ICT IN EDUCATION

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ABSTRACT

The world is shifting from old mechanisms of education to modern trends of teaching and learning, this all is possible with the advent of ICTs in education. Information and communications technology helps and improves the content delivered to the audience. Education becomes easy when technology becomes a part of it. Information and communication technologies have occupied the most centric place in the education system.

With the rapid growth of digitization in all walks of life it becomes essential to include ICTs in the education too. Various research studies in this context have shown that with the use of ICTs in education the teaching and learning becomes easy and the concepts can be explained more conveniently with the use various ICT tools.

ICTs have become an integral part of the curriculum and has a positive impact on the learners as well as faculty members. The students who are exposed to technology becomes more knowledgeable and develop good communication and presentation skills. They become more innovative and take efforts to learn new things on their own..

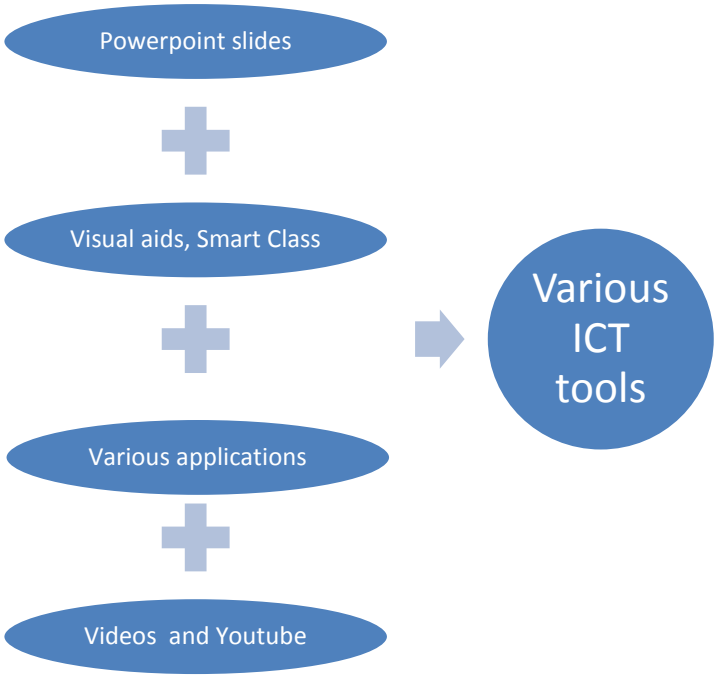
The purpose of this study is to find out the use of Information Communication Technology (ICT) in teaching and learning in Pune vicinity secondary schools. The focus is on: ICT use and competence on teacher and student and on ICT infrastructure and teaching practices.

INTRODUCTION

As per the opinion of Unwin, 2004, "computers and internet technology aids to create increase teacher's primary skills and subject expertise, to provide resources that can later be used in classroom, and to help teachers build familiarity with specific instructional approaches." "Privateer, 1999 notes that ICT is supposed to add value to education and to support more effective pedagogy to provide knowledge for learners and by enhancing communication that promotes learning."

With the initiation of computers and internet technology in education the formal education has become very simple and easy to understand. The globe is surrounded by internet mechanisms which helps students and teachers to learn and teach more creatively. The escalation in this zone has helped the faculty members to get trained effectively and bring in new techniques and tools in their daily classroom sessions. A few researcher's states "that the different ICTs make some valuable aid to various parts of educational development and effective learning through expanding access, promoting efficiency, improving the quality of learning, enhancing quality teaching and improving management systems."

VARIOUS ICT TOOLS USED



Predominantly, education systems are enhanced using various ICT tools. Its rightly stated that a picture is self-explainable than thousand words with the introduction of ICTs this way of graphical teaching and learning is possible. Transformation of information sent by the sender and received by the receiver is all possible due to the use ICT tools and also with the use of computer technology as a mechanism. "ICTs provides e-leaning content to the learner. It also provides leaning interfaces. These types of interactions make the learning process more interactive and learners more active and engaged".

In education Information Communication Technology (ICTs) are explained by Blurton, (2000) "as a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information". These technologies include –

1) Hardware
2) Applications
3) Use of Internet technology
4) Wired and wireless technology.

An extremely skilled human resource base which can respond to social and economic challenges is the outcome of quality education which is ICTs based. It also increases the efficiency and competiveness amongst the learners.

Objectives of the study

i) To study how teaching and leaning are enhanced through the use of ICT tools.
ii) To ascertain the skills of faculty members and how effective they are in use ICTs in their classroom sessions.
iii) To examine students and faculty members approach to employ ICTs in their classroom teaching sessions.
iv) To study various barriers associated with the use of ICTs.

Impact of ICT

1) Impact on Students-

- Students are self motivated to learn.
- ICTs create interest in their daily routines.
- They take pleasure in leaning on their own.
- Assignments are fun way to learn for them.
- This builds self confidence in them.
- Early learners are developed.

2) Impact on the role of teachers -

- Teachers are transformed from being an instructor to becoming a facilitator.
- They are open to learn, unlearn and relearn with ICTs.
- It becomes very easy for them to explain via videos and other ICT tools.
- Teachers are trying to accommodate ICTs with their chalk and talk mechanisms.

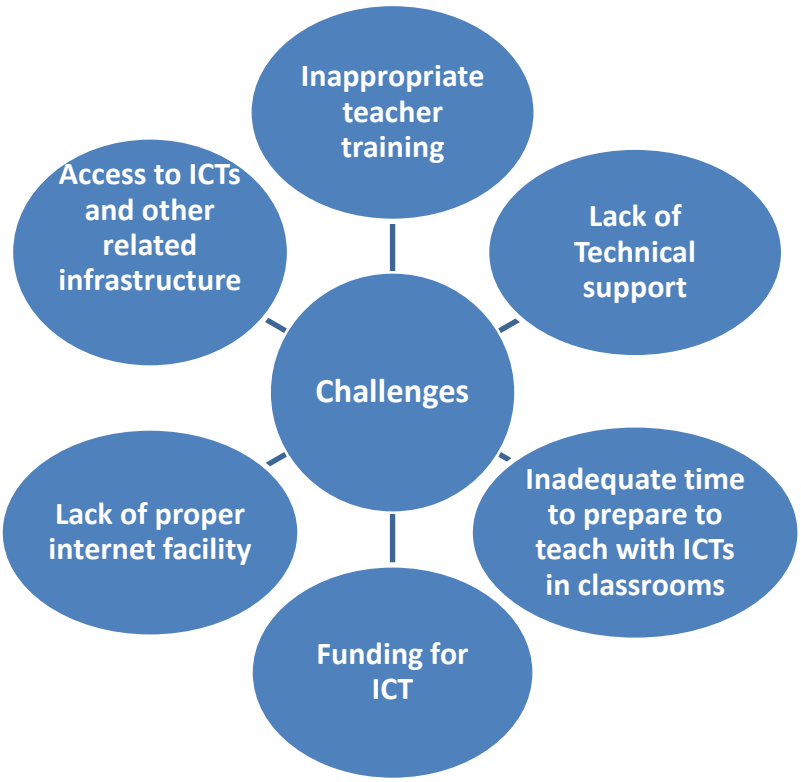
3) Access to information

- A lot of data access has become very easy and at the tips of our fingers.
- Reach to information is very simple
- ICTs are useful to bridge gap between teacher and students via use various ICT tools while teaching.

Learners perception for employing ICTs to improve teaching and learning

- The modern day classrooms are transforming from boards to LCDs.
- Instead of working with books and pens, they are provided with smart devices.
- Schools impart such knowledge to students via use of ICTs.
- For students' education is no older ways of teaching and learning but modern way of solving assignments on their own.
- They are motivated and are encouraged to do things on their own.

Difficulties in successful implementation of ICTs in schools



Research Design

"Research design solicits information by asking respondents questions about their perceptions, skills, knowledge and attitudes towards ICT." Data is collected from respondents via getting questionnaires filled and through personal meets where in they were interviewed.

Population under study and Sample size–

The population consists of faculty members and learners "teachers and students" in schools in Pimpri Chinchwad area. As it is compulsory to adopt ICT education in schools as a part of their curriculum, so such schools were considered for the study. In all data was collected from 40 teachers and 280 students by filling of questionnaires. Separate questionnaires were framed for teachers and students to understand their perception about use of ICT and challenges they face.

Research Method –

Primary Data is collected from teaching staff and students. 40 teachers and 280 students filled in the questionnaire. Researcher got all the questionnaire filled personally, explaining each and every part of the questionnaire. Then the data was complied and using statistical tools. Mean and average methods are used to display the outcomes using various figures and tables. Secondary data is collected from various websites and journals.

Data analysis was done using average and mean methods using excel.

The questionnaire was divided into demographic profile of respondents and their perception towards ICTs.

DATA ANALYSIS AND INTERPRETATION

Statistical Analysis for Teachers data –

1)Teachers Gender

Male	14	35%
Females	26	65%
Total	40	100%

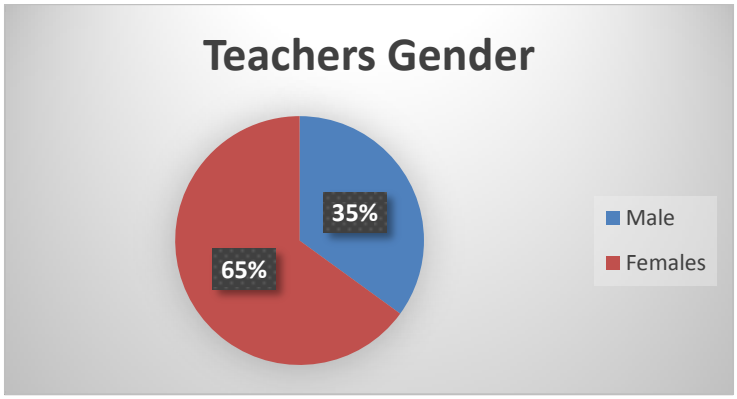


Figure 1 - Out of the total respondents under study 65% are females and 35% are males.

2) Teachers Experience

No. of years	Males	Females
1 to 5 years	4	6
5 to 10 years	6	10
10 to 15 years	2	8
15 years and above	2	2
Total	14	26

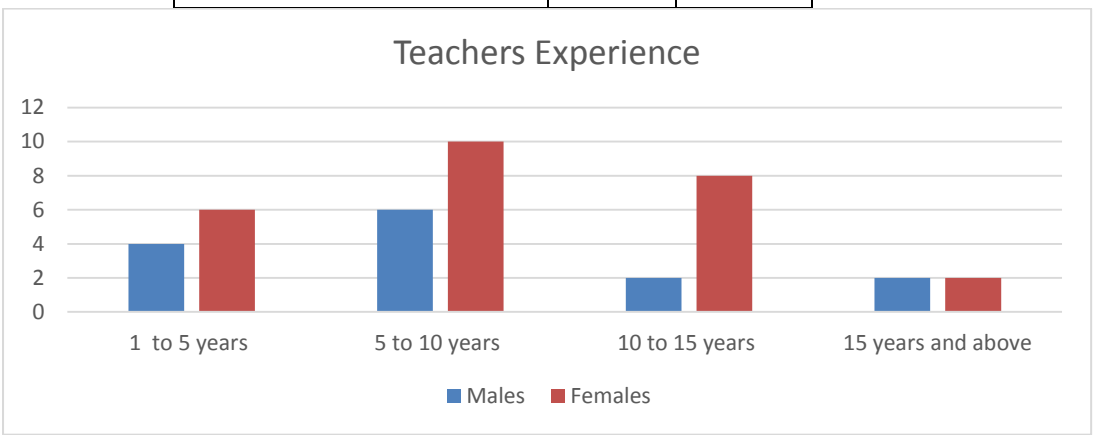


Figure 2 - Teachers Experience

Total males from the respondents are 14 and females are 26. The work experience is measured in years amongst males and females. In the 1 to 5 years there are 4 males and 6 females, 5 to 10 years 6 males and 10 females, 10 to 15 years 2 males and 8 females

andlastly 15 years and above 2 males and 2 females have responded. It is very clearly stated that in the 5 to 10 years 10 females are maximum.

3) Faculty members familiarity in using ICT

No. of yrs.	Frequency	%
1 to 3 yrs.	14	35%
4 to 6 yrs.	18	45%
6 years and above	8	20%
Total	40	100%

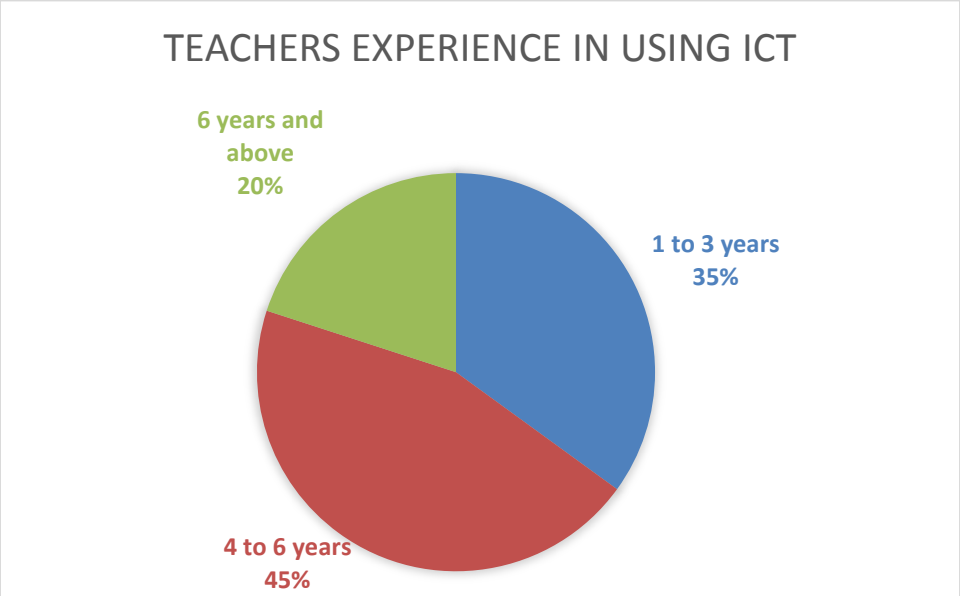


Figure 3 - Teachers experience in using ICT

From the above figure it is clearly stated that 45% of the teachers have 6 years teaching experience in ICT. 35% of the teachers have 3 years of experience in teaching in ICT.

4) ICT training that teachers had attended

Basic computer literacy	15
Knowledge of hardware and software and its linkage in ICTs	11
How can ICTs be used efficiently in all areas relating to teaching	14

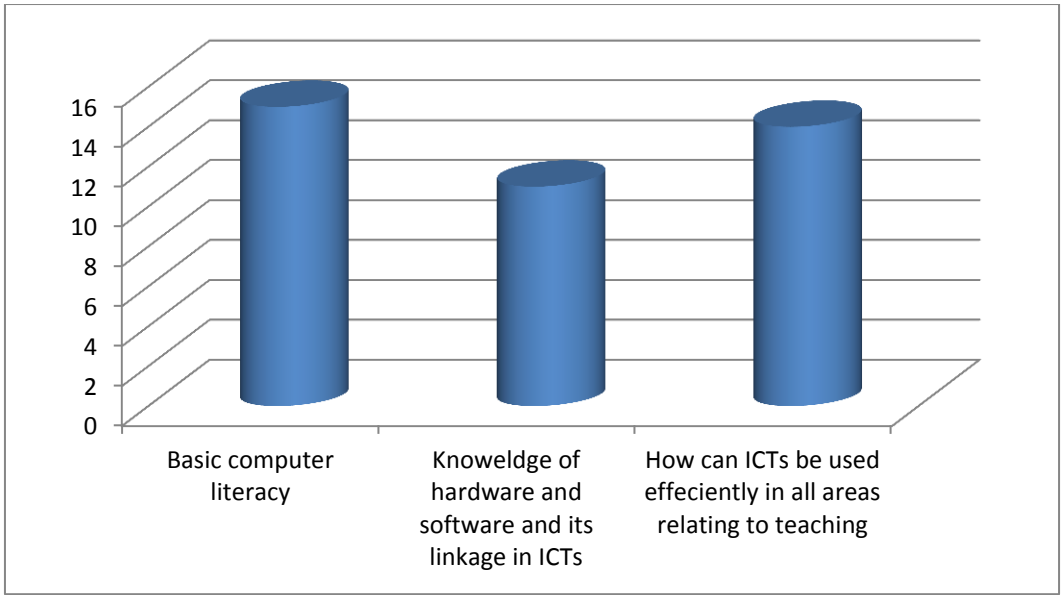


Figure 4 - ICT training that teachers had attended

We live in the period where changes are constant and technology is changing every now and then. The teachers have to be updated when they teach to students. ICT training is not only required once but always when ever there is a change. 15 of the teachers have basic computer literacy. 14 of them are effectively using ICT in teaching and 11 of them integrate hardware and software while teaching leaning sessions.

5) Faculty members perception for use of ICT in classrooms

Factors	Mean
Teaching learning process is enhanced	8
Strategic and logical thinking is developed in students	9
Quick understanding and feedback mechanism is developed	10
E Learning resources can be obtained from internet	6
ICT tends to motivate students	2

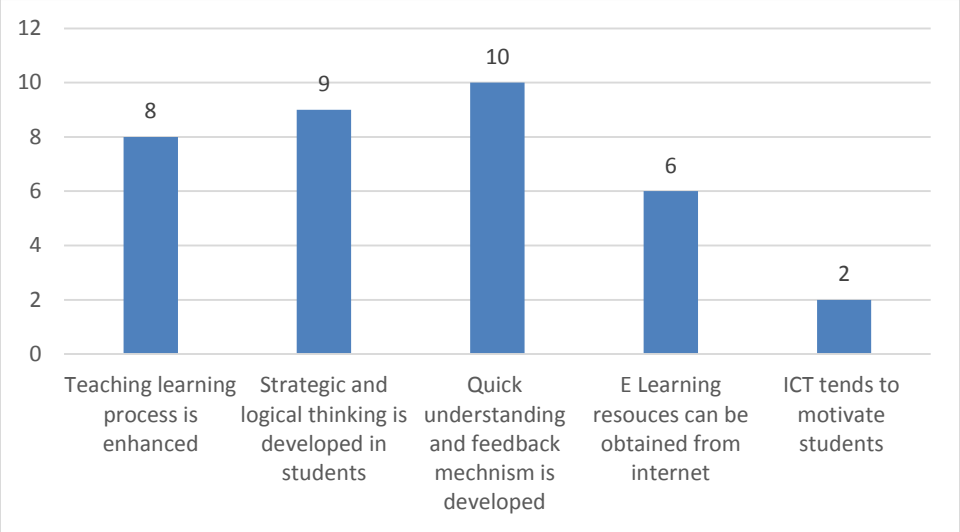


Figure 5 - Faculty members perception for use of ICT in classrooms

With a mean of 10 ICT can enhance students participation and feedback. At neck to neck mean of 8 and 9 ICT improves teaching and learning process and Computers enhance students critical thinking respectively. With a mean of 6 e-learning resources can be obtained from internet.

Students Demographic Analysis

Out of 280 students, 100 were boys and 180 were girls.

They were in the classes from V to XII with an age ranging from 11 years to 18 years.

No. of students	Age
11 to 13 years	98 students
13 to 15 years	110 students
15 to 18 years	72 students
Total	280 students

As per their curriculum specifications for classes from V to X have smart class concepts in which they have to learn basics of computer knowledge, how to use internet technology and how integrate computers in their education. For classes of XI and XIIthey have digital classes as a part of their syllabus in which every classroom has a smart class with computers and screen displays in which they are taught importance of use of ICT in education.

1) Learners participation in using ICTs

	Frequency
Daily	99
Weekly once	110
Monthly once or twice	70
Very rarely	1
Total	280

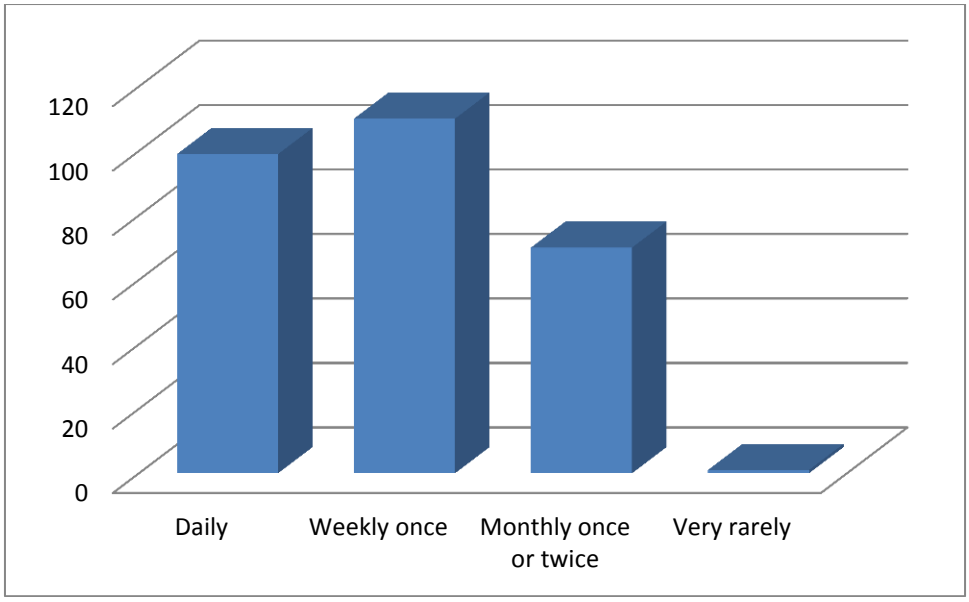


Figure 6 - Learners participation in using ICTs

Majority of the students at least have a practical session once a week wherein they operate computers on their own. Most of the students operate computers everyday.

2) Learners perception for use of ICTs in their curriculum

Students perception	Frequency
Enjoy doing assignments on computers	90
Better understanding of lessons	75
Stimulate creativity	50
Self motivated	65
Total	280

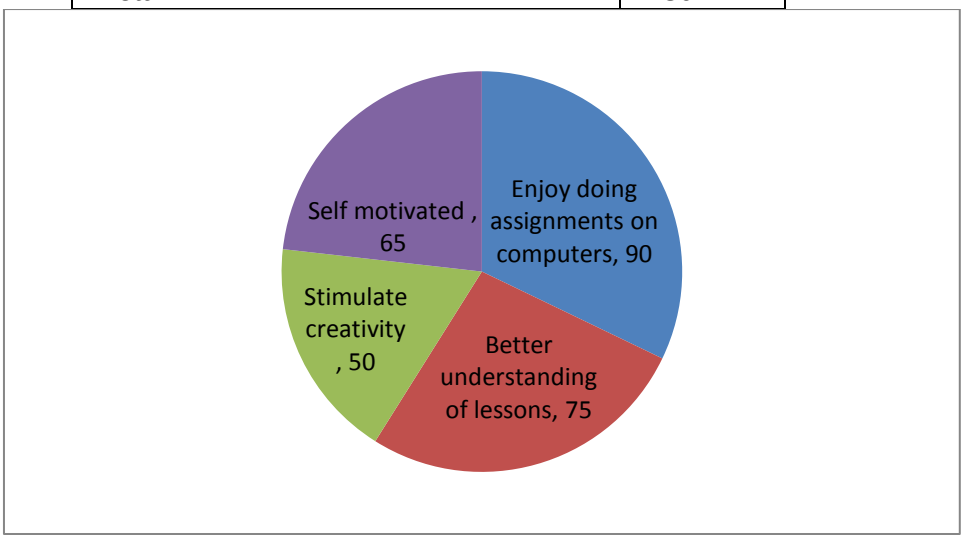


Figure 7 - Learners perception for use of ICTs in their curriculum

From the above diagram it is very clearly stated that 90% of the students enjoy doing assignments on computers using internet. 75% of the students understand lessons more quick and easily when ICTs are used. 65% are self motivated and 50% are creative with implementing ICTs.

RELIABILITY AND VALIDITY OF DATA

The test-retest method assesses the external consistency of a test. It measures the stability of a test over time. A typical assessment would involve giving participants the same test on two separate occasions. If the same or similar results are obtained then external reliability is established. The test retest method was used to check the validity of data. The same questionnaire was given to same selected set of audience after a particular time the responses when recorded were the same. A phi value more than .5 reliability.
Following table provides information on Phi scores considering a few variables:

Variable	Co-efficient	Result
Computer literacy(test)↔ Computer literacy (retest)	Phi = 0.726	Reliability Supported
ICT linked to teaching learning (test) ↔ ICT linked to teaching learning (retest)	Phi = 0.854	Reliability Supported
Improvement in teaching learning process (test) ↔ Improvement in teaching learning process (retest)	Phi = 0.989	Reliability Supported
ICTs enhance students critical thinking (test) ↔ ICTs enhance students critical thinking (retest	Phi = 0.698	Reliability Supported
ICT tends to motivate students (test) ↔ ICT tends to motivate students (retest)	Phi = 0.542	Reliability Supported

FINDINGS OF THE STUDY

1) Teachers strongly agree towards use of ICT in education as it improves and simplifies teaching learning process. When projected a powerpoint presentation instead of theory content, students are more focused and attentive. As it is rightly said a picture is better than thousand words, a youtube video is more easily explainable. ICT tools enhance teaching leaning process.
2) Teachers were endowed with teaching learning skills as with a mean of 14 faculty members were effective in using ICTs in different areas.
3) The perception of students towards better understanding when taught with ICTs and they were very keen in doing assignments on computers. As per teachers perception even they strongly agreed that students participate in learning process more effectively.
3) As seen in traditional classroom sessions its mostly one way communication but when ICTs are used its becomes effective and involve both teachers and students.
4) As revealed 90% of the students enjoy doing assignments on computers and its fun learning for them.

CONCLUSIONS

In this era ICTs are gaining importance in the field of education. Along with the chalk and talk method of teaching integrating it with ICTs adds on more fun and creativity amongst the students. Teaching learning becomes more receptive with the use of ICTs. Students become self motivated, creative and try doing things on their own. Information is data that can be

converted into knowledge, Communication is exchange of thoughts, ideas etc. and Technology is mechanism to reach to vast audience. With the use of ICTs in education students learn more easily and leaning becomes fun for them, they become more creative as they solve assignments using computers and internet. Teachers find it very easy to teach using ICTs as their lectures become more easy and entertaining to learn. There are some hindrances for use of ICTs that lack of infrastructure and maintenance personnel and even a few times internet cannot be accessed properly at a good speed.

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