CHAPTER - I
THEORETICAL PERSPECTIVES AND CONCEPTUAL FRAMEWORK OF THE STUDY

1.1 PROLOGUE

Higher education is of vital importance for the country, as it is a powerful tool to build knowledge based society of the 21st Century. India has placed great emphasis on education, right from ancient times. In the past, highly advanced institutions such as Nalanda, Taxila and Vikramshila flourished here, which imparted education on a vast range of subjects and were sites for open, dialogistic communication. Towards the medieval times, education continued to be rooted in religion and the system of teaching continued with minor variations across the region. Under the British rule, education was elitist, catering to only the advantaged sections of society. However, the colonial rule also was the beginning of the establishment of the university system in India, with institutions of higher learning systematically growing in number, so that by 1923, there were 23 Universities across India. After independence in 1947, the Government of India laid the foundations of a sustained programme of higher education with the setting up of the University Grants Commission (UGC) in 1953. Under the Constitution, responsibility for education is shared between the Central and State Governments. The policy and action plan of higher education in independent India are largely based on two landmark reports called the University Education Commission (popularly known as Radhakrishnan Commission) Report in 1948-49 as well as the Education Commission (Kothari Commission) Report in 1964-66. In 1986, a National Policy on Education was drafted to prepare Indian education for the new century with a Programme of Action in 1992. India's planners and administrators have placed great stress on higher education, as reflected in India's 1986 National Policy on Education, revised in 1992: "Higher education provides people with an opportunity to reflect
on the critical social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialized knowledge and skills. It is therefore, is a crucial factor for survival” (Government of India 1992, p. 24).

**1.1.1 Gross Enrolment Ratio (GER) in Higher Education**

Gross Enrolment Ratio (GER) is a statistical measure used by the United Nations to measure education index of a nation. In the context of higher education, it measures the total population of all ages enrolled in different education programmes to the total population of the country in the age group of 18-23. The current level of GER in India stands at a figure of 12.4% and is very low compared to world average of 23.2%, 36.5% for developing countries and 45% for developed countries. The Government has set a target of increasing the GER from the present level of 12% to 15% by the end of XI Five Year Plan and to 30% by the year 2020. Various new projects have been taken during XI Five Year Plan to increase the GER. Reliable and comprehensive data-base is an immediate requirement to measure the actual GER and efforts have been taken to improve the GER. Though India has advanced its position in the global knowledge economy there is a crisis plaguing the Indian Higher Education System. While, the National Knowledge Commission (NKC) set up by the Prime Minister calls it a ‘quiet crisis’, the Human Resource Minister calls higher education ‘a sick child’. Industries routinely point towards huge skill shortages and are of the opinion that growth momentum may not be sustained unless the problem of skill shortages is addressed. There appears to be endless issues with the Indian higher education system. Global ratings of institutions are primarily based on their intellectual capacity (patents, innovative projects, design concepts, research paper and caliber of faculty). The Higher Education System has to cater to the basic graduate level education. The demand for graduates is huge and in turn they will become the primary workforce of the nation. Over the past 3 decades, most of the private institutions were focused
on generating this manpower. The transition from the Under Graduate training programmes into Post Graduation has parallely evolved only over the past decade or so. There was a severe shortage of faculties and researchers primarily due to this reason. Currently the shortage is being gradually met or it is in the process of being achieved. The focus on research and the quality of these programmes will take shape over the next decade or so and will be on par with Universities across the world. This process will enable the enrichment of the intellectual capacity of the nation. When this process is achieved, India will rise as one of the global academic super powers of the world.

1.1.2 Review of the Tenth Plan on Higher Education

The focus of the Tenth Plan was on primary education with an expenditure of over Rs 50,000 crores, whereas, the expenditure on University and higher education was below Rs 8,000 crores. The growth of higher education system during the Tenth Plan is given in Table.

**Growth of Higher Education System**

<table>
<thead>
<tr>
<th>No. of Institutions</th>
<th>2002</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities</td>
<td>201</td>
<td>378</td>
</tr>
<tr>
<td>Colleges</td>
<td>12342</td>
<td>18064</td>
</tr>
<tr>
<td>NAAC Accredited :</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universities</td>
<td>61</td>
<td>198</td>
</tr>
<tr>
<td>Colleges</td>
<td>198</td>
<td>3492</td>
</tr>
<tr>
<td>Enrolment (lakh)</td>
<td>75</td>
<td>140</td>
</tr>
</tbody>
</table>

*Source: UGC-NAAC*

Our GER of around 12.42% is very low compared to the world average of 23.2%, 36.5% for countries in transition, 54.6% for the developed countries, and 22% for Asian countries. Further, with high disparities inclusive education has been an elusive target. 370 districts with GER less than the national average need enrolment drives and rapid expansion of higher education institutions.
We should aim to increase the GER to 21% by the end of the Twelfth Plan with an interim target of 15% by 2011–12. To achieve this, the enrolments in Universities/Colleges need to be substantially raised at an annual rate of 8.9% to reach 21 million by 2011–12. This requires an additional enrolment of 8.7 lakh students in Universities and 61.3 lakh in colleges. A welcome development during the Tenth Plan is that the share of private unaided higher education institutions increased from 42.6% in 2001 to 63.21% in 2006. Their share of enrolment also increased from 32.89% to 51.53% in the same period. This trend is likely to continue in the Eleventh Plan and therefore, it is reasonable to expect that about half of incremental enrolment targeted for higher education will come from private providers. Though the emergence of the private sector has helped expand capacity, it is characterized by some imbalances. Private institutions have improved access in a few selected disciplines such as engineering, management, medicine, IT, etc. where students are willing to pay substantial fees. However, the distribution across country is uneven, with some States receiving most of the growth in private institutions.

### Grant to Colleges/Universities

Out of the 18,064 colleges that exist today, only 14,000 come under the purview of the University Grants Commission (UGC) system, with
permanent and temporary affiliations. UGC assists only 40% (5625) of these 14,000 colleges recognized under Section 12(b) of UGC (permanent affiliation) Act, which meet the minimum eligibility norms, mostly in terms of physical facilities and infrastructure. The existing State Universities of Allahabad, Manipur, Tripura, and Arunachal Pradesh and the Central Institute of English and Foreign Languages (CIEFL) have been converted into Central Universities (CUs), while a new CU has been established in Sikkim. The National Institute of Education Planning and Administration has been converted into a Deemed University and is now called the NUEPA.

A number of steps have been taken for leveraging the use of ICT in higher education. INFONET allows teachers and students to have access to e-formatted journals, besides links to other research. The network is run and managed by ERNET India. Information for Library Network (INFLIBNET), an autonomous Inter-University Centre for UGC, is the nodal agency for coordination and facilitation of the linkage between ERNET and Universities. States have agreed to encourage their Universities, Colleges, and Technical Institutes to become members of INFLIBNET and Indian National Digital Library for Engineering Sciences and Technology (INDLEST).

1.1.3 Eleventh Five Year Plan Priorities for Enhancing GER in Higher Education

The investment made in higher education in the 1950s and 1960s has given us a strong knowledge base in many fields and contributed significantly to economic development, social progress, and political democracy in independent India. At the time of independence, the number of Universities was no more than 20, of Colleges around 500 and the total enrolment was less than 1.0 lakh. By the end of the Tenth Plan, the Indian higher education system has grown into one of the largest in the world with 378 Universities, 18,064 Colleges, faculty strength of 4.92 lakhs, and an estimated enrolment of 140 lakh students. The higher education institutions include 23 Central Universities (CU), 216 State Universities,
Deemed Universities, 11 Private Universities, and 33 Institutions of national importance established through central legislation and another 5 institutions established through State legislations.

Despite the expansion that has occurred, it is evident that the system is under stress to provide a sufficient volume of skilled human power, which is equipped with the required knowledge and technical skills to cater to the demands of the economy. The accelerated growth of our economy has already created shortages of high quality technical manpower. Unlike the developed countries, where the young working age population is fast shrinking with higher dependency ratios, India has a demographic advantage with about 70% of the population below the age of 35 years. But this advantage can only be realized if we expand opportunities for our youth on a massive scale and in diverse fields of basic science, engineering and technology, health care, architecture, management, etc. This is possible only if we initiate rapid expansion along with long overdue reforms in the higher, technical, and professional education sectors.

Expansion, inclusion and rapid improvement in quality throughout the higher and technical education system by enhancing public spending, encouraging private initiatives, and initiating the long overdue major institutional and policy reforms will form the core of the Eleventh Plan effort. Long-term goal is to set India as a nation in which all those who aspire good quality higher education can access it, irrespective of their paying capacity.

1.1.4 Enrolment Expansion in the Eleventh Plan

The Eleventh Plan recognized and responded to the rising demand for higher education. Enrolment increased in government as well as private institutions. Enrolment in Open and Distance Learning (ODL) programmes also grew rapidly during the Eleventh Plan from 27.41 lakh students in 2006-07 to 42.01 lakh students in 2011-12. Apart from the Indira Gandhi National Open University, there are 13 State Open Universities and 183 other Distance Education Institutions (DEIs) approved by the Distance Education Council. Enrolment in DEIs that includes at least 44 private institutions grew most rapidly over 10 percent per year during the Eleventh Plan period.
GER is often used to measure the higher education access. GER is the total enrolment in higher education (both degree and diploma programmes) as a percentage of the population in the eligible age cohort of 18-23 years. Using this definition, GER for higher education was 12.3% in 2006-07 and increased to 17.9 per cent in 2011-12. In regular programmes alone, GER has increased from 10.4 per cent in 2006-07 to 15.2% in 2011-12.

Increased enrolments in the Eleventh Plan enabled Indian higher education to cross the threshold of 15% GER, moving the country from an 'elite' to a 'mass' higher education system. Despite this, the unmet demand for access to higher education remains significant, indicating that a further expansion is required. However, expansion during the Twelfth Plan must factor that the recent growth has been skewed in favour of certain regions, disciplines and sectors and ensure further expansion has diversity in the provision of higher education including a focused emphasis on improving the quality of institutions, faculty and curricula.

**Growth of Enrolment in the Eleventh Plan**

<table>
<thead>
<tr>
<th>Category</th>
<th>2006-07</th>
<th>2011-12</th>
<th>Increase</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percent</td>
<td>Total</td>
<td>Percent</td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By types of Institutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>63.38</td>
<td>45.8</td>
<td>89.63</td>
<td>41.1</td>
</tr>
<tr>
<td>Central</td>
<td>3.10</td>
<td>2.2</td>
<td>5.63</td>
<td>2.6</td>
</tr>
<tr>
<td>State</td>
<td>60.28</td>
<td>43.6</td>
<td>84.00</td>
<td>38.5</td>
</tr>
<tr>
<td>Private</td>
<td>75.12</td>
<td>54.2</td>
<td>128.23</td>
<td>58.9</td>
</tr>
<tr>
<td>By Degree/Diploma</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>123.54</td>
<td>89.2</td>
<td>184.84</td>
<td>84.8</td>
</tr>
<tr>
<td>Diploma</td>
<td>14.96</td>
<td>10.8</td>
<td>33.02</td>
<td>15.2</td>
</tr>
<tr>
<td>Total</td>
<td>138.50</td>
<td>100.00</td>
<td>217.86</td>
<td>100.00</td>
</tr>
</tbody>
</table>

*Source: University Grants Commission (UGC), All India Council for Technical Education (AICTE), NCTE, Indian Nursing Council (NCTE).*

*Note: Central institutions include Indian Institutes of Management even though they award PG diplomas in management.*
Growth of Enrolment in ODL Programmes in the Eleventh Plan

<table>
<thead>
<tr>
<th>Enrolment</th>
<th>2006-2007</th>
<th>2011-2012</th>
<th>Increase</th>
<th>Growth Rate (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indira Gandhi National Open University</td>
<td>4.68</td>
<td>6.97</td>
<td>2.29</td>
<td>8.3</td>
</tr>
<tr>
<td>State Open Universities(SOU)</td>
<td>7.77</td>
<td>10.80</td>
<td>3.03</td>
<td>6.8</td>
</tr>
<tr>
<td>Distance Education Institutions (DEI)</td>
<td>14.96</td>
<td>24.24</td>
<td>9.28</td>
<td>10.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27.41</strong></td>
<td><strong>42.01</strong></td>
<td><strong>14.60</strong></td>
<td><strong>8.9</strong></td>
</tr>
</tbody>
</table>

*Source: Distance Education Council*

Growth of Enrolment by Field of Study during the Eleventh Plan (In Lakh)

<table>
<thead>
<tr>
<th>Faculty</th>
<th>2006-07</th>
<th>2011-12</th>
<th>Growth Rate (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percent</td>
<td>Total</td>
</tr>
<tr>
<td>Total</td>
<td>138.5</td>
<td>100</td>
<td>217.86</td>
</tr>
<tr>
<td>Arts</td>
<td>54.43</td>
<td>39.6</td>
<td>65.78</td>
</tr>
<tr>
<td>Science</td>
<td>25.43</td>
<td>18.4</td>
<td>30.57</td>
</tr>
<tr>
<td>Commerce and Management</td>
<td>22.87</td>
<td>16.5</td>
<td>34.34</td>
</tr>
<tr>
<td>Education</td>
<td>6.21</td>
<td>4.5</td>
<td>13.00</td>
</tr>
<tr>
<td>Engineering</td>
<td>18.06</td>
<td>13.0</td>
<td>54.68</td>
</tr>
<tr>
<td>Medicine, Nursing and Pharmacy</td>
<td>5.98</td>
<td>4.3</td>
<td>12.02</td>
</tr>
<tr>
<td>Agriculture and Veterinary Science</td>
<td>0.93</td>
<td>0.7</td>
<td>1.21</td>
</tr>
<tr>
<td>Law</td>
<td>3.00</td>
<td>2.2</td>
<td>3.48</td>
</tr>
<tr>
<td>Others</td>
<td>1.16</td>
<td>0.8</td>
<td>2.78</td>
</tr>
</tbody>
</table>

*Source: UGC, AICTE, NCTE and INC.*

During the Eleventh Plan, enrolment in higher education (including enrolment in Open and Distance Learning) grew by 9.3 million from 16.6 million (in 2006-07) to 25.9 million in 2011-12. Target for the Twelfth Plan is to increase enrolment capacity by another 10 million. Of this,
1 million will come from ODL, 3.3 million through large scale expansion of
skill-granting diploma programmes and remaining 5.7 million will come
from further expansion of degree programmes with accelerated expansion of
postgraduate and doctoral programmes. This additional enrolment capacity of
10 million students would enable roughly 3 million more students in each
age cohort to enter higher education and raise the GER broadly in line with the
current global average from 17.9 % (estimated for 2011-12) to 25.2 % by 2017.
Enrolment capacity of Central institutions would be doubled from
0.6 million to 1.2 million. In the State institutions, it will increase from
8.4 million to 11 million. The bulk of growth would be in the private
institutions. In private institutions, the enrolment capacity would increase
from 12.7 million now to 18.5 million by the end of the Twelfth Plan period.

1.1.5. 12th Plan Priorities for Enhancing GER in Higher Education

i. Twelfth Plan Expansion Strategy

The expansion that took place in the Eleventh Plan was a logical
response to the rising aspirations of young people, improved schooling,
and the fact that jobs created through rapid economic growth and skill-based
technical change require higher levels of education. During the Eleventh Plan,
Indian Higher Education moved from 'elite' to 'mass' higher education
(threshold of 15 % GER) and is now moving towards universal higher
education (threshold of 50 % GER). This must be accompanied by offering a
wider, diverse range of education - the student should be able to acquire skills
in multiple disciplines while achieving a solid core set of skills and at a
pace that is customized to individual's capacity to learn. With this in
mind, further expansion will require a re-examination of the design,
organization, definition, and purpose of higher education. The Twelfth Plan
strives to create diverse education opportunities to cater to the growing
number of students passing out of higher secondary classes on the one hand
and the diverse needs of the economy and society on the other. Therefore,
the four key principles that will drive the strategy for higher education
expansion in the Twelfth Plan are as follows:
• Expansion must focus on locations, States, subject areas/disciplines, and types of institutions where current capacity is low, instead of creating additional capacity across the board.

• Expansion must be aligned to the country's economy. Therefore, a variety of Higher Education Institutions (HEIs) offering innovative and relevant curricula designed to serve different segments of the job market or provide avenues for self-employment must be developed. Specific emphasis must be given to the expansion of skill-based programmes in higher education.

• The relative strengths of different types of institutions must be harnessed to serve different needs. Central institutions must be assisted to become quality-leading Institutions. State Institutions must be supported to expand further and simultaneously address equity issues and improve quality.

• The philanthropic sector should be invited and incentivized to infuse more funds and build larger, sustainable and higher quality private institutions. New models of Public-Private Partnership (PPP) in higher education must be encouraged not only for technology intensive education but also for multidisciplinary and research-based education. Open and Distance Learning (ODL) must be used to widen access in a cost-effective and flexible manner.

Overall, expansion will be carefully planned to provide better access to the poor and disadvantaged social groups and first generation learners from backward areas. Expansion should not only mean having more institutions of the same kind, but also developing new kinds of institutions.

First, the country must have some globally competitive research-intensive institutions which should: (i) keep India abreast of the international scientific frontier; (ii) ensure that educational content and curricula is of world standards and updated regularly; (iii) ensure that research
is actively used to solve India's own problems; and (iv) engage the best researchers in the country in teaching the next generation of students both within and outside their institution.

Second, teaching-focused institutions must offer a wide range of good-quality educational options, from liberal arts to professional and technical education. Part-time programmes should also be introduced for working professionals and adult learners conferring the same degrees that are awarded through traditional full-time programmes.

Third, there must be institutions offering credible short-duration programmes that provide skills for development opportunities as well as remedial education to make sure that those coming out of variable quality secondary schools have the opportunity to succeed in the higher education environment.

Fourth, geographical mapping of HEIs should be done to identify habitations and settlements that lack higher education facilities. Expansion at the State or district level should be planned to develop diverse types of institutions of higher education depending on the opportunities for employment and the size of the student body passing out at the higher secondary level.

While expanding capacity, costs have to be kept low while maintaining high quality. This can be achieved by ensuring that expansion primarily takes place by increasing the capacity of existing institutions. Several Universities and Colleges operate sub-optimally with just a few hundred students. Several specific strategies could be adopted for optimal operations. First, existing physical facilities can be used more efficiently through scheduling with multiple shifts and year-round operations. Second, high-cost full-time faculty can be engaged in high value teaching while specially trained teaching assistants or adjunct faculty could be used for tutorials and online courses that are blended with face-to-face instruction. Third, the land, which has become a binding constraint for setting up new campuses, should be efficiently used. Norms for land area requirement should be reviewed, keeping in
mind energy and environmental impact, while affording adequate physical space for learning. The advent of new teaching technologies must be factored in the way, classrooms, laboratories and libraries are designed. Institutions, particularly in urban agglomerations, would be encouraged to consolidate capacity through mergers. The more reputed institutions would be encouraged to establish multiple campuses and benefit from the economies of scale and scope. And finally, there is benefit in co-locating Institutions in large education or integrated hubs that would incubate and nurture talent, create innovation ecosystem and foster entrepreneurship. A few large education clusters would be established during the Twelfth Plan. These could be anchored by public and/or private universities with other higher education institutions and knowledge intensive industries in close proximity. This would facilitate and enhance interactions and collaborations across different higher education institutions and firms.

ii. Twelfth Plan Expansion Initiatives

The Twelfth Plan initiatives would be designed to implement these strategic objectives through new and continuing initiatives. The specific major Twelfth Plan initiatives are as follows:

a. Develop Central Institutions as Quality-Leading Institutions

Enrolment in Central Institutions will be increased from 6 lakhs to 12 lakhs students mainly within existing Central Institutions. Only research and innovation based Institutions or exemplar Institutions would be established in the Central sector or supported by the Central Government. Older Central Institutions will be financially supported to redevelop campuses to achieve scale and build state-of-the-art facilities. In some cases, multiple campuses would be encouraged to enable economies of scale and institutional efficiency. The campuses to be upgraded during the Twelfth Plan would include ISM Dhanbad to IIT-level, BESU Shibpur to an Indian Institute of Engineering, Science and Technology, and NIFFT Ranchi as a premier institution for forging and foundry technology. HEIs with potential in the UTs that come under the Central Government (through the Ministry of
Home Affairs) and have potential like the PEC University of Technology and Chandigarh College of Architecture would also be upgraded.

b. Strategic Support for State Higher Education

Central funding for State higher education is small; its reach is limited, and its impact insignificant. It is poorly coordinated and plagued by excessive bureaucracy, inefficiencies, and low levels of monitoring and poor quality of outcomes. It therefore, provides little value for money. During the Twelfth Plan, State higher education would be provided significantly more central funding. There will be a strategic shift in the manner in which State higher education systems are supported by the Central Government. Central funding for higher education will be done on a State-specific basis and allocated for the State's higher education system as a whole, even though it would flow to individual Universities and Colleges via the UGC as before. Details for allocation and flow of Central funds to State Universities and Colleges would be worked out through a consultative process. The UGC would play an important and more strategic role in allocation and disbursal of Central funds, particularly in funding strategic investment plans as proposed by institutions on a selective basis. The goal of central funding of State higher education should be to benefit from the synergies between State and central spending and to more effectively use central funding to bring about administrative, academic and financial reforms in State systems, and as a powerful tool to address equity issues and improve quality at the State level.

C. Quality Private Growth

The Private sector has contributed significantly to higher education expansion during the Eleventh Plan and private higher education now accounts for 58.5% of enrolments. The private sector will be encouraged to establish larger and higher quality institutions in the Twelfth Plan. Currently, for-profit entities are not permitted in higher education and the non-profit or philanthropy-driven institutions are unable to scale-up enough to bridge the demand-supply gap in higher education. Therefore, the 'not-for-profit' status in
higher education should, perhaps, be re-examined for pragmatic considerations so as to allow the entry of for-profit institutions in select areas where acute shortages persist. This should, however, be subjected to the necessary oversight and accreditation arrangements to ensure quality and equity. For-profit private higher education can be taxed and the revenue from it can be channeled into large scale scholarship programme to promote equity as is practiced in Brazil and China.

At the same time, innovative ways have to be found to encourage the infusion of more private capital in the traditional not-for-profit higher education. Some proposals that require serious consideration include: (i) enabling liberal financing options for the sector, like allowing private institutions to raise funds through public offerings of bonds or shares; (ii) changing the legal status of the sector to attract more investors, like allowing all types of institutions to be established under Section 25 of the companies Act and allowing existing trusts and societies to convert to institution under Section 25 of the companies Act; (iii) giving priority recognition to the sector, like providing it 'infrastructure' status with similar, financial and tax treatment.

The government could support non-profit private institutions in three ways: (i) access to public student financial aid would be extended to accredited private institutions; (ii) access to research funding will be on an equal footing with public institutions with suitable protection for intellectual property derived from such research; and (iii) private institutions would benefit from various long-term quality enhancement efforts like enhanced use of technology and faculty development initiatives. The corporate sector could be involved in higher education and their large in-house training capacities, particularly in skill development and management, could be leveraged to improve access to higher education.

Simultaneously, measures to ensure that private institutions are committed to quality, equity and transparency will be introduced through reform of regulatory oversight. The current regulatory frame-work needs to be revamped to: (i) encourage serious private philanthropy and investment to
innovate and provide high-quality education; (ii) promote better availability of information on private institutions to the public; (iii) ensure that institutions that indulge in unfair practices are dealt with swiftly. Accreditation will be central to such reforms.

New models of Public-Private Partnerships (PPP) in higher education will be encouraged in the Twelfth Plan, particularly in the establishment of research and innovation institutions. Based on the Eleventh Plan experience of setting up Indian Institutes of Information Technology (IIITs) and polytechnics in PPP mode, a framework will be put in place to encourage the spread and growth of PPP models, increase and improve resource utilization and enhance the quality of education in such institutions. In some cases, public institutions that are failing to meet standards could be assisted by the private partners to transform them through innovative PPP models.

d. Expansion of Skill-Based Programmes

Special emphasis will be placed on expansion of skill-based programmes in higher education during the Twelfth Plan. A framework for setting up community colleges based on the North American model is under development and has been endorsed in principle by the Central Advisory Body on Education:

Community Colleges can serve multiple needs, including (i) provide career oriented education and skills to students interested in directly entering the workforce; (ii) provide contracted training and education programmes for local employers; (iii) provide high-touch remedial education for secondary school graduates not ready to enroll in traditional colleges, giving them a path to transfer to three or four year institutions; (iv) offer general interest courses to the community for personal development and interest. Given these objectives, community colleges would be located to afford easy access to underprivileged students. Such colleges could either be established as affiliated Colleges of Universities governed, guided and managed through a 'Department of Skills and Lifelong Learning' (DSLL) or as entirely autonomous institutions linked to sector-skill councils.
Ongoing UGC initiative that supports career-orientated add-on courses in traditional universities and colleges and the IGNOU’s scheme of community colleges would be reviewed. Technical support of Philanthropic Foundations and the Indian Centre for Research and Development of Community Education (which has 230 community colleges in its fold) would be taken to build on the current initiatives and create a robust framework for skill-based education within the higher education sector in the country. This could include institutional arrangements for recognition of prior learning.

e. Open and Distance Learning Initiatives

Open and Distance Learning (ODL) will be used to widen access and significantly expand capacity in a cost-effective and flexible manner. During the Twelfth Plan, support to IGNOU, State Open Universities and other institutions of Distance Education will be increased to expand access particularly for those beyond the normal schooling age. Such programmes will be regularly evaluated for learning outcomes so that curricula and pedagogical changes can be made on an ongoing basis. In the face of growing concern about the quality of ODL programmes, regulatory oversight would be strengthened during the Twelfth Plan. Traditional institutions will be encouraged to offer part of their curriculum online to promote blended learning and provide students more choices while keeping costs low. This would also enable them to reach out to more students and non-traditional learners.

f. Equity in Access to Higher Education - Multi-Dimensional Inequalities

Equitable access to quality higher education is an essential prerequisite for realizing the Constitutional promise of ‘Equality of Opportunity’ as well as achieving the goal of inclusive development in the Twelfth Plan. However, many of these imbalances occur at the school level due to low enrolments and high dropouts amongst the deprived, underprivileged and marginalized sections. Thus, only a limited pool of such students is available for entry into higher education. As higher education expands, more students will come from hitherto marginalized sections of society. HEIs must gear themselves to face
the challenge of catering to the needs of such students to further reduce inequalities in access. The higher education system must:

- Facilitate entry of the socially disadvantaged into HEIs and, in the case of some extremely disadvantaged communities, devise incentives that would allow ‘over-drawing’ from this currently small pool of eligible students.
- Support retention of those disadvantaged students who enter higher education by ensuring that they do not drop out for lack of resources and inadequate academic preparation.
- Enhance the quality of learning of disadvantaged students and provide guidance and support to improve their chances of entering disciplines that ensure decent employment opportunities or gaining admission to postgraduate degrees at top institutions.
- Use the ‘community college’ as a key vehicle for entry into regular higher education by way of widely located, community-based institutions offering relevant education of high quality.

**Enrolment Targets by Level/Type for the Twelfth Plan**

(Student numbers in Lakhs)

<table>
<thead>
<tr>
<th>Level/Type</th>
<th>2011-12 (Estimates)</th>
<th>2016-17 (Targets)</th>
<th>Growth Rate (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D</td>
<td>1</td>
<td>3</td>
<td>24.6</td>
</tr>
<tr>
<td>PG General</td>
<td>17.3</td>
<td>33.2</td>
<td>13.9</td>
</tr>
<tr>
<td>PG Technical</td>
<td>5</td>
<td>12.2</td>
<td>19.5</td>
</tr>
<tr>
<td>UG General</td>
<td>116.6</td>
<td>128</td>
<td>19.8</td>
</tr>
<tr>
<td>UG Technical</td>
<td>45</td>
<td>66</td>
<td>5.6</td>
</tr>
<tr>
<td>Subtotal</td>
<td>184.9</td>
<td>242.4</td>
<td>14.5</td>
</tr>
<tr>
<td>Diploma</td>
<td>33</td>
<td>65</td>
<td>7.1</td>
</tr>
<tr>
<td>Total</td>
<td>217.9</td>
<td>307.4</td>
<td>4.4</td>
</tr>
<tr>
<td>ODL</td>
<td>42</td>
<td>52</td>
<td>6.7</td>
</tr>
<tr>
<td>Grand Total</td>
<td>259.9</td>
<td>359.4</td>
<td>-0.1</td>
</tr>
<tr>
<td>Population 18-23 years</td>
<td>1,451.2</td>
<td>1,427.4</td>
<td></td>
</tr>
<tr>
<td>GER (%)</td>
<td>17.9</td>
<td>25.</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Planning Commission Estimates/Targets.*
1.1.6 Millennium Development Goals

This report entitled “Millennium Development Goals (MDG)” of India Country is to be achieved by 2015. The year 2014, being the penultimate year for the MDGs, acquires significance in assessing realistically India’s progress in meeting the various targets under the MDGS as well as to take a stock of the areas where the progress is not up to the expected level. Ministry of Statistics and Programme Implementation (MOSPI) is engaged in the task of statistically tracking the MDGs on the basis of a data-sets generated by the line ministries/Departments.

The millennium declaration adopted by the general assembly of the United Nations in September 2000 reaffirmed its commitment to the right to development, security and gender equality, eradication of myriad dimensions of poverty, improved health etc. The Millennium Declaration adopted eight development goals which are:

- Eradicate Extreme Poverty and Hunger
- Achieve Universal Primary Education
- Promote Gender Equality and Empower Women
- Reduce Child Mortality
- Improve Maternal Health
- Combat HIV/AIDS, Malaria and TB
- Ensure Environmental Sustainability
- Develop Global Partnership for Development

All the eight goals, 12 out of the 18 Targets and 35 indicators relating to these Targets constitute India’s Statistical tracking instrument for the MDGs. India follows the MDGs framework accepted by the Government of India which is on the basis of 2003 UNDG (United Nations Development Group) guidelines. Ministry of Statistics and Programme implementation
Ministries/Departments. Currently the monitoring is limited to the national and State/UT level. The statistical monitoring of MDGs is presently not done at sub-State/District level. Although the MDGs framework adopted by India is based on the Global framework suggested by UNDG 2003 guidelines, some of the indicators which were found better suited to the Indian context were used in lieu of the specified indicators under MDGs as per UNDG framework 2003.

While the Goals are spelt out in general terms, the targets under these Goals specifically outline the way to achieve the Goals in a specific time frame, and the indicators under each Target are more focused and tell in concrete terms the expected level of achievements in well defined areas to be achieved in the given time frame. MDGs have helped in bringing a much needed focus and pressure on basic development issues, which in turn led the governments at national and sub national levels to do better planning and implement more intensive policies and programmes. In India the various development programmes/schemes are formulated and implemented under the Five Year Plans (FYP). The 12th FYP (2012-2017) goal is to achieve “Faster, More Inclusive and Sustainable Growth” which is in conformity with the MDGs.

The 12th Plan has identified 25 core indicators which reflect the vision of rapid, sustainable and more inclusive growth and some of the indicators of 12th Plan are more stringent than the MDGs. The 12th Plan aims to reduce the Poverty Head Count Ratio (PHCR) by 10 % points over the preceding estimates by the end of 12th Plan, that is PHR to be reduced to 11.9% by 2017, the corresponding MDG indicator is to reduce PHR to 20.74% by 2015. The 12th Plan aims to reduce under-nutrition among children aged 0-3 years to half of the NFHS-3 level (that is from 40% to 20%) by the end of 12th Plan, which means by 2017. The corresponding MDG indicator is to reduce prevalence of under nutrition among children below 3 years to 26% by 2015. The 12th plan envisages reducing IMR to
25 per 1,000 live births, and reducing MMR to 100 per 100,000 live births by 2017, the corresponding MDG indicators are to reduce IMR to 27 per 1,000 live births and to reduce MMR to 109 per 100,000 live births by 2015.

Coming to India’s achievement in respect of the MDGs, it is a mixed bag. For some indicators India is fast, that is, it has already achieved the target level well ahead of the deadline, like halving the percentage of population below the poverty line. Target 7 and Target 8, which are of the trend reversal type, have also been realized as India has successfully halted the spread of HIV/ AIDS and reversed the spread of HIV/ AIDS. India has halted spread of Malaria and TB and has ensured reversal of spread of Malaria and TB.

In respect of some indicators, India is expected to reach close to the target level by 2015 if not actually meet the target level like Ratio of girls to boys in primary and secondary education and tertiary education at primary level this Target has been met already, at the secondary level India will be close to achieving gender parity by 2015, but at the tertiary level it is unlikely to achieve Gender parity by 2015. In case of reducing by two-thirds the Under Five Mortality Rate, the U5MR is estimated at 52 per 000’ live births in 2012. To meet the Target India has to reduce it to 42 per 000’ live births by 2015. Keeping in mind the sharp decline in U5MR witnessed during the last few years (annual reduction by 3 percentage points during the last 3-4 years) India is expected to reach very close to the target level by 2015. In the extremely crucial field of ‘improving maternal health’ between 1990 and 2015 India is supposed to reduce by three quarters the Maternal Mortality Ratio (MMR). The latest estimate of MMR brought by the Office of RGI puts the MMR at 178 per 100,000 live births in 2012. This is a substantial improvement from an estimated MMR level of 437 per 100000 live births in 1990-91. But India is unlikely to reach the targeted level of 109 per 100000 live births by 2015.
i. Eradicate Extreme Poverty and Hunger

The All-India Poverty Head Count Ratio (PHCR - percentage below the national poverty line) has declined by 15 % points from 37.2% in 2004-05 to 21.9% in 2011-12. Significant decline in Poverty Head Count Ratio has been observed in both rural and urban areas during this period as the rural poverty head count ratio declined by 16 percentage points from 41.8% to 25.7% and urban poverty declining by 12 percentage points from 25.7% to 13.7%. The percentage of people below the national poverty line has already narrowed down to a level less than half of its position in 1990, in 2011-12 itself, at all India level and for rural and urban areas, ahead of the MDG target year of 2015.

During 2004-05 to 2011-12, the Poverty Gap Ratio (estimated from monthly per capita consumption expenditure data based on Mixed Recall Period (MRP)) has shown decline in rural and urban areas. In rural areas, PGR declined from 9.22 in 2004-05 to 5.05 in 2011-12, while in urban areas the decline was from 6.08 to 2.7 during this period.

The share of the poorest 20% population in terms of the monthly per capita consumption expenditure in total consumption (i.e., consumption accounted for by the poorest one fifth of the population) in the rural areas has slightly increased from 9.6% in 1993-94 (based on Uniform Reference Period - URP method) to 9.8% in 2009-10. In the urban areas the share of the poorest 20% population, declined from 8% in 1993-94 to 7.1 % in 2009-10. From estimated 52% in 1990, the proportion of underweight children below 3 years is required to be reduced to 26% by 2015. The proportion of underweight children has declined by 3 percentage points during 1998-99 (NFHS-2) to 2005-06 (NFHS-3), from about 43% to about 40% and at this historical rate of decline, it is expected to come down to about 33% only by 2015.
ii. Achieve Universal Primary Education

By the measure of Net Enrolment Ratio (NER), the country had crossed in 2007-08 itself, the 95% cut-off line regarded as the marker value for achieving 2015 target of universal primary education for all children aged 6-10 years. The DISE1 data further shows the country has achieved cent percent primary education for children in the primary schooling age of 6-10 years ahead of 2015 as the 2010-11 results shows NER of 99.89% in 2010-11. The results from DISE report 2011-12, shows a steady increasing trend over the years in the estimate of the indicator ‘ratio of enrolment of Grade V to Grade I’ from 78.08 in 2009-10 to 86.05 in 2011-12.

According to the trend exhibited during 1991-2001, Youth (15-24 years old) literacy increased between 1991 and 2001- from 61.9% to 76.4% and the trend shows India is likely to achieve 100% youth literacy by 2015. The youth literacy rate among urban persons was 87% in 2001 against 72% for rural persons in 2001. The youth literacy among males was 84% in 2001 against 68% for females. NSS (2007-08) showed male youth literacy as 91% and female youth literacy as 80%. The rural-urban gap in youth literacy also has significantly reduced.

iii. Promote Gender Equality and Empower Women

In primary education, the Gender Parity Index (GPI of GER) has gone up from 0.76 in 1990-91 to 1.01 in 2010-11 showing 33% increase in secondary education the increase is from 0.60 in 1990-91 to 0.88 in 2010-11 thereby showing 47% increase and in higher education, it is increased from 0.54 in 1990-91 to 0.86 in 2010-11 registering an increase of 59%. The literacy rate among males (15-24 years old) was 84 in 2001 against 68 for females (15-24 years old) and NSS (2007-08) showed the literacy rates as 91 and 80 respectively. The ratio of Female literacy rate to Male literacy rate for 15-24 years increased from 0.67 in 1991 to 0.80 in 2001 and stood
at 0.88 in 2007-08. The ratio of female literacy rate to male literacy rate in the age group 15-24 years tends to exceed 1 by 2015, implying higher literacy rate among female youths than their male counterparts.

In 2011-12, the 68th round NSS results had estimated the percentage share of females in wage employment in the non-agricultural sector as 19.3% with the share in rural and urban areas as 19.9% and 18.7% respectively. It is projected that at this rate of progress, the share of women in wage employment can at best reach a level of about 22.28% by 2015. As on December 2013, India, the world's largest democracy, has only 62 women representatives out of 543 members in Lok Sabha, while there are 28 female MPs in the 242 member Rajya Sabha. Hence, the proportion of seats held by women in national parliament is 11.46%.

iv. Reduce Child Mortality

In India, Under Five Mortality Rate (U5MR) has declined from an estimated level of 125 per 1000 live births in 1990 to 52 in 2012. Given to reduce U5MR to 42 per thousand live births by 2015, India tends to reach 49 by 2015 as per the historical trend, missing the target by 7% points. However, considering the continuance of the sharper annual rate of decline witnessed in the recent years, India is likely to achieve the target.

In India, the Infant Mortality Rate (IMR) has reduced by nearly 50% during 1990-2012 and the present level is at 42. As per the historical trend, the IMR is likely to reach 40 deaths per 1000 live births, missing the MDG target of 27 with a considerable margin. However, as IMR is declining at a sharper rate in the recent years, the gap between the likely achievement and MDG target 2015 is set to reduce. The national level coverage of the proportion of one-year old (12-23 months) children immunized against measles has registered an increase from 42.2% in 1992-93 to 74.1% in 2009 (UNICEF &GOI- Coverage Evaluation Survey 2009). At the historical rate of
increase, India is expected cover about 89% children in the age group 12-23 months for immunization against measles by 2015. Thus India is likely to fall short of universal immunization of one-year olds against measles by about 11 percentage points in 2015.

v. Improve Maternal Health

From an estimated Maternal Mortality Ratio (MMR) level of 437 per 100,000 live births in 1990, India is required to reduce the MMR to 109 per 100,000 live births by 2015. At the historical pace of decrease, India tends to reach MMR of 140 per 100,000 live births by 2015, falling short by 31 points. However, the bright line in the trend is the sharper decline ie. 16% during 2009-12, 17% during 2006-09 and 16% during 2004-06 compared to 8 % decline during 2001- 2003. As per Coverage Evaluation Survey (CES), 2009, delivery attended by skilled personnel is 76.2% which was 47.6% as per District level Household Survey (DLHS-2002-04). With the existing rate of increase in deliveries by skilled personnel, the likely achievement for 2015 is only to 77.29%, which is far short of the targeted universal coverage.

vi. Combat HIV/AIDS, Malaria and other Diseases

The prevalence of HIV among Pregnant women aged 15-24 years is showing a declining trend from 2005 and it has declined from 0.89 % in 2005 to 0.39% in 2010-11. According to NFHS –III (National Family Health Survey, 2005-06), Condom use rate of the contraceptive prevalence rate (Condom use to overall contraceptive use among currently married women, 15-49 years, percent) was only 5.2 % at all India level. As per the ‘Condom Promotion Impact Survey 2010’, the national estimate for Condom use at last high-risk sex is 74%.

According to Behavioural Surveillance Survey, the national estimate for proportion of population aged 15-24 years with comprehensive correct Knowledge of HIV/AIDS (%) in 2006 was 32.9% reporting betterment from 2001 (22.2%). The malaria cases were brought down from
2,031,790 cases in 2000 to 1,816,569 cases in 2005 and further brought down to 1,067,824 cases in 2012. The annual incidence rate (cases of malaria/1000 population) of Malaria has come down from 2.57 per thousand in 1990 to 1.10 per thousand in 2011, and to 0.88 cases (provisional) per 1,000 populations in 2012. The malaria death rate in the country was 0.09 deaths per lakh population in 2000 which has come down to 0.04 deaths per lakh population in 2012.

As per the ‘WHO Report 2012 Global Tuberculosis Control the prevalence rate of TB in India has come down from 465 per 100,000 population in 1990 to 249 in 2011 per 100, 000 population. The Mortality due to TB has reduced from 38 per lakh population in 1990 to 24 in 2011. The Ministry of Health and Family Welfare has reported that, the latest status of treatment of TB under DOTS (Directly Observed Treatment Short course) reveals that, the proportion of TB cases detected is 70% and cured is 85% under DOTS.

vi. Ensure Environmental Sustainability

As per 2011 assessment, the Country has a forest cover of 6,92,027 km$^2$ which is 21.05% of the Country’s geographical area. The forest cover (revised) estimate for 2009 shows total forest cover of 6,92,394km$^2$ which indicates a decline of 367 km$^2$ in 2011. A network of 689 Protected Areas (PAs) has been established (as on 31/12/13), extending over 1,66,352.63 km$^2$ sq. kms comprising 102 National Parks, 526 Wildlife Sanctuaries, 57 Conservation Reserves and 4 Community Reserves (5.06% of total geographical area). There is a positive change in the network of protected areas in the Country as in 2011, the network included 668 Protected Areas (PAs), extending over 1,61,221.57 sq. kms (4.90% of total geographical area).

The Percapita Energy Consumption (PEC) (the ratio of the estimate of total energy consumption during the year to the estimated mid-year population of that year) increased from 2232.5 KWh in 1990-91 to 6,205.25 KWh in 2011-12. The annual increase in PEC from 2010-11 to 2011-
12 was 7.19%. The Energy Intensity (amount of energy consumed for generating one unit of Gross Domestic Product, at 1999-2000 prices) has declined from 0.1594 KWh in 1990-91 to 0.145 KWh (at 2004-05 prices) in 2011-12. In India, the per capita CO$_2$ emission (MT) increased steadily during 1990 to 2013. As per the Key World Energy Statistics 2013, by International Energy Agency, the per capita CO$_2$ emission (MT) of India is 1.41(MT).

The consumption of CFC (Chloro Fluro Carbons) is estimated at 998 ODP tones (2007), down from 5614 ODP tones in 2000. As per Census 2011, 67.3% households are using solid fuels (fire wood / crop residue, cow dung cake/ coke etc) for cooking against 74.3% in 2001. During 2012, in rural India, 88.5% households had improved source of drinking water while in urban India 95.3% households had improved source of drinking water. The prevailing trend over time, suggests attainability of nearly cent percent coverage by 2015, including both rural and urban sectors. In other words, halving the proportion of households without access to safe drinking water sources from its 1990 level to be reached by 2015, has already achieved in both rural and urban areas.

The NSS 2012 revealed 59.4 percent households in rural India and 8.8 percent households in urban India respectively had no latrine facilities. This has reaffirmed the census 2011 results that, more than 50% of the households of the Country are not having latrine facility, though an improvement of 10% points compared to the corresponding percentage recorded during the last decade. In 2011, the percentage of households with no latrine reduced to 53.1% from 63.6% in 2001 at all India level. As per NSS 2012, at all-India level, only 10.8 percent of urban dwelling units were situated in slum. However, Census 2011 reported that 17.2% of urban households are located in slums. Census recorded a 37.14% decadal growth in the number of slum households. Census further reveals that in 2011, 17.36% of the urban population lives in slums.
viii. Develop a Global Partnership for Development

Overall tele-density (number of telephones per 100 population), in the country has reached 73.5% in 2013 from 9.08% in 2005. The internet subscribers per 100 population accessing internet only through wire line broadband connections is 1.2 and the corresponding figure including those accessing internet through wireless connections is 13.5 in 2013.


1.1.7 Recommendations of National Knowledge Commission (NKC) With Specific Reference to Open and Distance Learning (ODL)

The National Knowledge Commission (NKC) is a high-level advisory body to the Prime Minister of India, with the objective of transforming India into a knowledge society. In its endeavour to transform the knowledge landscape of the country, the National Knowledge Commission has submitted around 300 recommendations on 27 focus areas during its three and a half year term. While the term of the NKC has come to an end, the implementation of NKC’s recommendations is currently underway at the Central and State levels. The National Knowledge Commission deliberations gave focused on five key areas of the knowledge paradigm-access to knowledge, knowledge concepts, knowledge creation, knowledge application and development of better knowledge services. Out of these, Open and Distance Education confined with the knowledge concepts. Hence, NKC quoted the following with reference to ODL:

Almost half the students enrolled in higher education are receiving education through the distance mode, i.e. through the Open Universities or though the Correspondence Courses of traditional Universities. But issues of brand equity of Distance Education (acceptability of students for higher degrees and suitable employment) persist. There is also an unprecedented opportunity with regard to open courseware. There have already been great developments with regard to the broadband and internet
infrastructure needed to facilitate the spread of open courseware, this needs to be further developed in the country. Further a repository of such material could be developed by national experts for use across institutions.

Some of the issues under consideration of National Knowledge Commission are:

- Using high-end technology for Distance Education (DE)
- Broadband and internet connectivity to establish virtual classrooms
- Distributed repositories of open courseware and resources in the country
- Industry should be involved in developing Open Courseware, establishing standards, interoperability

NKC recommended the following with reference to Science and Technology in Creation of Knowledge area:

Science and Technology (S&T) is a sine qua non to ensure economic and societal advancement. Leadership in S & T is an indispensable facet of knowledge creation and application. Progress in S & T is a significant factor in opening new avenues for industry and in a developing country like India, an engine for providing crucial knowledge services. In order to be a leader in the global arena, it is imperative that India emerges as a leader in S & T areas. There is need to give further impetus to scale and scope of research activities being carried out within the country. There is need to improve the research landscape of the country through various measures intended at ensuring better Research and Development.

Some of the issues under consideration of National Knowledge Commission are:

- Identifying and removing hurdles in obtaining funding for research
- Identifying some of the major unsolved problems in S & T, where India can play a significant leadership role
- Identifying and setting up of studies on futuristic interdisciplinary areas in S&T
- Envisaging the use of S & T as a crucial tool for development and facilitating the use of S & T to solving problems of the poor and the underprivileged
1.2 PHILOSOPHICAL PERSPECTIVES OF ODL

The kind of educational objectives which the learners are to achieve may depend much upon the philosophy of education adhered to by the teachers. The involved learner’s philosophy adds input into the curriculum. Pressures from the community at large also modify philosophical thinking pertaining to teaching-learning situations. Each philosophical school of thought has unique objectives for learner to acquire. Let us try to understand different schools of philosophy in relation to curriculum.

i. Idealism and Curriculum

Idealists believe that one cannot know the real world as it is and as it exists. One can however seek and obtain ideas pertaining to reality. The perceiver of the use of the sense obtains ideas only about their phenomena. To an idealist, ideas are more important than materialistic things. A good teacher can communicate ideas effectively to pupils. Mental and intellectual development of pupil is of utmost importance. Thus, knowledge of worthwhile subject matter needs to be acquired by pupils. Each pupil should have access to good education in liberal arts and should acquire vital skills like reading, writing, listening and speaking. A comprehensive study of history, geography, science, art, music, literature and mathematics must be suitably emphasized in the curriculum. Pupil may achieve universal idea from a quality liberal art curriculum, ideas which are enduring and have stood the test time. Immanuel Kant (1724-1804), emphasized the importance of each human being treating others as ends and not as means to end. The golden rule is stable and not subject to continuous modification and change. It can apply to all persons regardless of creed, origin or religion. Universal ideas in depth must be sought continuously by the learner. The mind must be creative and flexible to seek universal truths. That which exists in the natural or physical environment does not represents the ultimate reality. Now the question arise that what objectives then might an idealistic teacher emphasize?
• Which assist pupil to think critically and creatively i.e. mental development?
• Which reflect vital subject-matter that has endured in space and time?
• Which emphasize learning acquired in liberal arts?
• Which reflect universal content in relating one human being to another involving ethics?

That emphasizes individual pupils moving away from being finite to increasingly becoming infinite human being.

ii. Realism and Curriculum

Realist believes that an individual may know reality as it truly is. One does not merely obtain ideas pertaining to the natural or social environment, but each person may actually see, feel, taste, touch and smell that which is real. An objective reality then exists for each person. The natural or social environment, as it exists, imprints itself upon the mind of the observer. Science and Mathematics are two vital curriculum areas for a curriculum adhering to realism as a Philosophy of education. Accuracy and precision are vital in the arena of Science and Mathematics can provide numerical description of reality. Other curriculum areas are:

• which objectified content may well include subjects where values
• Which have stood the test of time? A realistic curriculum does not emphasize change in society as experimentalists do

Realistic teacher may then emphasize the following objectives:

• Pupil should experience in particular a quality curriculum.
• Precise measurably stated objectives can be emphasized in teaching learning situations. The content should be accurate and verifiable.
• Other curriculum areas also need to receive adequate emphasis the class setting.
• Accurate facts, concept and generalization need to be emphasized which adhere to scientific methods in acquiring content
• Options might receive relatively little emphasis in teaching and learning. More of action oriented projects are suggested.
• Pupil should be guided to receive exact content as it truly is in the environment. i.e., more of practical experiences.
• Learner need to realize that direct experiences makes leaning more effective an everlasting

iii. Experimentalism and Curriculum
Experimentalists believe in experience representing ultimate reality. One can know that which is experienced in here and now. What is true today may not be true tomorrow is a key generalization emphasized by experimentalists. Since changes exist in society, new problems arise. These problems need to be identified and solved. The solutions are tentative and subjected to testing in actual life situations. What does not work in terms of solutions, needs modification?

Generally, groups of individuals select and attempt to solve identified problems in society. Thus, committee work needs to be amply emphasized in the class setting. Individual endeavors are needed to implement school curriculum and the curriculum of life. With groups or individuals identifying and attempting to solve problem, interest and purpose are involved in ongoing learning endeavors. Efforts put forth come from inherent interest of problem solvers. Interest and efforts are not separated from each other. They become integrated entities. Experimentalist teacher might well emphasize objectives such as the following:

• Problem solving objectives being highly significant the curriculum should assign such methodologies
• Data gathering from a variety of resources to solve problems
• Developing hypotheses in answer to identified problems
• Testing and revising hypotheses, if evidence warrants
• Working effectively in committee settings
• Accepting the consequences of acts performed and lastly
• Change should be continuously in evidence in the curriculum of life.
iv. Existentialism and Curriculum

Existentialism tends to emphasize rugged individualism in the curriculum. The involved person chooses and makes decision in free environment. Ideally, existentialists would say that complete freedom needs to exist for pupils in deciding what to learn (the objectives) and how to learn (activities and experience). Young learners in general, no doubt, need more assistance in learning as compared to older pupils. The existentialist teacher attempts to develop a learning environment where pupil increasingly makes decision to determine their destinies. Each pupil as a human beings needs to make choices. If other makes decision for the individual learner, however, these characteristics of being human may be lacking.

If the learner chooses goals and learning activities in the class setting within a very flexible framework, the responsibility rests upon the involved pupil. It is truly difficult to make personal choices which are perceived as being worthwhile. The responsibility is great indeed. There certainly is a moral dimension involved in learning. Each decision made, in degrees, has moral components. To choose freely and also be moral, presents problems. To go along with the crowd or to do what is popular may not harmonize with that which is ethical and good. It can be appealing to realize one’s freedom and within that framework be entirely responsible for choices he makes. Others, then, cannot be used as scapegoats for consequences of one’s personal choices and decision. Each human being is born and lives his life. He/she did not choose to come into this world. It follows that human beings individually, now, need to determine their own goals. These goals are not given to any one person nor do they come from God. Rather the involved person by choosing and acting determines his/her destiny. The consequences involved in the making of decision can lead to perceived desirable results. The opposite may also occur -alienation, loneliness, and unhappiness. The natural, social environment does not present rational choices rather absurd, ridiculous situations may arise.
Which objectives then might an existentialist teacher emphasize;

- Pupil need to be guided to choose what to learn as well as learning activities to achieve the desired ends. Learning centers may emphasize, in degrees, existentialist thinking.
- Individualized learning may also harmonize well with existentialists thinking.
- There needs to be much pupil/teacher planning in the class setting. True input, not manipulation of the learner, needs to be in evidence. The involved pupils must increasingly, be free to select their own destiny and value system. A teacher determined curriculum would definitely not harmonize with existentialist thinking.
- Learners need to study and analyze the human dilemma.
- Learner need to look at the outcomes of the solutions. Were the outcomes rational, irrational or in between.
- Pupil with teacher guidance needs to notice absurd, ridiculous situations in life. How can moral decisions be made within the framework of these irrational setting? A major objective of existentialist teacher is to have pupil accept the inconsistencies in society and still attempt to operate morally in the environment.
- The teacher needs to stress continuously the importance of making personal choices and commitments by each pupil.
- Committed individuals, who have personal conscience, reflect the thinking of existentialists.

In a nut shell, curriculum should be child centered. In non-formal more the following things should be kept in mind. Only those subjects should be included in the curriculum which are directly relevant to actual living because of its relevance the curriculum becomes life oriented. As the basic philosophy of education is perseverance of culture and civilization, the subjects who convey the knowledge and understanding of culture should be included. It should be create in learner/individual and a sense of dignity. Thus, a comprehensive and whole some curriculum should have languages,
social sciences, arithmetic, biology, science, literature and subject promoting vocational efficiency. Curriculum organized must be more functional and application oriented.

1.3 PSYCHOLOGICAL PERSPECTIVES OF ODL

Psychological basis of education emphasizes that the learner is center of educational process. Education is for the learner and learner is not for education. Psychology has established the fact that a learner develops through various stages, with respect to non-formal education system curriculum should be framed keeping the age level of the learner. The individual differences are in the interest, impulse, urges, needs, capacities and abilities among the learner. Let us see the various factors affecting the curriculum construction which are very essential for curriculum construction.

i. Individual Differences in the Learner and the Curriculum

While the division of curriculum experiences by age and by broad periods is of substantial help in curriculum planning, it is inadequate from the point of view of the individual differences among individuals. In the development of children it is commonly found that sequences i.e. the order of events is fairly constant from child to child. Thus, a child holds up his head before he walks before he runs. But the rate at which each child learns is always different. Thus no two individuals can be same even the identical twins. The tempo and timings of age incidence of the events in a sequence varies greatly in children. Therefore the curriculum should be flexible to meet the individual differences effectively and allow each one to learn and develop along his/her natural path and progress at own pace. For this the curriculum should contain various creative activities like seminar presentation, research, projects and useful developing experience.

ii. Intelligence and Curriculum

Intellectual or mental development is of critical concern to the school, as development of knowledge and understanding constitutes the most important objectives of school-curriculum. The nature of intelligence
and the factors influencing its development have been a favorite’s area of research-interest among psychologists. Differences in intellectual capacity have been studied most in relationship to the ability of children to profit by experiences in school. The application is best seen in some of the modern curriculum projects which have attempted to present the basic ideas of the different disciplines in the thought-forms of children and gradually deepen their understanding of them by enabling them to use them in progressively. As in every field of knowledge perspective has grown with time and research the results of the application of intelligence tests in the growing period are usually described in the terms of mental age. Thus a mental age of ten years means that the child performs like average ten years child with chronological age of ten. The intelligence quotient (I.Q.) is the ratio of mental age (M.A) and chronological age (C.A.). Thus the curriculum should be according to the normal average intelligence.

iii. The Learning Process and Curriculum

The problem of how human being learns has been a favorite problem of psychologists since the early days of psychology and has brought forth various kinds of answer. The first fifty century has been characterized by a rapid spread of experimental ideas. Such experiments have had a wholesome effect on unchecked speculation. Often the effect has been demonstrate that what some people knew for certainty was really in the area of chance and that they had been misled by some uncontrolled factor in the situation such as an representative sample of the population. In many ways research connected with the curriculum has done more to clear away the brush of misconceptions than it has contributed to new or starting discoveries. Such clarification, however, has often given a surer and more precise knowledge on which to build. The detailed experiments often have a limited range of applicability. The different theories of learning result in different curricular implications. The curriculum emanating from the mental discipline theory tends to be
narrow in objectives and unitary in scope, and the aspects of sequence of content and continuity of learning experiences are likely to be ignored. The behaviorist theory with its emphasis on repetition, reinforcement and conditioning is likely to result in curriculum, built on learning material arranged in the form of programmes and taught through teaching machines. The field theory, on the other hand leads to an organization of curriculum content, that stresses context, relationships and organized understanding and to a curriculum designed to serve multiple objectives representing a wider range of learning. The influence of this theory can be seen in modern curriculum-projects in the different subjects where stress is on intuitive perception of relationships. School curriculum should, thus provide for varieties of learning and curriculum context should be selected with this end view.

1.4 SOCIOLOGICAL PERSPECTIVES OF ODL

It is consider very much desirable that the curriculum is organized, so that it may help in the achievement of social aims upon curriculum the social progress. This is the reason why educational sociologist considers it essential to organize the curriculum properly. Accordingly the curriculum should be planned keeping in view two important things:

- The curriculum should be such that it helps in the achievement of the social aims of the education and
- Curriculum is so organized and its relationships with instructional methods should be such that it becomes an effective medium to keep a control over society.

Let us try to understand the different social structure and its relation with curriculum.

Education socially speaking, it is a process of transmission of culture. To the sociologist, culture has a much wider meaning than its popular reference. It refers to the total ways of life of a society. Its knowledge, belief, attitudes, values, skills and behavior patterns - and not just to
what is best or most important in that way of life, or to art, music or literature. Culture, to the sociologist, is a natural term that includes everything that is learned and manmade. Schools are formal institutions specially set up for the preservation and transmission of culture by the society. Institutions seek to discharge this function through the curriculum, which is nothing but the sum total of learning experiences provided under its support.

i. Social Class and Curriculum

The curriculum should represent class-free, noncontroversial fund of knowledge that was good for all children that came under the fold of the school had till recently been taken for granted. Early sociological research on educational opportunity certainly treated as unproblematic the concept of “what it is to be educated” or the nature of the education pupil failed at. Of late however school-curriculum has become target of severe criticism in the context of the ideals of social justice and equalization of opportunity, the charge against it being that it is invariably conceived in narrow middle class terms and therefore acts against the interest of the children coming from improvised lower socio-economic classes.

ii. Equality of Curriculum

A different kind of curriculum may be common curriculum that takes the form that one subculture or culture is as good as any other. It is also accepted that those who found it difficult to respond to such curricular treatment, either because of poor home background or the other socio-economic reasons should be given compensatory education to make up for their cultural disadvantages and deprivations. Thus the curriculum should be culture free, transmit knowledge, languages, science, mathematics, arts and crafts and so on which is believed to be needed by one and all for the all round development of one’s personality.
iii. Social Learning and Curriculum

How the social class factors affect the school achievement unfavorably of learner, especially of the unskilled working class has been brought out by many studies. The most well known is Basil Bernstein’s work in social learning. His findings were that since child learns his social structure through its language, spoken language powerfully conditions what is learned and how it is learned and so influences his future learning.

The school is substituting a formal language and which is not necessarily a logical, impersonal, emotionally eviscerated language cut off the individual from his traditional relationships and perhaps alienate him from them. So the schools should maintain the choice of language. Thus for non-formal system of education curriculum should be framed keeping in mind the individualistic need and of the dynamic society. They are:

- The curriculum should be flexible and changeable according to the needs of an individual and society.
- It should be confirmed to the level of individual development.
- It should inspire an individual to become responsible citizen.
- It should include variety of assignment.
- It should emphasize more and practical work rather than theoretical.
- It should make individual capable for their livelihood.
- Through curriculum the cultural values should be brought to light and through it the high ideas of the society should be transmitted to the generation.
- The method of teaching should promote democratic feeling, ideals and value.
1.5 ECONOMICAL PERSPECTIVES OF ODL

Distance and Open Education build on proven cost effective models for mass production of education and adds an element of market and open source-driven reform that includes for new partnerships between private enterprise and public institutions so as to radically improve access and participation. There has been much talk around the world about the provocative challenges of Harvard Business school professor C. K. Prahalad who argues that we should “stop thinking of the poor as victims or as a burden and start recognising them as resilient and creative entrepreneurs and value-conscious consumers” (Prahalad, 2004). Karnani (2007) notes there are two viable and acceptable solutions for reducing the burden of high costs of education (and other goods and services) to the poor. The first of these is to reduce the cost of the service while retaining quality.

Open Universities, using Distance Education Technologies, have demonstrated over the past 40 years that this is an achievable goal (Daniel, 1996). Perraton (2000) lists costs of open universities around the globe that range from 15-40% of costs of traditional university (p. 132). This is especially true in Asia where the number of open universities has increased very dramatically with numbers of graduates (most of whom pay significant portion of the costs of that education) measured in the millions. These learners would not have achieved these education standards if governments had waited for funding necessary to expand traditional models of higher education. Distance education very significantly lowers the barriers to entry to formal education provision. Infrastructure costs including buildings, classroom, registrars and offices are greatly reduced. Moreover, the costs of print production associated with first generation DE are also tumbling as evidenced by outsourcing of copy editing and printing by net-based services and through use and reuse of open educational resources (OERs). We must do things differently tomorrow than we have done today as our expanding knowledge base of more effective pedagogy, new tools for production and distribution
and increasing demands and expectations from learners does not allow us the luxury of complacency. Thus, we need to develop transitional strategies that allow us to use, exploit, develop expertise and model effective use of these technologies. By doing so we become critical consumers, able to effectively assess innovations and we become role models, mentors and champions for change.

1.6 TECHNOLOGICAL PERSPECTIVES OF ODL

Information and Communication Technology (ICT) has proved that learning is possible anytime and anywhere now. ICT brings about several benefits to the learner and the teacher. These include shared learning resources, shared learning spaces, promotion of collaborative learning and move towards autonomous learning. ICT should be used as a vehicle for 166 educational transformations. ICT, make radio lessons interactive and lively, development of audio video materials in capacity building, regular teaching learning process for sustainable quality of education.

ICTs and satellite communication increased the reach of open learning system and the use of distance mode in education and training. Open and distance learning having access to a variety of technologies audio, video, radio, tapes, television, video cassettes teleconferencing, computer and Internet, World Wide Web etc. of Information Communication Technology (ICT) which vary with Institution to Institution and course / programme to course / programme end learner to learner. Introduction of Information and Communication Technology of new methods of imparting instruction in distance teaching, the use of multimedia and ICT based packages in Open and Distance learning is imperative. The ODL institutions have to search for new ways to educate and keep learners up to date and to the brim. Use of ICT in ODL, brings learning interactive, where the learner is guided by the lecturer and the facilitator initiating the learning process, gaining direct access to various sources of information.
Role of ICT in ODL include teleconferencing innovative self-learning modules, greater reliance on practicum especially, hands on experience, tutorials, phone-in facility and academic as well as personal counselling. TV broadcast and greater uses of audio-video cassettes have made it possible for distance education learners to upgrade their knowledge and competencies without leaving their place of work. Now Distance Education has been accepted globally as an alternative to formal education particularly to reach the unreached. The possibility of the future innovations will be judged against the cost of technology, accessibility, flexibility of usage, suitability to the situation and to the intended purpose, sustainability and finally the adoptability by the learners and also by the distance education practitioners. In addition, there is a large adult community willing to enroll for distance education programmes that is in a way wanting to have more supplementary media to understand the lessons. Since most of the adults either dropped from school early or employed with lower qualifications, they want to take the distance mode to upgrade their qualifications. Moreover they are reluctant to the formal teaching methods due to rigidity of the formal system and thereby looking for technology based distance learning. In the light of experiences with the available programmes, both from the angle of practitioners and learners, the following technology is suggested to be available and sustainable media of Instruction in the distance education.

i. **Radio Lessons**

This is important media used in distance education. Audio lessons can be well planned and presented by adding the element of dramatization sound effects, synchronization with music, etc. Radio has been extensively used for educational purposes all over the world. This is also very helpful media for adult learners giving the situation under which these adult communities live.
ii. Interactive Radio Programme

Another innovation in the radio broadcast has been the element of interactivity. The interactive radio or phase-in counselling has been introduced by many distance education institutions in many countries. In this process, the students can listen to the lecture by the subject expert and after listening, the learners would have their questions clarified by phoning in.

iii. Video Lessons

In addition to the existing audio lessons (tapes), the video lessons recording activity should be introduced. The video lessons are quite suitable for practical subjects, by which we can reduce the contact and counseling hours and save costs on these processes. The lessons prepared at the studio setting will be supplied to students through video cassettes. This facilitates everybody, whoever has got T.V and VCRs, to watch these lessons and supplement the print media. These lessons are extremely useful for teaching science subject which involve demonstration, laboratory tests, etc. Besides, the video cassettes have an advantage over television as they enable the learner to have control and watch the programmes according to his/her time, place and pace.

iv. Television Lessons

Informal surveys revealed that Radio and Television lessons will assist the learners to a maximum extent in addition to the print media. Further, the schedule of programmes has to be informed to learners well in advance. This is another method which can be tried to make use of the T.V channel which is dedicated for the purpose. This is considered to be an effective medium for imparting education as most learners prefer watching television to reading or studying course material. It is one of the most accessible media for open and distance education. Television as a medium has been subject to considerable change since the mid 1980s (Bates, 1995). Most of the adults prefer this media because of its flexibility.
v. **Computer Interactivity and Online Teaching**

This is one of the latest methods used to increase the accessibility to education by all groups. This web based learning will make a world of difference in accessing materials. Since there is potential for this media, plans have to be formulated with the assistance of government agencies to provide lessons through this media. Since internet, e-mail have come to stay in the life of most people, this computer interactivity will be viable for the intended purpose. Self instructional material can be arranged on CD Rom or World Wide Web (WWW) to increase the access.

vi. **Video Conferencing**

Although this media is considerably expensive, we need to use this to supplement other modes. Further, this is as good as a live situation or classroom demonstration, because it provides two way communications between the learner and the teacher at the same time.

To make the above suggested technologies as a viable strategy, it is quite imperative that the teachers receive professional training in all these media as the situation demands. In distance education, the use of proper technology will make all the difference in providing effective communication to the learners. With the suitable technology in place, the open and distance education will become a high quality education compared to conventional education, and will become a preferred mode of education in the present and future settings.

1.7 **GLOBAL SCENARIO OF ODL**

Distance Education scenario in the developed world presents a comparatively bright and promising picture for the 21st century. The Open University, UK for example, has become the country’s largest university which now plays a central role in the credit transfer and award validation mechanisms that knit British higher education and training together (John Daniel, 1995). In general, the European Distance Education
Network (EDEN) shows that the European countries have firmly recognized the Distance and Open Learning system as part of their educational enterprise. North America, Australia and Japan have developed their own distance teaching-learning systems in many forms flexible enough to cater to the varied needs of their different learner clientele (Sewart, 1995). Advancement in communication devices which are widely used by the distance and open learning institutions in the developed countries make the individualized teaching-learning possible there. Besides, the well established academic traditions and a wider provision for basic primary and secondary education have created a strong barrier extending higher, vocational and unconventional educational programmes to those segments of adult populations who have limited or no access to campus based face-to-face education in the different areas at the tertiary level. The emergence of virtual universities and the new learning spaces are expected to affect another revolution in education soon (Peters, 2001).

1.8 INDIAN SCENARIO OF ODL

Distance education gets overwhelming response in India, the universities introduced many new distance education job oriented courses according to the changing times and students requirements. However, in this process, the actual motive of providing quality education to all took the backseat as the main focus of universities slowly shifted to making more and more money. Currently in India, the Distance Education departments are generating the maximum revenue for their universities, in many cases more than even the professional and self financing courses. So universities and distance institutions higher authorities keep ensure that only quality education should be provided through distance learning programs. In case of research based higher studies or some other professional courses being run through distance education, provisions should be made for the proper library, laboratory and required study related essential equipments and materials for the students in coordination with other related universities.
running similar programs or located in the same region. It would rather be more appropriate if an inter-university body is set up by the UGC or International Council for Distance Education of India coordinated by government educational related authorities to monitor and review the distance education programs run by different universities and to ensure smooth progress of distance education.

Our society is completely changing and evolving. The mindsets and thought process of the people is continuously undergoing a change and so is the case with their needs. To cater to the changing needs of the people the universities have to continuously evolve its provisions and introduce new modules in order to remain dynamic and flexible. Universities and institutes are doing their part and it is pretty much evident from their websites. Many of the modules are designed aesthetically to be covered through the distance learning mode to suit the convenience of the working people and the part time students. The correspondence courses institutions are offering more than 400 programs in India, about 50 percent of which are professional in nature. The enrollment in these institutions is of the order of 9, 00,000 in the year 1999, which forms 11.64 % of the total enrollment in higher education in the country. An important point to be noted here is that the growth rate of enrollment in correspondence and distance education mode has been higher than that of higher education in general (Period, 1990-2000, Source-UGC Reports).

Since the formal system was unable to meet the demand for higher education in India, the Planning Commission in its third five year plan (1961-66) recommended the introduction of Correspondence Education at the University level. Hence, distance education was adopted as an alternative mode at the University stage in 1962. Today in India there are four types of institutions offering programs through distance mode: National Open University, State Open Universities, Directorates of DE functioning under conventional universities i.e. Dual Mode Universities
(DMUs) and private professional institutes. However, only the National Open University namely, IGNOU uses third generation tools and has made a modest beginning with Internet based education, by offering few online courses, thereby claiming to have graduated into the fourth generation, i.e., the flexible learning model. The Directorates attached to conventional universities are still at the first generation level i.e., correspondence model. However, some of the private contenders too are functioning in the fourth generation, but majority are at the first generation only.

The world of technology is being reshaped by global trends such as convergence, increased bandwidth, enhanced multimedia capabilities, miniaturization, environmental variations, increase mobility, enhanced processing power, more powerful cognitive tools and reduced cost. These trends support transition across four generations in distance education models and associated delivery technologies: Correspondence Model (Print), Multimedia Model (Print; Audio-Video, Counselling sessions and continuous Evaluation Methods, TV/Radio Broadcast); Teleconferencing Model (One way video and Two way Audio teleconferencing, Interactive Phone in-Radio Counseling) and Computer Aided Learning (Interactive Multimedia, Internet-Based Access better known as community Access Device to www resources) and new techniques of making of Video Lessons and provide and avail these to students in the form of CD's. If we look into the concept of distance learning with a greater depth and to all those who are availing the benefits of it we will get to know that not only the younger brigade of our country but also the adults are making a use of it to continuously enhance their knowledge and skills and to give their career a boost. Leadership is necessary to bring cohesion to the distance education arena within higher education. Drucker (1998) maintained that in the latter part of the last century, technology resulted in a transformation of the social structure. We saw the “rise and fall of the blue-collar worker” (p. 539), the rise of the industrial worker
who gave way to the rise of the knowledge worker, a term unknown prior to 1959 (p. 542).

A number of committees and agencies have investigated distance education for twenty-first century learning, including the Council for Higher Education. The new concept we are having is EDUSAT. This is the first exclusive satellite for serving the educational sector. It is specially configured for audio-visual medium, employing digital interactive classroom and multimedia system. The satellite will have multiple regional beams covering different parts of India: five Ku-band transponders with spot beams covering northern, north-eastern, eastern, southern and western regions of the country, a Ku-band transponder with its footprint covering the Indian mainland region and six C-band transponders with their footprints covering the entire country. This EDUSAT network provides satellite-based tele-education facilities to students and teachers across the country. This shows that technology and distance education are influencing higher education in a way that may not be controlled by previous structures, providers of services, or traditional policies.

As technology-enhanced distance education gains greater acceptance, it will gain stature as a distinct entity that represents high quality education, providing opportunities to students no matter where they are located. Open and distance learning introduces major innovations and recent upcoming technologies to make their courses academically effective and socially relevant. It provides for innovations in the curriculum, course content relevance to real-life situations, teaching strategies and caters to different learning styles of the learners. India is a land of diverse cultures. It has different cultures, different languages and sub cultures in it. It comprises of Rural, Urban and Semi Urban area. Though the quality of facilities and basic necessities has undergone a drastic change in the last few decades but still the condition is very miserable in many parts of the states. Many of the rural areas are still very backward and the mentality of the people is very conservative and orthodox. This has
led to the social exclusion of these strata of the society. Females, in India, have long been excluded from the education. Many a times, even today, parents hesitate to send their daughters to distant colleges and thereby, their education is neglected and stopped. Girls belonging to the rural background are married earlier than their urban counterpart, which also affects their higher education. Women workers are less paid for the same work as compared to male counterparts. At times, she is the single parent head of the family. To progress in their careers women need to have access to same range of jobs as men and so, be educationally and economically be at par with them. The open and distance education provides an opportunity to study and, as well as play the other social roles expected of the women. The open and distance education is more accessible to them than the traditional education system.

1.9 THEORIES ON OPEN AND DISTANCE LEARNING

Although various forms of distance education have existed since the 1840s and attempts at theoretical explanations of distance education have been undertaken for decades by leading scholars in the field, the need for a theory of distance education has been largely unfulfilled until recently. Holmberg (1986) stated that theoretical considerations give distance educators a benchmark against which decisions can be made with confidence. In 1988, Holmberg reiterated the need for theory, stating that, “One consequence of such understanding and explanation will be that hypotheses can be developed and submitted to falsification attempts. This will lead to insights telling us what in distance education is to be expected under what conditions and circumstances, thus paving the way for corroborated practical methodological application”. (p. 3)

As early as 1972, Moore expressed concern about the progress of distance education being hindered by lack of attention to what he called the 'macro factors'. Moore indicated that there is a need to describe and define the field of distance education, to discriminate between its various components,
and to identify the critical elements of the various forms of learning and teaching.

Keegan (1995) reaffirmed the continued need for a theory of distance education by stating that a firmly based theory of distance education is one that can provide the touchstone against which, financial, educational, and social can be made with confidence. Theory would thus cease to be an ad hoc response to a set of conditions arising in crisis situations of problem-solving, characteristic of the field of education.

In a general sense, theory is taken to mean a set of hypotheses logically related to one another for explaining and predicting occurrences. Holmberg (1985) stated that, “the aim of the theoretician is to find explanatory theories; that is to say, the theories which describe certain structural properties of the world, and which permit us to deduce, with the help of initial conditions, the effects to be explained” (p. 5).

Holmberg (1995, 4) has further defined theory as, "a systematic ordering of ideas about the phenomenon of a field of inquiry, and an over-arching logical structure of reasoned suppositions which can generate testable hypotheses." He suggested that distance education has been characterized by a trial and error approach, with little consideration given to a theoretical basis for decision-making, and that the theoretical underpinnings of distance education are fragile. Most efforts in this field have been practical or mechanical and have concentrated on the logistics of the enterprise.

Holmberg and Keegan (1986) both consider distance education as representing a distinct form of education, the latter concluding that it is parallel to and a complement of conventional education. However, Shale (1988) countered that all that constitutes the process of education when teacher and student are able to meet face-to-face also constitutes the process of education when teacher and student are physically separated. In his landmark work, The Foundations of Distance Education (1986), Keegan classified theories of distance education into three groups: theories of
independence and autonomy, theories of industrialization of teaching, and theories of interaction and communication. A fourth category seeks to explain distance education through a synthesis of existing theories of communication and diffusion as well as philosophies of education. Each of these major categories will be discussed in the following sections.

i. **Theories of Independence and Autonomy**

a. **American Theory of Independent Study**

Wedemeyer, a professor from the University of Wisconsin, considered the independence of the student as the essence of distance education (Keegan 1986). This was reflected in Wedemeyer's preference for the term "independent study" for distance education at the college or university level. He was critical of contemporary patterns of higher education, believing that outdated concepts of learning and teaching were being employed. Wedemeyer felt that these concepts failed to utilize modern technologies in ways that could alter an institution. He set forth a system of distance education that includes ten characteristics which emphasize learner independence and the adoption of technology as a way of implementing it. According to Wedemeyer, the system should:

- Be capable of operating any place where there are students
- Place greater responsibility for learning on the student
- Free faculty members from custodial-type duties
- Offer students and adults wider choices (more opportunities) in courses, formats, and methodologies
- Use, as appropriate, all the teaching media and methods proven effective
- Mix and combine media and methods so that each subject or unit within a subject is taught in the best way known
- Cause the redesign and development of courses to fit into an articulated media program
- Preserve and enhance opportunities for adaptation to individual differences
- Evaluate student achievement simply, not by raising barriers regarding the place, rate, method, or sequence of student study and
- Permit students to start, stop, and learn at their own pace

Wedemeyer proposed the separation of teaching from learning as a way to break education's "space-time barriers." He suggested six characteristics of independent study systems:

- The student and teacher are separated.
- The normal processes of teaching and learning are carried out in writing or through some other medium.
- Teaching is individualized.
- Learning takes place through the student's activity.
- Learning is made convenient for the student in the student's own environment.
- The learner takes responsibility for the pace of learning, with freedom to start and stop at any time.

Wedemeyer noted four common elements of every teaching-learning situation:

- a teacher,
- a learner or learners,
- a communications system or mode, and
- Something to be taught or learned.

He proposed a reorganization of these elements that would accommodate physical space and allow for greater learner freedom. Wedemeyer believed that the development of the student-teacher relationship was a key to the success of distance education.

b. European Theory of Independent Study

Formulated in the early 1970s, Moore's theory of distance education is a classification method for distance education programs. Shaped in part by Moore's adult education and university extension experience,
it examines two variables in educational programmes: the amount of learner autonomy and the distance between teacher and learner.

For Moore (1994), distance education is composed of two elements, each of which can be measured. The first element is the provision for two-way communication (dialog); some systems or programmes offer greater amounts of two-way communication than others. The second element is the extent to which a programme is responsive to the needs of the individual learner (structure); some programmes are very structured while others are more responsive to the needs and goals of the individual student.

In the second part of his theory, Moore addresses learner autonomy. He noted that in traditional school settings learners are very dependent on teachers for guidance and that in most programs, conventional and distance, the teacher is active while the student is passive. In distance education, there is a gap between teacher and student, so the student must accept a high degree of responsibility for the conduct of the learning program. The autonomous learner needs little help from the teacher, who may be more of a respondent than a director. Some adult learners, however, require help in formulating their learning objectives, identifying sources of information, and measuring objectives.

Moore classifies distance education programmes as 'autonomous' (learner-determined) or "non-autonomous" (teacher-determined) and gauges the degree of autonomy accorded the learner by answering the following three questions:

- Is the selection of learning objectives in the program the responsibility of the learner or the teacher (autonomy in setting objectives)?
- Is the selection and use of resource persons-of bodies and other mediated decision of the learner or the teacher (autonomy in methods of study)?
- Are the decisions about the method of evaluation and criteria to be used made by the learner or the teacher (autonomy in evaluation)?
For Moore, the answers to these questions determine the type of distance learning programme. This information can be used to categorize the programme and even provide direction as to how the programme functions.

ii. Theory of Industrialization of Teaching

After examining a research base that included an extensive analysis of the European distance teaching organizations of the 1960s, Peters (1988) proposed that distance education could be analyzed by comparison with the industrial production of goods. Peters stated that from many points of view, conventional, oral, group-based education was a pre-industrial form of education, implying that distance teaching could not have existed before the industrial era. Based on economic and industrial theory, Peters proposed the following new categories (terminology) for the analysis of distance education:

- **Rationalization**: the use of methodical measures to reduce the required amount of input of power, time, and money.
- **Division of labor**: the division of a task into simpler components or subtasks.
- **Mechanization**: the use of machines in a work process. Peters noted that distance education would be impossible without machines.
- **Assembly line**: a method of work in which workers remains stationary while objects they are working on move past them. In traditional distance education programs, materials for both teacher and student are not the product of one individual.
- **Mass production**: the production of goods in large quantities. Because demand outstrips supply at colleges and universities, there has been a trend toward large scale operations.
- **Preparatory work**: determining how workers, machines, and materials can usefully relate to each other during each phase of the production process. The success of distance education depends on a preparatory phase.
• **Planning**: the system of decisions that determines an operation prior to its being carried out.

• **Organization**: creating general or permanent arrangements for purpose-oriented activity. Organization makes it possible for students to receive predetermined instructional units at appointed times.

• **Scientific control methods**: methods by which work processes are analyzed systematically, particularly by time studies, and in accordance with the results obtained from measurements and empirical data.

• **Formalization**: the predetermination of the phases of the manufacturing process. In distance education, all the points in the cycle must be determined exactly.

• **Standardization**: the limitations of manufacture to a restricted number of types of one product to make these more suitable for their purpose, cheaper to produce, and easier to replace.

• **Change of function**: the change of the role or job of the worker in the production process. The original role of knowledge provider as lecturer is divided into those of study unit author and marker.

• **Objectification**: the loss, in the production process, of the subjective element that had previously determined work to a considerable degree. In distance education most teaching functions are objectified.

• **Concentration and centralization**: because of the large amount of capital required for mass production and the division of labor, there has been a movement toward large industrial concerns with a concentration of capital, a centralized administration, and a market that is monopolized.

Peters concluded that for distance teaching to be effective, the principle of division of labor is a critical element. In his theory of industrialization, the teaching process is gradually restructured through increased mechanization and automation. Peters noted the following:
• The development of distance study courses is just as important as the preparatory work that takes place prior to the production process.

• The effectiveness of the teaching process is particularly dependent on planning and organization.

• Courses must be formalized and expectations from students standardized.

• The teaching process is largely objectified.

• The function of academics teaching at a distance has changed considerably vis-à-vis university teachers in conventional teaching.

• Distance study can only be economical with a concentration of the available resources and a centralized administration.

According to Peters, when decisions about the process of teaching and learning are made, the industrial structures characteristic of distance teaching should be taken into account.

Holmberg noted that while this was admittedly an incomplete theory, it was not devoid of explanatory power; it did, in fact, indicate essential characteristics of effective distance education. In 1995, Holmberg significantly broadened his theory of distance education. This comprehensive theory is divided into a number of parts encompassing the theory just stated previously and the belief that distance education serves diverse, individual learners who cannot or do not want to make use of face-to-face teaching. Distance education thus promotes students' independence and freedom of choice. Society benefits from distance education's provision of, on the one hand, liberal study opportunities for individual learners, and, on the other, professional/occupational training. Distance education is an instrument for recurrent and lifelong learning and for free access to learning opportunities and equity. According to Holmberg, distance education is characterized by the following statements:
• All learning concerned with the acquisition of cognitive knowledge and cognitive skills, as well as affective learning and some psychomotor learning, is effectively provided for by distance education.

• Distance education is based on learning as an individual activity. Learning is guided and supported by noncontiguous means.

• Distance education is open to behaviorist, cognitive, constructivist, and other modes of learning.

• Personal relations, study pleasure, and empathy between students and those supporting them (tutors, counselors) are central to learning in distance education. Feelings of empathy and belonging promote students' motivation to learn, influencing learning favorably.

• While it is an effective mode of training, distance education runs the risk of leading to mere fact learning and reproduction of accepted 'truths'. However, it can be organized and carried out in such a way that students are encouraged to search, criticize, and identify positions of their own.

On one level, Holmberg's expanded theory represents a description of distance education. On a deeper level, it is a theory from which hypotheses are generated and that has explanatory power by identifying a general approach favorable to learning and to the teaching efforts conducive to learning.

iii. A Synthesis of Existing Theories

Perraton's (1988) theory of distance education is composed of elements from existing theories of communication and diffusion as well as philosophies of education. It is expressed in the form of fourteen statements, or hypotheses. The first five of these statements deal with the way in which distance teaching can be used to maximize education:

• You can use any medium to teach anything.

• Distance teaching can break the integuments of fixed staffing ratios that limit the expansion of education when teacher and student are in the same place at the same time.
• There are circumstances under which distance teaching can be cheaper than orthodox education, whether measured in terms of audience reached or of learning.

• The economies achievable by distance education are functions of the level of education, size of audience, choice of media, and sophistication of production.

• Distance teaching can reach audiences not reached by ordinary means.

The following four statements address the need to increase dialog:

• It is possible to organize distance teaching in such a way that there is dialog.

• When a tutor meets distance students face-to-face, the tutor's role changes from that of communicator of information to facilitator of learning.

• Group discussion is an effective method of distance learning to bring relevant information to the group.

• In most communities there are resources that can be used to support distance learning to its educational and economic advantage.

Perraton's final five statements deal with method:

• A multimedia program is likely to be more effective than one which relies on a single medium.

• A systems approach is helpful in planning distance education.

• Feedback is a necessary part of a distance learning system.

• To be effective, distance teaching materials should ensure that students undertake frequent and regular activities over and above reading, watching, or listening.

• In choosing between media, the key decision on which the rest depend concerns the use of face-to-face learning.

Perraton's fourteen statements characterize his theory, which is actually a synthesis of information drawn from many sources.
iv. Equivalency Theory

The impact of new telecommunication technologies on distance education is far-reaching. Real-time television systems, such as the Iowa Communications Network (Simonson and Schlosser 1995), permit learners and instructors to see and be seen, hear and be heard, in almost the same way as in the local classroom. Keegan (1995) suggested that electronically linking instructor and students at various locations creates a virtual classroom. He continued by saying that, “The theoretical analyses of virtual education, however, have not yet been addressed by the literature: Is virtual education (interactive, live televised instruction) a subset of distance education or to be regarded as a separate field of educational endeavor?” (p. 18)

Education at a distance should be built on the concept of equivalency of learning experiences. The more equivalent the learning experiences of distant learners are to those of local learners, the more equivalent will be the outcomes of the educational experiences for all learners. The objective of the instructional designer of distance education is to provide for appropriate, equivalent learning experiences for each student. This theory is based on the following definition of distance education as, “formal, institutionally-based educational activities where the learner and teacher are separated from one another, and where two-way interactive telecommunication systems are used to synchronously and asynchronously connect them for the sharing of video, voice, and data-based instruction. (Simonson, 1995)

In elaborating this theory, Simonson (1995) states that it should not be necessary for any group of learners to compensate for different, possibly lesser, instructional learning experiences. Students should have learning experiences that are tailored to the environment and situation in which they find themselves. Thus, those developing distance education systems should strive for equivalency in the learning experiences of all students, regardless of how they are linked to the resources or the instruction they require. There are several key elements to Equivalency Theory; they are the concepts of equivalency, learning experiences, appropriate application, students, and outcomes.
**Equivalency** : Central to this theoretical approach is the concept of equivalency. Local and distant learners have fundamentally different environments in which to learn. It is the responsibility of the distance educator to design learning events that provide experiences with equal value for learners. Just as a triangle and a square may have the same area and be considered equivalent even though they are different geometrical shapes, the experiences of the local learner and the distant learner should have equivalent value even though these experiences might be very different.

**Learning Experience** : Second in importance is the concept of learning experience. A learning experience is anything that happens to the student to promote learning, including what is observed, felt, heard, or done. It is likely that different students in various locations, learning at different times, may require a different mix of learning experiences. Some may need a greater amount of observing while others require a larger dosage of doing. The goal of instructional planning is to make the sum of experiences for each learner equivalent. Instructional design procedures should attempt to anticipate and provide the collection of experiences that will be most suitable for each student or group of students. For example, if library resources are important to a course or unit, then library resources should be available. This does not mean that distant learners in a university research course will need access to a modern research library. It does mean that the educational equivalent of the resources of the library should be as readily available to the distant learner as they are to the local learner, whether electronically, through collaborative agreements with local libraries, or through the delivery of library resources to the distant student.

**Appropriate Application** : The idea of appropriate application implies that learning experiences suitable to the needs of the individual learner and the learning situation should be available and that the availability of learning experiences should be proper and timely. In other words, learning experiences that are made available to either distant or local learners should allow
delivery of instructional ideas that fit the expectations and facilities available to them; desktop video conferencing should not be expected of learners accessing Web-based information by modem. Similarly, collaborative learning strategies are not appropriate when an individual learner is isolated unless an equivalent, technology-based collaboration is arranged.

**Students**: Students are the ones involved in the formal, institutionally based learning activity—the course or unit of instruction. Students should be defined by their enrollment in a course, not by their location. They necessarily seek institutionally-based education, sanctioned by a recognized and accredited organization.

**Outcomes**: Finally, the outcomes of a learning experience are those obvious, measurable, and significant changes that occur cognitively and effectively in learners because of their participation in the course or unit. Outcomes consist of at least two categories: those that are instructor determined and those determined by learners. Instructor-determined outcomes are usually stated as course goals and objectives and identify what learners should be able to accomplish after the learning experience that they could not accomplish prior to participating in it. Learner-determined outcomes are less specific, more personal, and relate to what the learner hopes to accomplish as a result of participation. Equivalent learner-determined outcomes are identified when students enroll in follow-up courses or apply newly learned skills to job or course situations.

Once again, the concept of equivalency is central to the widespread acceptance of distance education. If teachers, learners, and the public in general identify learning at a distance as the equivalent of what they consider to be traditional learning, then distance learning will become main stream, at least in America. If equivalency is not what the public perceives, then distance education will continue to be peripheral to the field of education.
The equivalency approach is generally supported by Shale (1988), who argued that distance education is not a distinct field of education. Keegan (1995) supports this idea, stating that, “This new approach to distance education based on virtual classrooms requires a substantially different theory upon which to base practice than the traditional view of distance education as it has been practiced in the past. The study of virtual and electronic classrooms is an important and complex field, still in its beginnings, with a unique contribution to make to educational knowledge”. (p. 19)

The equivalency approach is uniquely American. It is based on core values held almost sacred in American education, such as the use of regular classroom teachers to facilitate the teaching and learning process, local control, small class size, rapport between teacher and learner, and personalized learning. Most importantly, equivalent distant learning relies heavily on the use of modem and powerful interactive telecommunications systems to be successful.

v. Evaluating Theories

Keegan (1986) suggested that the theoretician had to answer three questions before developing a theory of distance education: Is distance education an educational activity? Is distance education a form of conventional education? And is distance education possible, or is it a contradiction in terms? Keegan answered to these as:

- Keegan answered that while distance education institutions possess some of the characteristics of businesses rather than of traditional schools, their educational activities are dominant. Distance education is a more industrialized form of education. Keegan pointed out that the theoretical bases for distance education were within general education theory.

- Keegan stated that because distance education is not based on interpersonal communication and is characterized by a privatization of institutionalized learning (as is conventional education), it is a distinct form of education. Therefore, while the theoretical basis for distance
education can be found within general education theory, it cannot be found within the theoretical structures of oral, group-based education. However, Keegan stated that virtual systems based on teaching face-to-face at a distance constituted a new field of study. He indicated that a theoretical analysis of virtual education still needs to be addressed.

- Keegan points out that if education requires inter subjectivity a shared experience in which teacher and learner are united by a common zeal then distance education is a contradiction in terms. Distance instruction is possible, but distance education is not. Again, the advent of virtual systems used in distance education challenge the traditional answer to Keegan's question.

Central to Keegan's concept of distance education is the separation of teaching acts in time and place from learning acts. Successful distance education, he believes, requires the reintegration of the two acts. Possibly the emphasis on making learning experiences equivalent for learners would contribute to the reunification of teaching and learning as simultaneously occurring acts. Equivalency theory should be evaluated by applying Keegan's criteria, as well as others, to determine if it is an approach to distance education that is appropriate. Classical distance education theorists need to address the changes to distance education facilitated by new technologies. Advocates of the new theories must consider the relationship of these to the traditional strengths of distance education. For example, the new theories' focus on face-to-face instruction eliminates the advantage of time independent learning that traditional theories of distance education value. An environment in which technology, society, economics, politics, and approaches to learning are all in transition suggests that theories, definitions, and the practice of distance education will continue to be contested.

Advances in technology have impacted education and created a new digital learning classroom which has presented educators with conflict in their perspectives of the context and direction of education today. Traditional theories such as behaviorism, cognitivism, and constructivism may no longer
be appropriate in contemporary learning environments. Theory of education has been transformed by the increasing presence of technology integration in classrooms and the advances in online learning.

i. **Traditional Learning Theory**

   Behaviorism is based on the behavior outcomes of learning, not necessarily what may or may not be occurring within the learner. As educators have voiced the opinion that not all learning can be observed, prevalent theories moved from behaviorist to cognitive perspectives. Cognitive theory relies on internal processes such as memory, motivation, reflection that help learners expanded their knowledge base and capacity for learning. The most recent of the three schools of thought is constructivism. Constructivists claim that learners create their own personal knowledge as they construct meaning according to their past experiences and current knowledge bases. Acquirement of knowledge takes place when learners can personally apply their learning experiences (Ally, 2004). As technology becomes more present in classrooms and learning environments around the world, these theories become questionable. The digital age has introduced a new type of classroom to the global schoolhouse and experts are debating about where the online classroom fits among these perspectives.

ii. **Connectivism Theory**

   Siemens (2005) presents connectivism as an alternative theory to traditional theories. As we have moved into the age of information, especially in digital formats that are so easily accessible, traditional theories may not be enough. “We can no longer personally experience and acquire learning that we need to act” (2005, p. 3). We must rely not only on our own experiences for creating meaning in the world, but also the experiences of others. We learn through the network of connections we have with people and information. Connectivism, as an emerging theory, has been questioned on its very validity as a theory and its relevance to
education in general (Kop & Hill, 2008). Connectivism is rooted in the theories of internal and external knowledge, which, Bill Kerr cites as previously addressed in Vygotsky’s theory of social constructivism (2007). These ideas may have been addressed, but have they been addressed in the same context? Encompassing new technologies within education may change the methodologies rooted in the theory of connectivism. With its commonalities in pre-existing theories, it is questionable whether, as Kop and Hill have suggested, Connectivism truly merits definition as a theory.

### iii. Transactional Distance Theory (TDT)

Transactional Distance Theory is one of the more prevalent emerging theories in online education. Sushita Gokool-Ramadoo (2008), of the University of South Australia has suggested TDT for consideration of global acceptance. She claims that it is the most comprehensive theory, incorporating other perspectives and expanding even further upon them and that it transitions a learner from behaviorist learning perspectives to the more contemporary constructivist perspectives. Because TDT incorporates more traditional theories of learning it could be more widely accepted, preparing education for global acceptance, but does this really make TDT necessary? Is it enough to just utilize various concepts from existing theories? It is also arguable whether TDT is specific enough for online learning. TDT can be viewed as a general distance education theory. Online learning can be included in this category, but is not the exclusive component. Distance education can also include correspondence education that is not conducted over the Internet. Also in question is whether TDT would apply to online learning programs that are not conducted at a distance. Michael G. Moore (1993) contends that there is some distance between instructor and learner in any education setting, including traditional face-to-face instruction. In this case TDT would apply. In order to determine a global theory, distance must be defined.
iv. **Activity Theory**

David H. Jonassen (2000) describes activity theory as the interdependence of conscious processes of the mind and performance of activity. Activity theory relies on the cooperation of learners, learning context and community, expectations and tools. Online learning can be assumed to be one of these tools that subjects of learning may utilize. Activity theory is the theory behind student centered learning environments (Jonassen, 2000), which are based upon project- and problem-based learning which involves knowledge construction. This concept is reflected in constructivist theory, again questioning the need for a new theory that already relies on existing theory.

v. **Transformative Learning Theory**

Transformative learning theory is founded on the concept of learning within an individual’s frame of reference. Mezirow (1997) explained that this frame of reference includes “cognitive, conative, and emotional components, and is composed of two dimension: habits of mind and a point of view” (p. 1). According to transformative theory, the content and methods of our learning are based on how we see the world and how we are used to thinking. Mezirow stated the following:

Adults have acquired a coherent body of experience-associations, concepts, values, feelings, conditioned responses-frames of reference that define their life world. Frames of reference are the structures of assumptions through which we understand our experiences, they selectively shape and delimit expectations, perceptions, cognition, and feelings. They set our “line of action.” Once set, we automatically move from one specific activity (mental or behavioral) to another (p. 1). Many online learning environments are geared toward adult learning. In this respect, transformative theory can be viewed as appropriate and possibly ideal. Edward W. Taylor (2007) of Penn State University-Harrisburg addresses the popularity of transformative learning theory in adult education.
Taylor’s conclusions of the empirical research acknowledge transformative learning as a still-developing theory. This theory ventures into the same field as constructivism in that it based on making meaning. In some respects, it could be considered a more specific form of constructivism with an emphasis on critical reflection of the learner. With its emphasis on adult education, it may not be a broad enough theory to serve as a global theory for online learning in general. However, with its focus on changing learners from transformative thinkers to independent and responsible decision makers, one also has to wonder why transformative doesn’t apply to younger learners (Mezirow, 1997). Children may have a more limited frame of reference, but nonetheless, still maintain a unique perspective from their own realities.

1.10 EMERGING TRENDS AND DEVELOPMENTS IN ODL

Among different innovative methods of education, distance education mode gained prominence in the development of higher education in recent years. The obvious reasons for this choice are flexibility, economized mode, learner friendly, adults’ favourite. Commonwealth of Learning (COL) has been playing a vital role as a catalyst in advocating the use of modern communication technologies in distance education for different clientele. Some developed countries put more emphasis on technology, some go by traditional approach (print media) and others use the combination of latest technology and traditional approaches to complement each other in the learning process. Technology based distance education is termed as the delivery of courses/programmes through different means of technology. In distance education, technology is used to communicate with the learner instead of depending mainly on the teacher lecturing. Each and every means of technology that is used in distance education will work towards effective communication of information.

In order to provide open access to higher education to all, especially to those disadvantaged groups who could not join the formal system of education due to inbuilt constraints of the formal/conventional system.
Open and distance education institutions have been increasing their access to higher education for a larger segment of population through multi-media instructional system. With the advent and advancement in communication technology, the education is becoming high-tech and the instructional changes are taking place. A variety of audio, radio, video, television, teleconferencing, video conferencing, computer technologies etc., have become part of the multimedia package in teaching and learning at a distance. Radio, Audio and video teaching are considered as old technologies whereas video conferencing and computer teaching are high tech/new modes (A.W Bates 1995). The new technology enables the learners to do courses offered from any part of the world without moving out from their homes. In the field of distance education most of the institutions adopt different modes of delivery starting from print media as first level development to the present high tech video conferencing and computer teaching as a fifth level development. The modes of delivery have undergone different changes over the years and the institutions are competing to become more learner centered and assisting the learners with more supplementary modes of delivery.

Now, the trend is towards the use of new technologies in distance education as a supplementary to the existing systems. Although initially the programmes were supported by print media, the necessity of technology based delivery, of courses, is increasing and at the same time becoming more viable. In addition, the Government is also committed to invest in technology based distance education as long as it assists the adult community. This was reasoned due to the fact that the adult community is the one which has heavily subscribed in most of the distance education programmes in the country. In addition, it is also the advantage of the technology that delivers the lectures to adults. This process seems initially expensive, but its usage yields far reaching benefits to the learners. By using different technology, we can save on heavy capital costs and on permanent infrastructure. Since the learners are spread over different geographical locations, the technology will help for effective delivery. The different technologies would supplement and
complement the other modes of delivery thereby enhancing the learners’ skills and eliminate the fear of distance from a classroom teacher. Further, it delivers cost effective and quality education with easy understanding signals.

1.11 PROMOTION OF TECHNOLOGY ENABLED HIGHER BY UNIVERSITY GRANTS COMMISSION (UGC) AND CONSORTIUM FOR EDUCATIONAL COMMUNICATION (CEC)

The University Grants Commission is a statutory organization established by an Act of Parliament in 1956 for the coordination, determination and maintenance of standards of university education. Apart from providing grants to eligible universities and colleges, the Commission also advises the Central and State Governments on the measures which are necessary for the development of higher education. It functions from New Delhi as well as its six Regional Offices located in Bangalore, Bhopal, Guwahati, Hyderabad, Kolkata and Pune.

Under the UGC, the National Assessment and Accreditation Council (NAAC) is established to assess the quality of higher education. In order to enhance the technological deployment in Higher Education, the National Assessment and Accreditation Commission (NAAC) has incorporated the effective utilization of Information Technology in universities and colleges as one of the parameters of evaluation of the quality in these institutions. It is obvious that the trend is towards incorporating more and more of computer education and information technology in the higher education system. Though the clamour for culture and values continues, the apparent focus is on the technology-transformation of higher education system. Hence, the professional development of teachers should reflect the changing higher education needs. Both in the pre-service and in-service training, special focus must be on imparting education for teachers for communicating the curriculum through information technology.
One of the innovations in higher education carried out by the UGC in early eighties was using the powerful medium of films for knowledge communication. As early as in 1984, UGC launched countrywide classroom (CWCR) and Production facilities at 6 universities. Initially the coordination with these centres was done from UGC office with the support of a consultant. Subsequently an inter-university Centre named as 'Consortium for Educational Communication' was set up in the year 1993 with the following objectives:

- Close coordination, facilitation, overall guidance and direction to the activities of the Media Centres set up by the UGC in various universities.
- Dissemination of educational programmes, through both the broadcast and non-broadcast modes.
- Production of educational programmes (especially video and audio) and related support material and setting up of appropriate facilities for this.
- Research related to optimizing the effectiveness of the programmes.
- Providing a forum for the active involvement of academic and other scholars in the creation of appropriate educational programme.
- Studying, promoting and experimenting with new techniques / technology that will increase the reach and/or effectiveness of educational communication.

As a response to these objectives the CEC coordinates the development of centres, ensuring the quality of software, coordination of telecasting of the selected films, inspiring and encouraging innovations. During the two decades of CWCR and a decade of CEC considerable progress has been made.

The system of educational communication has grown to 17 Educational Media Research Centres and Audio Visual Research Centre, now known as Educational Multimedia Research Centres (EMMRC). Average number of educational programmes produced has increased to 1000 programmes per year.
from 25 in the beginning. CEC runs a 24hr higher education channel known as Vyas Channel on Gyan Darshan Bouquet now also available on DTH.

The focus of education films are the following three types:

- Enrichment oriented films
- Subject related series of films
- Under graduate syllabus based lectures by eminent teachers.

On the side of development of production equipment, CEC coordinates acquisition of latest equipment by the media centres and maintenance of these equipments. The Countrywide Classroom has completed more than 2 decades and Consortium of Educational Communication has completed more than a decade of service.

Several measures are adopted for quality assurance, namely preview, feedback, technical quality check at the time of telecasting and post telecast feedback and viewers survey. It also encourages quality improvement through competition and awards. Some of the important awardees include programmes from EMMRC Calcutta, Hyderabad, Ahmedabad, Pune, Jodhpur, Indore, Imphal, Sagar, Calicut, Mysore, Srinagar, Roorkee and some outside producers, like NID, Ahmedabad; MIC Manipal; IMCPL, Faridabad; National Open School, New Delhi; C-DIT, Thiruananthpuram; and PSBT, New Delhi.

The digital media library at CEC is a Central Repository of all the Educational Television Video Programmes produced by the eighteen Educational Multimedia Research Centres set up by UGC in the Universities and Institutions of Higher Education in India. The media library houses all the Master tapes of the educational video programmes, e-contents and LORs produced on various subjects and is a storehouse of a wealth of knowledge. CEC has a total collection of about 17000 Educational Video Programmes on various formats like U-matic Cassettes, Betacam Cassettes, CD’s, DVD’s, Mini–DVD’s and PD’s/OD’s (Optical Discs)
which consists of the categories of collections like enrichment video programmes, syllabus oriented programmes like the university video lectures, e-Contents and LOR’s which are available both in English and Hindi. The Digital Media Library adds about more than 1000 Video Programmes on various subjects and topics to its collection every year.

1.12 NATIONAL MISSION OF INFORMATION TECHNOLOGY IN HIGHER EDUCATION (NMITHE)

Fortunately, the ICT as a tool in education is available at this juncture and there is a strong need to fully utilize it to enhance the current enrolment rate in Higher Education from 10% at present to 15 % by the end of the 11th Plan period. A budget allocation of Rs. 502 crores has been made in 2008-09 for the National Mission on Education through ICT. It is a momentous opportunity for all the teachers and experts in the country to pool their collective wisdom for the benefit of every Indian learner and, thereby, reducing the digital divides. Under this Mission, a proper balance between content generations, research in critical areas relating to imparting of education and connectivity for integrating our knowledge with the advancements in other countries is attempted. For this, what is needed is a critical mass of experts in every field working in a networked manner with dedication. Although disjointed efforts have been going on in this area by various institutions/organizations and isolated success stories are also available, a holistic approach is the need of the hour. This Mission seeks to support such initiatives and build upon the synergies between various efforts by adopting a holistic approach.

It is obvious that emphasis on ICT is a crying need as it acts as a multiplier for capacity building efforts of educational institutions without compromising the quality. The Mission is also necessary to sustain a high growth rate of our economy through the capacity building and knowledge empowerment of the people and for promoting new, upcoming multi-disciplinary fields of knowledge.
i. **Scope of Work for the Mission**

The proposed Mission shall work for scaling up of the existing Education Help line - ‘One Stop Education Portal’- “SAKSHAT’. The helpline shall take care of all the needs of the entire learning community including the students enrolled in various educational institutions and lifelong learners by extensively utilizing e-learning concepts and the ICT based methodology. “SAKSHAT” shall be fully equipped with intelligent navigation techniques for easy and smooth browsing. The education portal shall integrate the scholarship programme of the Ministry of Human Resource Development and ensure disbursement of Scholarship electronically. In order to achieve its objective, the proposed Mission shall encourage development of high quality e-content, for loading on to ‘SAKSHAT’ in all disciplines and subjects, at various levels using the best available authoring tools and making fullest use of animation and multimedia technologies in order to make learning interesting and facilitate clarity of concepts to the learners.

ii. **Spreading Digital Literacy for Teacher Empowerment and Bridging the Digital Divide in Teaching-Learning Community in Higher Education**

For bridging the digital divide and empowering teachers /learners to harness information and communication technologies for their empowerment through knowledge, the need of the hour is to provide digital literacy to teaching learning community in Higher Education. The aim has to be that this community should be able to operate the computer or other devices and connect to the knowledge network. Obviously, this digital literacy cannot be spread through the computer networks since it aims to empower the teacher /learner to use the network. Hence, digital literacy for teacher empowerment will have to be imparted through other means relying heavily on audio-visual material, non-governmental organizations, change agents and institutions established for them, and mass contact programmes.
iii. Support to Non-Government Organizations (NGOs) and Governmental Organizations for Teacher Empowerment through Digital Literacy

The Mission shall provide financial, technical and logistic support to the Governmental and Non-Governmental Organizations engaged or intending to be engaged in the task of teacher empowerment. It shall be open to the NGOs and Governmental Organizations to devise their own strategy for educating the teachers about the use of computer and access devices in order to empower themselves for making the best use of ICT to meet their educational and training needs. The formulation of new strategies for the teaching-learning community is essential because the people in different conditions and states of mind may require them for developing the competence for using the e-devices and using ICT for learning. In order to accomplish its major objective of utilizing latest technologies to make higher education easily accessible, the Mission shall provide financial assistance to all the institutions of higher learning for the procurement of hardware or replacement of the obsolete hardware essential for accessing to the world of knowledge in cyber space. Institutions of higher education shall be encouraged to have, at least, the same number of computers as the number of the faculty members with them. Half of the number of the computers shall have to be arranged by the institutions by themselves, through their own resources or through grants from other sources whereas the remaining 50% may be purchased out of the financial grant provided by the Mission directly or through any other designated Government agency.

iv. Financial Assistance to Research Projects

Since ICT is fast growing area of technology and new research and innovations are changing the complexion very rapidly, the Mission shall encourage individuals as well as institutions to undertake research projects for the development of new technologies and innovations. Such technologies can support the Mission’s goals and help in achieving its objectives. These research projects may include:
- Development of low-cost access devices
- Development of authoring tool for e-content
- Development of new technologies for enhanced use of ICT in education
- Development of ERP system for institutions of higher learning
- Development of Educational entertainment and gaming for knowledge enhancement
- Development of on-demand examination system
- Development of tools for maximization of Bandwidth usage
- Development of hardware technologies like routers and switches

This is an illustrative list and cannot be treated as a final. New areas may emerge with the passage of time and the Mission shall consider providing financial assistance for undertaking research in the areas of interest on case to case basis.

1.13 TEACHER EDUCATION

Teacher education refers to the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviors and skills they require to perform their tasks effectively in the classroom, school and wider community. Although ideally it should be conceived of, and organized as, a seamless continuum, teacher education is often divided into the following stages:

- Initial teacher training / education (a pre-service course before entering the classroom as a fully responsible teacher);
- Induction (the process of providing training and support during the first few years of teaching or the first year in a particular school);
- Teacher development or continuing professional development (CPD) (in-service process for practicing teachers).

Teachers serve education, which is an effective instrument of man making. The teachers learn this art through pre-service teacher education programme. A weak programme of teacher education cannot serve the purpose.
It is with the objectives of raising the professional status of teachers, developing among them greater commitment to society, their students and their profession, increasing their professional competencies and performance skills and empowering them to face new challenges that the National Council for Teacher Education has brought forth this document.

The National Commission on Teachers (1983) studied in depth the problems of teacher education and the status of teachers in society. Its main recommendations were directed at enhancing the period of training, change in selection procedure of teachers, making the pedagogy of teacher education meaningful leading to enrichment of the theory courses and practical work. It suggested changes in the structure of M.Ed. programme also. On the basis of these suggestions, another curriculum framework was issued in 1988 but it could not catch national attention because the work on NPE (1986) had already started, and which opened new vistas in teacher education.

i. Teacher Education: Current Status

India has one of the largest systems of teacher education in the world. Besides the university departments of education and their affiliated colleges, government and government aided institutions; private and self-financing colleges and open universities are also engaged in teacher education. Though most teacher education programmes are nearly identical yet their standard varies across institutions and universities. In certain areas, the supply of teachers far exceeds the demand while in others there is an acute shortage as qualified teachers which results in the appointment of under-qualified and unqualified persons. Teacher education programmes are essentially institution-based. Their students need to be exposed more and more to the realities of school and community. Internship practice of teaching, practical activities and supplementary educational activities need to be better planned and organized more systematically. The curriculum, pedagogy and evaluation of teacher education programmes need to be made more objective as well as comprehensive. Despite improvement of service conditions and perks, the profession is yet to attract the best talent. For preparing teacher educators,
the most popular programme is M.Ed, though a few universities provide M.A. (Education). The M.Ed. programme by and large is of general nature and does not train specialists in different areas. The same course meets the requirements of schools, teacher education institutions and administration, there being little differentiation.

ii. **Quality Indicators in Teacher Education**

The Key Areas (KAs) of Quality Indicators in Teacher Education represent six dimensions encompassing all its academic as well as administrative and management activities. They are as follows:

- Curriculum Design and Planning
- Curriculum Transaction and Evaluation
- Research, Development and Extension
- Infrastructure and Learning Resources
- Student Support and Progression
- Organization and Management

1.14 **NATIONAL COUNCIL FOR TEACHER EDUCATION (NCTE)**

The National Council for Teacher Education, in its previous status since 1973, was an advisory body for the Central and State Governments on all matters pertaining to teacher education, with its Secretariat in the Department of Teacher Education of the National Council of Educational Research and Training (NCERT). Despite its commendable work in the academic fields, it could not perform essential regulatory functions, to ensure maintenance of standards in teacher education and preventing proliferation of substandard teacher education institutions. The National Policy on Education (NPE), 1986 and the Programme of Action there under, envisaged a National Council for Teacher Education with statutory status and necessary resources as a first step for overhauling the system of teacher education. The National Council for Teacher Education as a statutory body came

The main objective of the NCTE is to achieve planned and coordinated development of the teacher education system throughout the country, the regulation and proper maintenance of Norms and Standards in the teacher education system and for matters connected therewith. The mandate given to the NCTE is very broad and covers the whole gamut of teacher education programmes including research and training of persons for equipping them to teach at pre-primary, primary, secondary and senior secondary stages in schools, and non-formal education, part-time education, adult education and distance (correspondence) education courses. NCTE has its headquarters at New Delhi and four Regional Committees at Bangalore, Bhopal, Bhubaneswar and Jaipur to look after its statutory responsibilities. In order to enable the NCTE to perform the assigned functions including planned and coordinated development and initiating innovations in teacher education, the NCTE in Delhi as well as its four Regional Committees have administrative and academic wings to deal respectively with finance, establishment and legal matters and with research, policy planning, monitoring, curriculum, innovations, co-ordination, library and documentation, in-service programmes. The NCTE Headquarters is headed by the Chairperson, while each Regional Committee is headed by a Regional Director.

The NCTE guidelines for distance courses lays the condition that “admissions should be given only to regular teachers serving in recognized schools (primary, secondary, and higher secondary level) within the jurisdiction of the university and possessing a minimum two years of teaching experience,” essentially considering distance education as an option for in-service teachers only. Some States, particularly in the North-East have resorted to this mode to fulfill immediate demands for teachers. Conventional Distance Education programmes have relied on dissemination of self learning materials, supported by a practice teaching and a
contact programme. This model has not been able to scale without adequate safeguards against quality losses. There exists enormous potential for ICT enabled support systems. ICT can address a range of issues- scaling without the corresponding increase in cost; use of different media enhancing the range of communication; interactivity in both self learning and mentor supported modes; comprehensive evaluation, etc. ICT can be versatile and cater to both the theoretical and practical components of the teacher education programme. Together they can address the issue of numbers as well as the quality of the teaching-learning environment. A mix of media, communication strategies, interactivity and mentor support can form a blended learning environment which can be as good as a face to face interaction. Some measures are recommended below:

- To use ICT and Distance Education (DE) to train and deploy a large number of teachers needed in India over the coming decade, while maintaining a high level of quality.

- The DE and non-DE modes will gradually blend - we see this as a positive that will enhance the richness of both modes of learning. ICT will become the key Distance Education strategy for Teacher Education gradually, like in every other walk of life, most Distance Education modes will be ICT-powered (rather than for example content sent by post, for example). - At the same time, even non-DE candidates will use ICT intensively both to access course content and learning resources as well as to stay connected with the teaching community.

1.15 COMMONWEALTH OF LEARNING (COL)

The commonwealth of learning is an intergovernmental organization created by Commonwealth Heads of Government to encourage the development and sharing of open learning/distance education knowledge, resources and technologies. COL is helping developing nations improve access to quality education and training.
Through its own resources and its extensive networks, the Commonwealth of Learning (COL) provides a wealth of services and collaborative opportunities for policy makers, institutions and distance education practitioners to encourage the development of, and help enhance, the use of open and distance learning (ODL) policies, systems and applications.

COL’s mission is to help governments expand the scale, efficiency and quality of learning by using appropriate technologies, particularly those that support “open and distance learning” (ODL). The application of technology through ODL techniques has shown its power and value in many countries and for many purposes.

COL’s programme is guided by three strategic goals:

- quality education for all Commonwealth citizens
- human resource development in the Commonwealth
- harnessing ODL and technologies to achieve development goals
- In the light of wide consultations, during 2012-2015 COL will continue to work in two sectors - Education and Livelihoods & Health - but will focus on seven programme initiatives instead of the eight in the previous Three-Year Plan. The emphasis will be on:
  - skills development in both sectors,
  - the education and training of girls and women, and
  - the promotion of the use of open educational resources (OER).

The Education sector helps countries improve the scope, scale and quality of formal instruction at all levels through the use of learning technologies. This sector has four initiatives:

- Open Schooling,
- Teacher Education,
- Higher Education, and
- The Virtual University for Small States of the Commonwealth (VUSSC)
COL is undertaking a range of activities to support governments to integrate ICT into their education and training systems and to assist institutions, individuals and communities to use ICT confidently and creatively to achieve their respective goals and participate in the global community. This includes providing policy support to governments, increasing digital literacy in institutions and communities and supporting governments and institutions to develop and use open education resources. COL’s work will continue to raise levels of digital literacy and the ICT competencies of teachers by facilitating the creation of high-quality learning materials made available as open educational resources (OER). COL will continue its partnership with UNESCO for the global advocacy of OER and the open licensing of educational materials produced with public funds.

During this Three-Year Plan 2012–2015, COL will:

- Develop eLearning capacity in governments, institutions and communities;
- Maximize economies of scale in both the delivery and management of eLearning;
- Promote ICT competency among teachers;
- Promote the development and use of open educational resources (OER); and
- Provide technical advice on emerging technologies and their implications for learning outcomes.

COL’s ICT and e-Learning initiatives include:

- ICT in Education policies and strategies – COL supports governments and institutions to develop and implement ICT in Education policies and strategies.
- Teacher integration of ICT into Teaching and Learning – COL, in collaboration with the Commonwealth Secretariat, Microsoft and UNESCO is working with countries to increase the number of teachers that demonstrate the knowledge and skills to integrate ICT into teaching and learning.
• Taking OER beyond the OER Community: Policy and Capacity—COL and UNESCO are jointly driving the Initiative: ‘Taking OER beyond the OER community: Policy and Capacity’. Its aim is to expand the understanding of OER by educational decision makers (governmental and institutional) in order to promote their wider use.

• Materials and resource development – COL works with partners to develop teaching and learning support materials in ICT and eLearning.

1.16 NEED FOR THE STUDY

Application of ICT in Education and its revolution made the globe as tiny village and it has been brought on a tiny screen under the click of a mouse button. If knowledge is power, Information and Communication Technology provides the means of knowledge and helps to communicate, to create, to disseminate, to store and to manage information. In the context of ICT and Distance Learning in India, we have to consider among others, the following issues if we place emphasis on quality.

- Institutional Philosophy viz-à-viz ICT and Distance Learning
- Infrastructure for effective implementation of the policies
- Pedagogical base that can be created only through quality of teachers
- Adequate training and appropriate attitude to the use of technology

If any of them is missing in the overall scheme of ICT based Open and Distance Learning, the programmes are bound to meet with difficulties or costly failures. E-learning and E-Education go hand in hand in reaching the masses using the media and which are broadly electronic and digital; ICT application for learning and education can overcome the barrier of literacy as the digital media are extremely effective in being oral and visual. Developing and validating innovative and efficient ICT based systems and services in areas of Open and Distance Learning/Education
is required for the development of upcoming learners in general and open and distance learners in specific. Today, one of the biggest challenges to the successful learning though ICT is the lack of relevant materials in an electronic forms and the lack of using the e-recourses to adopt for their study and e-interactions to make their study effective. In Open and Distance Learning, only the print medium is being provided more with the restricted counseling and other activities within the scheduled time of the course. Due to different age group students, distance travelled for attending contact classes, after a long gap of their study, different disciplines of their subject, different level of pupils, etc., the open and distance learning B.Ed. student-teachers are in need of technology integration in their academic and their administrative queries. In order to provide the pleasant learning experience to the learners studying in open and distance mode, the integration of different technologies or around the available technologies must be introduced and to make them to utilize for their work in general courses and for teacher-education in particular.

The success of integration of technologies in the teaching learning process is not only in the hands of student-teachers alone, and also in the heads of teacher-educators provided with good guidance and facilitation to them in an effective way. From the review collected and the interviews drawn from the teacher-educators and the student-teachers of Open and Distance Learning (ODL), the role and importance of technologies are must in making the teaching learning process effective. Hence, the investigator needs to study the perception, attitude and application of distance education technologies among the student-teachers of ODL and the teacher educators who are handling for ODL student-teachers. Hence, the study tending to know the importance and application of technologies by means of studying the perception and attitude of student-teachers on information and Communication enabled learning support systems and distance education technologies respectively in open and distance learning students with specific reference to teacher education programmes in the State of Tamil Nadu.
1.17 SCOPE OF THE STUDY

Open Education as a concept, coupled with modalities associated with Distance Education, does not stand as an exclusive transactional modality. There are several aspects of Open Distance Learning (ODL) which will meaningfully translated only if the boundaries between direct human engagement and ODL tend to get diffused to the extent possible and perhaps, desirable. A modular approach to the development of teacher education curriculum along with a focus on independent study and on-line offering involving interactive modes of learning and the consequent modification in the approaches to assessment and evaluation has indeed a potential to make education reach the unreached. It is recognized that ODL can be strategically employed in continuing professional development of teachers, particularly with a view to overcoming the barriers of physical distance, especially making using of independent study material, on-line support and two-way audio-video communication. Of particular relevance are those elements of ODL which involve independent study. However, the primacy of direct human engagement and actual social interaction among student teachers as the core process of initial teacher preparation needs to be emphasized. ODL, as a strategy, can be a powerful instrument for providing continued professional support to the teacher practitioner.

1.18 STATEMENT OF THE PROBLEM

Teacher quality is an issue in most countries, many teachers are untrained or under qualified or teaching subjects in whom they are qualified of trained. In addition, teachers face widening range of demand and roles in some countries, teachers can expect one week in-service professional development once every five to ten years. On average, countries spend around 1% of their annual education expenditure on the continuing professional development of teachers. All of this creates new challenges for teacher education and continuing professional development: the need to find ways of using existing resources differently, of expanding access to learning opportunities at affordable cost, of providing alternative pathways to initial teacher training, of drawing on new constituencies of the population to work as teacher, of using
technologies appropriately to enrich a teachers’ context and support practice, of stimulating and supporting teacher’s active learning and of re-conceptualizing the traditional organization of initial teacher education and continuing education. In addition, in order to achieve the goal of teacher education programme in open and distance mode successfully, it is very important to deliver its content, interactions, clarification on queries and the other activities associated with the course only through the technology in an appropriate approaches and channel. The success of any process can not only derive with the adoptive level and also it has to be applied and appreciated in an effective way. An effective teacher education programme can only solve the problems of technology oriented classroom teaching-learning.

Hence, the present study involved with Open and Distance Education Technologies in the survey method with specific effort towards the student-teachers who are studying in open and distance mode professional course, B.Ed. and the teacher educators who are handling classes for ODL student-teachers and the investigation is stated as “Distance Education Technologies in Open and Distance Learning with Specific Reference to Teacher Education Programmes in the State of Tamil Nadu”

1.19 OPERATIONAL DEFINITIONS OF THE TERMS

Distance Education Technology

Technologies which are being used to meet, interact, feedback, evaluate, etc., the students of Open and Distance Education is called as Distance Education Technology.

Open and Distance Learning

“Open and Distance Learning (ODL) refers to the provision of flexible educational opportunities in terms of access and multiple modes of knowledge acquisition. Flexible means the availability of choices for educational endeavours anywhere, anytime and anyhow. Access means opportunity made available to all, freeing them from constraints of time and place. Multiple modes mean the use of various delivery systems and learning resources” (Ahmad, Phillips, Santhi & Wahid 2010).
Perception

Perception is the organization, identification, and interpretation of sensory information in order to represent and understand the environment. On the other hand, perception is the act or faculty of perceiving or apprehending by means of the senses or of the mind; cognition; understanding.

Attitude

An attitude is an expression of favour or disfavour towards a person, place, thing, or event. An attitude can be defined as a positive or negative evaluation of people, objects, event, activities, ideas, or just about anything in your environment.

Teacher Education

Teacher Education refers to the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviours and skills they require to perform their tasks effectively in the classroom, school and community.

1.20 OBJECTIVES OF THE STUDY

i. Macro-Level Study

1. To study the level of perception of ODL student-teachers on Information and Communication Technology Enabled Learning Support System (ICT-ELSS) in the selected Universities of Tamil Nadu State.

2. To determine whether the ODL student-teachers’ level of perception on Information and Communication Technology Enabled Learning Support System (ICT-ELSS) is related to following variables:

   i. Personal variables:

      - Gender
      - Age
      - Residential Background
ii. **Academic variables:**
- Medium of Instruction
- Types of School Studied
- U.G. Discipline
- Educational Qualification
- Diploma in Teacher Education
- Teaching Experience

iii. **Institutional variables:**
- Working Locale
- Types of Working School

3. To study the level of Attitude of ODL student-teachers towards Distance Education Technologies in the selected Universities of Tamil Nadu State.

4. To determine whether the ODL student-teachers’ attitude towards Distance Education Technologies is related to following variables:

i. **Personal variables:**
- Gender
- Age
- Residential Background

ii. **Academic variables:**
- Medium of Instruction
- Types of School Studied
- U.G. Discipline
- Educational Qualification
- Diploma in Teacher Education
- Teaching Experience

iii. **Institutional variables:**
- Working Locale
- Types of working School
5. To study the level of perception of Teacher-Educators of ODL on Information and Communication Technology Enabled Learning Support Services (ICT-ELSS) in the selected Universities of Tamil Nadu State.

6. To determine whether the Teacher-Educators of ODL level of perception on Information and Communication Technology Enabled Learning Support System (ICT-ELSS) is related to following variables:

   i. **Personal variables:**
      - Gender
      - Residential Background

   ii. **Academic variables:**
      - Handling Subject
      - Teaching Experience
      - Qualification in Educational Technology

   iii. **Institutional variables:**
      - Working Locale
      - Type of working Institution

7. To offer suggestions and recommendations on the basis of the findings for the improvement in integration of Information and Communication Technology and its Learning Support System in Open and Distance Learning.

ii. **Micro-Level Study**

1. To analyze the required infrastructures to enhance the application of available technologies for ODL B.Ed. programmes at their study centre and for the further learning at their place.

2. To observe the innovative teaching-learning-evaluation strategies at their PCP centers that are required to enhance their level of perception to make their learning productive.
3. To analyze the study materials and syllabi of the ODL student-teachers along with the scheme of examinations so as to give suggestions and recommendations related to application of Information and Communication Technology Enabled Learning Support System in their curriculum.

1.21 RESEARCH QUESTIONS

1. To what extent do the student-teachers of ODL in the selected Universities of Tamil Nadu state have perception on Information and Communication Technology Enabled Learning Support System?

2. Is the student-teachers’ level of perception on Information and Communication Technology Enabled Learning Support System related to the following variables?
   i. Personal variables:
      - Gender
      - Age
      - Residential Background
   ii. Academic variables
      - Medium of Instruction
      - Types of School Studied
      - U.G. Discipline
      - Educational Qualification
      - Diploma in Teacher Education
      - Teaching Experience
   iii. Institutional variables
      - Working Locale
      - Types of Working School

3. To what extent do the student-teachers of ODL in the selected Universities in the of Tamil Nadu State have Attitude towards Distance Education Technologies?

4. Is the student-teachers’ level of Attitude towards Distance Education Technologies related to the following variables?
i. **Personal variables:**
   - Gender
   - Age
   - Residential Background

ii. **Academic variables:**
   - Medium of Instruction
   - Types of School Studied
   - U.G. Discipline
   - Educational Qualification
   - Diploma in Teacher Education
   - Teaching Experience

iii. **Institutional variables:**
   - Working Locale
   - Types of Working School

5. To what extent do the teacher-educators of ODL in the selected Universities of Tamil Nadu State have perception on ICT-ELSS?

6. Is the teacher-educators’ level of perception on Information and Communication Technology Enabled Learning Support System related to the following variables?

i. **Personal variables:**
   - Gender
   - Residential Background

ii. **Academic variables:**
   - Handling Subject
   - Teaching Experience
   - Qualification in Educational Technology

iii. **Institutional variables:**
   - Working Locale
   - Type of Working Institution
7. What measures can be made by the policy makers and educational administrators to improve the level of application of Information and Communication Technology Enabled Learning Support System in ODL Teacher-Education Programme in the State of Tamil Nadu?

1.22 METHODS IN BRIEF

Descriptive method with survey technique has been adopted for the present study. Descriptive research is used to describe characteristics of a population phenomenon being studied. Survey technique is often used to assess thoughts, opinions, and feelings of the population. On the other hand, a survey technique is a procedure of sociological investigation that uses question based or statistical surveys to collect information about how people think and act. Survey provide a higher level of general capacity in representing a large population and the data gathering are able to extract data that are near to the exact attributes of the larger population. Because of the high representativeness brought about by the survey technique method, it is often easier to find statistically significant results than other data gathering method. Surveys are identical for scientific research studies because they provide all the participants with a standardized stimulus. With such high reliability obtained, the researcher’s own biases are eliminated. There is a great precision in terms of measuring the data gathered.

1.23 LIMITATIONS AND DELIMITATIONS

- The present study delimited with specific reference to the ODL student-teachers of selected five Universities in Tamil Nadu State.
- Technologies used in Open and Distance Learning B.Ed. programmes are not uniform in the Universities which were taken for this study. Hence, the perception of ODL student-teachers on Information and Communication Technology Enabled Learning Support System was found initial part using a questionnaire with ‘yes’ or ‘no’ response since
they are in need of rating their attitude in the further rating scale to study the attitude towards the technologies are being collected for their study.

- Attitude of the ODL student-teachers towards Distance Education Technologies was also done with same students by using a five point rating scale. It required more time to rate the given scale within the stipulated time during their contact seminar class at their PCP centres.

- Teacher-educators of respective ODL student-teachers concerned, the opinionnaire was developed in which their perception on ICT-ELSS was gathered through the 3 point rating scale with the responses ‘Yes’ ‘To Some Extent’ and ‘Not at all’.

- Also, the components of distance education professional competency were measured by considering the constraints associated with the available technology application.

- Technologies in Open and Distance Learning are being used so limited, the attitudes of student-teachers towards technologies used for their study on and off campus are not fully measured the components associated with them.

1.24 ORGANIZATION OF THE THESIS

This thesis is presented in five chapters. The first chapter deals with the conceptual framework of the study. The second chapter presents a Review of conceptual and research studies carried out in India and abroad. The third chapter deals with procedures of research adopted for the present study. The fourth chapter deals with the analysis and interpretations of the collected data. The fifth chapter presents the findings, conclusions, implications and recommendations of the researcher and offer suggestions for the further research.