CHAPTER I
INTRODUCTION

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1.1 INTRODUCTION

In the present digital era, the development in several of computer technology has reached beyond imagination and expectation. Even though computer has a lot of applications in various fields one should not forget its application in the field of education.

World is progressing rapidly with the help of computers in very lesstime, man has brought about his own progress and computer has become part of his life and its scope is increasing day by day. Computer has become most important part of ones life and one cannot act without computers in any field for eg. Banking, Education, Science, Business, Sports, Tourism etc. in all these lines work has become difficult without computers It palys an important function in the teaching and learning process therefore computer have created a revolution in the content of education and in the nature of learning process they have the capability of multiplying the human intellect beyond part conceptions and have tremendous implication in education.

Computer Awareness means the knowledge of computer hardware input devices as output devices ets and the skill of using various applications like MS word, Microsoft excel, PowerPoint, internet etc. of computer and to test the awareness of usage of computer in education and other fields.

The central and state governments have taken tremendous efforts to implement the computer education in schools. State government has introduced computer related courses in the higher secondary school and in other classes also the government has started supplying computer to higher secondary school with suitable software.Government has made computer literacy a must in every field.

The Organisation Structure
The school operates as part of the parent organisation which is the Department of Ministry of Human Resource Development (HRD), Government of India. It is important for the Principal to have an understanding of the functioning of the structure so that actions at the level of the school fit harmoniously into the objectives of the whole organisation.
In line with the Programme-Based Budget (PBB), the Principal has an important role in ensuring that objectives has to be achieved.
Management Structure of the Ministry
The Ministry functions with a central structure at its headquarters having the responsibility of Education and Human Resources at the national level set up to manage education in the four geographical zones.

Ministry’s Headquarters
The Administrative Cadre comprises the Principal Assistant Secretaries (PAS) and the Assistant Secretaries (AS) whereas the Technical Cadre consists of the Chief Technical Officer (CTO), Directors, Assistant Directors (AD) and Administrators (Adm.). The Chief Technical Officer is the Head of the Technical Cadre and reports directly to the Permanent Secretary.

With the present structure, responsibilities at the central headquarters level are shared among seven Divisions1 as follows:

- Co-curricular and Extra-curricular Projects and Activities
- Curriculum Development and Evaluation
- Human Resource Management and Development
- International Relations and Educational Reforms
- Planning, Procurement and Infrastructure
- Post-Secondary, Tertiary and Vocational Training
- School Management

Each of the above Divisions is headed by a Director and the tasks allocated is accomplished by an Assistant Director and Administrators. Administrative support is provided to the divisions by Principal Assistant Secretaries and Assistant Secretaries. Various other units provide support for the general administration of the Ministry.

The Zone Directorates—At the regional decentralised level, are the four Zone Directorates, each headed by a Director, who assists colleagues Directors at Headquarters, reports to the Chief Technical Officer (CTO). Directors posted at
headquarters are required to communicate with the Zone Directorates for the smooth running of all activities.

The Zone Director is assisted by an Assistant Director and by Administrators. The directorates are responsible for the management of all matters pertaining to education in their respective zone and especially for the smooth running of the schools falling within their zone. With the decentralisation of services, the following subdivisions have been set up in each directorate:

1. Human Resource Section
2. Finance Section
3. Stores and Procurement Section
4. Maintenance Unit
5. Educational Psychologists and Social Workers Unit

Each Principal is responsible for his own school but he has to report to the Zone Director who has the responsibility for the smooth running of all schools in the Zone from the pre-primary to the secondary level. The education ministry has to be constantly kept informed, through the Director of Zone, of the running of the school and its performance.

1. The Ministry has to be constantly kept informed, through the Director of Zone, of the running of the school and of its performance.

2. For all the issue pertaining to services and procedures the principal has to communicate it to the zone Director.

3. With decentralisation, Heads of School are empowered and, at the same time, required to take necessary action at their end towards solving problems at their level. Problems should be referred to the Director of Zone only when the means required are beyond the school’s capacity or resources.

**The school**

The school community consists of teaching staff, non-teaching staff, students and parents. With each of the stakeholders having its own personality, needs and
expectations, the Principle is required to create favourable environment to cultivate mutual understanding and harmony. This will result in whole team working collectively and collaboratively, towards promoting the interests of all students and the school community at large.

The Students
The students are central goal of the school and all the activities of the institution are functioned towards promoting their interest. In this respect, it is important to highlight that the student community legitimately needs to understand the decisions taken and even to take part in their making. Thus, in a spirit of good governance, the Principal should, as often as required, consult students and en-list their participation for the effective running of the school.

The Principal and his staff should work towards providing a good education to all students, irrespective of their varying abilities. All students are to be treated with respect and provided equal opportunities to learn together.

This holistic view is adopted in the planning of classroom activities in order to provide to each and every student opportunities for participation and sharing in the work of the class through a wide range of working methods and individual treatment.

The Principal-The Principal has the overall responsibility for the smooth and effective functioning of the school and, as such, he is the empowered authority within the institution. However, this also makes the Principal accountable to the higher authorities.

As the leader, the Principal builds and escort his teams in providing them with the required support and motivation, listening to their views, their problems and valuing their effort, support and contribution.

Sharing and ownership of the vision of the Ministry-Sharing and ownership of the vision of the Ministry is essential from all sections, i.e. from headquarters to schools: The Head of school has to ensure that actions taken at the level of the school are in line with the Ministry’s vision and policies and are functioned towards its
implementation. Principal is also responsible for facilitating the implementation of all reforms and educational projects with a view of attaining the national goals for education. In line with the vision of the ministry, the Principal has to perform his duties which are of three kinds: administrative, pedagogical and socio-cultural.

**Administrative**: Organising work, forming of committees, attending and chairing meetings, attending to files and mail, writing reports, supervising staff and administration of personnel matters, administration of student matters, including organisation of examinations and enforcement of Rules and Regulations, management of human, financial, material and infrastructural resources.

**Pedagogical**: Controlling the implementation of the curriculum, planning, organising and monitoring of teaching and learning and other educational activities, managing learning resources and ensuring the quality of the education imparted at school.

**Socio-cultural**: Promoting culture and social values, enhancing school environment, promoting personnel hygiene, developing partnership with the community.

Among Principals numerous responsibilities, the following need to be underlined:

- To ensure that most important activity i.e teaching and learning takes place effectively and efficiently in the institution
- To plan and implement strategies for school improvement
- To ensure the security and safety of all staff and students at school
- To ensure the maintenance of the school building and premises
- To ensure the security and safety of all assets and equipment at school
- To manage and supervise the staff working under him, ensuring that they are aware of and stand by official instructions
- To make optimal use of all resources allocated to the school

**The teaching Staff**

Teachers are responsible for the overall development of the students, imparting them necessary knowledge and skills as well as building their character and personality so that they become learned, responsible and disciplined citizens. They have to prepare students and ensure their readiness for further studies and for the global competitiveness as well as for life in society. This approach is based on the four pillars: learning to know, learning to do, learning to live together and learning to be.
The administrative staff

The administrative staff comprises of the senior School clerk, computer operator, Library officer and office staff. They provide all the necessary support to the Principal in the accomplishment of his administrative duties. Details of their duties are laid down in their servicebook.

School Bodies–The Senior Management Team (SMT)

It comprises of –

- The Principal
- The Vice-Principal
- Senior members of teaching staff

Their role in School- To create and implement a shared vision within the school community. To help the Principle make important decisions regarding school policy and Orientation. To help in the formulation of the School Development Plan that will usefully direct actions at the level of the school.

The Student Council- It ensure a smooth flow of information between management and students. It consist of representatives of different segment of the student community which are elected by the students themselves. It must be ensured that each class has a class coordinator.

Objectives of student council-

- To promote positive relationships as the basis for a whole school culture
- To inform the Principal of inadequacies within the school premises
- To express the opinions and feelings of fellow students and share their problems.
- To participate in the organisation of school activities such as Sports day, Annual day, Project competitions etc
- To draft its rules and regulations and submit them to the Principal for approval.
The Parent Teacher Association (PTA) - It consists of all parents who are members of the association. The managing committee comprises a given number of parents elected during the Annual General Assembly. The Principle acts as advisor to the association.

Objective of the parent teacher association (PTA) -

- To promote the welfare of students
- To provide support to the school and help towards enhancing
- Its physical environment, equipment and other facilities
- To raise funds and provide financial support for school projects and the organisation of events such as sports day, annual day etc.

The Social Partners

The school is as an open system connected to and interacting with its environment. A closed system is one which is isolated from its environment and independent of external factors. At the same time, other institutions like NGO’s, Industry partners, parents play an important role in the common educational enterprise and it is important that the school develops dynamic partnerships with the community, enlisting its support in the accomplishment of its mission. The Principal acts as the interface between the school community and the management at ministry’s level, facilitating the communication between the two.

The Information System

At all stages of planning and control, decisions have to be taken in response to choices and options regarding how the school responds to its environment and how its internal activities are to be run. However, decisions are not made without information and for this reason the head will need to examine how data produced at the school are being collected and processed to provide information to management. He will thus ensure that the school has a system of information that is organised in a satisfactory manner to collect relevant data and to readily provide accurate, up to date and timely information, thereby allowing him to make informed decisions at the right time. The use of information technology for creating and maintaining the database is highly recommended as it certainly eases and quickens both the processing and the retrieval of information (information reporting).
**Steering the system**

In order to drive the system towards its goals, the Principle, as the manager of the institution has to attend to two very important tasks among others: planning and controlling the activities of the school.

**General principles of school strategic planning**

According to Fayol (1918), planning is a kind of future picture wherein proximate events are outlined with some distinctiveness, while at the same time remote events appear progressively less distinct.

According to Teddy (1993), planning is a method or techniques of looking ahead. In brief, planning is deciding in advance what to do, how to do it, when to do it and who is to do it.

Strategic plan is an analytical thinking that goes on top level of management that determines the appearance of the organisation (of school) at the point in future.
A strategy determines the direction in which the organisation needs to fulfil its vision and mission.

According to Peter Drcker(2004) strategic planning is the analytical thinking and commitment of resources to action
A strategic plan acts as a road map for carrying out the strategy and achieving longterm results

**Why is school strategic planning important**

Without a strategic planning, a school is like a car without a driver.
- We develop the strategic plan to:
  - Set objectives
  - Determine how to use our resources and maximize the use of resources both human and non-human resources.
  - Facilitate the formulation of a school vision and mission
  - Help in innovation and build a team with common vision
  - Facilitate resource mobilization
**Benefits of strategic planning** - The following are some of the benefits of the school strategic planning:

- The school strategic planning enables stakeholders to establish clear priorities.
- It provides a sense of direction: planning saves the school from drifting and avoids aimless activities.
- It encourages innovation and creativity: Innovation and creativity are features of a school that is growing and developing.
- Helps in coordination: Sound planning helps to harmonize activities and efforts within the school from different departments.
- Guides decision-making: Planned targets serve as the criteria for the evaluation of different alternatives so that the best course of action is chosen. By predicting future, planning helps in taking future-oriented decisions. Sound plans prevent hasty judgements and haphazard actions.
- Provides a basis for decentralisation: Planning helps in the delegation of powers and authority to lower levels of management.
- It provides efficiency in operations: Facilitates optimum utilisation of available resources.
- Facilitates control: Planning provides the basis for control. Plans serve as standards for evaluation of performance.

**School strategic planning process** - The school as a learning centre has to address those development problems by contributing effectively to the achievement of the objectives set at different levels: District level, national level and international level. Therefore, the school strategic plan should take into account macro planning at different levels. The school strategic plan should be based upon the following foundations to be effective:

- The Millennium Development Goals (MDGs) – internationally agreed targets to improve people’s lives.
- The National vision and economic development.
The specific objectives of education in India and expected outcomes and policies in Education

Stakeholders’ analysis
Stakeholders of schools are: The Ministry of Education and other ministries, the local authorities, school suppliers, different partners in education, parents, NGO’s. Their stake in contributing towards mobilising the school resources how they will share on the existing resources.

Plans for Implementation
In order to implement the school strategic plan covering a long period i.e 3 or 5years, the school management committee and other school stakeholders will need to proceed by breaking down long-term activities into small and short term actions for an easy execution of the long plans. Plans for implementation commonly known as operational plans are asked upon a period of a year (annual action plan), a term/semester and on a day(diary management plan). Furthermore, every person with a role to play in implementing the strategic plan should have a clear understanding of their individual responsibilities, for example through an annual activity plan. The head teacher is accountable for the overall progress of the strategic planning through coordination.

Development of the annual action plan
Action plans define how we get where we want to go, the steps required to reach our strategic goals. They identify who will do what, when and how. Here are things to consider when developing annual action plan:

There are 5 key steps are involved in school development of the strategic plan-
Step 1- related to the situation analysis enables to detect the strengths, weaknesses, opportunities and threats of the school at a given time. This step gives out the picture of the situation that needs to be reversed. We use SWOT technique as an approach.
Step 2- related to problem analysis(problem identification). This is an exercise in addition to a SWOT analysis which helps the school management team to understand what the challenges or problems are that are hindering the development of the school. The problem known as CORE PROBLEM will help in step3 where we set our objectives. The problem tree approach was used to find out causes and effects of the core problem.

Step 3 - is about setting objectives for the school plan. It is about converting the core problem and its causes and effects into a positive situation, as if the situation was addressed and improved. The objectives should be designed in a way that they fit with the specific objectives of education in Pune.

Step 4 - is about putting together objectives and strategies into a reasonable log frame.

Step 5 - is concerned with breaking down the long-term objectives into specific activities to be carried out annually, half-yearly, monthly, weekly and even daily as appropriate.

MONITORING AND EVALUATION

Why do monitoring and evaluation?
Through monitoring and evaluation, one can:

- Review progress
- Identify problems in implementation
- Make adjustments so that you are more likely to make difference.

Importance of monitoring and evaluation
It enhances the level of accountability in school management: the contractual engagement in strategic plan implementation puts each and every active school committee member in a situation that obliges him to provide evidences that activities undertaken are in the school plans and will help in achieving the school vision and objectives. A reporting system which is done weekly, monthly, termly, annually should
be setup to provide a mechanism for determining whether stakeholders are meeting their responsibilities.

It enables effective coordination: To achieve its goals, activities included in the school strategic plan should be coordinated so that various services are ordered to make a smooth functioning of schools.

For an effective coordination, the school management committee should organise different meetings in order to find out and know the progress of activities and operate useful adjustments for innovative measures in plan implementation.

It helps in conducting control over implementation: Once an error occurs, it is always good if the management identifies it on time. It is always the role of the management committee to regularly check planned activities in order to prevent any risk of making inappropriate decisions.

It enables to review progress or celebrate success once planned objectives and strategies are achieved and implemented.

**Controlling the system:**
Control is the process of ensuring that resources are obtained and are used both effectively (resources are used to achieve the desired ends) and efficiently (input resources produce the optimum amount of outputs) in the accomplishment of the objectives. Feedback is required for the manager to take control measures and ensure that actual results do not deviate from the expected results or goals. A dashboard or control panel is useful for monitoring performance. The Principle will examine, together with his collaborators, relevant feedback provided on the dashboard in order to assess the functioning of the institution and find explanations to the results being output. This will allow him, if need be, take corrective measures to enhance performance.
Fig. 1.1 School strategic framework

Value → Vision → Mission

Problem Identification → Overall

Overall → Strategic Objective

Strategic Objective → Action Planning

Action Planning → Controlling

Controlling → Implementation
Fig – 1.2 POLICY FRAMEWORK AND DEVELOPMENT

- National Education Vision
- National ICT Vision
- National ICT Education Policy
- ICT Strategic Object
- Regulatory Framework
- Infrastructure Framework
- Action Planning
- Implementation

- Designing for Learning
- Learning, Teaching
- Assessment
- Teacher ICT Capabilities
- Student
- Learning Resources
- Monitoring & Controlling

Technological Advancement
Pedagogical Paradigm
Some of key aspects of information

1. Information - Information consists of data that have been retrieved, processed for informative or inference purposes, for forecasting and for decision making (Ckumar, 2004). In simpler term the processed data is information.

1.1 Role of Information - Every society has its own significant resource. In agricultural society, labour was essential input. In industrial society, capital played a vital role and in information society, information has become a strategic resource. Therefore preservation and access of information is an essential factor in human progress. It is also an essential input for decision-making (Dhiman, 2005). Thus, information is certainly

- a vital element for creativity and innovation;
- a basic resource for learning and thought;
- a key resource in creating more knowledgeable citizens;
- a factor that enables citizens to achieve better results in their academic lives, with regard to health; and at work;
- important resource for national socio-economic development.

1.2 Information Society and its impact - Human society is always changing and moving towards better socio-economic and cultural situation than ever before. The present society is becoming increasingly more centered on information handling, processing, storage and dissemination using microelectronic based technologies, especially those made available through convergence of computer with telecommunication namely IT. Therefore, the present society is called information society. In this society information is key resource and plays an important role. The term information society and similar concepts such as information age and knowledge economy describe a society in which there is a great dependence on use of information technologies to produce all manners of goods and services (Lal, 2008).

1.3 The need for Effective use of Information - Information has become a vital source for world economies and is certainly the basic component of education. Information is a vital element to technological and scientific change. It poses several challenges to individuals of all walks of life: students, workers, and citizens. The
current information overload requires people to validate and assess information to verify its reliability. Information by itself does not make people information literate.

1.2 Information Literacy - Final report of American Library Association (ALA) Presidential Committee (1989) on information Literacy states, “to be an information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (IFLA)

1.2.1 Need for Information Literacy - Information Literacy is increasingly important in the contemporary environment of rapid technological change and proliferating information resources. Because of the complexity of this environment, individuals are faced with diverse information choices in their academic studies, the workplace, and in their personal lives. Information comes to them in unfiltered/filtered formats, raising questions about its authenticity, validity and reliability. In addition, information is available through multiple media, including graphical, audio and textual, posing large challenges for society. Information Literacy forms the basis of lifelong learning. It is common to all disciplines, to all learning environments and all levels of education. It enables the learner to master the contents and extend their investigations. Association of College and Research Libraries (ACRL) sets following standards of Information Literacy. An information literate individual is able to

i) Determine the extent of information needed.
ii) Access the needed information effectively and efficiently.
iii) Evaluate information and its sources critically.
iv) Incorporate selected information into one’s knowledge base.
v) Use information effectively to accomplish a specific purpose; and
vi) Understand the economic, legal, and social issues surrounding the use of information, access information ethically and legally (ACRL, 2002).

1.2.2 Other “Literacy” - Concepts related to Information Literacy is linked with other types of related literacies, but it should be differentiated from them, especially from information technology, media literacy, network literacy, digital literacy, network or Internet literacy, “computer literacy” and “media literacy”. Computer and media literacies are clearly defined by Horton (F. Horton, Jr., personal communication, December, 2004) in the following terms (IFLA, Information Literacy Guidelines)
1.2.2.1 Computer Literacy-The knowledge and skills necessary to understand information and communication technologies (ICTs), including the hardware, the software, systems, networks (both local area networks and the Internet), and all of the other components of computer and telecommunications systems.

1.2.2.2 Media Literacy-The knowledge and skills necessary to understand all of the mediums and formats in which data, information and knowledge are created, stored, communicated, and presented, i.e., print newspapers and journals, magazines, radio, television broadcasts, cable, CD-ROM, DVD, mobile telephones, PDF text formats, and JPEG format for photos and graphics.

1.3 E-Information Literacy-It is conceivably the foundation for learning in our contemporary environment of continuous technological change. As information and communication technologies develop rapidly, and the information environment becomes increasingly complex, educators are recognizing the need for learners to engage with the information environment as part of their formal learning processes. Information literacy is generally seen as pivotal to the pursuit of lifelong learning, and central to achieving both personal empowerment and economic development. E-information literacy is a natural extension of the concept of literacy in our information society.

1.3.1 Requirements for E-Information Literacy
To acquire E-information literacy knowledge on other literacies is necessary for users, as:

- Traditional notion of literacy - to read and write.
- Computer literacy - to understand and operate computers which are interfaces between networked information and end users.
- Media literacy - to understand different media storing networked information and use them.
- Traditional Information literacy - to locate, select, evaluate and use effectively.
1.4. Information literacy and various initiatives in India

Information literacy is a vital skill to survive in the information age. Today’s age is full of Information and Communication technology (ICT) enabled services in every field of human life. Information is growing rapidly day by day and being codified in the digital form. Government is also keen to make the citizens information literate about its policies and programmes for various sections of the society. The Third Wave book, Alvin Toffler divided history of the evolution of human society into three major eras, or waves. The first wave, from 8000 BC to 1750 AD was termed the agricultural revolution, and was based on agriculture as the world’s primary occupation. In the second wave, from 1750 to 1955, the rise of industrial civilization and the industrial revolution marked the main occupation. The developed world was engaged in or moving toward mass production of industrial goods. The third wave, which began in the mid-1950s, is sometimes referred to as the information age and is based on the delivery of services. In the transition to the information/ knowledge based society, the important aspects are - development of ICT infrastructure for information accessibility and information literate citizen. If the large number of citizens becomes information literate, they will be able to utilize a substantial amount of information resources for the generation of wealth towards welfare of the society. They can be a driving force in demanding adequate information infrastructure. The information literacy also play a major role in e-literacy of the country.

1.4.1 The National e-Governance Plan (NeGP)

It is a holistic view of e-Governance initiatives across the country, integrating them into a collective vision, a shared cause. Around this idea, a massive countrywide infrastructure reaching down to the remotest of villages is evolving, and large-scale digitization of records is taking place to enable easy, reliable access over the internet. The ultimate objective is to bring public services closer home to citizens, as articulated in the Vision Statement of NeGP .Make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realise the basic needs of the common man”

1.4.2 Policy objectives- Policy objectives of the Department of Information Technology Government of India:
• e-Government: Providing e-infrastructure for delivery of e-services.
• e-Industry: Promotion of electronics hardware manufacturing and IT-ITeS industry.
• e-Innovation / R & D: Providing Support for creation of Innovation Infrastructure in emerging areas of technology.
• e-Education: Providing support for development of e-Skills and Knowledge network.

1. Andhra Pradesh ICT Policy 2005-2010
   • Development of skills in ICT for employment opportunities.
   • ‘Future Skills Unit’ to track technology trends and identify the future requirements in terms of skills and training.
   • Training incentives.
   • Harnessing new technologies, IT education in School curriculum.
   • Secondary and Vocational Education.

   • Objective—To encourage and accelerate the use of IT in schools, colleges in the state to enable the youth to acquire skills and knowledge to make them highly employable.
   • Encouragement for the use of IT in all educational Institutions.
   • Special grants to put up the necessary infrastructure.
   • Teaching for school children the use of computers.
   • Three months course in IT for the college students.
3. Chhattisgarh IT and ITeS Policy

- Objective: 100% IT literacy in all high schools and colleges in a phased manner.
- Computer literacy and skills in IT.
- Use of IT to enhance the effectiveness of teaching in other subjects.

4. Gujarat IT Policy

- Objective: Compulsory computer education would be introduced in all schools from class-V onwards.
- Provide internet connectivity to all schools in the state
- Creation of State Library Networks
- Setting up Gujarat Institute of Information Technology.
- Promotion of Gujarati on Computer.

1.6. Information Literacy:

**Government Initiatives** - In a knowledge society, knowledge itself becomes the factor of productions, and plays a central role in driving economic and social development. Knowledge driven industries compare to have much higher economic growth both in terms of volumes and revenue, manufacturing industries and agriculture. This segment also requires intellectually motivated, creative, competitive decision makers. This workforce would use information resources, information services and information systems judiciously, rationally and adequately to pursue their professional goals, organizational goals, and social goals. The utilization of information resources can be habituated and sensitized through the information literacy competency development programmes. The information literacy is required at every stage and sphere of a person’s life, starting from the school education to higher education, from social life to professional life (Ghosh, 2006).

Information and Communication Technologies (ICT) is being used worldwide as a tool for social welfare, better governance, illiteracy eradication and poverty removal. ICT is also being used as a tool for empowering certain social groups, like farmers, women, artisans and common citizens. In India, ICT is also at the grass root level through various initiatives and pilot projects on experimental basis. The private public partnerships have been established across India. Government of India and state governments are also taking appropriate steps in sustaining economic growth, employment generation and
strengthening information infrastructure. Following are the various initiatives, taken by the Central and State governments in India.

1.6.1 National Knowledge Commission of India
To establish a knowledge-oriented paradigm of development and to address the digital divide in India the Government of India has established National Knowledge Commission in June 2005 with the following aims.

- Build excellence in the educational system to meet the knowledge challenges of the 21st century and increase India’s competitive advantage in fields of knowledge.
- Promote creation of knowledge in S&T laboratories.
- Improve the management of institutions engaged in intellectual property rights.
- Promote knowledge applications in agriculture and industry.
- Promote the use of knowledge capabilities in making government an effective, transparent and accountable service provider to the citizen and promote widespread sharing of knowledge to maximize public benefit.

The National Knowledge Commission (NKC) has five distinct focus areas:

(i) **Access to Knowledge**: Providing access to knowledge resources through strengthening library and information infrastructure and networks, promoting and adopting open access literature, open courseware and open source software.

(ii) **Knowledge Concepts**: Nurturing intellectual capabilities and enhancing professional skills, including information handling skills of youths.

(iii) **Knowledge Creation**: Making self-sufficiency in knowledge creation; strengthening indigenous research capabilities in science, technology and medicine areas; generating knowledge for social development.

(iv) **Knowledge application**: Deriving maximum benefits from intellectual assets, applying knowledge in fields like agriculture, industry, health, education, etc.
(v) **Knowledge Services**: Making governance and government functionaries more accountable, transparent and sensitive to the causes of common men.

### 1.6.3 Rashtriya Computer Literacy Drive

Presently the Information Technology touches its peak. The total world is globalised through Computerization. Each and every phase of life is categorized through the development of this technology. Today, with the advent of E-mail & Internet, information retrieval has come down within the snap of fingertips. Computers have changed information processing in a dramatic way. To give acceleration to make India 100% Computer Literate, it is highly essential to take ‘IT’ education to the grass root level. Until & unless the end-users are educated in the right way to handle the technological aids, our goals cannot be achieved.

#### 1.6.3.1 Rashtriya Computer Literacy Drive- The Birth of an Idea

Rashtriya Computer Literacy Drive is an initiative by Sunita Infotech to make “**India 100% computer literate…**” and spread the Quality Education on IT with a difference. The objective of the mission is to enable individuals & enterprises nationwide to achieve greater success by providing knowledge, skills, solutions & services through pioneering efforts and usage of appropriate technology at a very affordable cost. The fees collected is being low, will help the economically backward as well as Organised sector of the urban and rural areas respectively.

### 1.6.4 National Knowledge Network (NKN)- In the initial phase of NKN, following projects have been taken up and their status is as follows:

- Up-gradation of the NICNET at 15 locations to handle gigabits of speed has been completed in December 2008. The locations are: Delhi (Delhi), Chandigarh Jaipur (Rajasthan), Gandhinagar (Gujrat), Hyderabad (Andhra Pradesh), Bhopal (Madhya Pradesh), Kolkotta (West Bengal), Bhuwaneshwar (Orissa), Mumbai (Maharashtra), Chennai (Tamil Nadu), Guwahati (Assam), Thiruvananthapuram (Kerala), Bangalore (Karnataka), Lucknow (Uttar Pradesh).
Creation of minimum infrastructure at 40 Institutions (out of 57 Institutions) to connect to NKN have been completed. The Institutions includes: IIT- Gandhinagar (Gujarat), IIT-Mumbai (Maharashtra), TIFR Mumbai (Maharashtra), BARC Mumbai (Maharashtra), IIT-Hyderabad (Andhra Pradesh), IIT-Patna (Bihar), VECC Kolkotta (West Bengal), IIT Kharagpur (West Bengal), IIT - Chennai (Tamil Nadu), IGCAR, Delhi (Delhi), IIT-Guwhati (Assam), IMTEC (Chandigarh), IITM-Pune (Maharashtra), CDAC Pune (Maharashtra), IGIB- JNU (Delhi), IGIB-Okhla (Delhi).

1.6.5 National Digital Library
With the advent of digital technology and internet connectivity, Digital Libraries have the ability to enhance access to information and knowledge. They also bridge barriers of time and space. National Digital Library is an initiative taken by Government of India to establish the Digital Library of India. The project is ongoing and the prominent activities under this project are as follows -
Setting up of Mega Centres and Scanning Centres in collaboration with IISc, Bangalore and Carnegie Melon University, USA. Under the collaborative programme, scanners for these centres were provided by CMU, USA, under Million Book Universal Digital Library Programme. The digital data generated by these scanning centres under this activity is web enabled on “Digital Library Initiatives” web site http://www.new.dli.ernet.in.

Government of India Portal- This is the National Portal of India, developed with an objective to enable a single window access to information and services being provided by the various Indian Government entities. The content in this Portal is the result of a collaborative effort of various Indian Government Ministries and Departments, at the Central/State/District level. This Portal is mission mode project under the National E-Governance Plan. It covers following area-

SWIFT Jyoti -One of the most popular offerings under the NIIT SWIFT umbrella of programs, SWIFT Jyoti has been effectively used to proliferate computer literacy among the masses and help India bridge the digital divide. Targeted at the broadest section of society-from six to sixty year olds-SWIFT Jyoti has enabled a large number of individuals citizens to experience their first brush with computers.
**e-Choupal**-It is an unique web based initiative of ITC’s agri-business divisions, offers the farmers of India all the information, products and services they need to enhance farm, productivity, improve farm-gate price realisation and cut transaction costs. Farmers can access latest local and global information on weather, scientific, farming practices as well as market prices at the village itself through this web portal in regional languages.

**FRIENDS (Fast Reliable Instant Effective Network for Distribution of services)**

**Model**-One of the very first and the most successful initiatives Kerala government put in place was the Fast Reliable Instant Effective Network for Distribution of services (FRIENDS). The aim of the project is to create a single window, enabling the citizens to pay taxes and other utility payments. The project was first launched in Thiruvananthapuram Corporation in 2000. The FRIENDS counter today handles bill payments of seven departments: revenue, motor vehicles, civil supplies, local bodies, universities, electricity, water, and telephones. The FRIENDS centers are conceived as a multi-purpose service center, helping not only bill payment services but also acting as a information kioskas on government activities.

**Akshaya Project**-Akshaya was started as a e-literacy project in 2002 in Malappuram district of Kerala. It is an effort on the part of the IT department to ‘bridge the digital divide’. The project has helped in taking IT to the remotest part of Kerala. The project aims at providing e-literacy to one person in every family.

**Education Technology**-

There is also a prevalent belief that modern technologies are better than older ones. The key phrases in ET are appropriate technology, that is, appropriate to the task in hand for meeting specific educational objectives, and the organization of all available resources into a workable system, which is checked again and again to ensure that it is appropriate and changing it where it is not working. Formative evaluation and summative evaluation are essential parts of ET. In applying the discipline of ET to the field of education, it is imperative that the media choice must relate to instructional design as well as to what is available and eminently usable. The same is true of methods and techniques. ET could be defined in simple terms as the efficient
organisation of any learning system, adapting or adopting methods, processes, and products to serve identified educational goals. This would involve:

- Systematic identification of the goals of education, taking into account nationwide needs (higher scalability, for instance), the system capabilities, and the learners’ needs and potential.
- Recognition of not only the immediate needs of children but also their future needs in relation to the society for which we are preparing them.
- Designing, providing for and enabling appropriate teaching-learning systems that could realise the identified goals.
- Developing a range of support systems and training, creating the enabling systemic conditions/materials, reaching these to the school system, and training teachers and students to use them.
- Research into existing and new techniques, strategies and technologies for solving problems of education, enabling judicious and appropriate application of technology.
- Appreciation of the role of ET as an agent of change in the classroom, influencing the teacher and the teaching-learning process, and its role in systemic issues like reach, equity, and quality.

India recognized the importance of ICT in education as early as 1984-85 when the Computer Literacy and Studies in Schools (CLASS) Project was initially introduced as a pilot with the introduction of BBC micro-computers. A total of 12,000 such computers were received and distributed to secondary and senior secondary schools through State Governments. The project was subsequently adopted as a Centrally Sponsored Scheme during the 8th Plan (1993-98). During the 8th Five Year Plan the Scheme was widened to provide financial grants to institutions which were given BBC Micros and also to cover new Government Aided Sec./Sr. Sec. Schools. Assistance included annual maintenance grant for BBC micros and purchase as well as maintenance of equipment for new Schools. 2598 schools having BBC Micros were covered under the CLASS scheme during the 8th Plan for providing Instructors, maintenance of hardware, consumables and text books for students and training of teachers in schools. In addition, 2371 schools were covered with new hardware and services which included Rs.1.00 lakhs for hardware configuration and Rs.1.30 lakhs per annum for recurring costs. Rs.0.80 lakhs per annum was kept as the recurring
costs for schools which had already been covered under the BBC-Micros scheme. NIC was identified as the nodal agency for the contract for the supply of hardware. The use and supply of software was limited, coverage was confined to Sr. Secondary Schools and the students of class XI & XII had to undergo a Computer Course Module. National Task Force on Information Technology and Software Development (IT Task Force) – constituted by the Prime Minister – in July, 1998 has made specific recommendations on introduction of I.T. in the education sector including schools.

The relevant paragraphs are:
Vidyarthi Computer Scheme, Shikshak Computer Scheme and School Computer Scheme to enable students, teachers or schools respectively, keen on buying computers to do so under attractive financial packages. These schemes will be supported by a suite of initiatives such as lowering the cost of PCs, easy instalment bank loans, computer donations by IT companies and other business houses, bulk donations of computers by NRI organizations, large-volume bargain price imports, multi-lateral funding, etc. Computers and Internet shall be made accessible to schools, polytechnics, colleges, and public hospitals in the country by the year 2003. The concept of SMART Schools where the emphasis is not only on Information Technology in Schools, but also on the use of skills and values that will be important in the next millennium, shall be started on a pilot demonstrative basis in each State.

The Report recommended provision of computer systems to all educational Institutions upto Higher Secondary/Secondary schools utilises the investments (about 1-3%) of the total budget during the next five years. The recommendations of the Task Force have been approved by the Council of Ministers. The ‘ICT in Schools’ scheme is a window of opportunity to the learners in the schools of India to bridge this digital divide. The scheme is not a simple merger of the earlier CLASS and ET Schemes but is a comprehensive and well thought-out initiative to open new vistas of learning and to provide a level playing field to school students, whether in rural areas or in the metropolitan cities.

The ‘ICT in Schools’ Scheme is not a standalone scheme but actively solicits the partnership of States, Union Territories & other organizations in a mutual endeavour.
to bridge the heterogeneous proliferation of ICT across different socio-economic and geographic segments in the country. This partnership is manifest in the structure of financing the initiative, in encouraging the development of long-term Computer Education Plans, the setting-up of Smart Schools by KVS/NVS in States as technology demonstrators and in providing for supplementing the States efforts in these areas with no attempt being made to supplant the State Schemes. The centrally sponsored scheme of ‘Educational Technology’ and ‘Computer Literacy and Studies in Schools’ have been suitably modified keeping in view the past experience, the feedback which has been received and changing needs to form the new scheme of ‘Information and Communication Technology in Schools’. The component regarding financial assistance to States/UT’s for purchase of RCCPs and CTVs under the erstwhile Educational Technology Scheme has been weeded out.

Objectives of Scheme

1. To establish an enabling environment to promote the usage of ICT especially in Higher Secondary and Secondary Government Schools in rural areas. Critical factors of such an enabling environment include widespread availability of access devices, connectivity to the Internet and promotion of ICT literacy.

2. To ensure the availability of quality content on-line and through access devices both in the private sector and by SIET (State Institutes of Education Technology), audio-visual medium and satellite-based devices. Enrichment of existing curriculum and pedagogy by employing ICT tools for teaching and learning.

3. To enable students to acquire skills needed for the Digital world for higher studies and gainful employment.

4. To provide an effective learning environment for children with special needs through ICT tools.

5. Promote critical thinking and analytical skills by developing self-learning. This shall transform the classroom environment from teacher-centric to student-centric learning.

6. To promote the use of ICT tools in distance education
Details of the Scheme

Components- The present scheme has essentially four components. The first one is the partnership with State Governments and Union Territories Administrations’ for providing computer-aided education to Secondary & Higher Secondary Government Schools. The second is the establishment of SMART schools which shall be technology demonstrators. Universalisation of Computer Literacy through the network of KVS and NVS to neighbouring schools is the third component. The fourth components relates to the activities of SIETs.

Implementation Partners
States/UT Governments, State Institutes of Education Technology, Kendriya Vidyalaya Sangathan, Navodaya Vidyalaya Samiti, Government and Government aided schools systems. Moreover, financial assistance would also be provided to short-listed NGOs/Trusts/Societies and Companies for software development, teaching tools, designing training models, evaluation, monitoring and other contingent expenditure. The State/UT Governments shall be free to partner with private organizations or integrate it with other similar schemes for implementation of the ‘ICT in schools’ scheme including providing for maintenance. The implementation of the scheme will be multi-modal. The Ministry of Human Resource Development shall consider the entry of the private sector in a Buildown-operate or annuity modal wherever possible. The direct procurement of hardware by the state would be the last resort. The National Council for Teachers Education shall be associated with the scheme in the context of training of teachers in computer-aided learning. The Rehabilitation Council of India would play an important role in projects involving introduction of use of technology for the education of children with special needs.

Financial Parameters
1. Under the CLASS component of the ICT scheme, the Union Government would provide 75% of financial assistance to State/Uts. The balance 25% of funds would be contributed by the State Governments/Uts. The scheme also provides for contribution of 25% of funds from the MPLAD scheme in addition or as an alternative to State Government contribution. Assistance shall be provided to special category states in the ratio 90:10.

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It may be noted that even in the revised norms, it is proposed to have greater inbuilt flexibility. The States would have the option to incur expenditure on the above items or any other item like generators, preparation of labs for computers including civil repairs and cabling and provision of electricity depending upon their needs and resources, subject to overall maximum limit of Rs.6.70 lakhs per school.

The provision for software include Learning Management Systems & curriculum based courseware apart from operating systems & other application software. An amount of Rs.1 crore would be kept aside annually for the Department of Secondary and Higher Education for development of software, teaching tools, designing training models, evaluation, monitoring and other contingent expenditure. Ministry of Human Resource Development shall endeavour to utilise content development through National education portal.

The British Educational Communications & Technology, Agency (BECTA), UK could be considered as a modal incorporating elements of public private partnership. KVS and NVS would convert one school per State/UT into a SMART school subject to availability of funds. A grant of not more than Rs.25 lakhs would be given per SMART school. This limit may be reviewed in the future if needed. A sum of Rs.2.5 lakhs shall be provided as recurring costs which includes maintenance, consumable, Internet usage & monitoring costs. In SMART Schools the emphasis would not only be on the use of Information Technology but also on the use of skills and values that will be important in the next millennium. It is hoped that at least one section (of 40 students) in each of the class IX –XII will be fully computerized. Thus a school having 160 computers where 40 computers for each IX to XII classes called a SMART school under the scheme. However, keeping in view the fact that this target cannot be achieved in one go, it is proposed to provide 40 computers to such identified schools. A grant of not more than 25 lakhs per school would be given to KVS/NVS for the purpose. Both KVS and NVS have identified the schools which will be converted into a SMART School.
Kendriya Vidyalayas and Navodaya Vidyalayas would be given funds at the rate of Rs.20,000/- per neighbourhood school to impart computer literacy to not more than ten neighbourhood schools within a radius of 3 to 4 kilometers to cover 8,000 such schools over 3 years. The course shall be imparted in the local language if such a demand is received from the beneficiary school. An Advisory committee consisting of the Principal of the Mother School and all Principals of participating schools will manage and oversee the programme. The financial assistance to SIETs shall be in the project mode. The financial assistance would be provided to SIETs on the basis of the project proposals submitted by SIETs. These project proposals shall be submitted to the Project Monitoring and Evaluation Group which shall assess the proposals submitted as to their utility and quality. Progressively, the administrative expenses of SIETs shall be reduced to zero within five years.

The national policy on education 1992 stressed upon employing educational technology to improve the quality of education. The policy statement led to two major centrally sponsored schemes, namely educational technology (ET) and computer literacy and studies in school(CLASS) providing way for a more comprehensive centrally sponsored scheme called “information and communication technology in school in 2004”. The significant role of ICT in school education seen stressed in the National Curriculum Framework (NCF) 2005. Use of ICT for quality improvement in education was included in various programs such as “Sarva Shiksha Abhiyan (SSA)”, and in norms of schooling recommended by Central Advisory Board Of Education (CABE) in its report on universal secondary education in 2005.

The choice of ICT for holistic development of education needs to have sound base of policy. “The incentive of ICT policy in school education is inspired by the tremendous potential of ICT for outreach and improving quality of education”. This policy provides guidelines to assist the state in making optimum use of ICT in school education within a framework of a national policy.
The main goals of policy are to create:
1. Environment to Develop an ICT knowledgeable community
2. An ICT literate (teacher and student), community who can deploy, utilize, benefit from ICT and contribute to a national building
3. An environment of collaboration and sharing conducive to the creation of demand for optimal utilization of optimum returns on the potential ICT in education.

IT revolution has significantly transformed ‘the grammar’ of India industry. But the impact of ICT has been less significant, on account of various reasons. However a large number of private schools have introduced computers to their students which have resulted in a ‘huge digital divide’ between private and government aided school which could not make progress in the progress of computer aided learning.

It has been realized that technology based solutions are key to revitalizing education system of India and making it’s future generation competitive at global level, still the challenge is how effectively and quickly we integrate digital technologies into education system of India. The government had introduced Right to education act, Sarva Shiksha Abhiyan and allocated about one billion dollar in the eleven plans for national mission on education through ICT. The National Policy in ICT in school education (NPISE) aimed at introducing a phased ICT literacy programmed in all primary and secondary school in Indiawithin the 11th (2007-12) and 12th plan (2012-17) periods.

A large number of new technology education companies and marketing survey are providing various equipment like interactive white boards, laptops, and curriculum – mapped digital content, school management teaching assessment software, science math and language laboratories and large number of other products and services. As new information and communication technology offer a good opportunity to rapidly create 21st century learning technology environment. Let us hope the Indian education system will make rapid progress in ICT based education in India at faster rate.
About the Pune city
Nickname(s): Queen of the Deccan, Oxford of the East, Pensioners’ paradise
Pune is the eighth largest metropolis in India and the second largest in the state of Maharashtra. It is situated 560 metres (1,837 feet) above sea level on the Deccan plateau at the right bank of the Muthariver. Pune city is the administrative headquarter of Pune district and was once the centre of power of the Maratha Empire.

Pune is the cultural capital of Maharashtra. Since the 1950-60s, Pune has had traditional old-economy industries which continue to grow. The city is now also
known for Research Institutes, Manufacturing, Automobile, Government & Private sector, Information technology (IT) and Educational, Management, Training institutes that attract migrants, students and Professionals not only from India but also students from South East Asia, Middle East and African countries.

Pune was an important centre in the social and religious reform movements of the late 19th century. Prominent social reformers and freedom fighters lived here, including Bal Gangadhar Tilak, Vitthal Ramji Shinde, Dhondo Keshav Karve and Mahatma Jyotirao Phule. Dr. Raghunath Karve Vinayak Damodar Savarkar resided in Pune when he enrolled in Fergusson College in 1902.

**Eminent educationist of Pune**

**Mahatama Phule**- Pune is a city with cultural heritage and is also land of social thinkers, social reforms and social revolutionaries who have not only moulded and enriched all facts of life of Maharashtra but have also made singular contribution to growth and development of India.

**Savitribai Phule**- First Indian Lady Teacher. Country's first school for girls was started at Bhide's wada in Pune and Savitribai was nominated as the first head mistress of the school in 1848.

**Dr. Dhondo Keshav Karve**- popularly known as Maharishi Karve, was a social reformer in India in the field of women's welfare. Karve continued the pioneering work of Mahatma Phule and Savitribai Phule in promoting women's education.

**Prestigious Institutes in Pune** - Some of the most prominent and prestigious institutes in Pune include: Deccan College which is the oldest college in western India and specializes in Archaeology; College of Engineering, the second oldest college in India; Fergusson College which was established in 1885 and ranks among the top colleges in India; Agriculture College which is again one of the oldest colleges in India; Gokhale Institute of Politics and Economics, one of the oldest and most reputed college for Economics in India; SNDT Women's University, a university exclusively meant for women; Symbiosis Pune which is ranked as one of the best business schools in India; Tilak Maharashtra Vidyapeeth and Bharati Vidyapeeth. Pune also has to its credit reputed educational institutes dedicated to Defence forces - National
Defence Academy Pune, Armed Forces Medical College, Institute of Armament Technology (IAT) and Army Institute of Technology (AIT) and the College of Military Engineering (CME). College of Engineering - Set up in the year 1854, this is the third oldest engineering institute of Asia. The COEP was also one of the first institutes built by the British in pre-independent India.

Commerce - Pune is one of the fastest developing cities in the world. It is one of the important hubs for the IT industry and is home to software MNC’s like Wipro, IBM, Infosys, Symantec and many others.

**Research Institutes**
Pune is home to some of India’s important research institutes. Some of the major research centres are:

- National Chemical Laboratory (NCL): one of the leading chemical research establishments in India
- Indian Institute of Science Education and Research, Pune (IISER, Pune)
- Inter-university Centre for Astronomy & Astrophysics (IUCCA)
- National Centre for Radio Astrophysics (NCRA)
- Centre for Development of Advanced Computing (C-DAC)
- Electronics Test and Development Centre (ETDC): under the STQC directorate, it is a leading testing and certification centre.
- National Institute of Virology (NIV)
- National Research Centre for Grapes (NRCG)
- Gokhale Institute of Politics and Economics
- Central Water & Power Research Station (CWPRS)
- National Centre for Cell Science (NCCS)
- Automotive Research Association of India (ARAI)
- Indian Institute of Tropical Meteorology (IITM): scientists at IITM has made significant achievements in tropical weather
- National Informatics Centre (NIC)
- Armament Research Development Establishment (ARDE)
- High Energy Materials Research Laboratory (HEMRL)
- Centre for Materials for Electronics Technology (CMET)
- Bhandarkar Oriental Research Institute (BORI)
- National AIDS Research Centre (NARI)
- Agharkar Research Institute (ARI)
- Army Institute of Technology (AIT)

**Major Universities in Pune**
- University of Pune
- Dr D Y Patil University
- Bharati Vidyapeeth Deemed University
- Deccan College Post Graduate and Research Institute
- Institute of Armament Technology
- Gokhale Institute of Politics and Economics
- Symbiosis International University
- Tilak Maharashtra Vidyapeeth
- Indian Institute of Science Education and Research
- Dnyaneshwar Vidyapeeth

**Education Statistics of Pune**

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<td>Total Literacy Rate</td>
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<tr>
<td>Female Literacy Rate</td>
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<td>Male Literacy Rate</td>
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<td>No. of Engineering Institutes</td>
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1.2 OBJECTIVE OF STUDY:
Taking into consideration these developments the present study has been undertaken “To study the computer awareness among secondary school students in Pune city”. The main objects of the present study were as follows:

1. To study the computer awareness among secondary school students in Pune city
2. To study computer awareness among parents
3. To study the role of teachers/instructors in developing computer awareness among secondary school students
4. To study the strategic efforts undertaken by various school authorities in developing the computer awareness among secondary school students

1.3 HYPOTHESIS:
1. Computer awareness among secondary school students is more in Central Boards schools and Private schools as compare to Aided/Granted schools and municipal schools.

2. Computer awareness of students depends on the educational and economic background of the parents.

3. Computer awareness of students depends on the skill, experience and specialized training of computer teachers/instructors.
### CHAPTER SCHEME OF THE PRESENT STUDY

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