CHAPTER I

INTRODUCTION

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1.1. Meaning of Information and Communications Technology (ICT)

Information and Communications Technology (ICT) is a complex and ever-changing term used to refer to technological tools that people use to communicate and to create, disseminate, store and manage information.

This definition of ICT indicates such technologies as radio, television, video, DVD, telephone, both fixed lines and mobile, satellite system, computer, and network hardware and software, together with the equipment and services that are linked with these technologies such as video conferencing and e-mail.

ICTs consist of three components.

- ICI - Infrastructure of Information and Communication: Which includes physical telecommunications systems and networks, such as cellular, broadcast, cable, satellite, postal services), with the associated services (Internet, voice, mail, radio, television). In other words, the services depend on the infrastructure. Their greater capability is toward export-oriented services due to multiservice or switching adaptability. The most important capability of the modern infrastructure is networking.
- Information Technology (IT) are tools associated with hardware and software for collecting, storing, processing, and presenting information.
- Communication Technology(CT) such as telephones, e-mails, chats, would help in the dissemination of information and would facilitate communication between students and teachers regardless of distance, time, and situations.

Therefore, ICT can be understood as integration of information technology with different kinds of communication technology with the help of appropriate infrastructure . It can be said that there is major role of information technology in enhancement of communication.

- Print based materials

- photography, pictorials, graphics, audio communication systems including audio broadcast
- telecommunication
- satellite communication
- computer based technologies like the internet and E-mail
- wireless communication
- mobile technology

Information and Communication Technologies is the term ICT. What it refers to here is the wide array of technologies enabling access to information through telecommunication. ICT includes must-have amenities: computers and all the software that run on it, along with the networks linking computers, and any digital communications equipment such as e-mail, telephone, and video conferencing delivering access to their users. And the 21st-century Information and Communication Technology (ICT) refers to all technologies and implements involved in communication, information processing, and the management of data. ICT also incorporates a tremendous amount of digital tools, including computers, the Internet, and telecommunications networks like mobile technologies. Indeed, the modern society affects how people work, learn, and communicate with others.

1.2. Definitions of ICT

ICT is the term used to describe the infrastructure and components that allow contemporary computing (Information and Communications Technology).Although ICT does not have a single universal definition, it is widely understood to refer to all the devices, networks, software applications and systems that together allow people to interact in the digital world (i.e., businesses and nonprofit organizations, governments, and criminal enterprises). ICT encompasses both the internet-enabled world and the wireless networks that power mobile devices. In addition to cutting-edge ICT aspects like artificial intelligence and robots, it includes out-of-date technology like landlines, radio, and television transmission. IT (information technology) is often used interchangeably with ICT (information technology), although ICT refers to a larger, more complete list of all components related to computer and digital technologies.ICT components are 9 many,

and they're only going to become longer. In the past, computers and telephones were commonplace. Others, including cell phones, digital TVs, and robots, are more recent additions.

According to Margaret Rouse " ICT (information and communications technology) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning" .

The UNESCO defines Information and Communication Technology (ICT) as ―scientific, technological and engineering disciplines and the management technique used in information handling and processing, their application, computers and their interaction with men and machines, and associated with social, economical and cultural matters.

1.2.1. Component of ICT

ICT consists of various components that facilitate information exchange and communication:

- Hardware – Physical devices such as computers, smartphones, servers, and networking equipment.
- Software – Applications and programs that help users perform tasks, including operating systems, office software, and communication tools.
- Networking – Technologies that enable communication, including the internet, Wi-Fi, and mobile networks.
- Telecommunications – Systems for transmitting data, such as telephone networks, fiber optics, and satellites.
- Data Management – Storage, retrieval, and processing of data using databases and cloud computing.

1.2.2. Characteristics of ICT

ICT has several key characteristics that define its role in modern society. These characteristics help in understanding how ICT influences different sectors such as education, business, healthcare, and communication.

I. Digital and Electronic Processing

ICT relies on digital and electronic systems, such as computers, smartphones, and cloud storage, to process and store information. Unlike traditional methods, digital processing makes data handling faster and more efficient.

II. Connectivity and Communication

One of the primary functions of ICT is enabling communication across distances. Technologies like the internet, mobile networks, and social media platforms help individuals and businesses stay connected in real time.

III. Automation and Efficiency

ICT automates repetitive tasks, improving productivity and reducing human effort. For example, banking transactions, online shopping, and customer service can be handled through automated systems

IV. Storage and Accessibility of Information

With ICT, vast amounts of data can be stored digitally and accessed instantly. Cloud computing and databases allow users to retrieve, edit, and share information from anywhere.

V. Speed and Accuracy

Compared to manual processes, ICT performs tasks much faster and with greater accuracy. Whether in business calculations, medical diagnoses, or online transactions, ICT ensures precise and reliable outcomes.

VI. Versatility and Integration

ICT is used across various industries, including education, healthcare, business, entertainment, and government services. It integrates multiple functions, such as multimedia, communication, and data processing, into one system.

VII. Global Reach

ICT eliminates geographical barriers, allowing individuals and organizations to connect worldwide. Online learning, international business transactions, and global collaboration are possible due to ICT.

VIII. Cost-effectiveness

Although initial investments in ICT infrastructure can be high, it reduces long-term costs by improving efficiency, minimizing paperwork, and streamlining operations.

IX. Innovation and Continuous Development

ICT is constantly evolving, with new advancements in artificial intelligence (AI), cloud computing, and block chain technology. It drives innovation and helps businesses and societies stay competitive.

X. Security and Privacy Concerns

While ICT enhances convenience, it also raises issues related to cyber security, data breaches, and privacy protection. Encryption, firewalls, and secure authentication methods help address these concerns.

1.2.3. Importance of Information and Communication Technology (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.
- Teaching children to think at higher levels, making them independent learners, and engaging them are all tied together with no practical separation possible. The aims of all three characteristics revolve around the establishment of a conducive environment for learning.
- Activities have a clear purpose and relevance.
- New knowledge is related to old. e 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

This is a pertinent issue at the time of educational expansion, improving the quality of education and training. ICT improves education in many ways: enhancing motivation and engagement for learners, obtaining the basic skills, and improving the teachers' training.

Motivate to learn

Growing examples of ICT are nowadays increasingly well-equipped to inspire authentic and challenging content while offering such inputs with videos, television, or multimedia computer software that integrate text, sound, and colorful moving images into classrooms. Meanwhile, interactive media like radio utilize 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 could enliven learner motivation, combining under one roof the media richness and interactivity of other ICTs with access and time to real people and real world events.

Facilitating the acquisition of basic skills

Basic skills and conceptual acquisition can also be achieved through drill and practice by ICTs for building the higher order thinking skills and creativity of learners. Programs such as Sesame Street, for instance, will repeat and reinforce the teaching of letters, numbers, colors, shapes, and other fundamentals. Most early applications of computers were for computer-based learning (computer-assisted instruction) that relied upon drill and practice to attain mastery of skills and content.

Improved availability of study material

In traditional learning, students and teachers learn a certain subject through printed materials. ICT gives an opportunity to students and teachers to view various study materials on a particular subject using the internet from any place and at any time.

Support of distance education and e-learning

The use of ICT supports distance education and e-learning. Each and every one 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. This happens because the application of ICTs is greater in e-learning than distance learning.

Enhanced enrolment and examination process

This has changed the whole thing, as ICTs can bring improvements in the admission process in schools and universities. Admission forms could be generated and made available to be filled online; they could also be used to create admit cards. Such institutions could even conduct entrance and semester/annual examination online. This will save time from admission and examination processes. It also facilitates fast declaration of results.

Assist in research activities

The focus is on effective and impactful ways in which integrated technologies could enter the education condition and enrich research agendas. Researchers can get information about recent developments in that specific segment. It can collect data from various sources of information on a specific topic. Partaking with software makes these kinds of calculations easy. They produce different graphs**.**

1.4. Attitude

It is a person that has all the other attributes to constitute an attitude - mental and emotional entity, lasting or relatively permanent. It is complex and an acquired state through experiences. An attitude, on the other hand, comprises an evaluative integration of cognitions and effects experienced in regard to an object. Attitudes are the evaluative judgments that integrate and summarize this cognitive/affective reactions. Thus attitudes could be past and present of a person. Attitudes can be of an evaluative nature with respect to an attitude object in social psychology and could go from very negative to very positive extreme levels. Evaluative conditioning could be used to derive an attitude, though it does not change it. Most contemporary approaches to attitude research prescribe that people can also be ambivalent or conflicted toward an object by possessing not only attitudes toward but also positivity and negativity toward that very object. It has sparked some debate about whether people could have several attitudes toward the same object. Attitude could be a plus or a minus evaluation of Process liking attitude to behavior have been formulated in numerous models. The MODE (Motivation and opportunity as determinants of behavior) model (Fazco,1990) assumes that attitude would guide behavior through spontaneous or deliberate (reasoned) processes. The former is dependent on how strong the attitude evaluative association is, and the latter is activated with strong motivation and opportunity to engage in conscious deliberation. The most prominent of deliberative process model is the theory of planned behavior (Ajzen. 1985) in which overt action are taught to originate from behavior intentions which are derived from attitude towards behavior subjective norms on perceived social pressure regarding behavior and perceived behavior control and or perceived capability of behavior. The latter component also may influence behavior directly bypassing intentions.

Components of attitude

Affective component-

An affective aspect of the attitude towards the stimuli is the feeling or emotion about an attitude object. Affective responses may influence attitudes in several different ways. For example, most people go afraid/scared of spiders. This negative affective response is likely, thus, to make him or her develop a negative disposition to spiders.

Behavioral component-

The action behavioral component of attitudes refers to how our attitude affects what we do or how we behave.

Cognitive component-

The cognitive component part of attitudes involves beliefs, thoughts, and attributes we associate with any object. At times, there may be a contradiction between a person's attitude and the negative and positive characteristics that come to one's mind regarding an object.

1.5. Need and justification of the study

In fact, ICT has every capability of providing a very high enhancement- of teaching and result outcomes. However, the realization of this fact largely depends on how that subject teacher uses the technology. This would further depend among other things on the kind of training the teacher has undergone on his or her own. Teachers' attitude towards ICT is one most important factor for the stakeholders to consider in implementing ICT in education. With new ICT interventions, it becomes necessary especially for newly qualified teachers to become sure of using ICT in teaching effectively.

1.6. Operational definitions

Attitude: Attitude is what one person does toward another person, to things, events, or happenings. It encompasses cognitions, reactions, intentions, and responses behaviors. According to Thurston, “Attitude means the response given to any specified psychological thing in favor or in oppose.” In this study, attitude refers to student teachers' feelings, opinions, and expressions toward ICT.

Prospective teacher: Prospective teachers are those undergoing training or pursuing studies in teacher education courses with the attainment of the status of a teacher as their target. Upon the completion of their training period, they join the sought-after profession of teaching and become full-fledged teachers. For the purpose of the present study under consideration, the term student teacher denotes students studying in the D.Ed. course for the academic session 2023-25 and 2024-26.

Attitude towards ICT:An evaluative nature of ICT resources toward some object based on cognitions, affective reactions, behavioral intentions and past behaviors that can influence cognitions, affective responses, and future intentions and behaviors for student teachers.

1.7. Statement of the Problem

A STUDY OF ATTITUDE TOWARDS ICT AMONG PROSPECTIVE TEACHER IN TEACHER EDUCATION OF KEONJHAR DISTRICT ODISHA.

1.8. Objective

I. To study the attitude of prospective teachers towards ICT.

II. To compare the attitudes of various teaching education course towards ICT.

1.9. Research Question

I. What is the overall attitude of prospective teacher, towards use of ICT in Education?

II. Are there significant differences in ICT attitudes among prospective teacher based on various courses?

III. Is there a correlation between access to ICT resources and attitude of prospective teachers towards ICT?

1.10. Delimitation Of the Study

I. The study is delimitated to the college of Keonjhar District of Odisha.

II. The study is limited to ETEI and AATC Keonjhar.

III. The Study is limited to the institutions offering teaching course D.Ed. and B.Ed level

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