital microscopes. Further resources include various types of software as well as traditional tools like books, videos & audiotapes.

#### **Understanding the curriculum –**

An understanding of the curriculum affects the progression of ICT in the curriculum in following various stages of development. First , is an awareness stage in which students become ICT literate with regard to what technology is available and how it might be used. Second, as students learn basic skills, they begin to apply various ICT tools to their regular learning assignment and projects. Thirds, as students become more capable and confident with ICT , they begin to integrate and overlap both subject areas and tools . Last, is the applied use of ICT in which students are now enabled to address larger, more complex, real world professional issues.

#### **Professional development of school staff –**

In parallel with the curriculum for students, there must be professional development of the staff within a school. The personal productivity and professional practice of teachers are enhanced with the use of ICT. First , is an awareness stage in which teachers and staff become ICT literate with regard to what technology is available and how it might be used. Second, as teachers & staff learn basic skill, they begin to apply various ICT tools to their regular tasks and projects. Third , as teachers and staff become more capable and confident with ICT, they begin to integrate and overlap both subject areas and tools . Last, is a change in professional practice in which teachers are now enabled to design lesson to incorporate larger, more complex, real – world projects using ICT tools and resources. As ICT is introduced in to school systems, there is a tendency to move from discrete skills training to reflective practice and integrative professional development. Budgetary allocation and provision for release time

for teacher professional development seriously impact on the ability of a school system to incorporate ICT in a meaningful way.

#### **Community involvement –**

Community involvement may include parents, families , businesses, industry, government agencies, private foundations, social, religious and professional organizations, as well as other educational institutions such as vocational schools and universities . Community involvement can come in the form of donations of equipment and resources, or may be in human resources provided for training and technical assistance. As a community contributes to a school, so the school can give back in many ways. For example, a school may decide to provide community members with evening access to computer labs, or have students offer training to parents . The use of ICT provides an opportunity for a school and its students to interact with both local and global communities. Interaction may range from building websites for community organizations, to sharing projects with remote schools.

#### **Assessment –**

Assessment includes both assessments of students as well as overall evaluation of a school system, two aspects that are intricately interwoven . An improvement in the one should predicate an improvement in the other. Means of student assessment should reflect choices in learning pedagogy and an understanding of ICT in the curriculum. For example, in the emerging and applying states of ICT assessment may be linked to pencil and paper tests, whereas in the infusing and transforming stages project based portfolios may be more appropriate. Each part of a school system needs to be evaluated to determine its impact on learning. Assessment should inform practice and support the management of learning. Assessment should allow a system to determine whether outcomes have been met, and then reviewed and revised accordingly.

Budget allocations policies and procedures for ICT should match vision, teaching philosophies and curriculum choices.

Each of the core curriculum disciplines is now making use of communication tools that come from ICT.

**The language of Mathematics** :Mathematics is a discipline that can trace its history back 5,000 years and more . It is a discipline whose results or collected knowledge cut across all disciplines and is important in our everyday lives.

Mathematics provides a good example of a discipline that has developed special vocabulary and notation for representing and solving the types of problems that it addresses. You are undoubtedly familiar with some of the symbols used in mathematics such as .

1. The digit 0, 1, 2, ..... , 9
2. Symbols for the four basic arithmetic operations +, -, \*, +
3. A large number of other symbols such as =, ≠, ≤, ≥, (, ) and  $\Sigma$ .

One way to think about mathematics is that it is a language. This language includes a large number of natural language words that have been given very precise definitions for use in math and rules for combining the words and symbols for communication about mathematical ideas. For example, the concept of proof in mathematics is somewhat different than the concept of proof in the social sciences, sciences, and in law.

As a discipline grows, it often is divided in to sub disciplines. You are undoubtedly familiar with some of the subdivisions of mathematics, such as arithmetic, algebra, geometry, probability and statistics. You may have studied some calculus and other sub disciplines of mathematics that are found in a typical undergraduate college degree program for math majors.

You know that math is a broad, deep, complex and ever growing discipline. Since you know something about calculators and computers, You

know that some parts of ICT are parts of the content of mathematics. We will say more about this later in this chapter. But first, let 's look at the discipline that underlines ICT .

### **Computer and information science –**

The discipline of computer science began to develop long before the first computers were built. For example , the 1890 U.S. census data was processed by putting the data onto punch cards and using automated sorting and counting machines. The history of mechanical calculators goes back well over 300 years, and the history of the abacus goes back at least 2,500 years.

The first computer science departments ( they are now often called Computer and Information Science Departments, or CIS departments) in higher education were established during the later 1950s and early 1960s. Typically this occurred in one of three ways:

1. As a split off from a mathematics department, forming a department with an orientation toward math and the other areas of liberal arts.
2. As a split off from one or more departments in an Engineering School, forming a department with an electrical engineering orientation.
3. As a split off from one or more departments in a Business School, forming a department with a business orientation .

These early CIS departments offered programs of study that included a major focus on computer programming and solving the types of problems that occur in some specific disciplinary areas. Thus, a business – oriented computer science department might offer a variety of courses in COBOL programming , with the focus being on learning to develop computer system to solve business problems.

An early engineering oriented computer science department might offer courses in FORTRAN programming and courses about computer circuitry.