CHAPTER –IV

TYPES OF EDUCATION AND RIGHT TO EDUCATION
“Many educators do not yet seem to appreciate the fact that professional respect can only be earned in the open market of scholarship. The more education makes use of recognized techniques of scholarship. The more education makes use of recognized techniques of scholarly inquiry, the better will be its chances of attaining first-class citizenship in the academic community.”

- W.W. Brickman

Education emancipates the human beings and leads to liberation from ignorance. According to Pestalozzi, education is a constant process of development of innate powers of man which are natural, harmonious and progressive. It is the very foundation of good citizenship. Today, it is principal instrument in awakening the child to cultural value, in preparing him for later professional training and in helping him to adjust normally to his environment. It is said that child is the future of nation. The quality of education of the child will determine the quality of life in nation. Various forms of education are available to equip the learners to face any challenge in their lives. The various forms of education are explained in detail as under:

4. 1 Primary Education

Though the missionaries had come to India with the sole purpose of trade, yet they took a very keen interest in the education of the natives of this country. They established mission centers in different parts of the country and attached
elementary schools to those centers. No doubt, they carried on educational activities in this country, but the essential feature of their schools was to teach the principles of Christianity. They carried on conversion work through these institutions which served as nucleus. In spite of this, they laid out a good system of primary education in India.

The missionaries worked with great zeal and enthusiasm and the schools run by them functioned well. They had sufficient funds. The indigenous schools could not compete with them and as much many of them met with a natural death. The beginning of the present system of education in India can be ascribed to the efforts of the Christian missionary schools. No doubt they introduced a new educational system in India. Religious instruction formed an integral part of general education. This, of course, created bad feelings among the people. English was introduced but most of the teaching was done through the languages of the people. The printed text books were made use of. Curriculum was broad based so as to include grammar, history and geography. Classes were conducted regularly. Teaching was made more efficient than before. A regular class system was introduced.

**Efforts of East India Company:**

The attitude of the company remained recalcitrant for some time. In 1821, the British Parliament directed the company to accept responsibility for the
education of the people, but nothing was done. It was considered that the
General Committee of Public Instruction (G.C.P.I.) did not have enough funds to
undertake the education of the people. In 1831, this committee, however, gave
financial help to nine vernacular schools in the rural area of Sugar. This may be
regarded as the first step taken by the company towards education. Obviously
the company was never interested in education.

Macaulay's Minutes of 1835 did not deal with the education of the
masses. The downward filtration theory failed miserably. With the adoption of
English as the medium of instruction vernacular schools received a great set back.
The result was that by 1852 only 30 vernacular schools survived while others
languished. The private enterprise showed enthusiasm in setting up new primary
schools. Native education society, which alone opened 115 primary schools.
These primary schools aimed at imparting western knowledge through the
medium of mother tongue. Similarly in Madras, some 70 primary schools were
opened through the efforts of Sir Thomas Munro, the then Governor of Madras,
in 1830.

Wood's Dispatch in 1854

The findings of this body with regard to the prevailing conditions of
primary education in the country were discouraging. The recommendations of
the Dispatch were most comprehensive, which if implemented in full would have
achieved excellent results. But unfortunately these remained unheeded. The suggestions given to improve primary education are given below:

(a) By improving the existing indigenous schools through grant-in-aid system. These schools were considered as the very arteries through which education would flow to the masses.

(b) By encouraging private enterprise through liberal monetary aid.

(c) By opening schools by the Government according to some set plan like the Halqa Bandi system.

There is no doubt that Wood's dispatch laid the real foundation of primary education in India but there was no immediate benefit of this Dispatch. The grant-in-aid system was too rigid. It did not allow any flexibility. It was like an iron jacket.

**Indian Education Commission of 1802 (Hunter Commission)**

This commission was appointed with the Chief object of reviewing of the condition of Primary education and suggesting measures for its expansion. The Commission decided that all the primary schools owned by the government should be transferred to the local bodies, Municipal Committees and District Boards. These local bodies were required to set aside definite funds for primary education and the government was asked to help them financially to the extent of one half or at least one third of their total expenditure on primary education.
It was also decided that primary education should be given through vernacular. Indigenous schools should be duly encouraged. Arrangements for the training of primary schools teachers should be made.

**Lord Stanley's Dispatch of 1859:** Finding the grant-in-aid system is inflexible and as such effective, Lord Stanley advised that primary education should be provided by government alone. She could not absolve herself of this duty.

**Lord Curzon’s Resolution of 1904:** Lord Curzon was deeply interested in Indian education. No doubt, in higher education he advocated qualitative improvement, but in primary education he desired both expansion and improvement. He also recommended training for teachers, simple curriculum, grant-in-aid on the basis of efficiency and making mother-tongue as the vehicle of imparting instructions in all the primary schools. All these things lead to the increase of both schools and pupils. Differentiation in the curriculum of the rural and urban schools was made as their needs were different. His approach was realistic.

**PRIMARY EDUCATION IN INDIA FROM 1904 TO 1947**

The extension and improvement of primary education had been accepted in principle according to the Government’s resolution of 1904. Moreover, there was a growing feeling for the introduction of compulsory education amongst the masses. In this respect a small state Baroda gave the lead by enforcing compulsory primary education through an Act of 1906. It was quite successful. In
1910 Mr. G.K. Gokhale, a member of the Imperial Legislature moved a resolution in the council urging the government to make primary education free and compulsory. There is no doubt that Mr. Gokhale failed in his noble mission but the seeds sown by him came up quickly for harvest. The attitude of the government underwent a change and this was no mean achievement.

Between 1910 and 1917 there was a great expansion in the private field and even the government efforts were encouraging. According to Mr. Sen, “his bill created a flutter in the dove-cots of the British Parliament. In the words of Prof. Mukerji, “The official machinery of education as a result of this began to work a bit faster. Gokhale’s attempts tended to focus public attention on education in general and on compulsory education in particular. What Gokhale failed to achieve in 1910-11 became reality between 1918 and 1920, when several provincial governments made laws and passed acts for introducing compulsory education. Bombay was the first State (after Baroda’s Compulsory Primary Act of 1906) to pass an Act on Compulsory Primary Education in the State. In Punjab the first primary education Act was passed in 1919.

**Primary Education from 1921 to 1937**

In 1921 the diarchal type of government was established in the provinces and along with it education was declared a transferred subject. Naturally this
necessitated the appointment of a Minister of Education in each province. This motivated the public interest in education. The government and the local bodies increased their share of expenditure on primary education. Besides this, there was a great increase in the number of scholars as well.

The Hartog committee which was appointed in 1929 to review the primary education criticized the vast increase in number of the primary schools and also pointed out the wastage and stagnation that had set in education. Nearly seventy five percent of the students admitted to the primary schools never reached the fourth class. This amounted to wastage of human resources. The committee consequently recommended improvement in quality rather than quantity. It also recommended a curriculum to relate to the lives of the pupils. It considered the conditions of teachers, their training, status and other facilities to be offered to them. It also aimed at the professional growth of the teachers by providing them with refresher courses.

Provincial Autonomy and Primary Education

In 1937 provincial autonomy was granted and the Congress was able to set up ministries in seven provinces out of eleven, North-West Frontier Province (land of the Pathans) being one of them. It was a commendable achievement of the Indian National Congress. It was during this period that Mahatma Gandhi gave the concept of basic education. This was given a fair trial in the seven
provinces. But the autonomy was not destined to last long when, as last, war broke out in 1939. This shattered all the dreams of Gandhiji. These popular ministries decided to resign in 1939. During this short period of two years, additional grants to local bodies were given for opening new schools both for boys and girls. A training school was setup at Wardha in order to train teachers in Basic Education.

**Plan for Post-War Educational Development (Sargent Plan)**

In 1945, the ‘CABE’ (Central Advisory Board of Education) submitted a plan for post-war educational development which is known as Sargent Plan also. Its main provisions were.

(i) Universal, free and compulsory Primary Education.

(ii) Adoption of Basic Education as a national system of education

(iii) Arrangements for teachers' training.

(iv) Need for Pre-primary education,

(v) Improvements of conditions of service of teachers.

(vi) Re-organization of the educational system.

**Growth of Primary Education in India since Independence**

The Post-Independence period presented many problems like the political, social, economic and constitutional. On the eve of independence, there was nearly 17% literacy in the country, besides this problem of mass education,
reorganization of higher education stared the government in the face. These problems were recognized as national and not provincial problems.

In 1948, an All India Educational Conference was called Maulana Azad, the first Union Minister of Education which was attended by the Vice-Chancellor of Indian Universities as well as by educationists of repute. At this conference, basic education was adopted as the national system of education throughout the country. According to this scheme, universal free and compulsory primary education was at first to be enforced for the children between the age of 6 and 10 and afterwards its scope was to be extended for the children between the age of 11 and 14. The education of the children between the age of 6 and 10 was to be termed as Junior Basic stage while that of 11 and Senior Banking stage.

Consequently a National Institute of Basic Education and a standing Basic Education Committee were set up to help the development and expansion of basic education in the country. The central Government immediately recommended to the states to change over to basic system of education. Practically all the primary schools, since then, have been converted to basic pattern and curriculum has been reoriented to suit new conditions. The enrolment too is discouraging. This is so because the government had to face difficulties. Those are briefly as under, 

\((a)\) Lack of adequate trained teachers.
(b) Lack of funds to meet the colossal problems.

(c) Lack of faith of the people in Basic Education.

(d) Change-over is always shown.

(e) Lack of suitable buildings.

With a view to face these problems squarely a conference of the Education Ministers of the Central and State Governments was called in 1959. It suggested the following measures to reconstruct education on the lines of basic education.

1. Basic education boards should be set up to secure public co-operation and advise the education departments as and when needed.

2. Conversion of teacher’s training schools and college into basic type should be completed before the expiry of the Second Five Year Plan i.e. by 1961.

3. The integrated course of eight years (of basic education) should be developed immediately. The junior Basic Schools should serve as feeder of senior basic schools.

4. All those elementary schools child could not be converted into basic pattern should include important features of the basic education, in order to facilitate easy conversion.
5. The standard of education in post-basic schools should be as high as or even higher than that in secondary schools. These should be given due recognition by the universities.

6. Due provision be made for the further education of children after passing out of Senior Basic Schools either in post Basic or in Secondary schools.

**Achievements in the Field of Primary Education**

(a) Quite a large number of primary schools have been opened in order to reduce literacy under the various five-year plans.

(b) The number of scholars has also increased considerably.

(c) The rural areas too have been provided with a substantial number at primary schools and places which had no school formerly have a place on the education map now-a-days.

(d) Awareness amongst the masses has been created and the parents are not now prepared to get assistance from their children to supplement their incomes.

(e) Expenditure on primary education since independence has increased.

(f) The government have subscribed liberally for providing necessary equipment and teaching aids.

(g) Due to financial stringency, the government have not been able to construct school buildings to meet the growing demand and have since 1956,
recommended the system of double shift. In the rural areas, ordinary hutting arrangements are being utilized.

(h) Facilities for training and re-training of teachers have been sufficiently enlarged.

(i) Financial assistance to children belonging to backward classes and areas has been given.

(j) The curricula have been over hauled in view of the interests and needs of the children.

The above statements show that primary education after independence has made tremendous progress both in quality and quantity but still much needs to be achieved. The task is colossal and requires Herculean efforts.

**Problems of Primary Education**

The large scale expansion of primary education has posed many serious problems. Some of them are discussed as under:

1. **Element of Wastage.** Another problem rising out of rapid expansion is the result wastage. In India about 40% of the total enrolment in classes one to five is in class I alone. The wastage in class I is more than half of the wastage at the primary stage. If more than half of the entire children entering the bottom class of the schools waste away. It will mean both education and administrative stages of such a high nature that its implications have caused concern.
2. **Enrolment problems.** The demand for education was increased so much that it is getting well-nigh impossible to secure admissions to schools. This is true of big places like Delhi, Bombay, Calcutta, Madras, Kanpur etc. the result is that many unrecognized schools charging too high fees have cropped up,

3. **Shortage of Trained Teachers:** In the Third Five year plan. It was decided that the percentage of trained teachers will be raised to 75%. But unfortunately this target has not been touched.

4. **Primary Education Most un-psychological:** Primary education is not based on the psychology of the child and the methods adopted are un-psychological. The same age – old technique of teaching is in vogue. Cramming is encouraged. It is too bookish and does not train the senses of the children. It deals more with books and less with tools. Moral education is conspicuous by its absence,

5. **Absence of Model Primary School:** The working of the primary schools is rigid and formal.

6. **Single teacher Schools:** These present great difficulties. A single teacher cannot efficiently handle all the four classes especially when the strength of the pupils is too high. Individual attention which is essential at this stage cannot be given.

7. **Primary Schools:** Weakest Link. Primary education is the very basis of higher education. If the foundation is not well built up, the super-structure would
remain weak, some have boldly remarked that “primary education is the weakest link in the educational chain.”

8. Lack of Interest of the Private Agencies: With the introduction of the grant-in-aid system, it was expected that private enterprise would enter the field. Since primary schools cost more than they yield as income, private agencies have not considered it worth while to take up the responsibility.

9. Lack of Proper Supervision: The education department has failed miserably to exercise proper control over these institutions. The primary schools need better supervision as these serve as the first door through which the children reach the threshold of knowledge.

OBJECTIVES OF PRIMARY EDUCATION

The objectives of primary education are as follows:

(a) To give an adequate mastery over the basic tools of learning

(b) To prepare children for good citizenship, to develop in them a love for their country, its traditions and culture and to inspire in them a sense of service and loyalty.

(c) To develop international understanding and the spirit of universal brotherhood.
(d) To bring about a harmonious development of the child’s personality, by providing for his physical, intellectual, social, emotional and moral needs,

(e) To prepare children for life through the provision of worth while practical activities and experiences.

(f) To prepare children for life through the provision of worth while practical activities and experiences.

In spite of the fact that the compulsory primary education Acts have been passed in the country, the dream of free and compulsory education has not been realized as yet.

The problems are identified as under:

1. Employment of Children on petty jobs: The parents in the hope of securing some material gain prefer them to take up petty jobs. The clause 10 the Punjab Primary Education Act 1960 forbids the children between 6 and 11 years to pick up a job. Both the employer and the employee are considered as offenders and are liable to be prosecuted. Yet the beauty is that this clause is being observed more in its breach rather than in its observance. Strict observance is needed.

2. Poverty. The general poverty of the people of this country is proverbial. The parents cannot possibly afford to send their children to schools. Instead they are a source of income. The children pick up certain petty jobs or assist their parents
in their occupations. To escape legislation, the parents play tricks with the attendance authorities and very often they succeed.

3. Lack of Exemplary Punishments. The authorities concerned with such an education fail to exercise their powers properly. The punishments given are too mild.

4. Lack of Propaganda. The government and other educational agencies must bring home to the masses about the usefulness of education. This can be done through lectures and screening of films. A general awareness must be created amongst the people.

5. Attitude of Parents. Majority of the parents do not believe in the usefulness of education. They feel that their children will be lost to their profession.

6. Fictitious Enrolments. Allured by bribery or certain other advantages, the teachers indulge in fictitious enrolment. They keep records of the students in absentia. This malpractice is too common and should be checked by the authorities.

7. Dearth of Teachers and Adequate Equipment. Universal, free and compulsory education would need a large number of teachers and up-to-date equipment. Shortage of teachers and dearth of adequate equipment generally results in inefficient teaching and indiscipline.
8. **Wrong Delegation of Powers.** The teachers have been given powers to deal with the recalcitrant parents for not sending their children to the schools.

9. **Lack of Facilities for Poor children.** There is hardly any provision of helping the poor children with suitable stipends or free books and other reading material.

**Recommendations of Kothari Commission**

The Recommendations of Kothari Commission on primary education have been discussed under four heads:

1. **Expansion of Primary Education.** Primary education should be given free and on a compulsory basis. The commission recommends that five years of good and effective education should be provided to all children by 1975-76 and that seven years of such education should be given by 1985-86. It also suggests that emphasis should be laid on the reduction of wastage and stagnation.

2. **Universal Enrolment.** A system of pre-registration should be introduced.

3. **Universal Provision of Schools.** The expansion of primary schools should be so planned that a lower primary school is available within a distance of nearly a mile from the place of every child and a higher primary school be within one to three miles from the place of every child. In this way primary education can be made more effective and universal.
4. **Universality of Retention.** The quality of primary education needs to be improved and stagnation reduced. The target should be to reduce stagnation and wastage by about half by 1976 and to eliminate them by 1986.

The Commission further recommends that stagnation and wastage in other classes should be reduced by providing part time education, by improving schools and by a more vigorous programme of social education.

*Brief Report of the Committee of Members of Parliament (1967)*

It was realized by the Committee of Members of Parliament on Education that good and effective primary education, on a free and compulsory basis, is the corner-stone of democracy. It is to be given top priority and should be undertaken in two stages given as under.

(i) Universal education should be provided for all children up to the age of 11 years. This will constitute the first stage.

(ii) In the Second stage, this age limit should be increased to 14 years.

Efforts should be made to avoid wastage and stagnation and it should be seen that every child enrolled in schools passes regularly from one class to another till he completes the primary stage. In other words no failures should take place.

The under-developed areas are given more attention in the form of financial help by the State and the Central Governments. This will remove the disparities in education.
Primary education, being the birth right of every child in the country, should be made free immediately. In fact a primary school should be within an easy reach of every child of this age.

The report further suggests that all this can be achieved through the co-operation of the people and also by following the programme given as under:

(a) Proper Arrangement for Pre-Primary Education. This will prepare the children for compulsory schooling.

(b) Quality of teaching at the primary level is sufficiently raised. For this purpose trained and efficient staff shall have to be appointed and the number of single teacher schools shall have to be reduced.

(c) Facilities should exist for part-time primary education to accommodate those children who are unable to attend regular schools.

(d) Classes I and II be considered as one integrated unit. It is also called ungraded system.

**Fulfillment of the Constitutional Directive**

The Constitutional Directive required every state to strive to provide free and compulsory education for all children up to the age of 14 years and all-out efforts was made to achieve the target by 1960. The following were the difficulties that adequate progress.
1. Lack of adequate resources

2. A momentous increase in population

3. An opposition to the education of girls.

4. A large number of children of the backward classes.

5. General poverty of the masses.

6. Their illiteracy and indifference.

The financial resources with the country were being diverted to improve national economy. The task of educating the ever growing student population of the age group 6-14 free of cost was colossal and complex.

**Universal Provision of School Facilities**

Every child has to be provided a school within his reach. By the end of the third plan every child living in a village with a population of 300 or over was provided with schooling facility for his primary education. But the provision of a school within easy distance from the home of every child attending a middle school could not be made by that time in many states.

**The Present State of Universalizing Free and Compulsory Primary Education:**

The country is alive to the promise it had made because an all-out effort has been made after 1966 to achieve the Constitutional Directives. The Primary Education is free in all the states and it is compulsory in most of the states. It is free in class I to V in all government schools and schools sum by local bodies in every state. At
the beginning of the sixth Five Year Plan, the strategy has been to make primary education universal. It is in the sixth plan (1978-83) that the country has taken very serious steps to universalize elementary education within a period of ten years.

**Wastage and Stagnation in Primary Education**

It is fact that the child who is enrolled in class I do not progress regularly from year to year. In one class or the other he fails and has to repeat the same class. There is stagnation (in moving up). He may have to repeat a class once and sometimes twice also. There is yet another distressing aspect of school education. The child who gets admission to a school leaves the school before he completes the prescribed age or class. He drops out. There is wastage. The child may drop out because of economic reasons. He may drop out because he does not find school curriculum to his taste.

A large number of pupils either have to repeat a class once or twice or have to discontinue their education. The amount of wastage and stagnation in our system of education is too much. The evil was first brought to light by the Hartog Committee in 1929. Since then much work has been done in finding out the extent of stagnation and wastage but little effort has been made to reduce it.

The Hartog Committee defined wastage as the premature withdrawal of children from school at any stage before the completion of the course. If a child
does not leave the school till he completes the prescribed class or age, he is a case of wastage.

Some thinkers relate the phenomenon of wastage to the objectives of education. For example, if we take one of the objectives of primary education as the attainment of permanent literacy, then any child who drops out or is withdrawn from the school before achieving the desired goal, he is a case of wastage.

How to Measure the Extent of Wastage? A number of methods have been suggested to measure the extent of wastage at any stage of education. These methods are:
(a) H. Sharp’s method.
(b) Hartog Committee’s method.
(c) The method of Increment of Gains
(d) The movement of Pupils method.

The most rough and ready method to measure the extent of wastage is to compare the lessening in enrolment from class to class over a number of years. This method was used by the Hartog Committee in 1929.

**Measures to Reduce Wastage and Stagnation**

1. **Changing the Admission Policies.** The highest incidence of wastage and stagnation is in class I. We keep open the admission to class I throughout the year
and the child who is admitted at the fag end of the year fails and has to remain in the same class for the next year too. Tasting failure in the beginning classes has a demoralizing effect on the child as well as on the parents. Admission should be restricted to only first three months of the academic year.

2. Introduction of Upgraded Unit and Abolition of Examinations. The main idea behind the concept of upgraded unit recommended by Kothari Commission is to individualize instruction by permitting every child to progress at his own pace. The abolition of examinations and automatic promotion from one class to another is the main idea behind the concept of ‘upgraded unit’.

3. Play Way Technique. The children of classes I and II need a smooth transition from the play-oriented world of infancy to the formal type of school environment. The traditional methods of teaching and unattractive school environment scare them away. Irregular attendance results in poor achievements in studies. Failures in examinations ultimately lead to wastage. Play way methods of teaching may minimize the incidence of stagnation and wastage.

4. Financial Help to parents. Parents who cannot afford to buy books and other items of stationery may be given help according to their economic status.

5. Adjusting School Hours and School Vacations to Meet the Economic Needs of the Country. If the school hours and school vacations are adjusted in such a way
that grown-up children of class VIII to X can assist their parents and also study at
school, the incidence of wastage and stagnation may be minimized.

6. Remedial Teaching for Weak Students. Stagnation can be reduced by the
provision of remedial teaching to weak students before or after the school hours
or on Sundays and holidays.

7. Improving School Community Relations. Whenever a child shows signs of
irregularity in attendance or truancy, it should be the sacred duty of the teacher
to contact his parents without any loss of time because a mere enquiry on the
part of the teacher will have a salutary effect in bringing back the child to school.
School should be made a community centre and effective.

8. Appointment of School Mothers and Women Teachers. A campaign of adult
literacy may be adopted and widely spread. The apathy of parents towards girl
education may be broken to some extent by appointing school mothers and
women teachers in primary schools in rural areas.

4.2 BASIC EDUCATION

Basic education is a double edged weapon; on the one hand it deals with
the all round development of the child, and on the other and most important side
it prepares the base for the development of higher education. Thus whatever
satisfies our basic needs is the medium of our education. Basic education
encourages a clean, healthy and self-supporting life. The fundamental concept of basic education is to make productive crafts the medium of education. According to Gandhiji, "With the help of craft education, man will gain health and happiness through labor; self-reliance, self-confidence and self dependence through industry; devotion to work and a scientific mind through action, orderliness and cleanliness through work; patience through corporate life; spirit of service through co-operation satisfaction of the thirst for knowledge and self study through skill in work and imaginativeness through construction.

**Salient Features of Basic Education**

1. **Free and compulsory Education to all**: It should be free and compulsory for seven years (from seven to fourteen years). The school leaving age for children should be at least 14 years, when the child learns effective literacy and develops proper control over his senses. The education should be both intellectual and manual should help the child to overcome adolescent age normally. Seven years free and compulsory education is emphasized for two reasons.

   *(a)* Ours is a democratic country and success of democracy depends upon the educated and enlightened citizens.

   *(b)* Gandhi dreamt of a classless society, free of exploitation of any kind, which can be eliminated if everyone is educated.
2. Education to Centre Round Some Craft: Gandhi gives pivotal to craft. It should be productive and manual it must possess educative possibilities. Different subjects should be taught around it. Craft should not be taught separately. The whole education is to be given through it. Gandhi says, “I would begin the child’s education by teaching it a useful handicraft and enabling it to produce from the moment it begins training. I hold that the highest development of the mind and soul is possible under such a system of education.” The craft must relate to the environments of the children. Apart from this, the craft sharpens the mind. Again he says, “The handicrafts are to be taught not merely for the production work but for developing the intellect of the pupils.” He emphasized the economic, intellectual and moral aspects through basic education.

3. Mother Tongue as the Medium of Instruction: Gandhi was fully conscious of the harm done by English to Indians. According to him it had created a bar between the highly educated few and the uneducated many. He goes a step further and says, “It has cast upon the educated class a burden which his maimed(crippled) them mentally for life and made them strangers in their own land.” Mother-tongue, according to Gandhi, is not only to act as the medium of instruction but also to take the first place in languages. A child can express himself well in his mother-tongue. It is through mother-tongue, that the child can develop his powers of comprehension, thinking and reasoning. But I would not
have a single Indian to forget, neglect or be ashamed of his mother-tongue. Mine is not a religion of the prison-house.

4. Correlation: It is one of the important features and crux of basic education. It is a technique which tries to establish reciprocal relationship between the various subjects of the curriculum for the better understanding of the subject under discussion. It draws out the points of resemblance under discussion. It draws out the points of resemblance which different studies of the child at school, bear to one another. It is a wonderful device for motivating the children.

5. Self-supporting Aspect of Education: Gandhiji was aware of the poverty of the country. His dreams of universal, free and compulsory education could not be realized and as such he introduced the element of self supporting in his scheme of education. He wanted to see every citizen of the land literate. He introduced a manual productive craft, the sale of which would make education self-supporting. Gandhiji said, “An education should not be financed out of the excise revenue, neither out of land revenue.

6. The Ideal Citizenship: It is an important feature of basic education. Mr. Varkey remarks in his connection like this, “We need a system of education that will secure at least the minimum of education required for the intelligent exercise of rights, and duties of citizenship. Dr.ZakirHussain Committee also observes in the same strain, “An education which produces drags and parasites- whether rich or
poor stands condemned. Basic scheme is designed to produce workers who will look upon all kinds of useful work is honorable.

7. Child Centred Education: The child is the central figure of educational activities. The curriculum is suited to his needs and not the child to the curriculum. The curriculum consists of the actual experiences required by the child through work and play. All knowledge is correlated with the activity of the child. Nothing is forced on the child from without. The development takes place from within through his own activities. The child unfolds himself through self-activity. The teacher acts only as a friend, a guide and philosopher. It is in this sense that education is child centred and not book centered as was the case in the past.

8. Relationship with Life: Education should be closely related to life. Basic education unifies knowledge and does not permit division of knowledge into water tight compartments. Correlation unifies knowledge as a whole. There are three centres of correlation- Craft, physical environment and social environment and these will achieve perfect integration of curriculum.

9. The Cult of Non-Violence: Gandhiji has a strong faith in non-violence. He desired to solve all the problems non-violently. “Our arithmetic, our science, our history will have a non-violent approach and the problems in these subjects will
be colored by non-violence”. He believed in the force of love to prevail in all spheres and especially in education.

10. It is a Comprehensive Scheme: It is a scheme for all. Though the emphasis is on the elementary education, yet it covers all the stages and links the education as a whole. The stages are as follows.

(a) Pre basic stage meant for children between 2-6 years.

(b) Basic stage covers the children between 6-14 years.

(c) Post basic stage caters to the higher needs of the pupils between 15-17 years.

(d) University stage meets the requirements of the pupils between 18-21 years.

(e) Social education is a part of basic education. It deals with the education of the unfortunate illiterate adults.

It is, therefore, an all-round scheme and does not leave out any stage untouched.

Craft work in Basic Education

The traditional system of education was too rigid, wooden and literary. It failed to satisfy the practical problems of the pupil’s life. It created unemployment on a large scale and turned out educated persons who were misfits in the changing social order. Such an education tended to produce Youngman who were Indian blood only otherwise they had developed western ways of life. They were strangers to their people. In view of this, a new system of
education was urgently needed for the establishment of a new social order in the country. Gandhiji's Basic Education was to remove the glaring defects of the traditional system.

**Emphasis on Craft**

Gandhiji lay great stress on craft centred education. He said, “Literary education should follow the education of the hand, the one gift that visible distinguishes man from beast. It is a superstition to think that fullest development of man is impossible without knowledge of the art of reading and writing. Knowledge undoubtedly adds grace to life, but it is no way indispensable for man's moral, physical or material growth. Manual work will have to be the centre of the whole thing. But manual training will not consist in producing articles for a school museum will not consist in producing articles for a school museum or toys which have no value. It should produce marketable articles. The children will not do this as children used to do under the whip in the early days of the factories. They will do it because it entertains them and stimulates their intellect.” So emphasis on craft is considered as most important both from economic and instructional points of view.

**Choosing of Crafts**

According to Gandhiji’s conception manual work or craft is the core or summum-bonum of basic education. It is pivot round which the whole curriculum
is to revolve. It is not simply an additional subject in the curriculum as some people think. For the selection of crafts, the points given ahead must be borne in mind.

1. **Craft should consider the Psychology of Children**: While a craft is being selected, we should consider the likes and dislikes of the children. Any craft in which the children do not take interest should not be forced upon them. Care should be taken for the selection of a craft. Craft should be such as considers their interests and natures and is also related to their present life.

2. **Craft should be Productive**: Craft in order to be useful, must be purposeful and productive. In other words it should be purposive. Craft should not be taken as activity done for the sake of activity alone. It is so because the young children take great interest in something which is concrete and productive. The money realized from the sale proceeds of such a craft will give immense pleasure to the children.

3. **Craft should be used for Education**: The idea of teaching craft is not to make children craftsmen. Rather these are to be exploited for educational purposes. The child should know the why and wherefore of every process. He is not to learn it mechanically.

4. **Craft should be Basic**: A basic craft is that which should find natural points of correlation with important human activities and interests. It should be craft
around which various subjects of the curriculum can be grouped. So craft should be basic.

5. Craft should be selected According to Environments of the Place: It should consider the geographical conditions and social background of the community in which the school is situated. This presupposes that the crafts selected for rural areas will differ from those selected for urban areas.

Advantages

The following will be some of the advantages if it is wisely chosen and scientifically taught:

(a) Psychologically, it will satisfy the child’s instincts of play, self assertion and curiosity. It would be learning through doing.

(b) Socially, it will make him a good sociable creature. It will teach team work and dignity of labor. It shall remove the hateful gulf between the manual and intellectual work. A child will become a good and useful member of the society.

(c) Educationally, it will make the children as co-sharers and active participants in the process of education. The development of hand and head will go pari-passu. Education will be natural, effective and attractive.

(d) Economically, it will help the children to stand on their own legs. They will develop self-confidence and reliance in themselves.
(e) Morally, it will build up the morals of the children. Right skills and attitudes will help in improving their morals.

**Defects of the English system of Education when compared to Basic Education**

The traditional system of education was outdated and old. It did not satisfy the aspirations of the people. It was a foreign plant unsuited to Indian needs. It was expensive and harmful. It only aimed at producing clerks. It gave only literary education which crushed originality and rendered the people unfit for a fastly changing society.

The following were the defects of this education:

1. **It was Isolated from Life:** The courses of study were neither related to the daily life of children nor to the life of the society in which they were born and were living. They failed to solve the most ordinary problems of life.

2. **It failed to develop the Whole Personality of the Child:** The traditional system of education was not well conceived. It was one sided and narrow. It simply developed the mental faculty of the child. Information giving was the only aim of this education. No opportunities were provided for the development of skills, attitudes and training of emotions. It did not develop ‘Hand, head and heart’ simultaneously.
3. Excessive Stress on Examinations: It was too much ridden by examinations. The promotion of the students and teachers depended to a great extent upon the result of the final examination. Naturally both of them focused their attention on the annual examination throughout the year.

4. Too much Dominated by English Language: Since 1837 when Macaulay decided in favor of English as the vehicle of instructions in schools, it continued to dominate. It gave a death blow to the Indian languages, with the result that only few could benefit from it.

5. Poor Methods of Teaching: The teacher exercised full control over the teaching learning process. He was a demagogue and imparted knowledge in a mechanical way to the class. The teacher was active whereas the pupils were nothing more than passive listeners. The students had no other alternative except to memorise the information given by the teacher or cram up the matter given in the text books.

6. Moral Education Totally Ignored: The system of education was anything but Indian. Cultural heritage was altogether ignored. The pupils were only Indian in blood, but in habits, diet, dress and manners, they were foreigners. The pupils according to Gandhiji, were rendered aliens in their own country.

7. Lack of Contact: Owing to the large number of classes no personal contact could be maintained by the teacher with his pupils. Our ancient education had
succeeded in maintaining cordial relations between the teacher and the taught. As a matter of fact this contact was very much cherished. But this human factor was ignored with the result that much of the present indiscipline amongst student community ascribed to this lack of contact on the part of the teacher.

8. No Emphasis on Co-curricular Activities: The curriculum was heavy and flexible. It gave no place to co-curricular activities. These days education without it would appear lifeless. Insistence was placed on the study of books alone.

**Essential Features of Basic Education**

Gandhiji’s concept of Basic Education aimed at the all round development of the child. He was not an idealist, rather he was a realist. The Basic Education movement if given a fair trial can bring about a great revolution not only in the educational structure but in the economic and social spheres as well. The distinctive features of Basic Education are the following.

1. Child Centred: In this system of education, the main emphasis is on the child and his needs are studied, understood and satisfied. In fact activity and interest are its pillars or core. Education becomes a purposeful activity if these two aspects are properly kept in view. Instructions do not remain insipid and lifeless, but becomes interesting and attractive genuine interest is created. Basic Education does not ignore the present needs of the pupils.
2. **Greater Freedom for the Teacher and the Taught:** In basic education discipline does not mean order and external restraint but an intelligent use of freedom.

3. **Psychologically Sound:** Basic Education is 'psychologically' most sound. The child is not passive in the teaching learning process, but is an active participant. It prepares the child socially as well. It provides organized craft and community activities. It generates a sense of responsibility and confidence through participation in activities.

4. **Related to Life:** Basic Education is an education of life, for life and through life. The teacher, in this scheme, can give a proper shape to the life of the child. Like Froebel's Kindergarten, Basic School is a society in miniature, where the child is given practical training in all those activities of life in which he will be engaged in his adult life.

5. **Basic Education not a Class Education:** The ultimate objective of Basic Education is to create a social order in which there is no un-natural division between 'haves' and ‘have nots’.

6. **Sociologically Sound:** Basic Education teaches adjustment in society and also dignity of labour. It overcomes the barriers that exit between manual and intellectual work. It followed properly; it can succeed in establishing a new social order.
7. Community Centred: Basic Education keeps in view of the needs of the society in which the children live. Due regard is given to the special environments of the children before selecting a basic craft. These crafts relate to the vocations of the people with whom the children are so closely associated. Thus the children are naturally interested in them. It becomes easier for the children to learn those crafts and education becomes meaningful. No extra burden is put on them. In this way Basic Education is community centered because not only the children’s interests are kept in view but also those of community in which the children spend most of their time,

8. Formation of Character: Apart from being an educationist, Gandhiji was a moralist as well. He stressed on character building. Basic education lays great stress on the development of morals and character. Any education which did not aim at character formation, would be according to him, anything but education. His insistence on the training of heart, head and hand denotes universal love, devotion to duty, manual work and mental poise. This is what exactly character is.

9. Basic System is National in Character: Being a national system, it cuts at the root of traditional system. It is not a product of foreigners but truly represents Indian ideals, culture and civilization. Academic education was correlated with vocational training to make it functional and useful. It preserves ancient culture.
10. **It is Flexible:** Unlike the traditional system of education, Basic education is flexible. It caters to the larger interests of the children. The basic craft can be selected according to local needs and condition. One particular craft is not composed upon for the entire community or country.

11. **Emphasis on Mother Tongue:** Gandhiji stressed that proper education can only be imported through the mother-tongue. Foreign tongue as the medium of instruction makes unfit for original work. It makes us crammers and imitators.

12. **It is an all round Scheme:** It is a scheme for all the individuals. Though the main emphasis is on the elementary education, it covers all stages and links naturally all the stages so nicely together.

13. **Ideal of Citizenship:** Basic Education encourages cooperative activities and through these corporate life. It lays the foundations of ideal citizenship.

14. **Correlation:** Basic Education insists on correlated and integrated studies. It does not divide knowledge into water-tight compartments not does it encourage book learning. Correlation of knowledge with three main centres is recommended viz (i) in the basic craft (ii) the social environment of the child, (iii) the physical environment in this way learning is correlated with the actual life of the child. Learning becomes purposive.
4.3. HIGHER EDUCATION

Higher Education in India has a long historical past. Universities like Nalanda (located in Bihar) were well known all over the world. The Chinese pilgrims visiting India between 400 BC and AD 800 referred in their travel accounts to the excellent work being done by these universities. The existence of flourishing institutions of higher learning in ancient India is also attested by significant developments in intellectual fields like literature, literary criticism, philosophy, logic, medicine, mathematics and astronomy. Universities as institutions appear to have declined in the middle Ages but the pursuit of higher learning was continued by individual scholars. After the advent of the British in the 19th Century, higher education in India was put in a westernized mould with English as the medium of instruction and with the introduction of new subjects. The first three universities in the modern sense were established in the three metropolitan towns of Calcutta, Bombay and Madras in 1857. A conscious attempt to regulate governance of higher education was made with the University Act 1904. By 1947, at independence, there were 16 universities in India.
**Characteristics of Higher Education in India**

The characteristics of the higher education system in India are dominated by the educational system of which higher education is a part; the expansion in various dimensions of higher education and institutional diversity.

**Scale:** As a result of the system of education developed during the last 150 years, India has now more than 120 universities or similar institutions and 4500 affiliated colleges. This has given India one of the largest trained high-level manpower bases in the world.

**Expansion:** The expansion of higher education since independence has been phenomenal.

**Institutional Diversity:** India has a federal polity with states as constituent units. The subject of education, including higher education, is a concurrent one. In other words, both the state governments and central government can legislate in the field. Normally, the establishment of universities in India is under state legislation. However, there are also a few universities which are established under a central enactment. Then there are central bodies which are concerned with general problems of coordination and maintenance of standards or of promotion of research in an all-India perspective. *Against this background, the institutions in the field of higher education are categorized as follows.*
1. There are about 85 state universities of the teaching and the affiliating type which cover not only arts, science, and commerce subjects but also medicine and engineering.

2. After 1965, agricultural universities were established in various states concerned not only with imparting agricultural instruction but also with research and extension of research results to the field. There are 20 such universities.

3. Central universities were established in response to specific historical situations.

4. These are also four institutes of Management which, though not set up by an act of Parliament, are also all India institutions promoted by central government according to a pre-determined pattern.

5. There are nine institutions of national importance established by an act of Parliament.

6. Some educational institutions have distinguished themselves in selected fields like rural reconstruction, social work and integrated education, through they are not universities in the traditional sense. These are institutions deemed to be universities.

Four categories of apex institutions setup for specific purposes relating to higher education.
(a) The University Grants Commission (UGC) established in 1956 coordinates and determines standards in the universities and for that purpose makes maintenance, development and specified grants available to various institutions. All the universities and deemed universities and the colleges function under the umbrella of the UGC.

(b) The National Institute of Educational Planning and Administration undertakes research in educational planning and administration, provides training and consultancy services in the field and arranges orientation for senior administrators from the central government and states and collaborates with other countries, especially in the Asian region.

(c) As it was seen that the traditional department-faculty university framework was not conductive to the promotion and development of research in priority disciplines the government established national councils devoted to the promotion of research in specific disciplines. The Indian Council of Social Science Research was established in 1969 the Indian Council of Historical Research was established in 1972, the Indian Council of Philosophy was established in 1977 and reactivated in 1987.

(d) The Indian Institute of Advanced Study at Shimla established in 1965 provides an environment suitable for academic research and undertakes, organizes guides
and promotes advanced research in selected subjects in the humanities, Indian culture, comparative religion, social sciences and natural sciences.

New Developments in 1980

To deal with the expansion and to problems of higher education, the Sixth Five-Year Plan (1980-85) aimed to:

(i) promote the values of secularism, democracy, national integration and dignity of labour throughout the educational system,

(ii) Improve higher education courses so as to increase the component of learning from real life situations through participation in socially relevant activities.

(iii) Consolidate existing facilities for higher education and programmes with minimum additional inputs for quality improvement and physical infrastructure and coordinate higher education with opportunities for employment, especially self-employment and development goals;

(iv) Sensitive academic communities to the problems of poverty, illiteracy and environmental degradation through organized participation in poverty reduction and environment improvement programmes.

(v) Promote selective growth in educational fields of national importance and social relevance such as the pursuit of scholarship and excellence in basic sciences and humanities, development of scientific and technical manpower, human resource development among weaker sections, socially handicapped
groups and women, and to provide essential commodities needed by students at controlled prices.

**Guidelines**

The UGC is to tailor its assistance to the requirements of the objectives of removal of regional disparities in higher education facilities and also to improve the standards and quality of education. Non-viable colleges will be assisted to become viable over a period of years. Assistance to colleges in backward districts and in tribal areas will be in accordance with relaxed norms. State governments and universities will be encouraged to lay down criteria for opening new colleges so that non-viable colleges are not brought into existence in future.

So far as universities are concerned, the main emphasis is to be on improvement of standards and making extension an integral part of the activities of the institutions of higher education. Expansion of educational facilities both by way of opening new universities and university centres for postgraduate studies or new departments has low priority. An optimum balance between undergraduate and postgraduate stage of education will be maintained.

Universities which have reached a critical size and development will be asked to restrict enrolment in formal and full-time instructional programmes. Demands for increase in enrolment will be met through correspondence courses,
extended and evening classes, by increasing enrolment in colleges and by allowing students to appear as private students.

**Structure, Number and Types of Institutions**

*There are following types of institutions of higher education in India:*

1. Central universities established by Acts of Central Legislature which are at present seven in number.

2. Thirteen institutions notified as deemed universities by Central Government by virtue of their contribution to innovation in higher education in India.

3. State Universities established by Acts of State or Provincial Legislature. At present these are 111 in number of which 21 are Agricultural Universities.

4. Nine institutions of national importance established by an Act of Parliament, which can award degrees, namely, All India Institute of Medical Sciences, Delhi; Postgraduate Institute of Medical Education and Research, Chandigarh; Indian Institutes of Technology, at Bombay, Delhi, Madras, Kanpur and Kharagpur, Indian Statistical Institute, Calcutta and Dakshin Bharat Hindi Prachar Sabha, Madras; three National Institutes of Management located respectively at Ahmedabad, Calcutta and Bangalore.

Thus the total institutions of higher learning in India are 143. About 4886 colleges referred above normally work under the umbrella of either a central university or a state university and are not able to award degrees independently.
The Acts of the universities normally provide for various officers and authorities for the management of the universities. The head of the state is the nominal head of the university and is called the Visitor in the case of central universities and Chancellor in the case of state universities. The Vice-Chancellor is the academic and administrative head of a university and is normally appointed by the central government or the state government from out of a panel of names recommended by a selection committee. Eminent academic or administrators are normally appointed as Vice-Chancellors. They work through the Executive Council (Syndicate) and are also subject to overall supervision of a deliberative body which is variously called either court or senate. In curricular matters, Vice-Chancellors are advised by Academic Councils which are predominantly composed of academics. Subject to budgetary and financial constraints, universities are structurally designed to be autonomous in their functioning.

**Students Enrolment**

The student enrolment has gone up from 2,00,000 in 1947 to 29,52,066 in 1981-82. The average growth rate of enrolment during the decade 1972-73 to 1981-82 was 3.7 percent per annum as against 12.1 percent during 1962-63 to 1971-72. During the five year period from 1977-78 to 1981-82, the average annual compound growth rate of enrolment was 3.6 per cent. These rates vary from state to state, some states registering negative growth rate while other
states registering three time the average growth rate. These variations were partly due to adjustments in adopting 10+2+3 pattern of education.

In the overall enrolment of 29,52,066, women accounted for 8,16,704 representing 27.7 percent of enrolment. Since independence, the enrolment of women has gone up by approximately 20 times while the proportion of women to men has increased three-fold during the same period. This growth is accounted for only partly by the increase in the number of women colleges which stood at 624 in 1981-82.

In the post-independence period, there was also emphasis on enhancement in the educational opportunities for the weaker section of the society and, in particular, scheduled castes and scheduled tribes which enjoy constitutional protection. This was done through reservation of seats and was also a part of the general expansion of higher education due to upward push exerted by out-turns of secondary education system. In 1977-78, out of the total undergraduate enrolment of 22,55,306, scheduled castes numbered 1,69,662 or 7.5 per cent and scheduled tribes numbered 35,495 or 16 per cent. In the same year, out of total postgraduate enrolment of 2,33,644, scheduled casts numbered 17,592 or 7.5 per cent and scheduled tribes numbered 2990 or 1.3 per cent.
About 40.3 percent students were enrolled in Arts Faculty, 21.3 percent in Commerce Faculty, and 19.6 percent in Science Faculty. Affiliated colleges accounted for 83.2 percent of the total enrolment.

**Teachers**

In 1981-82, there were 42,186 teachers in the University departments and university colleges. Out of them, 4170 were Professors, 9299 were Readers, 26,648 were Lecturers and 2069 were Tutors and Demonstrators. The staff in the affiliated colleges totaled 1,57,718 teachers in 1981-82 including 15,599 senior teachers, 1,34,019 lecturers and 8100 Tutors and Demonstrators. The number of teaching staff has gone up from 37,142 in 1977-78 to 42,186 in 1981-82. The staff in the affiliated colleges has gone up from 1,41,202 in 1977-78 to 1,57,718 in 1981-82.

**Administration**

In day-to-day administration, the Vice-Chancellor is assisted by the registry finance office and examination branch. These are headed by senior administrative officers called Registrar, Finance Officer and Controller of Examination respectively. Registrar and Controller of examinations tend to be internally recruited. The heads of finance branches however are normally recruited from organized Accounts and Audit Services of the state/central
government. The Registrar is assisted by Deputy Registrars and Assistant Registrars, Ministerial Staff and menial staff. This fourfold hierarchy of staffing is also found in other branches.

**Source of Financing**

The government provides the major funding of almost all institutions of higher learning. The funding is of two types - funding for maintenance and funding for development. In the case of central universities, maintenance funding is by the central government and in the case of state universities, it is by the state government. In the case of development, the major funding is through the University Grants Commission established in 1956 for the coordination and determination of standard in the country as a whole. The University Grants Commission makes institutional development grants as well as grants for quality improvement programmes to central universities and state universities. Some of the grants, especially, the building grants are given on a sharing basis. University Grants Commission also makes financial assistance for development available to viable affiliated colleges of the universities. The development assistance is given within the framework of the Five Year Plans.

The other sources of income are fees and endowments. So far as colleges are concerned, they receive grant-in-aid from the respective state governments according to Grant-in-Aid Codes which lay down items of approved expenditure,
the rest of the expenditure being required to be met by the management of the respective colleges which in some cases could be government owned and managed but in a large number of cases are under private management.

Policy Concerning Higher Education

National Policy Relating to Role of Institutions of Higher Learning:

Institutions of higher learning are multi functional. They are expected to perform a series of roles like teaching, research, out-turn of education manpower for the developmental tasks of national-building in various fields including management, research and development and finally a general up-gradation of the quality of the working population of the country. Institutions of higher learning specially universities are also expected to get actively involved in the development tasks through the following.

(i) Participation in Adult Education and Continuing Education Programme.

(ii) Provision of individual or institutional consultancy for policy making and expert roles; and

(iii) Actual involvement in development of community by adoption of villages or by adoption of selected programmes of plan development like Eco-Development, Regional Development, Industrial Development, etc.
Direction of Future Development

Since 1971, central government has followed a policy of discouraging the proliferation of institutions of higher learning viz both universities and college. Guidelines have been laid down for new universities to be eligible for financial assistance which contemplate that they should come into existence after a broad academic survey and only to fulfill a felt-need or to promote regional development. Indiscriminate growth of colleges is also to be discouraged. Non-viable colleges, that is, colleges with less than prescribed enrolment and staffing are not eligible for development assistance.

It is recognized that considering the expansion of secondary education, the enrolment in higher education is bound to increase. However, the Endeavour is to provide for vocationalisation of lower courses so that only the students with correct motivation enter the higher educational stream. The three year degree course is also being restructured so as to incorporate elements of job-orientation in the course so that graduates are able to find a job after completion of their degree. Another important aim of the development of higher education is to provide non-formal avenues of education. This is being done through correspondence courses. At present 22 universities run approved correspondence courses. The University Grants Commission is appraising the Correspondence courses with a view to improve their quality and to make them
more attractive. It is also proposed to strengthen the research capabilities of the higher education system and to integrate their functioning with the research and development establishments in the government sector, namely, national laboratories.

University Autonomy

As indicated earlier, university legislation is designed to ensure the functioning of the universities as autonomous organizations under the supervision of the Chancellor Visitor and subject to the budgetary constraints. The autonomy elements in the field of curriculum have broadly remained unaffected till recently. However, the academic autonomy is subject to the guidelines laid down by the University Grants Commission. There are also trends towards closer supervision of the university functioning in the financial and administrative matters by the Parliamentary Committees. This can be said to be part of a universal phenomenon. Lastly, the power of the purse exercised by the state/central government modifies the autonomy of the universities in matters relating to staffing levels and terms and conditions of service and remuneration.

Relationship Among Different Types of Post-secondary Institutions

As indicated above there are two main types of institutions, namely, colleges and universities which are in a hierarchical relationship. However, some of the colleges by dint of their historical standing and academic standards do
enjoy a leadership position vis-à-vis their university. There are also certain gradations between different universities apart from the natural distinction between state universities and central universities. All the universities function under the developmental umbrella of the University Grants Commission and look up to it for a leadership role.

In relation to research funding specific fields like social sciences, historical sciences and philosophy, apex bodies like Indian Council of Social Science Research, Indian Council of Historical Research and Indian Council of Philosophical Research have come up which have taken over part of the funding of research in these respective fields. This funding is normally on the basis of fellowships or projects.

Most of the statutes of the universities provide for collaboration between sisters institutions. Such collaboration naturally takes place among central universities and also among universities located in a particular state. The committee of vice-chancellors of central universities under the chairmanship of chairman, university Grants Commission and the committee of vice-chancellors at state universities under the chairmanship of respective chancellors play a coordinating role. The collaboration among institutions, however, takes place across the centre/state divide and also across state boundaries according to disciplinary interests of the faculty.
Student Admission

Different universities follow their own criteria of eligibility of students for admission to their institutions. This basically provides for getting a minimum percentage of marks at the higher secondary level (35 to 40 percent). Technical and professional institutions conduct their own entrance tests prior to entry. The admissions are related to the capacities in terms of staff, laboratory and library facilities. In colleges and certain popular subjects, however, the capacity ceilings tend to pierced. It is only in the technical and professional colleges and in certain science subjects that admission ceilings are strictly adhered to. Migration of students from one university to another depends on recognition of equivalence by the respective universities. Universities are autonomous in this regard though certain broad guidelines are laid down by the Association of Indian Universities. There is no central mechanism for coordination of admissions except in the case of technical and professional fields.

Higher Education and Manpower Planning

Although the out-turn of higher education feeds into the job market, the projections of manpower are restricted to professional technical-education. Till 1960s, there was continuous expansion in technical streams which, however, was curbed following perceptible unemployment among the engineering graduates.
Recently, the policy has been reviewed and some expansion in the technical and professional courses has been permitted.

One aspect of manpower planning is the types of courses which are offered and become popular. Of late, the popularity of commerce courses in preference to arts courses indicates the greater employment potential of the commerce education as against liberal arts education. There has, however, been no perceptible diminution in the number going in for arts courses because sections earlier deprived of educational opportunities like women, weaker sections, etc, prefer to go in for arts courses in the initial stages.

The Institute of Applied Manpower Research at New Delhi has conducted some research studies relating to demand and supply for technical manpower in India. However, predictive models feeding into the policy making have not been developed so far. An effort in this direction has recently been initiated by the technical education Wing of the Ministry of Education.

**Equitable Distribution of Educational Opportunities**

The equity in educational opportunities has several dimensions, namely, regional, community and sex. Traditionally, the hinterlands of major metropolises like Calcutta, Chennai and Mumbai have accounted for bulk of enrolment in higher education. After independence, these disparities in regional distribution
have tended to be reduced. There has been increase in the number of institutions, both universities and colleges in northern states which also happen to be more populous. It cannot, however, be said that differences in the educational development as measured in terms of out-turn of graduates as between states, can be eliminated in the near future.

So far as weaker communities and women are conceded, reference has been earlier to the expansion in educational opportunities for these sections. Special measures have been taken to increase the enrolment of educationally deprived sections by provision of incentives in the form of scholarships, etc. Some states are classified as educationally backward and as such are eligible for higher financial assistance from the central government.

**Planning and Programmes of Higher Education**

*National / State Level Planning*

In socio-economic development, India has adopted the method of medium-term planning extending over five years. There is a Planning Commission at the national level which coordinates the process of formulation and implementation in all sectors, of programmes at all level including state and sub-state levels. The ministries/ departments at the national and state levels are an integral part of this planning process. At the national level, for example, Ministry of Education is allocated an outlay for the educational sector as a whole
excluding medical and agricultural education. This outlay is subdivided into school education, higher education, technical education and other components of the educational programme according to priorities. As indicated earlier, at present universalization of primary education is a priority of educational policy and hence is entitled to a lion’s share of funding.

Institutions Involved and Process of Planning at Institutional Level. It will be seen that the institutions involved in the planning process comprise Planning Commission, Education Ministry and University Grants Commission at the national level and the Education Departments of the state governments at the regional level. The universities are brought into the process of planning through the mechanism of visiting teams sent by University Grants Commission in connection with every Five Year Plan Period. The visiting teams are normally sent at the inception of the plan period and make an assessment of academic and administrative requirements of the university in the next five years keeping in view the stage of development reached, the priorities of policy and financial constraints. University Grants Commission on the basis of the recommendations of the visiting teams, decides on ceilings for institutional development for a particular institution.
Mechanism for Institutional Planning

The institutional planning and review take place through the statutory bodies like Academic Council, Finance Committed and the Executive Council. The Vice-chancellor, in consultation with various faculties, prepares his proposals for the five year plan and submits the same to the visiting committee. The report of the Visiting Committee is drafted after close consultation with the Vice-chancellor and the faculty. Naturally, all the projected requirements of a university may not be met within the ceiling recommended by visiting committee and accepted by the University Grants Commission.

The review and monitoring system is built into the process of planning. The policy of the government, however, has been to go in for visitorial enquiries only in extreme circumstances and as far as possible, rely on normal academic planning and administrative reviews whose results are to be fed into the policy formulation.

Major National / State Development Programmes for Higher Education

The National Development Programmes for Higher Education are formulated and implemented mainly by the University Grants Commission. The University Grants Commission gives assistance to institutions for the following purposes.

(i) Institutional development;
(ii) faculty improvement programmes which include assistance for organization of seminars, symposia, workshops, institutes, etc, awards of national associates, national lecturers, teacher fellowships, travel grants, visiting professors, fellows, utilization of services of retired teachers and career awards;

(iii) Support for research through fellowships, through major research projects, through assistance to selected departments which are two levels, namely, (a) centres of advanced study, (b) departments of special assistance.

(v) Assistance for adult and continuing education and for correspondence courses.

This assistance is over and above the development assistance that would be flowing to state level institutions through the respective state governments. The programmes of the state governments include, apart from establishment of new institutions, new academic schemes to supplement those devised by UGC in the particular context on the States requirements.

Institutional Management, Quality and capacity of Academic Administration:

The academic administration is headed by the vice-chancellor who is normally an eminent academic specializing in some discipline. He would normally be selected because of proven qualities of administrative leadership, initiative and experience. The capacity of academic administration would depend on the
administrative staff support available to the Vice-chancellor, cooperation extended by academic colleagues and the external environment of the university. Of late, the factors operating in external environment including extra academic factors and the pressures of individual constituents of the university community, namely, teachers, non-teaching employees and students have exerted major influence on the functioning of institutions. Adverse environmental factors have several times involved institutions into disturbances and closures. Assistance of “law and order” authorities is also required to be sought.

**Efficiency of Institutions of Higher Education**

It is difficult to measure the efficiency of an institution of higher education in the absence of unique and agreed criteria. Nothing that universities are multi-functional institutions; their efficiency could be measured in terms of performance of their respective functions of teaching, research and extension. Results of examination, selection of alumni for higher positions in civil service and private management, research papers brought out by faculty and published in reputed journals, the general standing of the faculty and the frequency with which the faculty is called on for policy and similar consultations, the affinity felt by surrounding community for the university and the involvement of the university in programmes of development of the community are some of the indices against which the efficiency of the institution could be judge.
There is a tremendous expansion of higher education in the post-independent period in response to the upward pull of the secondary system. The question of efficiency of the system of higher education is distinct from the question of efficiency of individual institutions. While individual institutions could be operating below optimum level of efficiency, the education system as a whole could be efficient and vice versa. Normally the efficiency of systems of higher education would be judged in terms of its contribution to the socio-economic development of the country. Some of the measures are whether the output of secondary system is being smoothly absorbed into the system of higher education; whether the output of higher education system is being smoothly absorbed in the various tasks of economic development; whether the research output of the university is directly feeding into achieving higher levels of productivity, etc. Considered in this light, the situation may not be perceived to be entirely satisfactory because there are complaints regarding fall in standards of education, inability of the economy to absorb outputs of higher education system not being relevant to the needs of the economy, the continued need for import of technology from abroad, and in general, the dysfunctionality of the output of the higher education system as manifested in the growing number of the educated unemployed, indiscipline and a general, sense of frustration.
4.4. ADULT EDUCATION

The movement of Adult Education in India is not very long past. The first impetus for the movement was given by the struggle for freedom that vigorously started in the beginning of the present century. Campaigns were organized to liquidate illiteracy among the masses. With the setting up of Congress Ministries in many states the movement gained a further momentum. In 1939 a Committee on Adult Education was appointed by the Central Advisory Board of Education (CABE) to survey the condition of illiteracy among the people. The committee defined the objectives of Adult education as follows:

(a) teaching or 3 R's to the illiterates.

(b) Imparting knowledge pertaining to the adult's working life.

Later, in 1944, C.A.B.E. laid emphasis on the first objective noted above and wanted that the function of Social Education may be placed in the background for some time to come. It said, the main emphasis for some time to come should be on literacy although some provision should be made for adult education proper. Instruction must be intelligible to the non-literate and closely related to their occupations, personal interest and social and economic conditions. Adequate libraries should be provided”.

After achieving Independence in 1947, greater stress began to be laid on social education, the objectives of which were improving the standards of life and
culture of the adult so that he might become a better citizen. The movement for liquidating illiteracy got a set-back as the result of this change in policy.

In 1949 the scheme of social education was taken up in hand on a large scale. The scattered attempts that had been made prior to this date had been quite successful. For example, Madras had organized libraries; West Bengal and Bihar had made arrangements for recreational cultural activities; Bombay had experimented, successfully on Gram Shiksha Mohim. All these programmes had made an attempt to make the life of the adult healthier and happier. The Central Government there designed to launch the movement of Social Education on a country-wide scale.

On the recommendation of the Education Commission (1964-66) a National Board of Adult Education was set up in 1970. The sorry state of affairs was disclosed in the first meeting of the Board by Professor V.K.R.V.Rao in the following words:

“The percentage of literacy in India has increased from 6.2 to 33 during the period 1901 to 1969. But the number of illiterates has increased from 298 million in 1951 to 349 million in 1962. The illiteracy in the age group 15-44 is likely to be of a very great magnitude still”.

The number of literates is swelling, though the percentage of literacy is going up every year. A programme of free and compulsory education has been
stressed upon. It is considered to be the only strategy to make the masses literate. But the irony of fate is that the scheme of free and compulsory education has not been implemented successfully. The system of primary education is still ineffective and wasteful. It is wasteful in the sense that “The child, who complete 5 years,' schooling, either does not attain functional literacy or lapse into illiteracy soon after-wards.”

The national leadership has also been responsible for the slow progress in the field of adult education. The goal of universal literacy has been relinquished as unattainable. In its place, universal primary education has been emphasized. No national leader has ever considered the problem of education of illiteracy as an important one.

**Conceptual Framework of Adult Education**

Adult Education is a broad concept involving literacy and social education. It is the responsibility of the state to increase the educational level of every citizen. It is in the interest of the society itself that proper education be provided not only to the children of a particular age group (say 11-14, 14-17) so that they become functionally literate and stop all further additions to the ranks of adult non-literate, but it is the moral obligation of the state to provide education to every adult, because education never ends with schooling.
Education is a life-long process and the education of the child and adolescent is but one course of action intended for a very small section of the society. The larger section consists of the adult members. And the adult of today more than before needs having a closer insight into the affairs of the rapidly changing world. A traditional society may be content with adults as they are. But a changing society and especially the one which has decided to bring about a revolution- social, cultural and intellectual- cannot remain satisfied with adults who lack the understanding of the present complexities of life. A nation which wants economic growth and development as a faster rate has to educate its adults in such a way that they participate in the developmental programmes intelligently willingly and effectively.

The importance of adult education to a developing country like India is much greater than to a developed country like England. The scope of adult education before 1947 was limited to universal adult literacy. The aims of adult education have to be defined in reference to the political set-up of the country. “The chief function of adult education in a democracy”, says the Education Commission (1964-66))” is to provide every adult citizen with an opportunity for education of the type which he wishes and which he should have for his personal enrichment professional advancement and effective participation in social and political life. Therefore with a change in the political set-up the aims of adult’s
education changed. Before 1947 adult educations remained confined to the liquidation of adult illiteracy. But after that date it was increasingly felt that the immediate object of adult education should be the improvement in the standard of life and culture of the adult. So the concept of adult education underwent a change. The Central Advisory Board in its fifteenth meeting held in 1949 said, “In a democracy the provision of social education is all the more necessary, as without an educated electorate democracy cannot perform the functions expected of it. For this we want not mere literacy or mental development of the adults so that they can take an intelligent interest in the affairs of their country and the world.

**Objectives of Social Education**

A committee was accordingly set up to define the objectives of social education under the chairmanship of Shri Mohan Lal Saxena. The Committee gave a new orientation to the schemes of adult education. It said, “In view of far reaching implications of the scheme, it should be called a scheme for social education instead of a scheme for adult education. A new orientation must be given to schemes for the education of the adult. The immediate task is to improve the standards of life so that the adults may become healthier, happier and better citizens. The work of literacy may go on, but even greater emphasis must be laid on the social aspect of education.”
The sub-committee defined the objectives of social education as follows:

1. To give a reasonable mastery over the tools of learning, reading, writing, simple arithmetic and to create an interest in acquiring knowledge.
2. To develop a love for democracy and impart an understanding of the way in which democracy functions.
3. To infuse into the mind of the adult the sense of responsibility to the nation and to cherish a spirit of service to the community.
4. To provide facilities for continuation of education through libraries, discussion groups, clubs and institutions.
5. To produce fondness for cultural, heritage parting knowledge of historical facts and conditions.
6. To instruct adults in simple laws and principles of personal health and hygiene.
7. To give an insight into the problems faced by the country and the world large.
8. To train them in some craft so that they may better the economic condition.
9. To provide cultural and recreational facilities by way of music, drama, poetry recitation, folk songs, folk dances and other ways of self-expression.

The above list of objectives is however not exhaustive. In any scheme of social education all those activities will find place which lead to the economic, cultural and social growth of the adult. The schemes of social education, therefore, do not place so much emphasis on producing the ability for reading
and writing in non-literate adult. Literacy is only one aspect of social education. Social education, in wider sense, implies” a comprehensive approach to the solution of the problems of the community, primarily through community action.” In this sense a programme of social education is a correlate of community development programmes.

The social education programmes include the entire national extension and community development programmes, social welfare extension projects, rural uplift work undertaken by government agencies in cooperation with the people. Activities of voluntary organizations like Bharat Sewak Samaj, Sarva Sewa Sangh and others, the cooperative movement and the village panchayats are also included in the schemes of social education.

Concept of Functional Literacy

Literacy means ability to read and write. Literacy as such, is one of the basic elements of education. Literacy to be worthwhile should be not formal but functional. A functionally literate person is one who has mastery over the reading and writing skills and at the same time has knowledge enough to pursue his own, interests and purposes. A functionally literate person is able to assume social, civic and economic roles in life that make him a happier, healthier and abler citizen. The rudimentary literacy training consists of teaching or reading and writing only, whereas the functional literacy training is comprised in imparting
knowledge pertinent to the pursuit of one's interests and ends. The rudimentary literary training is simply a means to functional literacy.

The concept of functional literacy has to be distinguished from the concept of adult literacy. Adult literacy simply means teaching the non-literate adult the skills of reading and writing so that he may be able to acquire knowledge and information immediately needed in the improvement of the standard of life.

The concept of functional literacy is very well explained in the report of the World Conference of Education Ministers on the Education of Illiteracy by U.N.E.S.C.O. (1959) which says: “The process of learning to read and write should be made an opportunity for acquiring information that can immediately be used to improving living standards. Reading and writing should not only lead to elementary general knowledge but to training for work, increased productivity, a greater participation in civic life, a better understanding of the surrounding world and should open the way to basic human culture.”

The programmes of functional literacy are conducted at three stages. In the first stage, the non-literates are taught the 3 R's and they are introduced to civic and national problems and to the profession they are engaged in. In the second stage, the skills of reading and writing are strengthened. The stress is laid on the depth of knowledge gained in the first stage. In the last stage, they are directed to programmes of continuing or further education.
The aims and objectives of these programmes are:

1. Enabling the non-literate adult to read and write.
2. Creating favorable attitudes for and interest in one’s own occupation.
3. Empowering him to play an effective role in the social and political life of the country.
4. Inspiring him to use the knowledge of 3 R's for further education.
5. Imparting skills and information to perform his work efficiently.

The functional literacy programmes impart not only literacy and numeracy to the non-literates, but they enable them to continue their education through available agencies of informal education or through their own private efforts. They are generally work-based so that the trainee becomes efficient in the work he is engaged in. In the social education programmes more emphasis is laid on inculcating social and civil values in the adult. The primary objective of social education programmes is creation of effective citizens for a democracy.

Adult Literacy and National Development

Illiteracy is a curse to the individual and the society. The illiterate or the non-literate lives a life of oblivion. In so many ways his existence is inferior to that of the literate or the educated one. There is little prospect of a reasonable income. Sophisticated social graces are denied to him. He cannot take any part in a democratic government. Illiteracy as a mass phenomenon is a bane to the
society. It puts obstacles in the way of social and economic progress. Economic productivity is materially affected. Schemes of population control are set at naught.

Illiteracy resists social change. The non-literates tend to cling to traditional ways of life. New ideas and new practices cannot be effectively communicated to minds which are untrained to receive them. Whether it is family panning or improvements of sanitary standards or any other programme of social security it will not make any sense to the illiterate people.

The nation-wide sustained programme has to be organized and supported vigorously by social and political leadership, by state and central governments, by educational institutions of all types and grades. All the employees working in large firms, commercial, industrial, contractors are not functionally literate. If they are given proper training in the 3 R’s, if they are introduced to skills and information needed for the job in hand, they will be able to produce more. All adults whether they are working in a firm or a farm should be made to participate in the developmental programmes willingly, intelligently and efficiently. The farmer who tills the soil and handles the plough must know the nature of the soil and the efficiency of tools. The worker who is turning lather must know how to adjust the machine. Both of them must understand the scientific processes involved in production agricultural or industrial.
**Organizing and Administering Adult Education**

No system can work to fruition unless it is properly organized and administered. We must first establish suitable bodies at all levels - the school, the block, the district, the state and the centre to look after the work of adult education and adult literacy. A National Board of Adult Education can be set up at the Centre to advise the Centre and the states in matters concerning adult education. The functions of the Board would be coordinating the efforts of different ministries, and of official and non-official agencies, reviewing the progress achieved, formulating policies and promoting research in the field.

Libraries will have to be strengthened at all levels and amply stocked with reading materials beneficial to new literates, good and useful enough to attract adults. Universities may also help a great deal in furthering the cause of adult education.

**Programme of Adult Education**

The Education Commission has suggested developing the following programmes of adult education on a priority basis.

**Liquidating Illiteracy**

It has been analyzed already why there has been a slow progress in the field of adult education. The growth of population at an unprecedented fast rate has brought down the pace of progress in adult literacy during the last two
decades. There were more non-literates in 1961 than in 1951: there were more literates in 1971 than in 1961. The number of non-literates, in spite of vigorous attempts to fulfill the Constitutional Directive as early as possible, is on the increase. A massive all-round national effort is needed to achieve universal literacy.

A planned programme for liquidating illiteracy involves following steps:

1. Expanding universal free primary education for age group 6-11.
2. Providing part-time education to children in age group 11-14 who either drop out prematurely or miss schooling.
4. Liquidating illiteracy among older adults 30-44, through a selective or mass approach.

1. Expanding free compulsory primary education for the age group 6-11 has been the sole strategy during the first three five year plans and much has been achieved through them. The boys and girls who drop from schools after receiving their primary education either lapse into illiteracy or become functionally non-literate.
2. For young adults, who have passed the high school examination but cannot continue education further, part-time courses may be offered to pass the higher
secondary examination and part-time professional courses may be organized for those who have joined agriculture or industry or some trade or who want to be self-employed.

3. Some boys and girls, who have completed their primary schooling and passed the middle school stage, are not able to continue their education on a full-time basis but want to prepare for the high school examination at the end of class X; opportunities should be provided to them in the same school, under the same teachers with the same equipment. There may be others in this group who has actually adopted some career and desire to improve their professional efficiency.

4. For adults above 30 years of age who are non-literates two types of programmers have been suggested selective and mass approach programmers. Under selective approach, for groups of employees working in large firms, commercial, industrial or otherwise functional literacy may be regarded as the responsibility of the employers. The Education Commission recommended that the work of liquidating illiteracy in the public sector industrial plants may be forth with taken up by the Government agencies.

   Under the mass approach of liquidating every educated man and woman should be required to teach at least one man or woman. “Teach one each one’ programme may be mobilized again. Teachers, students and all educational institutions should participate under obligation in a well planned literary
campaign. Every educated person should think it to be his duty to the nation to combat illiteracy.

The Central Social Welfare Board has done commendable work for liquidating illiteracy among womenfolk. Condensed courses have been started for training village sisters who are teaching village woman reading and writing. Such courses may be started and women village teachers may be trained on a large scale.

**Present State of Adult Education**

Adult Education no longer means liquidation of illiteracy. The idea of traditional literacy in the 3 R’s has been left aside and the country has launched a comprehensive programme of an all round development of the adult. The changing social economic scene demands such an over-all development of human resources. Elementary education is being universalized and at the same time the adult population is given all sort of educational facilities so that their educational depreciation may be remedied and their potentiality may be developed. On the one hand the governments, the state and central both have waged a clearly conceived, well planned and relentless struggle against illiteracy so that the masses may be able to play an active role in social and cultural change. Literacy is now regarded as the vital part of an individual pleasingly. And
the development of the personality of the adult means his ability to read and write well.

On October 2, 1978 a National Adult Education Programme has been launched and by 1983-84 it aims at providing facilities to 10 crores of illiterate persons in the age group 15-35.

**The main objectives of the Programme are:**

(a) Development of the country's human resources in the vital age group 15-35.

(b) Creating social awareness among the illiterate masses.

(c) Provision of basic literacy skills.

(d) Upgrading of functional skills.

**The following bodies have been set up to implement the policies effectively.**

(a) A National Board of Adult Education to advise the Central Government in the formulation of policies.

(b) District Level Committees to ensure proper coordination and examine the implementation of the programme at the local level.

(c) Voluntary organizations.

(d) State Boards of Adult Education to advise the state governments.

**Continuing Education**

It has been stated earlier that those who are desirous of continuing education for the stage they have not been able to receive education in the
school, part-time teaching may be provided in the same school by the same teachers (with due allowance for extra work done). Here we want to stress that besides such opportunities for part-time education, parallel part-time system of education may be started in schools, factories and farms. Doors of educational Institutions of all types and grades should be kept open to those who are desirous of getting education in them. Opportunities should be created for desirous adults to earn the same certificate, degrees and diplomas as are received by regular students. For example the Directorate of Delhi has started Adult Education Centres in some of the same buildings in which Higher Secondary Schools run. But the classes are taken in the evening and provisions for teaching those boys and girls are made who being employed somehow cannot attend day schools.

Factories may start education centres in their own premises for teaching their own workers. In this way they may increase the knowledge, improve skills, widen horizons in life and improve the careers of their employees. Similar opportunities may be provided by large firms to their employees to get further education in the work they are doing.
4.5. WOMEN EDUCATION

In the past no importance was attached to the education of girls. The two problems of women’s education that attracted the attention of educational commissions were:

(a) Backwardness.

(b) Slow progress.

As early as 1882 the Hunter Commission said that the female education in the country had been till then in a very backward condition and recommended for an over-all improvement in the condition. It recommended that more grants should be given to girls schools and that moneys should be spent in equitable proportion on girls and boys schools.

To encourage girl’s education the commission recommended for a liberal scheme of scholarship to girls, a provision of facilities for their professional training and opening of secondary schools.

In spite of valuable recommendations made by commissions and committees on female education, at the beginning of the present century there was hardly any provision for the formal schooling of girls. It was only after 1901 when women came out of homes to shoulder responsibility in the struggle for freedom, that we see a progress in the field of the education of girls.
During the first half of this century much faster progress was made. The education for women expanded enormously. Their status in the society got raised. *A few aspects of the phenomenal growth in female education are given below:*

1. The rate of expansion of female education was higher than that among the boys.
2. The enrolment at the primary stage increased from 12 for 100 boys in 1901 to 39 for 100 in 1950.
3. The enrolment at the secondary stage increased from 4 for 100 boys in 1901 to 15 for 100 in 1950.
4. The enrolment in the university rose from 264 in 1901 to 40,000 in 1950.
5. The education in mixed schools was more in the primary classes than in the secondary classes.

But there was still a very wide gulf between the education for boys and that for the girls. It was especially hinted at by the National Committee on Education of Women under the chairmanship of Smt. Durgabai Deshmukh (1958-59). The Committee pointed out that the government did not realize even as late as 1958 that the problem of female education was a special one and as such it failed to provide necessary funds for the rapid development of women’s education for which a suggestion had been given as early as 1882.
The National Committee on Women Education suggested that the education of women should be regarded as a major programme in education for some years to come and that special schemes should be prepared for this purpose and funds needed to work them out should be provided on a priority basis. The committee also suggested the setting up of special machinery at the state as well as the Central level to look after the education of women.

The problem of wide disparity between the education of boys and girls at all stages and in all sectors of education is really one that claims urgent solution. The Education Commission has stressed the need for solving this problem at an early date. It remarked that had the problem been given due attention right from the beginning the need for special programmes as suggested by the Durgabai Deshmukh Committee would have not arisen at all. We must therefore try to bridge the gulf between the education of boys and girls at all stages primary, secondary and higher, and in all sectors of education.

The next Committee for the development of female education was the one which was headed by, Hansa Mehta. The Committee discussed the problem of differentiation of curriculum between boys and girls. The Hunter Commission had recommended in 1882 that curriculum for girls should be different from what it is for boys as the instruction which is useful for a boy may not be useful
for a girl. The Committee under the Chairmanship of Hansa Mehta made the following recommendations.

(a) There should be no need to differentiate curricula on the basis of sex in a democratic socialist society.

(b) In the transitional period we should accept certain psychological differences between the two sexes and we may build curricula in such a way that these differences are given due importance but care should be exercised not to perpetuate them.

There has been appointed one more committee which studied the problem of women’s education in 6 states under the chairmanship of Shri M. Bhaktavatsalam. It had surveyed the education of girls and concluded that the education has been very poorly developed so far.

Three aspects of female education stand out as follows:

(a) Problem concerning expansion of women's education.

(b) Problem of higher education of girls.

(c) Problem of professional education of girls and married women.

The problem concerning expansion has been very carefully examined by the National Committee on Women's Education (1958-59). So far as the expansion of primary education is concerned, the number of girls enrolled for very 100 boys is about 50 now. At the middle school stage the gap is still wider.
The Constitutional Directive could not be fulfilled even by the end of 1980 even if we proceeded at a faster rate in the field of expansion of women's education. We will have to educate public opinion to overcome traditional prejudices against girl’s education. We will have to encourage girl's education by proving free textbooks, writing materials and even clothing. We would have to make mixed schools popular at the primary stage and shall have to open separate schools for girls at the middle and secondary school stage wherever they are needed and it is possible to open them. Girls are more useful than boys at home.

Hence, they tend to be withdrawn earlier Public Opinion is still not in favor of extending education among girls to higher stages. Hence a large portion of girls have to leave school early. For girls who leave the primary stage at about the age of 14 and get married, it is proposed that part-time or full-time courses should be organized in home sciences or the household industries like tailoring, arts and crafts, poultry and dairying so that they may prepare themselves better for their future life as housewives and mothers.

At the secondary stage, special programmes will have to be initiated for girls who intend to join secondary schools. In 1950-51 the proportion of the enrolment of the girls to that of the boys was about 1:6 in middle and 1:6.5 in higher secondary schools. By 1980 it had been raised to 1:2 in middle schools and 1:3 in higher secondary ones. Special efforts shall have to be still made to achieve
targets set. Either more separate schools will have to be opened or where it is
not possible to do so, women teachers will have to be kept on the staff. Women’s
hostels or subsidized transport shall have to be provided. Encouragement shall
have to be given in the form of scholarship and free education.

Problem of Training and Employment

The Indian society is undergoing a change. Woman is adopting her own
career. Her age of marriage is rising. Her role outside the home is becoming an
important aspect of the social and economic life of the country. The role of
woman outside the home will assume still larger significance in time to come.
There is a problem of unemployment among educated girls. It is therefore
necessary to pay special attention to the problems of training and employment.

The 1961 Census showed that about a million young educated women
above the age of 24, though matriculates were working simply as housewives.
The 1971 Census presented even more dismal picture. How horrible is it to lay
waste their powers which could be profitably used for national reconstruction
and development! There is a need for training and employing them in nation-
building activities.

As the marriage age among girls rises, the number of young unmarried
women becomes large. A suitable career has to be singled out for pursuit before
a girl gets married. Then again after marriage, when she becomes almost free
from home-making activities and when her children reach a school going age, she needs some employment. The time at her disposal before she is married is to be use in some part-time job and the time after marriage when she is free has to be use in full-time work. Teaching, nursing and social service are some of the areas in which part of full-time jobs can be secured for women. Hence, there is a need for training girls for these services.

**Women Polytechnics**

In all polytechnics courses of special interest to girls should be developed. A few such courses that have been started for women in 17 polytechnics spread all over the country are courses in:

(a) Secretarial practice.

(b) Pharmacy.

(c) Interior decoration.

(d) Electronics and radio technology.

(e) Commercial art.

(f) Dress making.

(g) Instrument technology.

(h) Architecture.

(i) Medical laboratory technology.

(j) Library science
These courses are being offered at certificate are levels. Efforts should be made to attract into them girls who have just passed the middle or high school examination. More women polytechnics need opening. It is suggested that if guidance services are amply provided to school leavers at the high school stage and if the Principals of women polytechnics associate themselves with the headmistresses and principals of higher secondary schools more girls may be attracted to these careers.

**Women Polytechnics: Agricultural**

A large number of girls in rural areas may be attracted to supporting services needed by a farmer. At the post-matriculation stage, opportunities for giving vocational education in agriculture may be provided on a sufficiently large scale. Courses of special interest to girls will have to be devised and developed in agricultural polytechnics. For example; courses in applied nutrition, dairying, animal husbandry, and poultry farming are most suitable for matriculate girls. Besides, there is an urgent need for such courses in the country; for instance, in the present circumstances, we have to change our dietary habits and such courses may help a great deal in meeting food shortage. Women in rural households can safely manage these affairs. A network of agricultural polytechnics may be set up to provide girls vocational education in courses referred to above.
Higher Education for Women

We do not subscribe to the opinion that it is no longer necessary to give a special attention to higher education of women since they are taking its advantage fully. To being with, it must be emphasized that there exists an acute shortage of educated women to shoulder directional and organizational responsibilities in many professions and occupations. For example, there is a great demand of highly educated women workers in a series of occupational fields, such as nutrition, dietetics, institutional management, etc. especially vigorous efforts have yet to be made to expand women's education at the university level.

Considering the changing needs of the Indian society and the requirements of national development, a still greater expansion of higher education has become imperative. For the healthy growth of higher education among womenfolk the following programmes have been suggested by the Education Commission.

1. A programme of financial assistance and scholarship to women students in colleges and universities on a liberal scale.

2. A programme of suitable but economical hostel facilities for women on a large scale.

3. A free access to course in arts, humanities, sciences and technology.
The first two programmes are self explanatory. The National Council for Women’s Education appointed a committee under the chairmanship of Smt. Hansa Mahta. The committee recommended that courses available for women should not be strictly compartmentalized, implying that women should not in any case be compelled to take up a particular course. The Committee gave a warning that if choice is restricted to women it shall be wrong in national interest. The Education Commission also did not like those girls should be forced to take up particular courses only. It suggested that the more academic type of girls with ambitions of pursuing careers of research or teaching at the college or university level or in professions such as medicine and technology should have all the opportunities and incentives for doing so.

The most popular professions for women are nursing and education. Facilities for higher education in these areas have to be strengthened. Higher education for women must be lined up with avenues of employment because in the absence of employment their education will be wasted away. The services of highly educated women are needed in education, social work and nursing and similar professional fields. Their services are also required in nutrition, dietetics, institutional management and similar occupational areas. Home science has been recognized as an academic discipline in as many 33 universities.
Co-education

Co-education is the education of boys and girls together in the same institution, admission being secured on equal terms and opportunities being offered for the mixing of both the sexes in all the activities connected with the institution. Co-education therefore, means education of the children of both the sexes in the same institution with fuller freedom of mixing with each other freely.

Much has been said on the vexed question of co-education without any body as yet saying the conclusive word on it. Our ancestors were against this institution. But the practice of co-education in the West is quite old. There was co-education in ancient Greece and Rome. As a matter of convenience, as a measure of financial economy and as a result of the belief that boys and girls have much to gain, mixed schools have gradually gained importance and increased in number.

How far is it Desirable?

In India it has remained in the nature of a problem. In the other countries co-education is a favored idea. Is co-education a really immoral institution, resulting in gross corruption and criminal sexual laxity, spoiling the students completely or is it one of the most beneficial institutions the crying need of our country, the panacea of all evil, the only psychologically sound method of imparting education and removing the false serological complexes?
There is no doubt that much can be said in favor of co-education psychologically. It is true enough that the establishment of normal relationships between boys and girls and the growth or familiarity between them would make them develop more naturally and would remove much of false shyness, abnormal and unnatural behavior and would lead to a better understanding between boys and girls. Greater contact between boys and girls will, no doubt, result in a sense of comradeship and after due course of time will be able to approach each other without giving that undue emphasis to the sexual aspect.

Competition amongst boys and girls would lead to greater efficiency. This is supported by the results of examinations in the United States of America where full scope is given to co-education at all stages primary, secondary and university. Co-education also tones up the discipline of the institution because the presence of the opposite sex has a wholesome effect on their morals. Boys become less coarse and vulgar and girls less shy and morbid. An eminent educationist once said, “I would advise the education of sexes together. Segregation is unhealthy and stirs the sex urge. I can guarantee nothing in a school where there are girls alone.” There is some truth in it.

Co-education would engender good social contacts between the two sexes. They would be relieved of mental strain and a better social development would take place. Both would develop natural and rational personalities.
Co-education would suit a poor country like ours. There shall be a good deal of saving. Duplication of buildings, staff and other establishment expenses would be avoided. Co-education would be economical.

**Advantages of Co-education**

*Co-education is as much a fascinating problem as it is vexing.* It has both advantages and disadvantages.

1. It is psychologically very sound. The repressed feelings of both sexes find healthy and congenial environments. It would remove false complexes of both boys and girls.

2. The mixing of the sexes is natural as the feminine mind gains from association with boys and vice versa.

3. It is most economical. We cannot effort to have separate medical, industrial and technical institutions.

4. Co-education will lead to greater literacy.

5. Students can study the characteristics of the opposite sex. Pope has said, “The proper study of mankind is man.”

6. Most of the marriages made after co-educational experience are successful.

7. General morals and character are also built.

8. Well integrated personalities are developed.
9. It will bring about saner attitude for each other. The boys will learn to respect girls and vice-versa. Better understanding will take place.

10. Co-education will lead to healthy competition in studies and co-curricular activities.

11. In view of the growing demand for general education and lack of separate institutions co-education is the only solution of the problem.

12. Co-education will reduce mental diseases. Dr. Freud believed that co-education alone could keep young people free from certain diseases of mind.

13. Better domestic life would be developed through co-education. Addison, one said, “Female friendship is necessary for intellectual development.”

**Disadvantages of Co-Education**

Let us consider the other side of the medal as well. Every rose has thorns with it. Every smile is accompanied by a tear. Wherever co-education has so many merits, it has demerits also.

1. In all cases of repression, whenever freedom is gained all of a sudden, the result is always riot which, though it lasts for a short while, can never be avoided.

2. Their vocations in life are different and this points out to the need of totally different types of education for them. The task of propagation of the race, bringing up children and building the nation has to be done by women, while
men will have to do the roughest business. To encourage co-education would be silly.

3. Co-education would mean the same type of education for both men and women. And men and women are temperamentally different. Education therefore must in their cases be different from each other.

4. Mixing of sexes at the adolescent stage when sex urge is at its highest pitch, is not advisable. It distracts the attention of both boys and girls and hampers their progress in studies.

5. There are some subjects which cannot be taught together especially biology and poetry.

6. Co-education institutions are difficult to organize and manage and there is a good deal of truth in it. It will create many problems of discipline.

7. The result of the impact of each other's personality would be that girls will become masculine and boys effeminate.

8. Under a uniform code of discipline, girls are likely to suffer more.

9. The strongest objection to co-education is from the moral point of view. Emotional disturbances will take place. They are exposed to sex appeal and morals are at risk. Sex criminality will increase with co-education.

Weighing the pros and cons of the problem and considering the peculiar conditions of India, her social customs and traditions, her orthodoxy and
conservativeness, it is rather difficult to introduce co-education at all stages. It can, however, be done in the primary classes where the mixing of sexes is healthy and harmless and at advanced university stage when boys and girls have developed a sense of responsibility and where it is expensive to provide separate institutions for them. At all the other stages, girl’s schools must be separate from boys.

Apart from these, the writer ventures to give the following suggestions:

(a) Under the prevailing social and economic conditions, there is no harm in introducing co-education.

(b) Curriculum should be prepared in such a way that it caters to the interests, needs and aptitudes of boys and girls.

(c) Co-curricular activities, particularly N.C.C., girl guiding and physical activities should be conducted separately for girls.

(d) Equal opportunities should be offered to both boys and girls for self expression.

(e) Co-educational institutions should possess congenial climate.

(f) Teaching staff (mixed) should extremely efficient.

(g) Separate retiring places and sanitary arrangements should exist for the girl students.
Provision should be made for the teaching of subjects like Music, House-hold Accounts, Domestic Arithmetic, Home craft and other subjects intended for girls.

Co-Education at the various Stages of Education

Co-education at all stages of education exists only in a few western countries like U.S.A. and U.S.S.R. in others, it exists at the primary and university stages.

Primary Stage

There are strong financial and educational reasons in favor of co-education at primary stage. At this there is absolutely no harm in having co-education especially in those areas where the number of boys and girls attending a school is too less. It becomes, rather necessary to have co-education. Separate boys and girls schools would be too expensive. It will not give rise to problems at all. The sex consciousness is absolutely dormant at this age. They are too innocent. Even from the point of view of curriculum also there is little need for differentiation. From organizational point of view, it is possible to reproduce the spirit, conditions and relations of home.

Staff for the Primary Stage: It need not be stressed that the youngsters can be best handled by women. Since the mother is an important factor in the life of a child, a woman teacher as “mother substitute” has great potentialities. Women teachers have manners, sweet temper and dutiful nature. They are less harsh. The children love them as they love their mothers. Since women know proper
handling of young ones, they are most competent to look after their educational needs. In co-educational primary schools, lady teachers are a necessity. They are better fitted to do the job.

**Secondary Stage.**

Co-education at this stage presents many difficulties. Boys and girls reach the adolescence stage and it is fraught with many dangers. The objections to co-education at this stage can be discussed under psychological, moral and physiological and moral heads.

(a) **Psychological.** The emotional and temperamental differences are noticeable at this stage. Girls attach greater importance to feelings; and sentiments, and are more serious and hard working than boys. They have a greater sense of responsibility. The interests of boys and girls are quite different and the two cannot be taught with the same methods of teaching. Co-education at this stage will lead to premature sex stimulation which is not conducive to normal growth

(b) **Moral.** People oppose co-education from the moral point of view. Boys and girls are extremely susceptible to sex appeal and the morals are exposed to risks. People consider co-education a monstrously immoral institution, which will result in gross corruption and criminal sexual laxity, wrecking the students completely. This is, of course, an extreme view.
Let us consider the views of the supporters of co-education with regard to morals. The co-educationists argue that wisdom lies in meeting the special dangers of the age when they arise and in directing the impulses and energies into healthy and useful channels. To run away from the problems of education is to adopt an escapist attitude. We must come to grips with the problems that arise out of it. Sex consciousness is reduced by the constant social contact of sexes. The sex relations become unsentimental with no mystery about sex. There are fewer changes of six strains, perversions and abnormalities. Co-education trains boys and girls for participating in the civic life on equal terms.

(c) Physiological. Vast physiological changes start taking place amongst boys and girls. One of the most important changes is the development of sex characteristics. There are primary sex characteristics and secondary sex characteristics. Primary sex characteristics include the development of reproductive organs while secondary sex characteristics include the development of public hair, appearance of beard, width of hips, development of breast etc. These changes lead to fear, and restlessness. Both find it difficult to adjust to new bodily changes and take to day-dreaming and remain pre-occupied with sex.

**University Stage**

Co-education is very much favored at the University Stage. The reasons are obvious. The students are comparatively mature and they can think of their
future. By this age, they have sufficiently gained proper understanding of each other. They have also learnt to respect each other. Some of the misunderstandings about the opposite sexes, too, are properly remove. By this stage, boys and girls are supposed to have secured control over their sex impulses and to have acquired enough intelligence and discretion. The ideas and attitudes of boys and girls towards life also start taking a definite shape.

4.6. Vocational Education

Indian Educational Commission (1964-66) observed, “We visualize the future trend of school education to be towards a fruitful mingling of general and vocational education-general education containing some elements of pre-vocational and technical education, and vocational education in its turn having an element of general education. In the kind of society in which we will be living in the coming years, a complete separation between the two will not only be undesirable but impossible. Vocationalisation of education at secondary stage implies Vocational training in the specific vocation so as to train the practical aptitudes of students in the preparation for definite work in future life and General Education courses. Thus vocationalisation means to provide a strong vocational bias to secondary education. Vocational courses should be introduced
in secondary schools along with general subjects General and vocational education should not be separated.

**Importance of Vocational Education**

*Solution of Economic Problems*

India is today facing such grave problems as employment, poverty, famine etc. Our economic problems are our greatest difficulties. Hence, vocationalisation of education is of the greatest importance since only such education can help to solve the economic problems of our country. Mahatma Gandhi Rightly stated, “True education ought to be for children a kind of insurance against unemployment.”

**Attainment of Happiness**

The true object of education is the generation of happiness. Happiness is said to be the summum bonum of life and existence. Man is really very happy when he is adjusted to his occupation. A happy and contented individual can render best service to society. Vocationalisation of education will balance the distinctive capacity of the individual with social service.

**Attainment of Social Efficiency**

Vocationalisation of education will help the education to attain economic independence and social efficiency. Social efficiency is the outcome of the efforts
of the individuals who earn their livelihood and who are not a drag on the members of the society.

**Minimizing Social Misfits**

Vocationalisation of education will facilitate fixing the right person at the right place and thus minimizes social misfits, entailing wastage of human talent, initiative and resourcefulness. For children of lower intelligence vocational education is the only hope. Such children should have vocational training as early as possible because they are at a great disadvantage when taught academic subjects with more intelligent children.

**Giving Purpose to Educational Activity**

Vocationalised education will be purposeful and conducive to learning. It makes the child an active partner in the learning process. It makes use of the child’s tendencies and habits, pays attention to their interests and awakens their minds. It excites the intelligence and puts an end to lethargy and inactivity.

**Moral, Intellectual and Cultural Development**

As far as the vocational aspect of education is concerned, it is connected with earning money. For this reason, one expects a high moral, intellectual and cultural level from an educated individual. If the educated individual fails to win economic independence, he tends to be immoral in his behavior; degenerates in his intellect and indifferent to the arts and cultural tastes.
Causes Slow Progress Vocational (Technical) Education according to Secondary Education Commission (1952-53)

Lack of Seriousness: The position of vocational education has not been seriously tackled comprehensively by the Central and State Governments.

Lack of Expert Guidance: The Department of Public instruction in almost all states had no advantage of expert guidance to plan vocational courses on an intelligent and comprehensive basis.

Lack of Training Facilities: There has been a lack of training facilities for teachers for vocational courses. The teachers were not available who combined in themselves general knowledge of a sufficiently high standard and the technical and applied scientific knowledge in the branch of vocational studies.

Lack of Finances: There has been lack of finances to equip schools adequately and get properly trained teachers. Absence of well trained teachers and proper material facilities hindered the progress of vocational education.

Lack of Co-ordination: There has not been sufficient co-ordination and co-operation between the different departments of government. Some institutions were under the Director of Industries, others were under the Director of Labor and the rest under the Director of Education.

Recommendations of Secondary Education on Vocationalisation of Education
1. **Diversification of Courses.** Our Secondary Schools should offer a diversity of educational programmes to meet varying interests, aptitudes and talents. They should provide more comprehensive courses including general and vocational subjects and pupils should have an opportunity to choose from them according to their needs. It should be realized that if special practical subjects are taught side-by-side with certain common core subjects of general value and utility then can contribute to the all-round education of students, making them productive, co-operative, well balanced and useful members of the society.

2. **Multilateral Schools:** Multipurpose or multilateral schools should be started to provide diversified courses. The main advantages of multilateral schools are:

   (i) To Remove Individuals Distinctions. It removes all individual distinctions between students preparing for different courses of studies, breaking down the sense of inferiority that is associated with vocational subject and makes it possible to plan the educational system on a truly democratic basis.

   (ii) To Facilitate Educational Guidance. It provides a greater variety of educational media and thereby facilitates proper educational guidance in the choice of studies.

   (iii) To Solve the Problem of Wrongly Classified Pupil. It helps to solve the problem of wrongly classified pupil, because transfer within the same school is easier to arrange than transfer from one school to another.
3. Agricultural Education in secondary Schools. Agriculture plays an important role in the national economy. In view of its basic importance, the Commission recommends that all states should provide greater opportunities for agricultural education in rural area. Instructions in agriculture should not be theoretical only but students should be given an opportunity to work in realistic conditions.

With agriculture, two other allied subjects- Horticulture and Animal Husbandry should be closely integrated. There should be adequate plots for cultivation and agriculture should be taught scientifically. Suitable types of cottage industries should also be taught in agricultural schools. The particular type of industry chosen for a school should depend upon its location, the facilities available and the requirements of the region. It may be spinning and weaving, or leather work or pottery or basketry or carpentry or some other useful craft. It is further recommended that agricultural schools should form a part of rural multipurpose schools.

4. Technical Education. Technical education should be imparted. Secondary Commission made following recommendations concerning technical education:

(i) Technical Schools. Technical schools should be started in large numbers either separately or as part of Multipurpose schools. They should provide technical as well as general education.
(ii) Location of Technical Schools. Wherever possible. Technical schools should be located in close proximity to appropriate industries and they should function in close co-operation with the industry concerned.

(iii) Central Technical Institutes. Central Technical Institutes should be established in large cities which may cater to the needs of several local schools.

(iv) Legislation for Practical Training: Suitable legislation should be passed making it obligatory for the industry to afford facilities to students for practical training.

(v) Close Association. In the planning of the technical and technological education at all levels, representatives of Commerce and industry should be closely associated with the educationists so that in the planning and direction of such education and in the maintenance of standards their views may be given effective weight.

(vi) Industrial Education Cess. A small cess to be called “Industrial Education Cess” should be levied on industries and the proceeds of the cess should be used for the furtherance of technical education.

Multipurpose schools were started at many places but they failed to divert the students into different walks of life.
Recommendations of Kothari Commission

Kothari Commission made the following recommendations for implementing vocationalisation of education.

Lower Secondary Stage. The following courses can be organized for students who leave at the end of class VII or VIII.

1. Reducing the Age of Admission. In the Industrial Training Institutes, there are courses which are open to those who have completed the primary school. If the age of admission to these courses is reduced to 14 (this was originally 16 and now reduced to 15), a large number of students who have completed the primary school will be able to enter these courses of industrial training.

2. Wide Range Part-time Courses: A wide range of courses should be available on a part-time basis for a large number of students who drop out after class VII or VIII to enter employment in family business, some with the industry or trade.

3. Terminal Courses in Technical Schools. Technical high schools and junior technical schools should prepare students for jobs in industry. The courses offered should be clearly terminal and adjusted through the greater use of available time to meet the requirements of the Apprenticeship Act and should lead to trade certificates.
4. **Home-science for Girls.** A large proportion of girls will leave school and get married either immediately or little later. They should be given further education in home science combined with general education.

5. **To improve Professional Efficiency and General Education.** A large proportion of rural boys will join the family farm. They will have to be provided with further education which will enable them to improve their professional and general education.

**Higher Secondary Stage**

At this stage Kothari Commission has recommended the following types of vocational courses.

1. **Full time and part-time Vocational Courses in Industry.** Facilities for full-time studies in agricultural and part-time vocational courses in industry are arranged on either a day-basis, or correspondence course basis.

2. **Expansion of Courses in Industrial Training Institutes.** A large number of courses offered in Industrial Training Institutes require the completion of class X as a qualification for entry. These should be expanded rapidly.

3. **Short Condensed Courses.** Agricultural and engineering polytechnics should organize short condensed courses for upgrading of skills of those who have entered into employment or the retraining and re-education of those already quailed.
4. Developing a Wide Range of Other Courses. In addition to the courses so far described, a wide range of other courses in health, commerce, administration, small-scale industries and the services should be developed ranging in duration from six months to three years for a certificate or a diploma qualification. These can be offered on a part-time basis or through correspondence for those already in employment.

5. Special Section for Organization of Course. The State Departments of Education should create special section for the overall organization of courses of this nature whether full-time or part-time.

6. Central Grants. The commission attaches great importance to the vocationalisation of secondary education. For this purpose the Commission recommends that the Central Government should provide special grants to State Government in the centrally sponsored sector for programmes of vocationalisation for secondary education.

Part-time Vocational Education: Another important aspect of the expansion of secondary education is the need to provide part-time education. It will have to be expanded on the following lines:

1. Lower Secondary Stage. The commission recommends that part-time courses should be organized for those students who have completed the primary school
and are unable to continue their studies on a full-time basis they wish to prepare themselves for high school examination at the end of class X. Part-time education should largely be of vocational character it is required by those who have actually adopted some career and desire to improve their professional efficiency.

2. Higher Secondary Stage. Programmes of part-time education at this stage are very important and will include the following:

(i) Part-time courses in agriculture for those who have taken to agriculture as a career.

(ii) Special courses for girls on the lines of those recommended at the lower secondary stage, but conducted at a higher level in view of the better general education which the students would have received.

(iii) Part-time courses organized on the pattern of full-time ones meant for those who would like to pass the Higher Secondary examination.

(iv) Part-time courses in industry for those who have joined it.

(v) Part-time courses for those who want to be self-employed.

The commission observes that part-time education is needed more for girls than for boys, as girls are more useful at home and they tend to be withdrawn from schools earlier than boys. The same is true of vocational education. A vast majority of girls that leave school at fourteen would be
benefited by short vocational courses or by courses in home science which would help them in their future life. These courses need greater emphasis than a mere continuation of general education.

**Work-Experiences**

One of the greatest weaknesses of our education is the lack of emphasis on work-experience. In the twentieth century to neglect this area of study is to deny the student an opportunity to acquaint himself with knowledge and skill which will be of vital concern to him of all his life. Work oriented education is useful for the student throughout his life. It is necessary to build two-way bridges between education and productivity in all levels. It contributes in its own distinct way to the all round and well balanced development of an individual, as a member of the human society.

**Historical Perspective**

Although Hunter Commission(1882), Hartog Committee(1929) and Sapru Committee(1934), Abbot and Wood Report (1936) and Sargent Report(1944) emphasized the need of instruction in arts, crafts, technical and vocational pursuits, yet no adequate provision was made for instruction in these pursuits.

Mahatma Gandhi’s idea of self supporting educational system at primary level for the village, the basic social unit of India, developed into the first
indigenous efforts known as the 'Basic System of Education.' But several complex controversial issues and handicaps were involved.

Mudaliar Commission (1952-53) recommended diversified course in secondary schools. The commission recommended multipurpose schools.

Kothari Commission (1964-66) recommended work experience as an integral part of education. While separate vocational schools have been envisaged by the Commission, it has emphasized in clear cut terms that one of the means achieving the national goals is by linking education to productivity and this link can be forged by introducing work experience as an integral part of general education.

Kothari Commission defines work-experience as participation in productive work in schools, in home, in a workshop, in a farm, in a factory or in the another productive situation.

Characteristics of Work-Experience

1. **Productivity.** Work-experience is related to productivity, it involves participation in productive work.

2. **Wide Range of Activities:** Very wide range of possible activities can be proved in a programme of work experience. The choice of the activity is to be determined mainly by the availability of materials, and trained instructions.
3. **Work-experience at Different Stages.** Work-experience should be introduced as an integral part of all education—general or vocational.

4. **Related to Basic Education.** The concept of work-experience is closely related to the philosophy underlying basic education. What is now needed is a reorientation of basic education programme to the needs of a society that has to be transformed with the help of science and technology. In other words work-experience must be forward-looking in keeping with the character of the new social order.

5. **Productive Work-experience in Rural Schools.** While it is true that work-experience in rural areas could be largely built round agriculture, programmes oriented to industry and simple technology should be introduced where school workshops cannot to be provided, suitable kits of tools and materials may be manufactured at low cost and made available to the pupils.

6. **Increasing Facilities.** It should be declared objective of State policy to increase the facilities for work-experience in industry and agriculture as rapidly as possible and to make them available to school for the education of the rising generation. A continuous attempt should be made to bring in science and technology and to introduce the pupils to better ways of performing the traditional productive tasks.
Need and Importance of Work-Experience

Modern educationists unanimously agree that work-experience should be introduced as an integral part of education at all stages in schools. Work experience is useful from the following points of view:

1. **Corrective of Bookish Education.** Work-experience provides corrective to the over academic bookish nature of our education. It shifts the existing emphasis on book-learning to relating knowledge actively to socially oriented productive work. It removes boredom of unrelieved academic work and the consequent mental strain by using the psychological principle of alteration between mental, manual and physical activities in order to give suitable rest spans to the brain-cells and muscles.

2. **Acquaintance with Modern Technology.** Work experience acquaints the students with the tools, processes and materials of modern technology. The students can learn the method of selection, the use and maintenance of apparatus and tools used in the production activities in which they are engaged.

3. **Productive Competency.** Work experience develops productive competency to earn some amount. A successful programme of work-experience should make the student participate in some type of work in real life and may ultimately develop in him enough productive competencies to earn some money.
4. **Dignity of Labour.** Work experience inculcates in the students a sense of dignity of labour, self-reliance and spirit of enterprise and habit of hard work. These students can learn to undertake hard and constant physical work, as manual labour is one of the most important elements of a work experience programme.

5. **Insight and Forward look.** Work experience provides insight and forward look to the students in improving the tools and techniques of production, doing every work methodically and avoiding every kind of wastage. Through the dynamic and forward looking nature of work experience a new society can develop with deeper interest in work.

6. **Solution to Problems of Daily Life.** Work-experience helps in solving problems of daily life of the students of their family and their community. Work experience enables the individual to live as a self-sufficient and healthy individual.

7. **Recreation.** Work-experience provides recreation. It provides necessary setting of holding recreational and cultural activities. For example, holding of exhibitions and activities like to making and making of scientific instruments provide lot of joy and entertainment to students.

8. **Good Work Habits.** Work experience inculcates good work habits and desirable traits of character. It motivates students to live in co-operation with others. The students can learn safety precautions to be observed during
production activities. The students can learn the procedure of selection and proper use of consumer goods.

9. **Educational and Vocational Guidance.** Work experience provides educational and vocational guidance. A successful work experience programme provides useful activities so that student's energies and enthusiasm are properly channelized.

10. **Solution Problem of Indiscipline.** Work experience solves the problem of indiscipline. The surplus zeal and energy of students can be utilized in work experience programmes. Experience base shown that even brightest students take great interest in work-experience activities.

The development of work-oriented education is in the national interest because it is essential to the national economy, defence and welfare. It develops consciousness to avoid wastage of every kind.

**Kothari Commission on Programmes of Work-Experience**

1. **Work-Experience in the Lower Primary Classes (I to IV or V)**

*Simple Hand-work*: In the lower classes of the primary school work-experience may begin as simple handwork. The objective of introducing work experience at this stage is to train children to make use of their hands and thereby help their intellectual growth.

2. **Work-Experience in the Higher Primary Classes (IV/V to VII/VIII)**
**Learning of Craft:** In the higher primary classes, work experience may take the form of learning a craft which develops technical thinking and creative capacities in the pupils.

3. **Work-Experience in the Lower Secondary Stage (Classes VII/VIII to X)**

**Workshop Training:** At this stage work-experience should be productive. It should be provided in real life situations. It is suggested by the commission that at the lower secondary stage work-experience should take the form of workshop training. Accordingly it has been suggested that a workshop should be attached to every school or a group of secondary schools in a phased manner over the next ten years (by 1976).

4. **Work-Experience in Higher Secondary Classes (XI-XII)**

**Work Experience in Farms, Commercial or Industrial Concerns.** Many of the activities listed, at the lower secondary stage should be continued at this stage but emphasis should shift to workshop to practice of actual work experience in industrial or commercial concerns sort on farms. The activities should be oriented towards productive work. Skills demanded in wood work, metal work and agriculture should be of a higher and more exacting nature.

Thus we find that the range of possible activities that can be provided in a programme of work experience is very wide, and the choice should be determined merely by the availability of materials and trained instructions.
National Seminar on primary and Work-Oriented Education (1970)

1. Need to spell out the Details. The seminar emphasized to the need to spell out the details pertaining to the following aspects of work experience:

(i) Formulation of the operational concept of work-experience.

(ii) Types of work-experience programmes to be introduced during 1970’s in the country.

(iii) Minimum work-experience programmes to be introduced in schools in the country with stress on the structured activities to be introduced in selected schools.

(iv) Action programmes pertaining to production of curriculum materials.

(v) Steps to be taken for mobilization of public opinion in favour of work experience.

2. Socially Useful Work-Experience. The seminar endorsed the view that work-experience should be socially meaningful, realistic, physical work- without over emphasis on economic aspects at the cost of learning outcomes.

3. Encouragement to Individual Schools. The seminar pointed out those individual schools might be encouraged to develop their own programmes of work experience.
4. Need of Developing Minimum work-Experience Programmed. The seminar stressed the need to develop a minimum work-experience programme suitable to each stage.

Problem in Implementing the Programme of Work-Experience

Kothari Commission observed that in implementing the programme of work experience, three problems have to be tackled:

1. Problem of Training of Teachers. There is a problem of non-availability of right type of teachers for work-experience. The following solutions are suggested.

   (i) Work-experience as a Subject in Teacher Training Institution. Work-experience should be introduced as a compulsory subject in teacher training institutes at all levels and effective training in work – experience should be provided.

   (ii) Short Term and in-service Training Course. Arrangements should be made for short-term and in service training courses for teachers.

   (iii) Recruiting Skilled Craftsmen. Teachers at the lower secondary stage should be recruited from skilled craftsmen trained by the Industrial Training Institutes diploma holders in agriculture etc. The Regional Colleges of Education of NCERT have also started courses for teachers of industrial arts. Such a teacher might work in one school or be used as part-time teachers for a group of schools.

Craftsmen or persons engaged in factories or forms conversant with modern modes of production can also serve as a useful purpose.
(iv) Two-year Art and Craft Teachers Course. State Government should review the position regarding training of craft teachers in their States. It is good idea to have a combined two-year art and craft teacher's course for teachers working at this stage.

2. **Problem of Facilities and Equipment.** There is problem of facilities and equipment. To solve this problem the following suggestions are given:

(i) *Utilizing Private Farms.* Where it is not possible to attach farms to school, arrangements should be made to obtain the assistance of local people to provide work-experience to the student on private farms.

(ii) *Attaching Farms to Schools.* In rural areas, farms should be attached to schools wherever possible.

(iii) *Co-operation of Industrial Concerns.* The help of industrial concerns should be enlisted to design and manufacture cheap kits for schools and materials which can be used by groups of children and graded for the different school levels.

(iv) *Facilities for Industry-oriented Experience.* Facilities for industry-oriented experience should be provided in all the bigger schools. All secondary schools, whether urban or rural, should be provided with workshops.

3. **Problem of Development of the Programme.** There is a problem of development of the programme. The following suggestions are offered in this direction:
(i) **Preparation of Necessary Literature.** Necessary literature about the scheme should be prepared and introduced to teachers and schools.

(ii) **Training of Special Teachers.** The training of special teachers needed for the programme should be undertaken in advance.

(iii) **Orientation Courses for Officers.** Short orientation courses should be held for officers of the department, principals and headmasters.

Many varied programmes of work-experience have been introduced and are being implemented in several schools in various states. Various nomenclatures have also been used to characterize these programmes viz., *Earn while you learn Scheme,* “Air vice Marshall Scheme,” “Occupation-oriented Programme”, “The job and Hobby-oriented Programme” etc. Preparatory work in this connection has been undertaken by Punjab Government in 1974-75, and 100 middle and 50 higher secondary schools have been chosen for inclusion in the programmed in 1975-76.

**It has been observed during the implementation of some programmes that:**

1. They are being offered only to those who are interested and not for all students.

2. They sometimes reduce themselves to the traditional craft work; (3 times a week, one period each).
3. They virtually become just social service deeds.

4. They emphasise the monetary return aspect to the total detriment of others.

5. They are simultaneously introduced for all classes in school, say for classes 5 to 10 and that too in one area.

It should be noted that experiencing representative samples of production processes has not been completely understood and appreciated by workers in the field. Improvement in implementing work-experience programme is needed. An additional task would be the introduction of are not operating in these institutions and classes where they are not operating at present. But flexible approach should be followed in the implementation of work-experience and maximum freedom should be given to each school to select its own activities in accordance with the needs of the local community.

4.7. Computer and Internet Education

Progress in the field of science and technology has worked wonders in the different walks of life. The latest advancement is of computers and their successive use for institutional purposes. Computer can work wonders almost in every field of human activity. Countless number of calculations within a second is possible with the help of a computer. A computer is a power-driven machine equipped with keyboards, electronic circuit, storage compartments and recording
devices for the high speed performances of mathematical operations. It has also a capacity for storing of memorizing a large amount of information and producing any of them when called for. We may say that the computer is a box loaded with information. It has its own symbolical language. In order to work on a computer to derive benefit, we shall have to familiarize ourselves with the language of the computer. So we shall have to feed the computer first. Then it interacts and manipulates the information, translates the answer and types it on a tele-type-writer.

Important Parts of a Computer

There are five important parts of a computer which are briefly explained below:

1. The input equipment of the computer is in the form of the keyboard and cassette recorder. It receives the outside information so that it may work accordingly.

2. The memory part contains all information which has been fed into the computer. It helps in storing information and retaining it. Further it can be used whenever needed.

3. The output equipment translates information back into understandable form.

4. The processing unit is the arithmetic and logic mind of the computer which is responsible for all types of data manipulation and computation work.
5. The control system controls the execution of the programme and co-ordinate all the activities of the sub-system of the computer.

The computer is a hardware machine. The software used in it is in the form of written programme which is prepared by the computer programme writer. The computer works as the programmer direct it. The computer in itself is not independent thinking machine. Computers have their own languages. They are known by different technical names Basic, Logo, Pilot, COBOL etc. We should understand the languages of the computers if we want to communicate with them. Most of the computers make use of binary system, where two digits symbol 0 and 1 are used for expressing any number.

For Example,

**Step I**

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<thead>
<tr>
<th>Number</th>
<th>Computer Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>...0000</td>
</tr>
<tr>
<td>1</td>
<td>...0001</td>
</tr>
<tr>
<td>2</td>
<td>...0010</td>
</tr>
<tr>
<td>3</td>
<td>...0011</td>
</tr>
<tr>
<td>4</td>
<td>...0100</td>
</tr>
<tr>
<td>5</td>
<td>...0101</td>
</tr>
<tr>
<td>6</td>
<td>....0110</td>
</tr>
</tbody>
</table>
Step II

Then the operations are given code numbers as given below:

<table>
<thead>
<tr>
<th>Operations</th>
<th>Code Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>....1</td>
</tr>
<tr>
<td>Subtract</td>
<td>....2</td>
</tr>
<tr>
<td>Multiply</td>
<td>....3</td>
</tr>
<tr>
<td>Divide</td>
<td>....4</td>
</tr>
<tr>
<td>Read a card</td>
<td>....5</td>
</tr>
<tr>
<td>Square</td>
<td>....6</td>
</tr>
<tr>
<td>Draw a line</td>
<td>....7</td>
</tr>
<tr>
<td>Transform</td>
<td>....8</td>
</tr>
</tbody>
</table>

Step III.

At this stage, the code numbers are transformed in computer language as suggested above in step I.

According to J. Bruchner, there are two systems for computerized instruction:
1. In computer assisted instruction, the student participates with the computer system on a direct basis and the instructional materials are stored in the computer system.

2. Computer managed instructions are used to help the teacher to administer and guide the instructional process but relies on separate hardware and learning materials; the student is usually not on line with the computer system and the processing need not be in real time. Instructional materials are not stored in the computer system.

**Advantages of Computer**

*We can use the computer as an effective and indispensable aid in the teaching-learning process. Below are given a few advantages.*

1. It helps the learners in the development of variety of skills. It can also be used for providing drill and practice to the learners.

2. The computer can play effectively the role of a tutor by maintaining perfect interaction and dialogue with the individual students.

3. They can be used to develop problem solving ability and creativity among the students.

4. It can serve the role of an inquiry officer. The students put questions and it gives response with the help of answers it has already stored.
5. The computers can be used to give training to the students through simulated and gaming techniques.

6. They can be used in providing education to the handicapped children like deaf and dumb.

7. They can supplement laboratory and other practical work specially in science subjects.

**Drawbacks of Computer**

_The computer assisted instructions suffer from some drawbacks which are given below:_

1. The use of computers in the classrooms is very expensive and uneconomical in terms of educational returns.

2. Handling the computer is rather technical. There is always the danger of damaging the costly machine by the students.

3. It is rather difficult to teach all subjects and all topics with the help of a computer. There is dearth of computer programmes for teaching purposes.

4. Being auto-instructional, it may lead to indiscipline, truancy, carelessness and wastage of time on the part of some students.

5. The repair work or its servicing causes a serious problem to the institutions.

6. Heavy school curriculum and shortage of trained personals pose a threat to the introduction of computer assisted instruction in the educational institution.
Role of Computer in Education

In 1965, Lorence Settlor and Daniel Davis developed most complicated teaching processes in which computer was used for presenting instructions in place of teacher. They divided the teaching process of the computer in two parts:

1. Pre-tutorial phase.
2. Tutorial Phase.

In the first phase, computer assisted instruction is given to the pupils to achieve the specific objectives on the basis of his entering behavior. In the second phase, instructing material is presented accordingly. The pupil studies it. Then, the achievement of the pupil is evaluated. After presenting the instruction, computer also controls it. It also provides reinforcement to the pupils.

In the modern age, the use of computers in the field of education, made in following areas:

(i) All the researchers do all analytical tasks with the help of computers in the research work.

(ii) Computers' help is sought for preparing the results of the examinations.

(iii) Computers are also used in educational guidance and counseling.

(iv) Remedial teaching of the pupils is also done by the computers.
**Computer Programmes**

While observing groups of students working with the computer, you would notice that enthusiastically participate in the learning programme. The computer's novelty, the challenge involved in the programme, the wonderful display of tasks - all help in creating and sustaining their motivation. Learning with the computer is never full and monotonous. Some of examples are given below:

**Codebreaker:** It is a programme which keeps asking questions and the students supply the answers. In pedagogic terms this question-answer sequence provides an opportunity for useful interaction which is essential for successful learning.

**Varietext.** It is part of the text with blanks for the students to fill in. For each blank four alternatives appear one after another and the student has to choose the most appropriate one. Whenever necessary, the student can get the computer to display the correct words. This instant feedback is apart of the programme and no other technological instrument can be faster than the computer in providing such instant feedback.

**Yellow River Kingdom.** It is problem solving activity. The computer displays a vast kingdom with a lot of resources. The computer is capable of simulating such complicated situations for the purpose of teaching learning. It can be simulated dangerous situations such as burning forest or division of atom.

**Pedagogic Qualities of the Computer**
1. Motivates the learners.

2. Stimulates situations which are difficult and dangerous.

3. Interacts with the learners.

4. Provides instant feedback

5. Distance Education.

Such a powerful instrument has several uses in the field of distance education where technological media are a basic necessary. There is hardly any distance education institution in the world which does not make use of media such as radio and T.V. Regular, though in a small scale, radio broadcasts and TV telecasts are a part of distance education courses in India too.

Some of the major advantages of using computers in distance education are as follows:

(i) Computer brings flexibility and individuality to the study process.

(ii) Computer stimulated students to experiment, design and create solutions to the problems.

(iii) Computer reduces the isolating of distance learners.

(iv) Computer-based study materials are cost-effective when produced on a large scale.

The increasing availability of micro-computers in the developed countries offered major new opportunities for distance education. The computer has
various applications for distance learning. It can be used as a teaching medium, a learning tool, a manager of learning or as an aid to educational administration.

**Applications of Computers**

1. Budgeting and monitoring of finances.
2. Keeping students records.
4. Monitoring materials production registers and so on.
5. Mailing of rest score.
6. Student billing.
7. Preparation of payroll, bills and debts ledger.

**Instructional situations of Computer Application**

1. Presenting of students knowledge on enrolment.
2. Planning and printing individualized programmes.
4. Compiling tests and scores etc. A number of such data files can be stored in the computer.

Other contributions of computers are word processing to aid course development and data processing to aid administration. In addition, electronic mail is also used to communicate, change and exchange materials. The course
terms can also use computers for conferences, establishing a communication channel among multiple writers and other professionals.

‘On-line’ and ‘Off-line’ Computers

Computers can be used in distance learning in two modes- Local mode and transmitted mode - local mode or ‘off-line' computer stands on its own as an independent system helping the learner to work on his own. In transmitted mode, one computer is connected to another computer which is ‘on-line' and then the operation depends upon communication between these devices. By inter-connecting the computers, a complex learning Network can be created which could link all distance learners with their teacher and with a central institution.

New technologies in Education

Information Technology broadly deals with the application of technology in the field of information. In this process, media, computer, operations related to hardware and internet play a vital role in education especially in class room instruction. New technologies which are emerging need to be integrated in order to provide meaningful and complete information. An effort to this direction has led to constitute a NETWORK. It makes the flow of information very simple, easy, and effective on the part of transmitter (teacher) and receiver (student).
The basic structure involved in NETWORK is:

(i) **Interlinkages.** Different components involved in information technology are interconnected. The relevant information is passed on from one channel to another. The whole NETWORK is based on the nature and type of interlinkages (interconnectivity).

(ii) **Communication.** The second component in INTERNET is effective communication. Messages are passed on from one place to another. Information reaches from one point to another. Without any loss of information, complete message is communicated.

(iii) **System.** NETWORK operates through a system. There are sub-systems. Each sub-system performs its function. The integrated one whole of sub-systems leads to work as much expanded and multiple functions.

NETWORK is a vast cyberspace where one can gather, disseminate and exchange all types of information. An arrangement consisting of two or more computers is called NETWORK. It is a physical medium used to transport the data. A computer network is created when several computers are linked by data communication channels. Each computer in a network can have its own processing capabilities and can also share hardware, data files and programmers. Following are the types of Computer Network.
1. **Local Area Network.** A local area network is two or more computers directly linked with in a small well defined area such as a room, building or a group of closely places buildings. A LAN may be made up of only microcomputers or any combination of micro-computers and large systems.

*A Local Area Network usually consists of the following:*

(i) Two or more computers.

(ii) Software to control the operation of the computers.

(iii) Peripheral devices such as printers and hard-disk drivers.

(iv) Special Cables.

(v) A plug in board to handle the data transmission.

2. **MAN (Metropolitan Area Network).** Man is basically a bigger version of LAN, and normally used similar technology. It might cover a group of nearby corporate offices or a city and might be either private or public. A MAN just has one or two cables and does not contain switching elements. A MAN can support both data and voice and might even be related to the local cable television network.

3. **WAN (Wide Area Network).** A WAN is two or more computers that the geographically disposed, linked by communication facilities such as telephone system or microwave relays. This type of network is usually limited to use by
large corporations and government agencies because of the high costs involved in building maintaining them.

The main difference between a WAN and LAN is that, the LAN is under the complete control of the owner, whereas the WAN needs the involvement of another authority like telecom department.

- LANs are successful and capable of handling very high data transfer rates at low cost because of the small area covered.
- LANs have a lower error rate than WANs.

Types of WAN

There are mainly two types of WAN:
- Public Networks.
- Private Networks.

Public Networks. Public networks are those networks which are installed and run by the telecommunication authorities and are made available to any organization or individual who go for their subscription.

Private Network. The basic technique used in all forms of Private WAN is to use private circuits to link the locations to be served by the network. Between these fixed points the owners of the network have complete freedom to use the circuits in any way they want.
INTERNET

Internet is a world wide computer network that contains large collection of information which could be made available to you on your computer. The person having internet connection can retrieve any information of individual interest. Internet is the abbreviation of inter network system. The internet is the name for a vast, worldwide system consisting of people, information and computers. It is also described as a network of networks because these are more than one lakh readily accessible through the internet. Internet is the largest and most complete learning tool for a group of people with varied educational backgrounds and interests. Teachers, students, businessmen and other educators can share ideas instantly across vast distances. For scientific and research community, internet is an essential and indispensable tool.

Through internet scientists can gain and enjoy instant access to the worlds' most advanced research facilities and discuss their research problems with others, working in the same field. It also serves as an encyclopedia since one can get the desired information in detail on any subject of his interest.

History of Internet

ARPANET (Advanced Research Projects Agency Network) laid the foundation of today's internet almost three decades ago. It was established to test security of a network.
**Advantages of Internet**

Internet is playing a very important role in the National Development by giving the following major benefits to the citizens world-wide:

- Education
- Shopping
- Advertising
- Financial Services
- Government
- Careers and so on.

Using the internet’s vast resources, one can communicate with people from all over the world and about any desired subject of choice.

**APPLICATION OF INTERNET**

Internet being a networks spread world wide is capable of offering the following major services.

(a) E-Mail

(b) WWW (World Wide Web)

**Electronic-mail**

E-mail is an application in which any user as a network can send/receive letters on his computer terminal to/from any person in the world who has an electronic mail address. Internet provides a world-wide electronic mail facility.
**The general format of Internet e-mail address is:**

<Name of addressee> @ <identify of his dept.>

<Institution> <identify of Indian Network> <country code>.

Mail can be sent only to individuals but to groups, by using group identity.

The network takes care to see that the mail is delivered safely if it leaves the user's terminal.

**WWW**

World-wide web offers facilities to the users to share information with others.

This is the fastest growing part of the internet. The web is a vast network of documents and it also gives access to every internet service. The Web server can publish text and graphics including sound and video.

**Website**

Website makes a user as a node of internet. This means that if a university decides to float its own website, then all information regarding admission, scholarships, rules and regulations, courses it offers, department, staff and their profiles, workshops, conferences, seminars to be conducted etc., can be kept at university's computer centre. This computer can be accessed by any member on internet for any particular course; it will be automatically listed with all its details.

This website is important to a university or a company to offer 24 hours services and on line help to international clients. Developing a website on internet is a
costly affair as far as hardware and other costs are concerned. The need for counting and calculating was felt as early as the Stone Age. The primitives used pebbles to count their cattle and other food stuff. Later, with the production of surplus goods, goods started getting exchanged for rice and other similar commodities, resulting in the Barter system.

Still later, people used to count by putting tally marks on sand on stone. A need for counting became more urgent giving rise to the development of various counting systems and devices.

**Abacus.** The Chinese developed the Abacus, a manual calculator of sorts in as early 3000 BC. In about 1000 BC, Greeks and Egyptians improved upon it. The final version, can still be being used in Hong Kong and other parts of China.

**Leibnitz Machine.** In 1964, Gottfried Wilhelm Leibniz improved Pascaline and called it Stepped recliner or Leibniz machine; it could multiply and divide as well as find square roots.

**Pascal's Calculating Machine.** In 1642 AD, Blaise Pascal, a young French scientist, developed a mechanical calculating machine, known after his name and called Pascal's calculating machine. This machine was capable of performing only addition and subtraction. It was also called Palestine.

**Analytical Engine.** In 1833 AD, Charles Babbage, invented a Difference Engine to generate logarithmic and stomata tables of numbers up to 6 places. The
technique he used was the computations of successive differences. Later he developed the concept of Analytical Engine, a calculating machine, which still forms the base of all computers. He however, could not complete his work during his lifetime. For his fundamental research he is known as the father of computers.

His work was completed by Lady Augusta Add loveless daughter of Lord Byron, the English poet. She developed essential ideas of programming the analytical Engine. For her contribution she is known as the first Computer Programmer.

5. Hilarity’s Machine. Herman Hallerith, an American statistician developed a punch-card machine in 1887 AD. This machine could store the results in the form of punched cards and read them later on. Hollerith formed a company called Tabulating and Calculating? Company of America. It combined with other companies to form what is now known as IBM (International Business Machines Corporation, USA). IBM is among the largest manufacturers of computers in the world.

6. Mark I. In collaboration with IBM Howard Aiken of Harvard University developed ‘Automatic Sequence Controlled Calculator’ or Mark I. This was the first commercial computer available in the market. IBM marketed it in 1944. It was the fastest electro-mechanical machine, capable of multiplying in 4 seconds
and dividing in 10 seconds. It was a huge structure, 15 meters long, 2.5 meters high and weighing 31 tons, having around 750,000 parts. At the same time came into existence the use of electronics in computers. Computers like ENIAC, EDVAC, and UNIVAC were developed. These were all huge and very expensive machines mainly used for research and development work.

7. Three Generation Computers. The principle of On Switch and Off Switch, that is the two states represented by 1 and 0, was used here. First, electronic devices, vacuum tubes were used to provide on and off conditions. This formed 1st generation of Computers (1940-52). Then transistors replaced vacuum tubes forming 2nd generation (1952-64) reducing overall size of components required for the computers. Next were Integrated Circuits or ICs also called the Chips. This were made of a material called silicon. A small silicon chip and hundreds of transistors forming ON (1) or Off(0) conditions in a very small space. This was third generation computers (1965-71).

8. Around 1972 to Till Data. Several more transistors and other electrical components like capacitors were added on to this IC to make large scale integration (LSI). In fact, chip and an entire CPU on it and was called a micro processor resulting in smaller size, faster speed and lower cost of operations. Our present day ICs belong to 4th Generation.
Research is going on for increasing the speed for operations, decreasing the size and adding more components on a chip to give human like intelligence to computers.

**Kinds of Computers**

1. **IBM 650.** In 1955, this was launched by IBM. It was one of those big computers requiring full room to store with cables running underground to connect the various components of the machine. This machine actually made the scientist sit back and think of creating new machines, which could work faster and would take less space.

2. **Apple PC.** In 1977, this computer was developed by two young men in their twenties, named Steve Worzniak and Steve Jobs. It became very popular for home and small business use. They formed, Apple Computers than any other computer manufacturer more small computers than any other computer manufacturer of the time. Over the years the company has grown tremendously and has Macintosh brand of computers available thought the world. Their computers are better than those manufactured by IBM.

3. **Personal Computers (PCs).** In 1981, the IBM launched its first personal computer called IBM-PC, since then, manufacturers other than IBM have also developed PCs which are of the same standard as that of the IBM. While IBM-PC remains the trademark of IBM, the other manufacturers market their small
computers as PCs, which are also called IBM-PC compatible machines. PC has become a general term including all kinds of personal computers from IBM and other companies. PC has been improved over the years as per the following development stages.

(i) **PC-I. PC with a single floppy diskette drive.** This PC had a 51/4” double sided diskette can could store up to 300 kilobytes of data. It was based a Intel 8088 IC chip. The computer operated at 4.77 Megahertz speed and had a memory of 640KB.

(ii) **PC-II.** A sort of extension of the PC-I computer mentioned above. Instead of single floppy drive, it had two of them. Rest of the features remained the same.

(iii) **PC-XT.** Developed in 1982, Personal Computer with extended Technology, had an additional fixed hard disk drive and a floppy disk drive. The microprocessor used was Intel 8088; however, the speed was increased to 8 megahertz.

(iv) **PC-AT.** Developed in 1984, Personal Computer with Advanced Technology, also had a floppy drive and a hard disk drive in a minimum configuration. It could also have within the system box, a maximum of 2 floppy drives and 2 hard disk drives. The floppy diskette used were of Double sided High Density and could store data up to 1.2 Megabytes. The capacity of a hard disk also increased from 20 to 80 Megabytes and been beyond that. The speed was also increased to 13
Mhz (Megahertz) because of use of new Intel 80286 chip. The memory also increased from 640 KB to standard of 1 MB but could be increased to 16 MB.

(v) PC-AT/386, 586. From 1985, through 1997, and beyond, advancements in computer technology has brought about Intel processor chips in market ranging from 80386 to 80585 in such a short span of time. Now a days 80586 chip which is also known as Pinetum is used in the computer system. AT/386 introduced 1.44MB mini floppy of 3 ½ ", which revolutionized floppy system to such an extent that the new computers now do not have 5 ¼" floppy drives.

Hard disk capacity also went on increasing from 82MB to 1.2GB, in between experimenting with 256MB, 512MB and 800MB etc. Even 1.2GB is now replaced with 2.1GB and even 4.3GB are available presently. The memory chip which was IBM in case of XT, increased to 4MB, 8MB, 16MB, 32MB and even higher. Speed of processing also kept on increasing. It was 4.77 MHz in case of XT and then went on to 50 MHz and then on to 133 MHz and now 200 MHz is the standard. PCz with speeds of 400MHz are also available.

(vi) Pentium PC. The optimum machine these days, it has a hard disk of 2.1GB. The memory of 32MB. It has one floppy drive of 3 ½ ", 1.44MB capacity. The clock speed is 200 MHz and is based on latest Intel chip called Pentium.
(vii) Pentium MMX. The new version of Pentium chip which supports the multimedia operations like audio speakers, video card capabilities and has all these features built-in on to the single chip of the system is called Motherboard.

(viii) Pentium II- Processor. A new, more powerful processor has been developed by Intel Corporation. In its competition, Cyirx Corporation, US have produced equivalent micro-processors. K-6 and K-7. Another American Company- Motorola has developed another series of micro-processors- 68000 series, which are mainly used in the Apple-Macintosh computers.

(ix) Power PC. There is also consortium of Apple, IBM and Motorola which manufactures Power PC. Power P/C is supposed to take advantage of all the features of the IBM-PC compatible machines(PCs) and the Macintosh(ac) machines. Programmes written both or the PC and the Macwill run on the Power PC machines.