



INTEGRATION OF INFORMATION TECHNOLOGY IN TEACHING LEARNING PROCESS

Mrs.C.ALICE MADHU SHEELA, Asst. Professor, Dept. of Biological science, St. John De Britto College of Education, Thanjavur

INTRODUCTION

Education is one of the most influencing systems of our society for the development and growth of the nation. The education system of a society reflects its image. Technology, in this regard, is one of the most critical issues in the present global era. In order gain a broad perspective, yet remain relevant to one's own situation, now there is a need to think globally and act locally. Despite the ubiquitous appearance of technology in societies around the world, we continue to grapple with how we might make the best use of Information Technology (IT) in our education system. Technology in acquiring knowledge and skill is an extremely essential component of education and training at all levels: primary, secondary, higher and professional education.

INFORMATION TECHNOLOGY IN EDUCATION

Information Technology (IT) is the science that investigates the properties and behaviors of information, the forces governing the flow of information, and the means of processing information for optimum accessibility and usability. The field is derived from mathematics, logic, linguistics, psychology, computer technology, graphic arts, management, etc. IT implies telecommunications involving a combination of computers, networks, satellites, telephones, radio, television and the like. IT resources involve not only hardware (equipment) but also software (programmes), people, education, government and association/collaboration resources. Application of IT to education involves many disciplines related to computers in handling, processing, management, automation and communication of information in the broader cultural and economic context of a society. Thus, technology in education encompasses one or more of the following modes:

- ❖ Media and Audio-Visual (AV) communication, e.g. alternative instructional delivery systems such as Radio, Educational Television (ETV), etc.
- ❖ Vocational training tools, such as CBT (Computer Based Training), CAD (Computer Aided Design), etc.;
- ❖ Computers and computer-based systems for instructional delivery and management, e.g. CAI (Computer Assisted Instruction) etc.
- ❖ Internet/web based education e.g. not only educational information with text, graphics, video and courses offered by various web sites.

In fact, the state-of-the-art technology is currently being used in schools to integrate the senses and thoughts with feelings and actions. Such schools are called 'Smart schools.'

The Smart Schools

A need is felt to make students and teachers better equipped to enter the workforce, where use of technology is a standard practice. It will change the way teachers teach, may impact their status in the classroom and will definitely alter the way students learn by enabling them to develop numerous modes, techniques, tools and styles of learning. Technology can provide effective learning experiences by helping the learners perceive information, reflect on how it will impact their life, compare how it fits into their own experiences and think about how this information offers new ways to act. The present era puts forth the concept of a 'digital classroom' and 'smart schools' which are locally ground yet has a global outlook. The digital classrooms and smart schools mainly aim at the following:

- To change the teaching/learning process by encouraging teachers to shift to child-centered and more collaborative forms of learning in their classrooms;
- To prepare students who are creative, numerate, literate, well-trained and readily retainable at any point in their development;
- To ensure that all students understand the necessity of being able to live and work harmoniously with other people in their environment and progress of the society.

Thus, IT in education along with our traditional modes can be used for developing: Teaching Learning Materials (TLM) which make the classroom environment lively and conducive to learning. It can be used for individualized learning or self-learning, as well. The use of Information Technology can engage learners in the four-step process as described by David Kolb in the book *Experiential Learning* (1997), where he identifies the steps in the following manner. According to Kolb, learners have immediate concrete experiences that allow them to reflect on new experiences from different perspectives. IT can be used in our classrooms in the following ways:

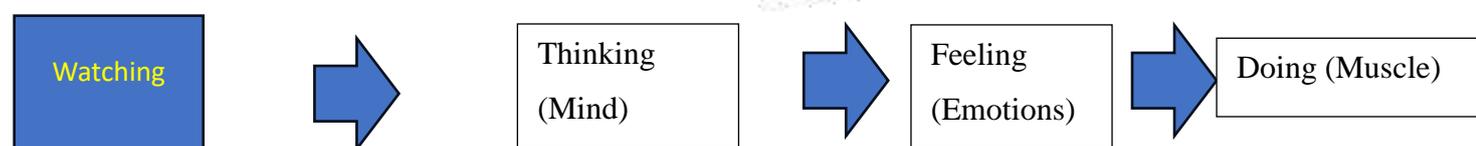
Multimedia

Development in computers, communication, electronics and other Multimedia tools provide a wide range of sensory stimuli. It is said 'I hear and I forget, I see and I remember, I do and I understand. The animations, simulations, software packages to teach various subjects, speech. music, multimedia networks, image enhancements, etc. create virtual realities and experience for the learners, which in turn, help in making learning a more direct, useful, and joyful experience and retain knowledge for a longer time.

Community resources

An electronic community allows students to engage in dialogue with each other, their teacher, experts and teachers in different parts of the country or the world. This can be done via two modes namely, asynchronous communication and synchronous communication. In asynchronous communication, exchanges take place in a delayed format. There are a number of activities that can be developed using asynchronous communication like presentations, free flow discussions on a topic, peer reviews, debates, message boards, bulletin boards, e-mails, listing servers, seminars, simulations, feedback on assignments, forums, learner led and threaded discussions. Whereas, in a synchronous interactive environment, exchanges take place in real time.

Instant messengers, chat rooms, and MOOs are good examples. (A MOOs is a sort of sophisticated chat room, complete with its own architecture of interconnected rooms, stock pile of objects that can be manipulated, and a cast of interesting characters. Originally used for role- playing games, the MOOs have recently made its way into technologically progressive universities and secondary schools. Some outstanding academic MOOs include NCTE- MOO designed for teachers and teacher educators and diversity MOO designed specifically for academic purposes.) The synchronous communication can also be used for online lectures and live demonstrations.



Individualized instruction

Technology can be used for individualized instruction in order to bridge the gaps between the teaching styles and the learning styles. The use of technology can be made to address the visual learners, auditory learners and kinesthetics learners. In an ordinary classroom with one teacher, it is difficult for the teacher to respond and provide feedback to each student. The programmed instruction models as suggested by Skinner can be used to provide learners learn at their own pace and give immediate feedback.

Audio-Visuals and Animations

Audiovisuals, video conferencing, short animations, virtual reality, etc can be used in teaching learning process. The abstract ideas can be focused upon and understood by means of visuals from different point of views. To illustrate the chapters / topics of the respective subjects can be taught by PowerPoint presentations. The Ministry of Human Resource Development, Information and Broadcasting and the Prasar Bharti have launched the Educational TV channel of India "Gyan Darshan" on 26th January 2000. The Central Institute of Educational Technology a constituent unit of NCERT also provides educational videos and audio programs for various stakeholders at school education level. All these attempts hope to have a positive impact on learning.

Digital devices

The digital devices like cameras, scanners can be used for instruction. For instance, digital photographs and recordings can be used for electronic and virtual field trips, science experiments and demonstrations, etc. The portable scanners can read text from books, documents, research papers, newspapers and the information scanned can be pasted at ease for reference and documentation. The other digital devices like digital blackboards, electronic pens and touch screens etc. can also be used to enhance learning. Studies reveal that use of technology motivate students to learn and inspire teacher to explore how best a technology fits into his/her lesson.

Personal Digital Assistants (PDA)

The PDA wireless devices are used as e-learning tools allowing the learners to access information anytime, anywhere. It is observed that, there is a shift from the E-learning to M- learning (which includes learning via. mobile computation). The use of Bluetooth and infrared technologies has made it possible to transfer information in fractions of seconds.

Online materials

The online materials used in the educational setting are as listed below.

Database: Database is a good source of materials put up by the government, libraries and educational institutions. It contains extensive information on graphic interface, websites, electronic page layout, graphics, multimedia and animated designs. The websites like www.intschool-leipzig.com, www.discovery.com, www.nationalgeographic.com, etc. provide information that serve educational purposes.

Journals : There are many e-journals available on the web. Facilitators can include online journals as an integral component of their learning materials with knowledge that can be regularly updated and links that can remain active. Online journals like www.rsc.org, www.journals.cambridge.org, etc..are a good source of information for helping learners to complete projects, assignments and other research work.

Software libraries or Digital libraries: Software libraries contain programs that the 4 learners may download to their own computers. However, some websites require specific viewers and plug-ins before learners can view the website. There is a range of software available from many websites on education,

which includes downloads for preschool, grade school and high school. The software library includes e-books, interactive CDs and teaching tools. The famous websites like www.chemsoc.org, www.library.thinkquest.org, www.iisc.ernet.in, etc. allow downloads of interactive CDs in various subjects. The knowledge mapping software designed to capture and organize brainstorming sessions into concepts and knowledge webs can also be used. A teacher can pose a problem before the students. The students thereby can create a diagram of ideas, web of ideas using hypertext and hypermedia for assembling and linking information to present their understanding of almost any topic. Simulated software can also be used to explore student's prior knowledge. The student makes choices while interacting with the software. Observing the choices and discussion made by the students enables the teacher to explore the student's prior knowledge and understanding about the same.

Interaction patterns : Some schools in India have started using the internet and intranet facilities to interact/ communicate with each other. The following patterns have been observed.

Teacher-parent interactions

William D. Muihead (2000) observed that online conversation with parents involved greater discussion about pedagogical issues and often focused on student learning than they had been in traditional school settings. Voice mail and other messaging systems help in encouraging both parents and students to leave messages to their teachers. In addition, the working parents and parents of hostellers have an opportunity to interact with the teachers at ease. The parents can also have the direct access to the classrooms instead of having their children's educational experiences filter and interpreted through the eyes of their children.

Teacher-teacher interactions

Teachers around the world can share their instructional activities and experiences with each other. The chat rooms like innovative teaching on www.yahoo.com and other websites like www.teachingideas.com, www.innovative-teaching.com, etc, serve this purpose. Teacher-student interactions and student-student interaction: this helps in creating a learning environment. The students can decide a time to meet online and discuss the various aspects of the course on weekends and holidays.

Online testing

The teacher may prepare a question bank or an objective type test and place it on the network. The students answer and submit the test. The immediate feedback and scores can be obtained by the student. The evaluation can be done by means of assignments in the form of presentations, documents, and audio visuals, drill and practice, online quiz in various subjects, etc.

A school website

A school website is an innovative way of creating learning environment as well as involving the society in the same. The major components of the classroom website are the home page which is linked to the student page, parent page, teacher page, teaching philosophy page and professional page.

Above mentioned are ways in which technology can be used in educational setting. The technology when used in teaching the curricula subjects like English, Science, Mathematics, Social studies help the students see the unseen, to test theoretical concepts, comprehend abstract ideas and communicate effectively. IT has also made a remarkable contribution to the field of distance education making it is possible to learn anytime, anywhere. However, all the advances in technology and its impact on 5 instructional modes have changed the role of a teacher from an instructor to a facilitator and creator of a learning environment.

Role of a teacher in the present era

The starting point of a digital classroom is a teacher. Teachers must be trained to effectively use the technology for planning and student instruction. The role of the teacher has subtly shifted from being the sole 'provider' of knowledge to being a facilitator as the student explores for himself, the expansive world of knowledge. From being a 'Sage on the Stage', to being a 'Guide by the Side'. In today's world, lifelong learning has become a critical determinant of success. And hence, more than mastering various competencies, the key skill required is learning how to learn. The Learning Management System (LMS) harnesses the potential of technology to improve learning outcomes and to prepare students for the accelerated changes in the world in which they live. According to the UNDP statistics in the year 2001, almost 80% of the teachers in developing countries feel that they are not prepared to use the technology. However, efforts are been made to make the teachers aware of the use of technology through pre-service and in-service courses. In addition, Intel® Teach, Edutech programs also aim towards making the teachers techno savvy and teach using the computers. Hence, the use of IT in teaching requires competencies on the part of the teacher and has indeed made the profession more challenging.

From above it is clear that the benefits of technology in the classrooms cannot be denied. Some factors that affect the effective use of technology for teaching and learning are:

Leadership qualities and attitudinal change

It is especially important at the school level for the principal and teachers to have a vision of what is possible through the use of technology, and be able to work with others to achieve the vision. Without this vision, and the translation of the vision into action, lasting school improvement is almost impossible.

Time consuming

It is true that in the initial stages, integrating technology into teaching and learning is a slow, time consuming process that requires substantial levels of support and encouragement from educators. But as the

teachers gain proficiency and become adept at technology usage, technology becomes a smart tool that allows them to work faster and better.

Infrastructure remains a serious barrier to technology adoption

It is very difficult to focus on integrating technology to support learning, if you cannot overcome basic technological equipment and facilities issues. Schools that serve students in economically backward areas typically have greater barriers than schools in affluent communities in getting the basics in place.

Table: Are you satisfying with the teaching professional job?

S.NO	ACCEPTENCE WITH THE PROFESSOR JOB	NUMBER OF THE RESPONDENT
1	Yes	75
2	No	25
	Total	100

Source:- Primary survey

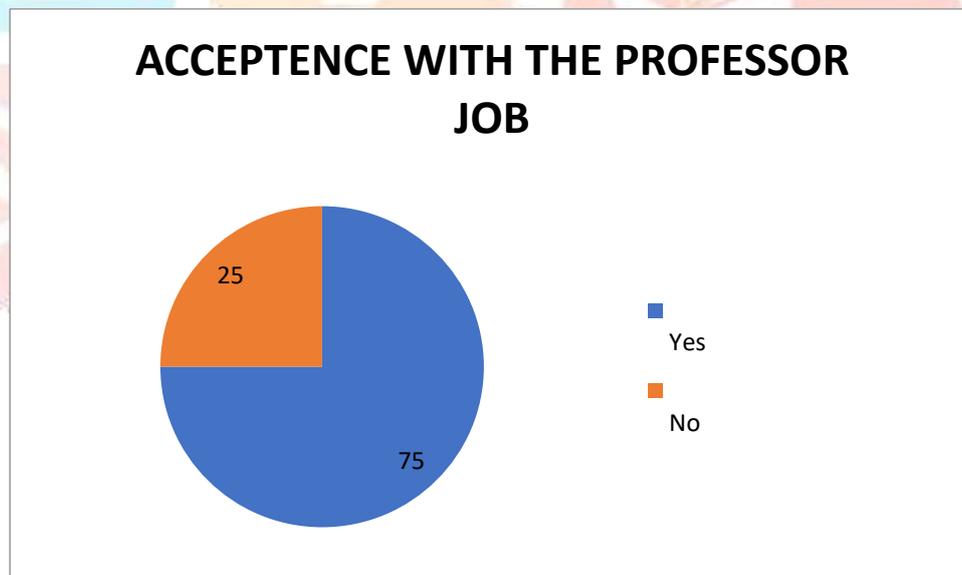


Table: The professor and students is co-ordinate with the institutions?

S.NO	CO-ORDINATE WITH THE INSTITUTION	NUMBER OF THE RESPONDENTS
1	Strongly satisfy	50
2	satisfy	30
3	Strongly dissatisfy	10
4	dissatisfy	10
	Total	100

Source: Primary Survey

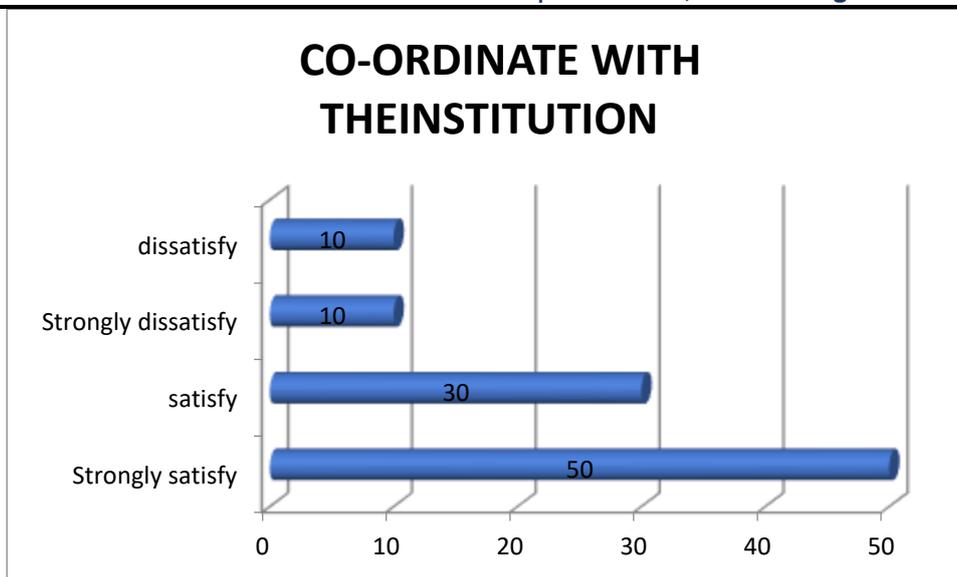


Table: did you enjoy with the teaching field?

S.NO	ACCEPTENCE WITH TEACHING FIELD	NUMBER OF THE RESPONDENT
1	Agree	65
2	Not agree	35
Total		100

Source: Primary survey

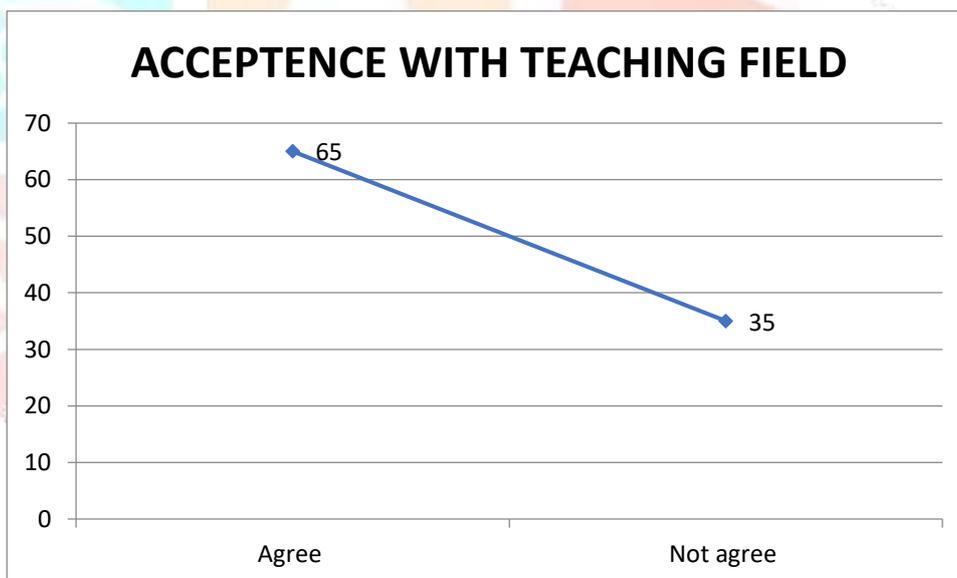


Table: How much obstacles or easy is it to stay back the institution to concentrate on our coursework?

S.NO	OBSTACLES OF THE STAYBACK	NUMBER OF THE RESPONDENT
1	Strongly Agree	40
2	Agree	30
3	Disagree	20
4	Strongly Disagree	10
Total		100

Source: Primary Survey

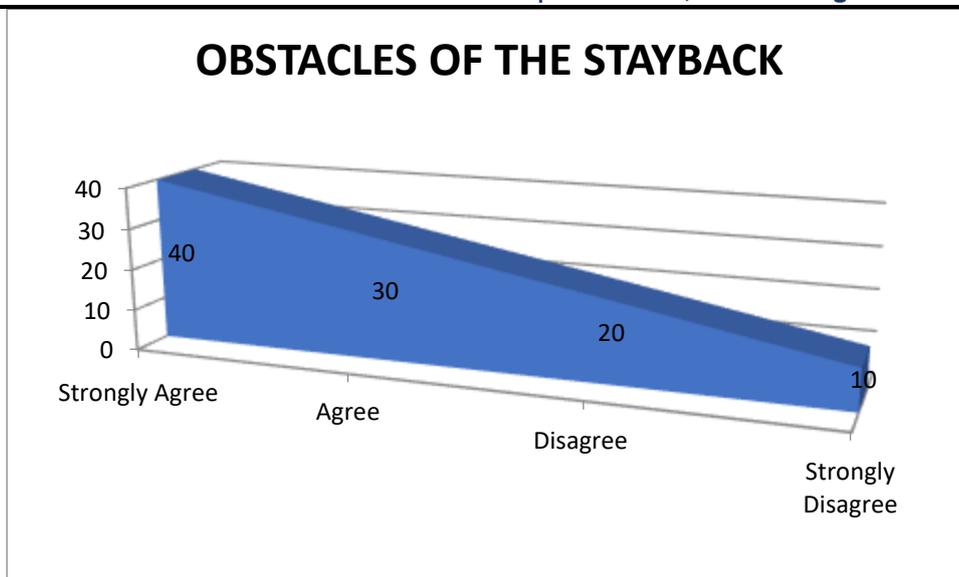


Table: The professor well communicate with the students or not?

S.NO	COMMUNICATION SKILLS	NUMBER OF THE RESPONDENT
1	Always Effective	40
2	Sometimes Effective	30
3	Just Satisfaction	10
4	Generally Effective	10
5	Very Poor Communication	10
Total		100

Source: Primary Survey

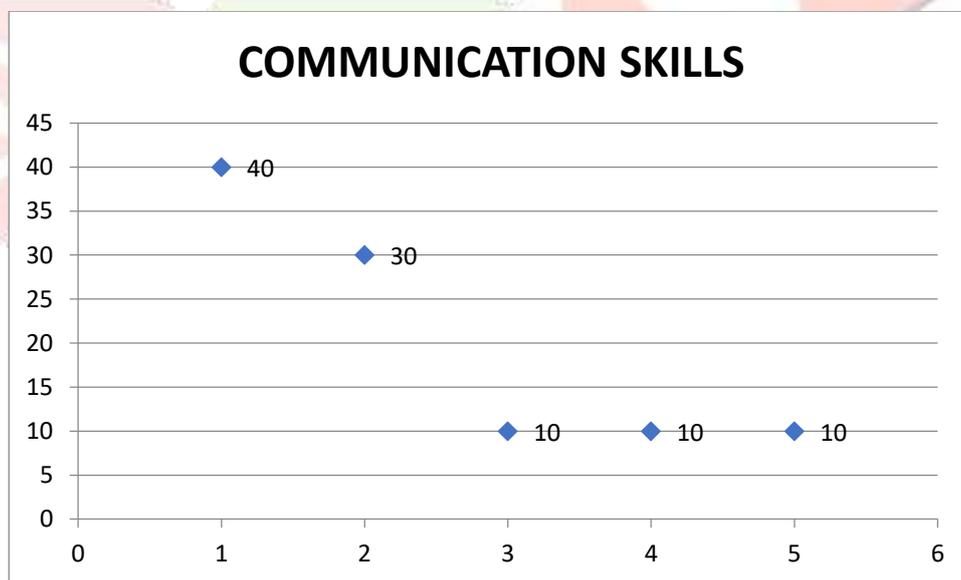


Table: How many times lecturer use ICT tools and LCD Projector?

S.NO	USES OF ICT AND LCD	NUMBER OF THE RESPONDENT
1	Above 90%	60
2	80%	20
3	70%	10
4	60%	10
Total		100

Source: Primary Survey

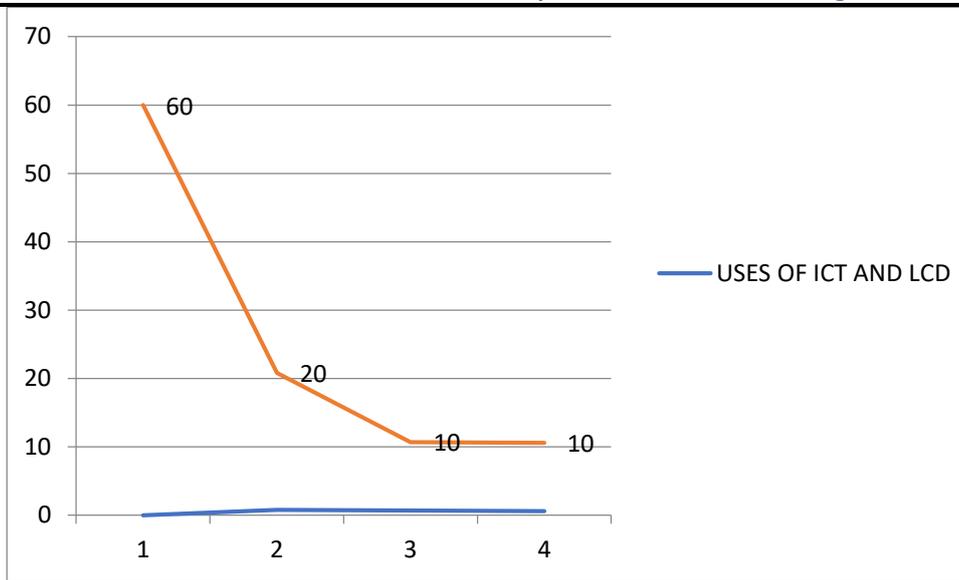


Table: the entire teaching quality and learning process in our institute is very good?

S.NO	QUALITY OF TEACHING AND LEARNING	NUMBER OF THE RESPONDENT
1	Yes, of course	80
2	No	20
Total		100

Source: Primary Survey

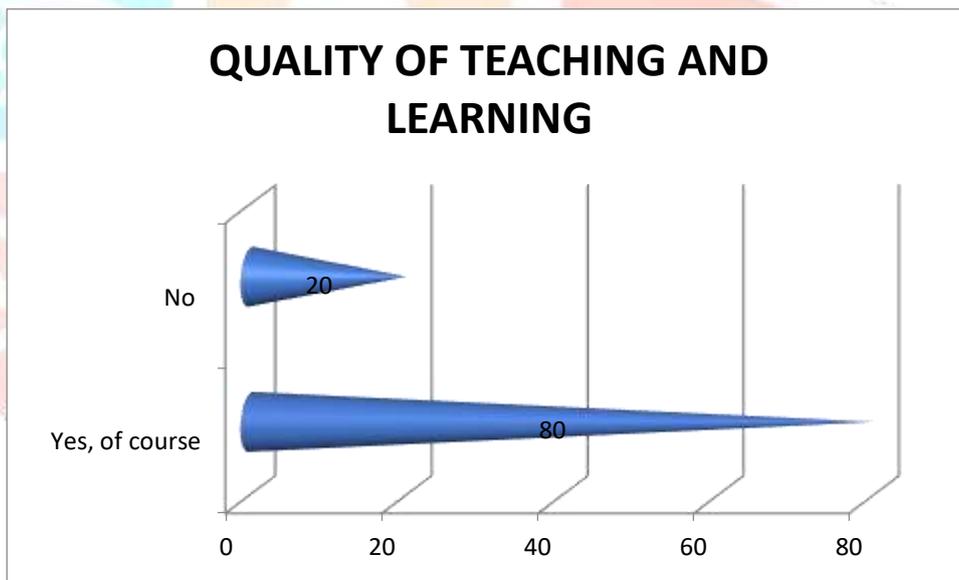


Table: Are you feel that yours teacher essential communication important information to you?

S.NO	ESSENTIAL TEACHING COMMUNICATION	NUMBER OF THE RESPONDENT
1	Agree	75
2	Not Agree	25
Total		100

Source: Primary Survey

ESSENTIAL TEACHING AND LEARNING

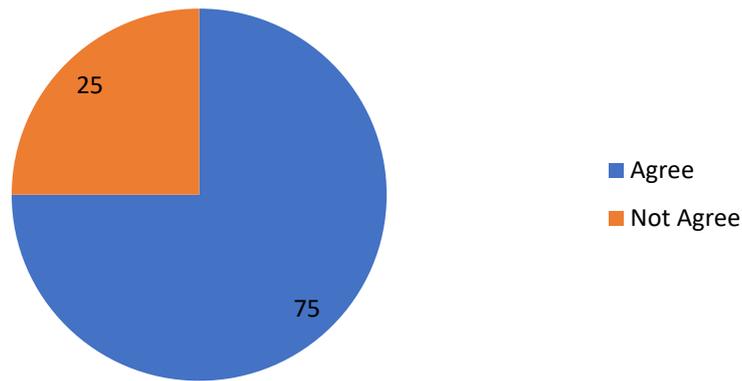
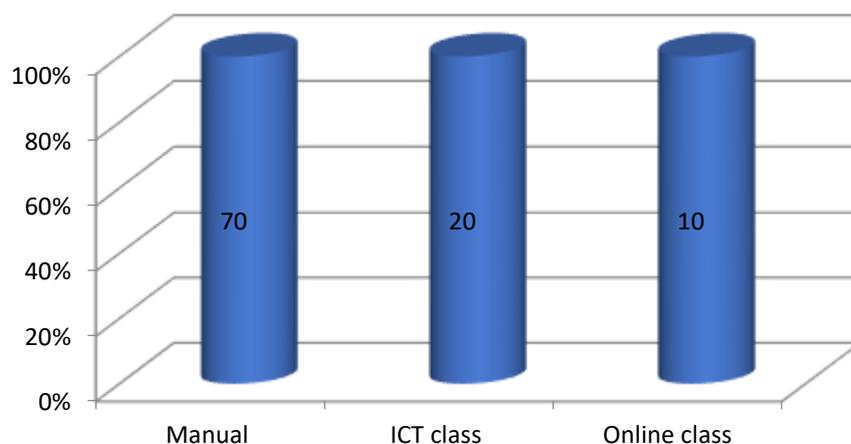


Table: which is the best method of teaching & learning field?

S.NO	METHOD OF TEACHING& LEARNING	NUMBER OF THE RESPONDENT
1	Manual	70
2	ICT class	20
3	Online class	10
Total		100

Source: Primary Survey

METHOD OF TEACHING& LEARNING



Findings

- 80% of the professors are teaching quality and learning process in our institute is very good.
- 75% of the lecturer essential communication important information.
- 75% most of the respondents are accepting the professional jobs.
- 70% of the students like to learn the manual method of teaching.
- 65% of the professors are rejoicing to work in the teaching field.
- 60% of the lecturers are teaching to the students by the way of ICT AND ICD projectors.
- 50% of the respondents are strongly agreed co-ordinate with the students and institutions.
- 40% of the lecturer taught the lesson well communication with the students always effectively.
- 40% of the tutors' obstacles to stay back the institution to concentrate on our coursework.

Suggestions

In the present days, all over teaching field method comes under the ICT on ICD projector method. Even Government schools, the Government orders to take on ICT class. Entire education is high – level technology techniques. Manual class day to day less. There is no writing work in the teaching field. Everything is uploaded in the systematic work. In an ancient period, teachers are dedicating the vocabularies the word and students can know new words and listening capacity increased.

Conclusions

India being a developing country faces the problem of practicability to a great extent. There are various programmes and projects via which the government is making continuous efforts to make technology reach all parts of our country. Thus, influence of IT in education cannot be underestimated. It is rightly said, ‘an able teacher need to find ways and means to improve their teaching techniques-using IT is one of them. Educational Innovations certainly do not come about automatically. They have to be invented, planned, initiated and implemented in a way that will make educational practices more adequately geared to the changing objectives of instruction and make them more consistent with changing standards of instruction.

Results

Both manual and ICT class important in the future generations.

