



CHAPTER I
INTRODUCTION

The integration of information and communication technologies in teaching in general and teacher education in particular is the need of the day. Its adequate recognition and fulfilment of relevant needs is crucial for integration and effective utilization of quality educational programmes.

Educational sector has been considered as one among the major beneficiaries of information and communication technology. Educational institutions have realized the importance of adopting information and communication technology and are now investing in building information and communication technology infrastructure to help both teachers and students in teaching as well as learning process. It has become inevitable for both teachers and students to adopt information and communication technology for their academic purpose and knowledge betterment. Hereafter information and communication technology will be referred to as ICT in the subsequent paragraphs.

1.2 Meaning and definition of ICT

ICT is an acronym that stands for **information and communications technology**; however, its scope is much broad. Apart from explaining an acronym, there's no universally accepted definition of ICT because the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis and it's difficult to keep up. Although there is no single, universal definition of ICT, the term is generally accepted to mean all devices, networking, components, applications, systems, software and other means of communications example: e-mailing, social sites that combined allow people and organizations (i.e., businesses, governments and criminal enterprises, NGO, educational institutes) to interact in the digital world. A good way to think about ICT is to consider all uses of digital technology that exist to help individuals, businesses and organisations use information. ICT encompasses any product that will store, process, retrieve, manipulate, transmit or receive information electronically in a digital form. For example, personal computers, scanners, CD, DVD, memory stick, digital television, Internet, email, robots. Some definitions of ICT are given bellow

ICT: Information Communication and Technology, it refers to the usage of electronic devices or application encompassing radio, television, cellular phones, computer network hardware and software satellite systems and so on as well as the

various services and applications associated with them (Arulsamy and Sivakumar,2009).

ICT is a technology that supports activities involving information. Such activities include gathering, processing, storing and presenting data increasingly these activities also involve collaboration and communication (Shukla, 2016). Moreover, we can say that ICT as an umbrella term, covers any product that will store, transmit, receive information electronically in a digital form example: computer, internet, scanner etc.

1.2.1 Components of ICT

ICT encompasses both the internet-enabled sphere as well as the mobile powered by wireless networks. It also includes antiquated technologies, such as landline, telephones, radio, telegraph, fax and television broadcast - all of which are still widely used today alongside cutting-edge ICT parts such as artificial intelligence and robotics. The list of ICT components is exhaustive, and it continues to develop. Some components, such as computers and telephones, have existed for decades. Others, such as smart phones, digital TVs and robots, usable software, applications are more recent entries. Internet access, data, cloud computing, communication technologies, software, hardware, transaction are the main components of ICT

1.2.2 Characteristics of ICT

Some important characteristics of ICT have to be considered while integrating ICT in e-learning are as under:

- Faster
- Cheaper
- Fewer Steps
- Lower costs
- Less People
- Less paper work
- Most interactive
- Fewer errors
- Customized
- Personalized

- Achievable
- Transparent
- Searchable
- New Products
- New techniques

1.2.3 Importance of ICT

The potentials of information and communication technology (ICT) to facilitate students learning, improve teaching and enhance institutional administration had been established in literature. The use of information and communication technology as a tool for enhancing students learning teachers' instructions and catalyst for improving access to quality education in format settings has become a necessity for recognizing the impact of new technologies on the work place and everyday life. The initiative of ICT Policy in School Education is inspired by the tremendous potential of ICT for enhancing outreach and improving quality of education. The National Centre for Technology in Education (NCTE- 2000) states that ICT being an interdisciplinary domain focuses on providing students with the tools to transform their learning and to enrich their learning environment. As per teacher education curriculum frame work by NCF (2005) teacher education institutions are expected to equip future teachers with latest methods, techniques and strategies for imparting instruction, including the use of technological equipment. Some key points are

- ICT is an essential tool in the modern classroom, it can engage pupils on a number of levels and make the job of the teacher considerably easier. However, the use of ICT does not necessarily ensure good learning. There could even be a situation where the class is quite and engrossed in their computer/web-based activity, but getting no lasting benefit from the activity.
- It is impossible to separate engagement from getting pupils to think at a high level and making them independent learners-they are all linked. The aims of all three characteristics are to create an effective learning environment.
- Activities have a clear purpose and relevance.
- New knowledge is related to old.
- Presentation is varied.
- Activities generate curiosity.

- Pupils ask questions and try new ideas.
- pupil analyses their thinking/ learning.
- pupils gain satisfaction and enjoyment from their work.
- pupil gets a positive image of themselves as learners.

1.3 Role of ICT in improving the quality of education

Improving the quality of education and training is a critical issue, particularly at the time of educational expansion. ICT can enhance the quality of education in different ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training.

Motivate to learn

ICTs such as videos, television and multimedia computer software that combine text, sound, and colourful moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive media like radio makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered. More so than any other type of ICT, networked computers with internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events.

Facilitating the acquisition of basic skills

The transmission of basic skills and concepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice. Educational television programs such as Sesame Street use repetition and reinforcement to teach the alphabet, numbers, colour, shapes and other basic concepts. Most of the early uses of computers were for computer-based learning (also called computer-assisted instruction) that focused on mastery of skills and content through repetition and reinforcement.

Improved availability of study material

In traditional learning system, students and teachers are limited to get knowledge on a particular topic through printed materials only. But use of ICT facilitates them to get variety of study materials on a particular topic using internet from anywhere and anytime.

Support of distance education and e-learning

The use of ICT supports distance education and e-learning. Each of the different ICT prints, audio/video cassettes, radio and TV broadcasts, computers or the Internet may be used for this purpose. There is a minor difference between distance education and e-learning. The use of ICTs is higher in e-learning than distance learning.

Enhanced enrolment and examination process

Using ICTs, schools and universities can improve the admission process by putting admission form online and receiving filled form online. They can also generate admit cards for entrance examination online. Even they can conduct entrance and semester/annual examination online. This will speed up admission and examination process. It also helps in faster result declaration.

Assist in research activities

Application of ICT in education enriches the research activities. Researchers can get information about recent developments in different segments, collect variety of information on a particular topic, and can generate innovative ideas and new findings. Using appropriate software, we can easily calculate complex calculations and generate variety of graphs.

1.4 Attitude

Attitude is a psychological construct, a mental and emotional entity that inheres in, or characterizes a person. They are complex and are an acquired state through experiences. An attitude represents an evaluative integration of cognitions and effects experienced in relation to an object. Attitudes are the evaluative judgments that integrate and summarize these cognitive/ affective reactions.

Attitude can be formed from a person's past and present. In terms of social psychology an attitude is an evaluation of an attitude object, ranging from extremely negative to extremely positive. Evaluative conditioning could facilitate the development of attitude but not their change. Most contemporary perspectives on attitudes permit that people can also be conflicted or ambivalent toward an object by simultaneously holding both positive and negative attitudes toward the same object. This has led to some discussion of whether individual can hold multiple attitudes toward the same object. An attitude can be a positive or negative evaluation of

Process liking attitude to behaviour have been formalized in several models. The MODE (Motivation and opportunity as determinants of behaviour) model (Fazco,1990) assumes that attitude guide behaviour either through spontaneous or deliberate (reasoned) processes. The former depends on the strength of the attitude evaluation association. The latter is activated by strong motivation and opportunity to engage in conscious deliberation. The most prominent of deliberative process model is the theory of planned behaviour (Ajzen, 1985) in which overt action are taught to originate from behaviour intentions which are derived from attitude towards behaviour subjective norms on perceived social pressure regarding behaviour and perceived behaviour control and or perceived capability of behaviour. The latter component also may influence behaviour directly bypassing intentions.

1.4.2 Components of attitude

Affective component- The affective component of attitude refers to your feelings or emotions linked to an attitude object. Affective responses influence attitudes in a number of ways. For example, many people are afraid/scared of spiders. So this negative affective response is likely to cause you to have a negative attitude towards spiders.

Behavioural component- The behavioural component of attitudes refers to the way the attitude we have influences how we act or behave.

Cognitive component- The cognitive component of attitudes refers to the beliefs, thoughts, and attributes that we would associate with an object. Many times, a person's attitude might be based on the negative and positive attributes they associate with an object.

1.5 Need and justification of the study

ICT has great potential for enhancing teaching and learning outcomes. The realization of this potential depends much on how the teacher uses the technology. This would in turn depend, among other things, on the kind of training that the teacher has undergone. Teachers' attitude towards ICT is a very important factor which stake-holders ought to consider in implementing ICT in education. With the introduction of the new ICT initiatives, it becomes crucial particularly for newly qualified teachers to be confident in using ICT effectively in their teaching.

1.7 Operational definitions

Attitude: An attitude is a behaviour a person adopts toward other people, things, incidents, or happenings. It includes cognitions, reactions, intentions and response, behaviours. According to Thurston, "Attitude means the response given to any specific psychological thing in favour or in oppose". In this study, Attitude means the feeling, opinion and expression of student teacher towards ICT.

Student teacher: Student teachers are those who are getting training or studying in teacher education courses to become teachers. As and when their training period is over, they join the coveted profession of teaching and become full-fledged teachers. For the present study, the term student teacher indicates students studying in Three Year integrated B.Ed. M.Ed. course for academic session 2019-2022.

Information and communication technology (ICT): ICT stands for information and communication technologies and are defined, for the purposes of this primer, as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information in the field of education.

Attitude towards ICT: An evaluative nature of ICT resources toward some objective based upon cognitions, affective reactions, behavioural intentions, and past behaviours that can influence cognitions, affective responses, and future intentions and behaviours for student teachers.

1.8 Objectives

1. To study the attitude of student teachers towards ICT.
2. To compare the attitudes of male and female student teachers towards ICT.
3. To compare the attitudes of science and social science streams' student teachers towards ICT.

1.9 Hypotheses

- 1H_0 : There is no significant difference between male and female student teachers with respect to their attitude towards ICT.
- 2H_0 : There is no significant difference between science and arts streams' student teachers with respect to their attitude towards ICT.