

# Distance Education and Open Learning

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## MEANING AND EVOLUTION OF DISTANCE EDUCATION AND OPEN LEARNING

Distance education refers to mode of education where the interacting learner and teacher are separated by space or space and time, while the open learning focuses on removal of many restrictions and rigidities in opening the doors of education for the needy learners. Open learning system signifies certain flexibility in the opportunities of learning in terms of admission criteria, periods of study, duration of programme or courses, choice of subjects by students and scheme of evaluation. Since the basic purpose of 'distance education' and 'open learning system' is more or less similar, the terms are used either interchangeably or in combination as 'distance education and open learning' to signify a system which, according to Commission on Non-Traditional Study (1971), "puts the students first and the institution second, concentrates more on the former's need than the latter's convenience, encourages diversity of individual opportunity rather than uniform prescription and de-emphasises time, space, and even course requirements in favour of competence and, where applicable, performance. It has concern for the learner of any age and circumstances, for the degree aspirant as well as the person who finds sufficient reward in enriching life through constant periodic or occasional study".

Distance education and open learning system represents the third stage in the evolution of education so as to meet the growing demands and challenges of society from time to time and help in expanding and equalising

educational opportunities at school and higher stages. The earliest organised system of instruction in India is *Guru-Sishya* or *Gurukul* system. The Academy of Plato and the Lyceum of Aristotle shared most of the features of Gurukul system. However, the system had some inadequacies as it could not meet the growing challenges of knowledge explosion and the increased demand for trained manpower needed for economic and technological developments. This led to the second stage in the evolution of education in the form of classroom system. Some features of Gurukul system are still visible in the classroom system in the form of tutorials. In the subjects of dancing, music or fine arts, the example of Guru and disciple are still maintained. In the second half of the twentieth century, the demand for universalisation of education, equity in educational opportunities and continuing/life long education led to the emergence of distance open learning through correspondence programmes, which the conventional classroom system could not meet. This represents the third stage in the evolution of education (Kulandai Sawmy, 1992). Distance education has a target group of its own and meets such needs and challenges which are not catered to by the formal classroom system.

Distance education and open learning system occurs in different contexts and countries with different meanings and different names such as "open education", "correspondence education", "external study", "off-campus study" and "distance education and open learning". These terms have been applied interchangeably by many different researchers to a great variety of programmes, providers, audiences and media. The hallmarks of these

terms are the separation of teacher and learner in space and/or time (Perraton, 1988), the volitional control of learning by the student rather than the distant instructor (Jonassen, 1992), and non-contiguous communication between student and teacher, mediated by print or some form of technology (Keegan, 1986; Garrison and Shale, 1987). The separation of teacher and learner, found in many definitions, is central to the whole concept of distance education and open learning (Rumble, 1989). There are those who see insistence on separation between the teacher and learner throughout the learning process as "simply unrealistic" (Tight, 1988), and calls for a more flexible definition. Keegan (1980) does not rule out the possibility of face-to-face contact between teacher and the students. According to Rumble (1989), there are real divisions of opinion on (i) whether or not total separation between the teacher and the learner at all times is a requirement, and if not, (ii) what degree of separation distinguishes distance education from conventional education? Few people agree with Scales' (1983) proposition that distance education encompasses off campus education, including forms in which the instructor regularly travels to remote centre to deliver a class-based course.

Keegan (1980) lists six characteristics of distance education namely, (i) quasi-permanent separation of teacher and learner throughout the length of the learning process; (ii) the influence of an educational organisation both in planning and preparation of learning materials and also in the provision of student support services; (iii) use of technical media-print, audio, video or computer to unite teacher and learner and carry the content of the course; (iv) provision of two-way communication so that the student may benefit from or initiate dialogue; (v) quasi-permanent absence of the learning group throughout the length of the learning process, so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings of both didactic and socialisation purposes; and (vi) there is new socio-cultural determinant.

Separation of teacher and student and the absence of classroom instruction have led to the conclusion that distance education is "time free" and "space free", though Rumble (1989, p. 11) points out that the "claim of freedom from time

and space is an oversimplification. There are often time constraints (set hour for receipt of broadcasts, due dates for submission of assignments, and fixed examination hours) and place constraints (access to a television, fixed teleconference locations, and set locations for examinations)".

Distance education is different from conventional/formal education as it does not 'compel' the student to join the learning group in order to study though in some programmes of distance education there exists possibility of occasional meetings between the instructor/teacher and learner/learners. Willen's (1981) report on guidelines for the experimental use of distance education in Swedish higher education assigns a "sub-ordinate role" to such occasional meetings. His guidelines include: (i) drastic reduction in the amount of oral instruction; (ii) concentration of oral teaching to shorter, clearly defined periods; (iii) participants (learners) mainly pursue their studies at home as individuals but with the possibility of consulting the teacher by phone or letter; and (iv) one or more methods will be tested to bridge the physical distance between students and teachers.

The role of an institution offering distance education programmes should not be underestimated. In conventional education a teacher teaches whereas in distance education an institution teaches. In conventional education the teacher is present in the classroom and his effectiveness often depends on the rapport he can build up with the students. The personality characteristics and attitudes of the teacher also play a significant role in his success in teaching. In distance education the teacher prepares instructional materials from which he may or may not teach. Another teacher may use the materials and evaluate the students' performance. The institution may also involve the use of media, print as well as electronic, and teleconferencing while imparting instruction. Thus the teaching, according to Keegan (1980), becomes institutionalised.

As a response to various problematic issues concerning distance education and open learning, namely: (i) should any definition admit an element of face-to-face teaching? (ii) Do students have to be separated from educational institution sponsoring the course, as well as

from their teacher? (iii) Provided that the meetings take place in the absence of a teacher, can students meet in groups? (iv) Does distance education necessarily imply use of technical or mass media? (v) Is the provision of two-way communication necessary? (vi) Is distance education an industrialised form of education? (vii) Does distance education involve a privatisation of the learning process? and (viii) Is an institutional framework necessary?, Rumble (1989, pp. 18-19) has suggested the following five part definition of distance education, beginning with a statement of what is involved in the distance education process itself.

1. *In any distance education process there must be: a teacher; one or more students; a course or curriculum that the teacher is capable of teaching and the student is trying to learn; and a contract, implicit or explicit, between the student and the teacher or the institution employing the teacher, which acknowledges their respective teaching-learning roles.*

It may be noted that this definition is no different from any form of education. It allows private arrangements also between one individual acting as a teacher and another as a learner, both outside of an institutional framework and also within one. It allows "education by letter".

2. *Distance education is a method of education in which the learner is physically separate from the teacher. It may be used on its own, or in conjunction with other forms of education, including face-to-face.*

This acknowledges that distance education may be used in conjunction with face-to-face teaching, and allows any amount of face-to-face teaching from none to a considerable amount – a continuum running from the pure distant to the pure contiguous system.

3. *In distance education learners are physically separated from the institution that sponsors the instruction.*
4. *The teaching/learning contract requires that the student be taught, assessed, given guidance and, where appropriate, prepared for examinations that may or may not be*

*conducted by the institution. This must be accomplished by two-way communication. Learning may be undertaken either individually or in groups; in either case it is accomplished in the physical absence of the teacher.*

The two way communication is accomplished by means that may be non-technical, but must bridge the physical separation of teacher and students.

5. *Where distance teaching materials are provided to learners, they are often structured in ways that facilitate learning at a distance.*

This formulation does not insist on the use of materials specifically designed for distance learning, since one can envisage conferencing systems and correspondence through electronic mail and computer conferencing, without the aid of books and other materials. Normal textbooks can also be used in conjunction with two-way communication.

The earliest form of distance education which was started through correspondence courses in Europe continued until the middle of twentieth century when instructional radio and television became popular. In the late 1950's and early 1960's, television production technology was largely confined to studios and live broadcasts, in which master teachers conducted widely-broadcast classes. Unfortunately teachers who were expert in the subject matter were not necessarily the best and most captivating talent, nor was the dull "talking head" medium the best production method for holding the interest of the audience (Cambre, 1991). In the early 1970's, the emphasis turned from bringing master teachers into the classroom to taking children out of the classroom into the outside world. This, according to Sherry (1996), had the negative effect of relegating television to the position of enrichment, which was not perceived as really related to school work. This trend was reversed later in 1970's when professionally designed and produced television series introduced students to new subject matter that was not being currently taught despite its importance in the curriculum. In the 1980's, there was a shift to the basics with emphasis on multiculturalism, humanities and world affairs.

In view of the lack of a 2-way communications channel between teacher and student in radio and broadcast television for distance instruction, increasingly sophisticated interactive communications technologies namely, computer-based communication including E-mail, bulletin board systems (BBSs), internet; telephone-based audio-conferencing, and video-conferencing with 1 or 2-way video and 2-way audio via broadcast, cable, telephone, fiber optics, satellite, microwave, closed-circuit or low power television Mosaic, a graphical interface to the world wide web, became popular in parts of Canada, Europe, and Australia.

In the global context, the demand for distance education is especially high in regions where the student population is widely scattered and disadvantaged because of various social, cultural, economic or ethnic constraints. Each region has developed its own form of distance education and open learning system in accordance with local resources, target groups, and philosophy of the organisations which provide the programme. Many institutions, both government and private, offer school and university courses for needy and self-motivated individuals through independent study programmes. Students learn on their own, with the help of supplied course materials, print-based media and postal communications, electronic networking, teleconferencing and academic support from teachers/tutors/counsellors through telephone or E-mail. The use of various technologies has reduced the degree of physical separation of a teacher and the distance learner. It has ensured a high degree of interactivity between teacher and learner living in far Flung and isolated areas thousands of kilometers away.

Distance education and open learning is much more than correspondence education both in scope and dimensions. In the real sense it made its beginning with the establishment of the 'open university' in United Kingdom in 1960. Despite the brief history of the system, its growth and development pursuing the objectives of: (i) education for all; (ii) equity in educational opportunities; and (iii) continuing education, has been impressive. There is a considerable growth in the number of institutions. As of 1999, 1133

institutions in more than 100 countries, across the world offer around 39000 courses through distance mode (Reddy and Munjulika, 2000). About 61 per cent of these institutions are located in Europe and North America; Africa and Asia have around 24 per cent of them. As for open universities, there are about 40 around the world, out of these 11 are termed as mega open universities on the basis of enrolment figures (Reddy and Manjulika, 2000).

### THE INDIAN CONTEXT AND CONCERNS

In India, at the higher education stage, consistent efforts have been made during the last five decades to increase the number of colleges and universities. But the availability of these institutions has failed to guarantee the students accessibility to higher education. The available educational opportunities at the higher education stage are not accessible to many students especially belonging to groups who are disadvantaged because of various geographical, social, cultural, economic, linguistic or gender limitations. It is estimated that only about 6 to 7 per cent students of the age group are in the higher education system. This figure is very low when compared to many developing countries like Egypt (20 per cent), Thailand (20 per cent), Mexico (16 per cent), Brazil (11 per cent) and Turkey (10 per cent). Among the remaining 93 to 94 per cent who are outside the higher education system, a fairly reasonable number of the students are highly motivated and academically talented, but could not pursue higher education mainly due to various geographic, social and economic reasons.

In the context of 'education for all' and 'health for all', there is dearth of trained teachers at the primary school stage and of para-medical services. There are about 3.2 lac of untrained primary school, teachers who are imparting instruction in schools. It is virtually impossible to train all teachers through the limited number of formal training institutions. According to a study of the Institute of Applied Manpower Research, the total stock of nursing personnel in the allopathic system in 1986 was 148,000, excluding Auxiliary Nursing Midwives, while the stock of qualified doctors was 270,000. In India,

as rightly pointed out by Kulandai Swamy and Srinivasan (1994), "we have a strange situation of about two doctors per nurse while in advanced countries there are about five or six nurses per doctor". Through the formal system of nursing training, not more than 10,000 nurses are produced which could hardly contribute to bring about meaningfully any change in the ratio in view of the producing around 16,000 doctors a year and hence there is need for exploring some other alternative mode for training the nurses.

The explosion of knowledge in general and in science and technology in particular has increased the need and demand for life-long and continuing education. Globalisation and new developments in information and communication technologies have far reaching implications for education system. The main implication would be the emergence of learning societies all over the globe due to the multiplication of the sources of information and communication, the transformation of the nature of work requiring more flexibility, and the creation and use of new technologies. In 1990, the projected manpower for science and technology in India was 3.8 million. This number will be larger now. If this number is taken as the data base, about 760,000 persons are to be handled every year in knowledge up-dating programmes once in five years. For this, there is dearth of infrastructure facilities to handle such a large number in formal system. It is also not possible for such a large number of persons to leave their places of work or homes and become full time students in the regular classroom. They have to be provided some alternative viable modes which are need based, flexible and cost effective.

Distance education and open learning system provides a viable alternative mode with the objective to take education to the doorsteps of the learner, enhance social equity, and create flexibility for life long learning. It provides many structural flexibilities which have an edge over the conventional formal system. These flexibilities relate to the place of learning, time of learning, eligibility criteria for joining a course, students choice in selecting a subject or combinations of subjects, and the scheme of examinations.

### **GROWTH AND DEVELOPMENT OF DISTANCE EDUCATION AND OPEN LEARNING IN INDIA**

In order to achieve the objectives of 'democratisation of education' and 'equal opportunities for access to education', the authors of first five year plan document envisaged the provision of "facilities of private study through correspondence courses and radio talks" organised as far as possible by various universities and allowing students to take the various examinations privately. But in the absence of any strategy, these far sighted observations of the plan could not be translated into concrete and meaningful actions during the first two plans. It was only in the third five year plan, the problem of rising numbers was considered. After discussing various alternatives like diverting students to various courses and professional education, the third five year plan document considered the provision in the plan for expansion of facilities for higher education, proposals for evening colleges, correspondence courses and the award of external degree. The Central Advisory Board of Education took note of this provision and recommended in its 28<sup>th</sup> meeting held in January, 1961, the appointment of a committee to make recommendations on establishing correspondence education programmes in India. Accordingly, a committee under the chairmanship of Dr. D.S. Kothari (who was the chairman of the UGC) was appointed for preparing a scheme for establishing correspondence courses. The committee (1963) observed that the correspondence course is "a step designed to expand and equalise educational opportunity, as it aimed at providing additional opportunities for several thousand students who wished to continue their education and the persons who had been denied these facilities and were in full time employment or were for other reasons prevented from availing themselves of facilities at colleges". To start with, the committee recommended the introduction of correspondence courses in arts, commerce and social sciences at the Bachelor's Degree level in the university of Delhi as a pilot project. After making necessary amendments to the Act, university of Delhi introduced the first ever correspondence in higher education in India in 1962. This experiment can be considered as a

pace-setter for providing education through the distance mode in the form of correspondence courses.

The Education Commission (1966, pp. 308-309) expressed that the correspondence courses under the pilot project at the university of Delhi "have proved to be a promising experiment and are producing satisfactory results. Correspondence courses should be extended as widely as possible and should include courses in science and technology either at the degree or diploma level.... There need be no fear that they will lead to a deterioration of standards". In view of various diversities, the commission envisaged a significant role for correspondence education in the Indian context and recommended that by 1986 at least a third of the total enrolment in higher education must be in correspondence courses and evening classes. Such courses would reduce the capital cost to a substantial extent especially as the enrolment grows. They are the only means to provide higher education to those who desire to study further but are compelled on economic grounds to take up employment at the school stage. The progress of the correspondence courses in the University of Delhi and the recommendation of the Education Commission (1966) created a favourable climate for the development of correspondence education during the fourth five year plan and succeeding plans in the seventies and eighties. Various universities and institutions got encouraged to start education programmes through correspondence/distance mode which can be broadly categorised as: (i) Correspondence / Distance Education Programmes offered by the Boards of Secondary Education and Open Schools at the school level; and (ii) Correspondence/Distance Education Programmes offered by the conventional universities and open universities at the tertiary level.

#### **Correspondence/Distance Education Programmes Offered by the Boards of Secondary Education and Open Schools at the School Level**

As a result of the concerns and recommendations of *National Policy of Education* (NPE-1986) and the *Programme of Action* (1986, 1992), there has been significant increase in the

number of primary, secondary and senior secondary schools. The enrolment rate has also increased and there is a decrease in the number of drop outs among school children in some areas of the country. The data, as presented in *Education in India 1992 and Selected Educational Statistics, 1997-1998, Department of Education, Government of India*, indicate that facilities for primary schooling had been made available within their neighbourhood for 93.76 per cent population of rural habitations, by 1993. The accessibility to this facility has further increased after 1993, as more than 27,000 new primary schools were established during the period from 1992-93 to 1996-97. Schooling facility at the upper primary stage has also increased over the years. In terms of rural habitations, upper primary schooling facilities were available within the habitation for 76.15 per cent. The access to upper primary schooling has improved considerably as 23,000 upper primary schools (middle schools) have been established during the period from 1992-93 to 1996-97, indicating an increase of 14.8 per cent, raising the percentage of rural population served by upper primary group to 90.95.

Enrolment in primary level of education has increased by about six times between 1951-1997 while the enrolment in upper primary level increased by about eleven per cent during the same period. The increase in case of girls had been nine times in primary level, and twenty four times in upper primary level. The annual compound growth rate of enrolment in primary classes has been 3.76 per cent while in case of upper primary level, it has been 4.06 per cent per annum during the period 1951-1997. There has been a significant decline in the drop-rates between 1991-1999, especially in case of girls as between 1991 and 1995, it declined from about 48 per cent to 38 per cent at primary stage (Classes I to V). The estimates indicated that 7 out of 10 girls who joined primary schools in 1999 are likely to remain in the system at least for five years. The difference in the dropout rates between boys and girls is getting narrower. However, the situation with respect to upper primary stage is not quite encouraging.

Despite the arduous efforts by the central and state governments, still there are unserved and unreached areas in the country where there is no school for 5 to 10 km. viz., in some tribal,

desert or hilly areas where enough children are not available to be enrolled due to low density of population. The disparities in enrolment on account of geographical, gender and socio-economic constraints have always remained the concern of planners. In view of the significant number of unreached/unschooled children, correspondence education at the secondary level was started as back as in 1965 when conference of Boards of Secondary Education recommended starting of correspondence courses with the objective of improving the academic standards of private students. The Board of Secondary Education, Madhya Pradesh, was the first to start correspondence courses in 1965 followed by Patrachar Vidyalaya, Delhi. The Boards of Secondary Education, Rajasthan, Orissa, Uttar Pradesh and Tamil Nadu also provide correspondence education to students of Classes X-XII. But, putting all the states together, the enrolment in correspondence education institutes at the school level remained as low as 0.31 per cent in 1985. Besides this low enrolment, there were wide disparities among various categories which included ruralites, scheduled castes, scheduled tribes and girls.

The open schooling system at the national level was introduced in 1979 through the Open School of Central Board of School Education (CBSE). The first National Open School (NOS) as an autonomous organisation was set up in New Delhi in 1989 by the Department of Education, Ministry of Human Resource Development, Government of India to: (i) offer a parallel non-formal system as an alternative to formal schooling; (ii) provide an opportunity of education to out-of-school learners, school dropouts, working adults, housewives, learners from the disadvantaged section of society and those living in remote areas of the country and not in a position to join regular schools; (iii) offer secondary, senior secondary, technical, vocational and life-enrichment courses through distance teaching techniques and methods; (iv) offer bridge/preparatory courses leading to the secondary level courses; and (v) promote a distance learning system of education through research, publication and dissemination of information. The open school system has some special features which includes: (i) it is open to all without restrictions of an upper age limit or rigid educational qualifications; (ii) the

operations of the system are not limited to any region or country; (iii) it is open to all who need its services in India and abroad; (iv) scheme of studies and examinations is flexible, the learner is free to select subjects of his choice from a given list and enjoys learning at his own pace, pass the examination in one or more attempt, passing all the subjects at one time or one by one in nine attempts within a period of fifteen years; (v) the learner may opt for English or Hindi as medium of studies and examination; (vi) instruction is provided through printed lessons developed in simple language; and (vii) facility of resource-cum-study centers are provided to the learners all over the country for face-to-face teaching and counselling. A moderate fee is charged from learners. Scheduled caste and scheduled tribe candidates, women, ex-servicemen and the handicapped are exempted from the tuition fee.

Education for all, reaching the unreached, greater equity and justice in society, and evolution of a learning society are mission objectives of National Open School presently named as National Institute of Open Schooling (NIOS). It claims to be the largest open school in the world in terms of 1072 study centers located in Middle East and Nepal also, with cumulative enrolment of approximately 5,00,000 students. NIOS has introduced an innovate concept of 'On-Demand Examination/Walk in Examination'. Under this scheme, a distance learner enrolled with the National Open School can walk into any of its accredited institutions on any day and timings of his/her choice and appear for an examination in any subject(s).

National Institute of Open Schooling, as per the provision of its MOA to provide relevant, continuing and developmental education through the open learning system and having a mandate to provide consultancy, advisory role, professional and technical support to states, made a beginning in 1994 to promote 'open schooling' in the States. As a result of such a developmental effort of the NIOS, State Open Schools (SOS) in Haryana (1994), Madhya Pradesh (1995), Karnataka (1996), West Benal (1997) and Punjab (1997) came into existence though Schools in Andhra Pradesh and Tamil Nadu were set up in 1982 in their own form and format. Similarly, the NIOS is helping Himachal Pradesh and Meghalaya in setting up

State Centres for Open Schooling (SCOS). Manipur may also follow the suit very soon. State Centre for Open Schooling is a mini replica of SOS. These centers are set up as joint ventures where the respective state doesn't have the problem of medium, other than Hindi/English/Urdu and is unable to provide resources and infrastructure (financial and human) to run SOS fully of its own.

Recognising the need to have a common forum for exchange of ideas and resources, a national body viz. National Consortium for Open Schooling (NCOS) was set up in 1997 in NIOS so as to encourage the remaining states/UT's where open learning system has not yet been introduced or such institutions are functioning in a formal or correspondence pattern without using multi-media approach and without prevalent flexibilities of the open learning system.

#### **Distance Education Programmes Offered by Conventional Universities and Open Universities at the Tertiary Level**

In view of the growing demand for education at the tertiary level, the university of Delhi, as mentioned before, made a pioneering effort for starting correspondence courses for Bachelor's Degree in 1962. Since this experiment proved to be successful and a large number of students got attracted to this programme, the University Grants Commission on the recommendations of Education Commission (1964-66) formulated certain guidelines for introducing correspondence courses in universities. Following these guidelines: (i) only one university in a state could offer correspondence education programmes at the under-graduate level; (ii) only those universities which had well established teaching departments were allowed to offer these programmes; (iii) every student was compulsorily required to return certain number of response sheets; (iv) where there was high concentration of students, establishment of study centres was to be given priority; and (v) contact programmes were made an essential feature of correspondence programmes. Accordingly Punjabi University, Patiala was the second university to start correspondence courses in 1968 which was followed by university of Rajasthan, Jaipur in the same year.

Institutes of correspondence courses and continuing education were started in Meerut University and Mysore University in 1969. The period between 1970 and 1980 witnessed a major thrust in the correspondence education programmes as institutes of correspondence education/directorates were set up in as many as in 19 universities. During 1960s, only under-graduate courses were started as an experimental measure, whereas the 1970s witnessed the introduction of post-graduate, diploma and certificate courses as well. Between 1980 and 1986, seven more universities started institutes of correspondence courses. Until 1992, there were 41 universities offering correspondence courses and by now there are nearly seventy conventional universities offering correspondence courses through distance education programmes. The courses are offered mainly through the print media. Some institutions use radio and TV talks to supplement lessons. The eligibility criteria, curriculum and examination system are more or less the same as those followed conventionally in their respective universities. Personal contact programmes and counselling sessions of 7 to 10 days duration and submission of assignments as a measure of learning outcomes of students are also essential features of these programmes. Recently a few universities like Mysore, SNDT, Annamalia, Andhra and Madurai Kamraj have adopted open admission policies by relaxing formal qualifications for entry to under-graduate courses so as to provide flexibility to the rigid admission criteria maintained by the university system for almost 150 years. Such relaxations in the system are likely to provide momentum to the efforts for providing greater access to higher education for a larger chunk of the population, particularly those who are not able to complete their school education. However, it may be pointed out that correspondence education programmes offered by the conventional universities in India hardly meet meaningfully the requirements of distance education due to certain shortcomings. The self-instructional materials are invariably prepared by individuals who are not properly trained and oriented in the methods and logistics of distance education. It should have been carried out effectively by a team of experts in the field of distance education who are specialised in the

preparation and context editing of the instructional material in the modular format. The teaching and counselling in contact classes is also undertaken by the teachers using strategies of conventional mode. The bias of the teachers and other functionaries regarding the superiority of courses offered through formal mode led to the difference in academic standards and awards between the two modes in the conventional universities. Thus the correspondence education programmes in conventional universities could not gain confidence of the clientele for quality and standards in the academic circles.

For remedying the situation, the open universities were set up to provide an innovative system of university-level education, flexible and open, in regard to methods and pace of learning, combination of courses, enrolment eligibility including age entry, communication technology using print and electronic media, conduct of examinations and operation of the programmes with a view to promote excellence, relevance and equity. The first open university in the world which was established in the United Kingdom at Milton Keynes served as a model not only in India but also in other countries of the world. In India, the efforts in this direction were initiated in 1972 when a eight member working group (1974) under the chairmanship of Sri G. Parthasarathy recommended that an open university at the national level be established. Later in 1982, a committee under the chairmanship of Dr. Mrs. Madhuri R. Shah the then UGC Chairperson, recommended that steps should be taken for establishing an open university at the national level. However, at the state level on the recommendations of a committee under the chairmanship of Prof. G. Ram Reddy, the then University Grants Commission Chairman, the legislature of Andhra Pradesh enacted the "Andhra Pradesh Open University Act" in 1982. It was in August 1982, that the first State open university in India was inaugurated by the then President, Sh. Giani Zail Singh, and Prof. G. Ram Reddy was appointed as its first Vice-Chancellor. The university, now called Dr. B.R. Ambedkar Open University (BRAOU), has made considerable progress and presently it is providing access to higher education to more than 450,000 students to upgrade their qualification and improve the

quality of their life. Inspired by the successful experiment of Andhra, the government of Maharashtra appointed a ten-member committee under the chairmanship of Dr. K.G. Deshmukh, the then Vice-Chancellor of Amaravati University, to examine the feasibility of starting an open university for the state. The committee recommended the creation of an open university for the state of Maharashtra. The other states, also felt the need to start an open university so as to provide access to higher education to needy students through the distance mode, and by 1998 eight more state open universities, namely Kota Open University (KOU), (Rajasthan, 1987), Nalanda Open University (NOU), (Bihar, 1987), and Yashwantrao Chavan Maharashtra Open University (YCMOU), (Maharashtra, 1989), Madhya Pradesh Bhoj Open University (MPBOU), (Madhya Pradesh, 1991), Dr. Babasaheb Ambedkar Open University (BAOU), (Gujarat, 1994), Karnataka State Open University (KSOU), (Karnataka, 1996), Netaji Subhas Open University (NSOU), (West Bengal, 1997) and U.P. Rajarshi Tandon Open University (UPRTOU), (Utter Pradesh, 1998) were established.

At the national level, The Indira Gandhi National Open University (IGNOU) was established on 20 September 1985 by an Act of Parliament. The objects of the university are to: (i) advance and disseminate learning and knowledge by a diversity of means, including the use of any communication technology; (ii) strengthen and diversify the degree, certificate and diploma courses related to the needs of employment and necessary for building the economy of the country on the basis of its natural and human resources; (iii) provide access to higher education for large segments of the population, and in particular, the disadvantaged groups such as those living in remote and rural areas, including working people, housewives and other adults who wish to upgrade or acquire knowledge through studies in various fields; (iv) promote acquisition of knowledge in a rapidly developing and changing society and to continually offer opportunities for upgrading knowledge, training and skills in the context of innovations, research and discovery in all fields of human endeavour; (v) provide an innovative system of university

level education, flexible and open, in regard to methods and pace of learning, combination of courses, eligibility for enrolment, age of entry, conduct of examination and operation of the programmes with a view to promote learning and encourage excellence in new fields of knowledge; (vi) contribute to the improvement of the educational system in India by providing a non-formal channel (through open university and distance education systems) complementary to the formal system and encouraging transfer of credits and exchange of teaching staff by making wide use of texts and other software developed by the university; (vii) provide education and training in the various arts, crafts and skills of the country, raising their quality and improving their availability to people; (viii) provide or arrange training of teachers required for such activities or institutions; (ix) provide suitable post-graduate courses of study and promote research; (x) provide counselling and guidance to its students; and (xi) promote national integration and the integrated development of the human personality through its policies and programmes.

IGNOU has already initiated certain effective steps to fulfil these objectives by a diversity of means of distance and continuing education. It seeks the cooperation of certain existing universities and institutions of higher learning and makes full use of the latest scientific knowledge and new technology to offer a high quality education to the needy.

The Boards of Management of the IGNOU, in July 1991, framed the statutes for the establishment of a Distance Education Council (DEC), a Statutory Body under the IGNOU Act for the promotion, coordination and maintenance of standards of Distance Education System at the national level. There is one National Open University, nine state open universities and nearly seventy conventional universities offering correspondence courses or distance education programmes. In course of time there may be more state open universities and distance education institutes in the conventional universities. In view of the growing number of distance education programmes offered by state open universities and conventional universities, the task of coordination, maintenance of standards and funding has been assigned to DEC. The powers

and functions of the DEC are to: (i) develop a network of open universities/distance education institutes in the country in consultation with the state governments, universities and concerned agencies; (ii) identify priority areas in which distance education programmes should be organised and to provide such support as may be considered necessary for organising such programmes; (iii) identify the specific client groups and the types of programmes to be organised for them, and to promote and encourage the organisation of such programmes through the network of open universities/distance education institutes; (iv) promote a flexible and open system of university-level system in regard to methods, course structure, eligibility and examination; (v) promote the organisation of programmes of human resources development for the open university/distance education system; (vi) recommend to the Board of Management of IGNOU, the pattern and nature of financial assistance that may be sanctioned to state open universities/distance education institutions and the conditions that may have to be fulfilled by them to receive such assistance; (vii) take such steps as are necessary to ensure the coordinated development of the open universities/distance education system in the country; (viii) establish and develop arrangements for coordinating and sharing the instructional materials prepared by different open universities/distance education institutions and student support systems with a view to avoiding duplication of efforts. (ix) evolve procedure for sharing of courses and programmes and for the payment of royalty or other charges to the members of the network whose courses and programmes are used by other members; (x) prescribe broad norms for charging fees from students who join various programmes offered by the network of open universities/distance education institutions; (xi) collect, compile and disseminate information relating to the courses and programmes offered by various open universities/distance education institutions; (xii) advise state governments, universities and other concerned agencies on their proposals to set up open universities, or to introduce programmes of distance education; (xiii) appoint Review Committees from time to time to study and assess the performance of the open universities/distance education

institutions participating in the network on any aspect relevant to the functioning of the network; (xiv) prescribe a broad framework for courses and programme, including their pattern and structure; (xv) evolve norms, procedures and practices in respect of admission, evaluation, completion of course requirements, transfer of credits, etc., of the students admitted to the programmes of the open universities/distance education network and for the award of certificates, diplomas and degrees to them; (xvi) evolve guidelines for the organisation of student support services for the open university/distance education programmes; (xvii) provide an innovative, flexible and open system of university education for the promotion including introduction and continuation of courses and programmes which conform to the standards prescribed by DEC, to maintain such standards in the institutions offering distance education programmes and to prevent institutions from offering courses and programmes which do not conform to the standards laid down by the DEC through such measures as are considered appropriate; (xviii) appoint committees to assess, in consultation with the concerned open universities/distance education institutions, the development grants required by them for a five-year period and make recommendations to the Board of Management of IGNOU for sanctioning such grants; and (xix) sanction grants to open universities/distance education institutions for specific projects on the basis of reports by duly appointed committees and in accordance with guidelines prescribed for the purpose and report such approvals to the Board of Management.

In view of the objectives set by IGNOU and its various bodies, the university has emerged as a pioneering distance education institution not only for India but for all the Third World countries. Since its establishment, the university has launched a number of activities to give effect to the mandate given to it. In order to promote distance/open education, the IGNOU on the recommendations of DEC had made available grants to state open universities and has also taken the initiative in starting IGNOU study centers in the UAE. The DEC has initiated activity in credit transfers and common grading patterns in order to achieve coordination in the distance education system in the country. In

addition, IGNOU has provided grants to enable the state open universities to use the materials produced by the other open universities. Moreover, a central data-base, with nodes in the state open universities, is being created by IGNOU. It will facilitate coordination by making available a dependable body of information on distance and open education system at the national level. In order to maintain high standards in the open learning system, the IGNOU through DEC has initiated certain effective steps through funding to: (i) support staff training and development activity in state open universities; (ii) computerise certain crucial operations in state open universities; (iii) enable the staff of the state open universities to attend academic activities in India and abroad, and to publish important research work; (iv) establish audio-visual production facilities in the state open universities; and (v) launch programmes for validation and quality assurance activities in the open universities in the country.

#### **Educational Television and Radio Programmes**

A number of educational programmes on television and radio have been made available in national and regional languages to supplement formal and non-formal (distance) modes at the school and tertiary levels and also for adult and continuing education. The stations of the All India Radio broadcast educational programmes for primary school children in sixteen regional languages, including Hindi. These programmes are broadcast for 15 to 20 minutes on three to five working days in a week for general awareness. The broadcasts for secondary school students are based on the prescribed syllabus and are relayed for 15 to 20 minutes on all school working days in a week. Adult education programmes are also covered by radio broadcasts of 15 minutes duration a week by about 14 All India Radio stations.

The National Council of Educational Research and Training (NCERT), New Delhi, has developed a number of programmes on school education. The national TV network through INSAT-IB telecasts these school education programmes for students in the age-group of 6-8 years and 9-11 years daily in the morning for 3 hours and 45 minutes on about 220 school

days in five regional languages, namely, Hindi, Gujarati, Marathi, Oriya and Telgu. These are telecast from Monday to Friday for students followed by programmes for primary school teachers on Saturday.

The UGC develops enrichment programmes in English on higher education. These programmes are telecast on the national television network for one hour followed by a repeat telecast the same day on five days a week through the "countrywide classroom programme". Some imported programmes are also telecast on the national TV network. Adult education programmes in regional languages are also telecast by some regional television centres.

IGNOU has developed some video and audio programmes to supplement the print material for its courses, and since 1991 these programmes are being telecast on the national TV network for half an hour in the mornings, three days a week.

In order to produce quality learning material, the UGC has set up the Educational Media Research Centres (EMRCs) and Audio-Visual Research Centres (AVRCs) at different universities for production of software, for research, and for orientation of personnel. The Government of India has also set up the Central Institute of Educational Technology (CIET) at NCERT, New Delhi and six State Institutes of Educational Technology (SIETs), one each in the six INSAT States, for production of Educational Television Programmes.

### **STUDIES ON DISTANCE EDUCATION AND OPEN LEARNING**

Distance education and open learning is a new system in the evolution of education with a potential to bring about a major revolution in instruction and training using multimedia technology so as to take educational opportunities to places and people hitherto unreached, surpassing social, economic and geographical barriers for attaining the objectives of relevance, equity and excellence. Thus it would be worthwhile to study the developments in this emerging field in the international context also. In this section, review of the issues and researches in the last two decades in the international context, and in India from 1993-2000 has been presented.

### **The International Scenario**

In his article on the recent contribution to the theory of distance education, Moore (1989) points out that two articles published in 1972 were among the first attempts to define 'distance education' and its constituent elements. These were said to be learner independence, which Moore called 'learner autonomy', interaction between learner and instructor which he called 'dialogue', and certain characteristics of course design named as 'structure'. 'Distance' was defined as a function of two variables called 'dialogue' and 'structure' (Wedemeyer, 1971). Rumble (1986) as quoted by Moore (1989) described 'Dialogue' the extent to which, in any educational programme, learner and educator are able to respond to each other. This is determined by the content of subject-matter, by the personalities of educator and learner, and by environmental factors, the most important of which is the medium of communication. For example, an educational programme in which communication between educator and the independent learner is by radio or television pursues no dialogue. A programme by correspondence is more dialogic, yet not to the same extent as one in which correspondence or radio or television is supplemented by telephone communication.

Rumble (1986) described 'structure' as a measure of an education programme's responsiveness to learner's individual needs. It expresses the extent to which educational objectives, teaching strategies, and evaluation methods are prepared for, or can be adapted to, the objectives, strategies and evaluation methods of the learner. In a highly structured educational programmes, the objectives and the methods to be used are determined for the learner, and are inflexible. In a linear, non-branching programmed text, for example, there is less opportunity for variation, according to the needs of a particular individual, than the material used in correspondence courses which pursues a wide range of alternative responses by the tutor to individual students' questions and assignment submissions. In a programme in which there is little structure and dialogue is easy, interaction between teacher and learner pursues very personal and individual learning and teaching. Using these dimensions, Rumble

(1986) conceptualises a 'most distant programme' as the one in which there is neither dialogue nor structure – an example would be a wholly self-directed programme of individual reading. At the end of the continuum, he described the 'least distant programme' in which there is a high level of dialogue, with little predetermined structure – for example an individually tailored tutorial programme. Rumble (1986) puts most of what are commonly called 'distance education programmes' somewhat between these two extremes, they have a measure of dialogue, as well as being more or less highly structured. This conceptualisation helps to explain how a student learning in a 'face-to-face' environment whose role educational activity is to go to lectures to take notes, can be at a greater transactional distance than a student on a distance education course who regularly meets, corresponds with, or telephones his tutor.

A common concern of thinkers about the theory of distance education is the interrelationship of dialogue, structure and autonomy. Apart from early contributions made by other early researchers, including Wedemeyer (1971), Holmberg (1967, 1983) and Keegan (1986), there have been hundreds of references to and uses of theory recent years in many countries with special emphasis on the interrelationships of the instructional possibilities opened up by the new interactive telecommunications. The work of Garrison and Shale (1989), Garrison and Baynton (1989) in Canada, Keegan (1989) in Australia, and Saba (1989) in the United States deserve special mention in this context.

Keegan (1989) stipulated that a distinguishing feature of distance education is the 'quasi-permanent absence of the learning group'. However, Garrison and Shale (1989) did not agree with this view. They argued that this definition is too limiting and emphasised that distance education implies some form of interaction or dialogue between teacher and learner and that technical media are required to mediate this communication. Garrison and Baynton (1989) examined the effect of dialogue and structure on learner control or autonomy. They have made good contributions to understanding the relationship between various elements of structure such as pacing and the

negotiation of objectives, dialogue, which they describe as frequency and immediacy of communication and autonomy. For example, it becomes apparent that the greater the pacing, the higher the structure, the lower the autonomy and the greater the teacher control. In general, Garrison and Baynton have provided valuable insights into the autonomy dimension of distance education. They have helped to fill in some of the open spaces in the conceptual map with their ideas about control, power and support (Morre, 1989).

Saba (1989) has confronted the problems presented to distance education theory by interactive telecommunications and expanded the concept of transactional distance by using systems dynamics. Through this methodology he has produced a valuable model of the dynamic inter-relationship of dialogue and structure. He refers to 'integrated systems' of telecommunication media and explains that maximisation of dialogue via integrated systems minimise transactional distance. He proposes that a significant feature of integrated telecommunications is that it achieves what he calls 'virtual contiguity' by sight and sound as well as by sharing and exchanging printed documents. This virtual contiguity more than equals face-to-face instruction. Sharing and multitasking intensify voice and sight dialogue beyond face-to-face communication. It enables the teacher to respond to the needs of the learner by accessing a variety of information sources and making it expeditiously available to the learner. Integrated systems provide a flexible means for decreasing 'structure' through increased 'dialogue'. They also expedite increased structure. Saba (1989) has made a major contribution by discovering the extent of the dynamic relationship between the level of dialogue and level of structure and explains this as a negative feedback loop in a system dynamics causal loop as:

*As dialogue increases, structure decreases, and as structure decreases, dialogue increases to keep the system stable.... In a plausible scenario, the need for decreasing structure is communicated to the teacher. Consultancy automatically increases dialogue, then adjustments in goals, instructional materials, and evaluation procedures occur and the learner achieves the desired level of autonomy.*

The inter-relationships between dialogue, structure and autonomy may not be considered as last word on integrated systems since Saba would be the first to agree that his model is in an early stage of development. However, it is an outstanding example of the power that can be brought to conceptual analysis of distance education by the application to distance education theory of a model derived outside the field itself. This is exactly what is needed for further development of the theory of distance education (More, 1989).

Most of the researches pertaining to 'learning in distance education' has focused on the 'effects of specific methods'. Wyllie Wydra (1981), Rosing (1985), Brown, Nathenson and Kirkup (1982), Kelly et al. (1983) and Laaser (1986) studied the effects of audio tape; Bates (1982), Ema (1984), Arias-Godinez (1984), Barrett (1984), McCormick (1985), Sakamoto (1986) and Halliwell (1987) of radio; Harper and Kember (1986) of correspondence instruction; Millard (1985) of auxiliary tutor-counselling; Pythian and Clements (1980) and Murgatroyd (1980) of tutorials; Robinson (1981), Davis (1984), Winders (1985), and Persons and Catchpole (1987) of audio conferencing; Koch (1981), Robertson (1981), Sutterfield (1981), Tate (1983), Corbett (1985), Nelson (1985), Mackerron (1985), Brown (1986) and Wiesner (1986) of video conferencing; and Smith (1987) that of interactive video. Sometimes two or more were compared to ascertain their relative merits in obtaining desired learning outcomes. For the most part, the focus was on specific outcomes of participation rather than on the learning process. In fact, few studies actually dealt with the dynamics of students acquisition of new knowledge, skills, or sensitivity (Cookson, 1989).

The researches on 'student outcomes' can be classified under: (i) students' reasons for dropout; (ii) student profiles; and (iii) institutional factors. Woodley and Parlett (1983) in the context of distance education have recognised student dropout as "a systematic problem, relating to the (Institution's)... working.... Rather, imaginative and carefully selected interventions are needed at various points throughout the system. Multiple causal problems require multiple partial solutions which operate progressively and cumulatively to produce long-term changes in trends."

Multiple explanations have been provided for dropout in distance education. Woodley and McIntosh (1977) have pointed out personal or domestic reasons which included insufficient time for study, financial commitments, and care of children or other domestic demands as the main reasons of dropout. In case of disadvantaged adults, Carr and Ledwith (1980) found out that reasons of the students who had withdrawn varied according to course type. Those who enrolled in the arts and social sciences cited personal or domestic problems. Those in mathematics, science, and technology courses cited job-oriented reasons.

In view of the increasing percentage of students failing to take the final examination in high-level mathematics at the British Open University, Pythian and Clements (1982) noted that one reason for high course dropout rates was a mismatch between difficulty of the course and students academic preparation. Some courses have been designed at an unreasonably high level for most of the learners. Other reasons included loneliness and lack of support at the time of difficulties, and fatigue associated with the cumulative personal and family costs. Rekkedal (1983) in Norway, identified: lack of time, job required too much time, change of career plans, change to other studies, economic difficulties, illness, unsatisfactory living or study conditions, and personal problems as the reasons of dropout or withdrawal. In addition to these, study-related reasons concerning the teaching-learning method itself, the subject matter or planning/organising of studies, dissatisfaction with the study material, the tutor's work, and the turn-around time on assignments, were also revealed by the students.

Various studies have been conducted to formulate profiles of 'persistent' students. On the basis of institution-maintained records, Carr and Ledwith (1980) observed differences in dropout by 'occupation' in respect of housewives, skilled trades, other manual trades; 'gender' females more successful in arts, social sciences, and mathematics, males excelled in science and technology; "age": youngest and oldest. Rekkedal (1983) reported higher levels of persistence for students over twenty-seven years of age. Kennedy and Powell (1976) employed a 'micro-sociological approach' to reconstruct the phenomenon of dropout from the point of view

of students enrolled in British Open University. They conceptualised dropout as a phenomenon 'caused primarily by the combination of students characteristics and their life circumstances'. Personal characteristics subject to slow change include: motivation, stage of adult development, educational background, personality, aptitude, and educational self-concept. Life circumstances subject to rapid change include changes in occupation, relationship with family and peer group, health, finance, and support from the distance education institution.

Using the models of multiple linear regression, Ostman and Wagner (1987), in their study of the influences of demographic, social interaction, psychological and institutional variables on course withdrawal from New Zealand Technical Correspondence Institute, found that lack of time constituted the most influential predictor of discontinuance. Snug (1986) in his study, at Penn State University, reported that 'perception of programme' and 'environment-based perceptions' accounted for variance in persistence. However, 'motivational variables' were not found to be significant.

A few researches have studied the impact of institutional interventions on student outcomes in terms of integration, as conceptualised by Tinto (1982). Using Tinto's theory of attrition, Taylor et al. (1986) studied the relationship between institutionally manipulable factors and student attrition in distance education institutions in five countries. Two criteria for selection of factors studied were: (i) amenability to control by the institution; and (ii) posited influence on the level of persistence of first-year students who enrolled in at least one course. None of the factors examined was found to exert an impact on student persistence rates in any consistent way. No consistent trend was observed in four or five institutions and thus the study failed to generate consistent evidence for a generalised principle on which to base distance education systems.

The predictive validity of Tinto's model was also tested by Sweet (1986). Data on academic and social integration were gathered. Using discriminant analysis, the model was able to explain much of the variance in persistence in terms of student characteristics, academic and social integration, and goal satisfaction and attitudinal commitment.

Holmberg (1983) has pointed out that contacts with students via print, multi-media, face-to-face tutorials, and counselling promote study pleasure, motivation, and feelings of personal relation. Studies by Scales (1984) and Persons and Catchpole (1987) have confirmed that adding telephone counselling and tutorials, summer school, or interactive computer conferencing to distance education courses significantly raises the persistence and achievement outcomes of students. Ostman and Wanger (1987) reported that dropouts, more often than persisters, preferred additional methods to supplement correspondence instruction.

Siqueira and Lynch (1986) in his study of National Open University, Venezuela found that age, means of transportation, time devoted to study, use of personal instructional package, frequency of visits to local centres, concurrent attendance in other courses, working conditions while enrolled, main occupational activity, perceptions of the difficulty of written materials, assignment load, quality of reading material, academic advising assistance, counselling assistance, and satisfaction with the course are significantly related to academic outcome of distance learners.

Gatz (1985), using grounded theory approach instead of any pre-existing theoretical model, conducted in-depth telephone interviews. He identified theoretically significant factors in terms of: (i) significance of course to goal; (ii) appropriateness of the independent method; (iii) feasibility of time; (iv) integration of interests and background; and (v) accommodation of learning style needs, as important dimensions in understanding completion and attrition.

Chaco'-Duque (1985) studied course related factors as sources of influence on completion and achievement which comprised the dependent variables as completion rate, group average of grades, and pass rate. He found out that the intervening variables of 'difficulty of the course' and 'perseverance of the students towards completion' interacted in a non-linear fashion with the independent variables which comprised students' early characteristics, quality of instructional materials, and institutional support; lower difficulty was associated with early attrition while higher difficulty was associated with later attrition and

lower pass rate. Persistence was found to be enhanced by quality of instructional presentation in textbooks and study guides; variety of media in the course; and planned student centered support. Presentation quality was negatively affected by the number of semesters a course had been offered. Individual factors of educational attainment and age manifested little influence on the dependent variables.

In his view on the research on learners and learning in distance education, Cookson (1989) has observed that "dropout or persistence of students enrolled in correspondence study constitute the most frequently scrutinised phenomenon. Research findings suggest a range of institutional interventions that can profitably be applied to optimise the satisfactory learning experiences of distance education students". He suggests that the nature of the adult learning process in the context of distance education need to be examined in detail.

Some studies have been conducted to find out whether the distance teaching involve more work than the classroom teaching. The National Education Association (NEA) in a survey study (2000) of its members reported that teaching a distance learning course requires more time than teaching a traditional course. Similarly, in a survey of the faculty members at university of Nebraska, the 'identified time requirement' was reported as the primary obstacle to participate in distance teaching (Rockwell et al., 1999).

However, the study of DiBiase (2000) does not support the widely belief that distance teaching is necessarily more work than classroom teaching. The data comprised of detailed recordings of the time and tasks involved in teaching two comparable courses: one offered online to adult professionals away from campus, the other offered to undergraduates in traditional classrooms on campus. The courses had similar objectives, similar student activities, and equally favourable ratings by the students. Both were mature courses that required only routine maintenance and revision. The findings indicated that asynchronous online course did not require more effort than teaching a comparable synchronous classroom course. Although the distance course required more frequent attention, the total teaching and maintenance

time spent per student was less than that required to teach and maintain the classroom course.

In conclusion, the researches in the foreign context have dealt with a number issues and problems related to distance education. These include redefining the roles of partners in distance education and open learning teams, philosophy and theory of distance education, technology selection and adoption, design issues, methods and strategies to increase interactivity and active learning, learner characteristics, learner support, operational issues, policy and management issues, equity and accessibility, and cost benefit analysis (Sherry, L. 1996).

### **The Indian Scenario**

The trend of researches in distance education and open learning in India 1971-92 has been reported in the Fifth Survey of Educational Research (Koul, 1997). Since the researches under the umbrella of 'Open Distance Education' were not reported in any of the earlier four surveys, the trend report in the Fifth Survey included all the studies from 1971-92 pertaining to distance education which were reported under such general or broad categories as Educational Technology, Teacher Education, Non-Formal Education, or Higher Education to highlight studies together so that the emerging trends in the open and distance education including correspondence courses could be properly delineated and understood.

In India, the system of distance education is about three decades old. The research in this area gained momentum in the last seventies. In the Fifth Survey of Educational Research (1997), the studies in 'open and distance education' dealt with enrolment trends and courses; growth, development and social relevance; needs and characteristics of learners; development and production of course materials; instructional strategies and methodology; economics of distance education; and evaluation of the system, covering period from 1971 to 1992. The review was confined to about fifty eight studies, which included thirty two data-based studies, mainly doctoral researches and reports of research projects completed by individual researchers/institutions, and about two dozens of theory-based articles relevant to some

significant issues of distance and open learning systems.

In this section, review of eleven data-based studies, covering the period 1993 to 2000 has been presented. The number of studies indicates that the research in distance education and open learning has not made much headway in the last decade. The trend is not encouraging. Except a couple of studies, the researches have been mostly conducted by the individuals drawn from the conventional university system. It is argued that the academics of open universities as well as the correspondence/distance education wings of the traditional universities occupy themselves in preparing instruction material and checking of assignments of distance learners, thus they hardly get time for undertaking research projects. The absence of M.Phil and Ph.D programmes through distance mode has also contributed to this scenario.

#### GROWTH OF DISTANCE EDUCATION AND ENROLMENT

The enrolment statistics in respect of Institutes of Correspondence/Distance Education (CEIs) within conventional universities and institutions exclusively termed as open universities (OUs) indicate significant rise in percentage enrolment during 1999-2000 as compared to 1990-1991 and 1995-1996 (Table 1.1).

Based on the UGC publication, correspondence and distance education enrolment statistics 1995-96, the number of universities

offering correspondence education programmes was 53 in 1995-96. There was wide regional disparity with South accounting for 56.7 per cent; the North 32.7 per cent; the West 8.4 per cent and the East 2.2 per cent. Women account for 44.85 per cent in the enrolment in correspondence education programmes.

The professional areas accounted for about 27.5 per cent at the under-graduate level and 16.0 per cent at post-graduate level.

The information in respect of ten open university pertaining to their year of establishment, number of courses offered, students (registered and on rolls), number of regional and learner support centres, faculty strength etc. as on January, 2001 is presented in brief in Table 1.2.

Table 1.2 indicates that IGNOU offers 60 programmes with total number 640 courses, which is maximum in comparison to other state open universities. The university has the largest number of 44 regional centres and 624 learner support centres (study centres). The delivery system adopted by IGNOU for the courses include printed material, audio cassettes, video cassettes, radio broadcasting and phone-in counselling – *Gyan Vani*, TV broadcasting – *Gyan Darshan*, lab. Practical including face-to-face training, contact and counselling sessions, on line education and teleconferencing, i.e. the university is adopting a multi-media/multiple media approach in teaching-learning. Most of the technology have been adopted by other state open universities also.

**Table 1.1: Growth of Distance Education and Open Learning**

Period	Enrolment in Higher Education (in Millions)			Total (in Millions)
	Conventional Universities System	CEI	Open University	
1990-1991	4.90 (89.74%)	0.56 (10.26%)		5.50
1995-1996	6.42 (87.05%)	0.75 (10.12%)	0.21 (2.83%)	7.38
1999-2000	7.73 (83.02%)	0.96 (10.35%)	0.47 (6.64%)	9.16

**Source:** (1) UGC: Annual Report 1998-99

(2) UGC: Correspondence and Distance Education, Enrolment Statistics, 1995-96

(3) DEC: Open Universities in India

(4) AIU: Handbook on Distance Education 2000

Table 1.2: Open Universities in Brief

Sl. No.	Details of Information	UNIVERSITY												Total
		IGNOU	BRAOU	KOU	NOU	YCMOU	MPBOU	BAOU	KSOU	NSOU	UPRTOU			
1.	Year of Establishment	1985	1982	1987	1987	1989	1991	1994	1996	1997	1998			
2.	Programmes on offer	60	23	22	8	60	30	11	29	3	41		288	
3.	Courses of offer	640	307	195	9	236	49	96	244	18	126		1920	
4.	Students Registered	287366	106748	8980	1221	113500	55360	8575	32658	2798	1089		618295	
5.	Students on Rolls	646651	450000	13000	1644	486651	108549	33892	40690	2798	1089		1784964	
6.	Regional Centres/P.G. Centres/ Recognised Regional Centres	44	21	6	-	10	9	2	4	-	-		96	
7.	Learner Support Centres (Study Centres/Work Centres etc.)	624	137	40	5	1451	667	61	52	36	38		3111	
8.	Academic Counsellors	20364	4837	541	28	4521	3200	776	2812	733	214		38026	
9.	Students awarded degrees	53298	3030	-	404	60673	68343	1403	5065	-	-		193216	
10.	Audio Programmes (Cumulative)	1100	1759	7	-	298	5	10	285	4	-		3468	
11.	Video Programmes (Cumulative)	1050	298	1	-	189	18	-	132	-	2		1690	
12.	Staff Strength (Total)	1389	473	324	25	263	69	85	321	51	2		3027	
	Teachers/Academics/Professionals	295	98	25	1	60	36	39	66	10	1		631	
	Administrative	856	340	294	23	173	33	46	255	41	26		2396	
	Technical/Production		35	5	1	30	33	46	255	41	26		2396	
	Others	1389	-	-	-	-	-	-	-	-	-		-	

Source: "Open Universities in India: 2001, Brief Information" New Delhi: Distance Education Council, Indra Gandhi National Open University, Jan., 2001.

### RELEVANCE OF DISTANCE EDUCATION AND OPEN LEARNING

The researches pertaining to the relevance of distance/open learning system during the period 1993-2000 include studies conducted by Pandit (1994), Srivastava (1995) and Pandey (1996).

Pandit (1994), in the case study of Dr. B.R. Ambedkar Open University, examined the level of perception of women learners about education in general and distance education in particular. Her main objective of the study was to: (i) find out the extent to which the existing academic programmes of Dr. B.R. Ambedkar Open University are relevant to the needs, motivation and aspiration of women clientele of urban and rural areas; and (ii) identify the courses and skills required by women, and their opinions about different courses offered. The findings of the study suggested that women had positive perception about and motivation for pursuing higher education. The courses in computer, teacher training (B.Ed.), textile designing/tailoring, nursing, secretarial assistance, child care and development, interior decoration, food and nutrition, women studies, sericulture and beautician are more relevant and these need to be offered through distance mode for women so as to enhance their empowerment.

The effectiveness of distance education, as compared to traditional education, with regard to expansion and democratisation of higher education in Karnataka state was studied by Srivastava (1995). He also found out the relevance of distance education courses to the learners' individual needs. The study points out that the distance education grew five times faster than the conventional (formal) education in seventies and four times in eighties. In case of Karnataka state, the growth of enrolment during 1985 to 1992 in distance education was two times higher as compared to conventional education. The increase in figures in enrolment in case of disadvantaged groups: ruralites, women, scheduled castes and scheduled tribes, through distance mode in this period has been very significant. Improving qualifications and social status, and getting better jobs were found out to be the motivating factors among the learners for joining the distance education programmes.

To assess the extent to which IGNOU had succeeded in bringing underprivileged sections of society under the network of seven courses during 1990-95 was studied by Pandey (1996). The findings indicated that though the distance learning system is gaining momentum and providing a second chance to many young and old aspirants to cherish their educational dreams, it suffers from the same drawbacks of providing opportunity to already privileged group, and thereby contributing very little to bridge the gap between have and have nots in the field of education.

### CHARACTERISTICS AND PROFILE OF DISTANCE LEARNERS

The characteristics and profile of distance learners have been studied by Anil Kumar (1998) and Kumar (1999).

The academic self-concept, study habits and attitude towards distance education in relation to academic performance at first degree level distance learners enrolled with IGNOU was explored by Anil Kumar (1998). Majority of the learners enrolled in 1991 were male in the age group of 25 years and above. They possessed average academic self-concept, exhibited good study habits, held positive and favourable attitude towards distance education. The academic performance of the distance learners was found to be significantly related to academic self-concept, study habits and their attitude towards distance education.

Kumar (1999) found the attitude of distance learners enrolled with IGNOU, towards distance education favourable irrespective of their background characteristics. Married students possessed significantly higher positive attitude towards distance education when compared with unmarried ones. However, no significant difference in the attitude was observed among distance learners varying on the other nine background variables of gender, age, locale, social class, academic stream, educational level, employment status, experience in distance learning and discontinuity in studies. Significant differences in attitude existed with regard to parts of 'attitude towards admission procedures', and 'self instructional materials' for distance learners of different marital status. Attitude differences were also found in respect of the part

of 'counselling sessions' for the subgroups based on academic stream.

### USE OF MEDIA

The print and electronic media have a distinctive role in the distance and open learning system. Shah and Mandal (1993) studied the effectiveness of the instructional strategies (video film and booklet) in teaching selected aspects of puppetry to home science students in terms of gain in knowledge and development of ability. Using experimental method, they also explored the effectiveness of these strategies in relation to the students' English language competence, academic achievement and attitude towards instructional strategy. The results of the experiment indicated a significant gain in knowledge as well as development of ability through both the strategies. However, the video film was found to be comparatively less effective. Majority of the learners showed highly positive attitude towards video film. The learners with good English language competence had better scores as compared to their counterparts.

The effectiveness of IGNOU ETV programmes in direct, talkback and interactive modes was explored by Goel and Sarangi (1995). Using a purposive sample of 7 IGNOU ETVs as the context of the tele teach, a significant gain in six out of seven IGNOU ETV programmes through direct and talkback modes was observed. There was also significant gain through all the 7 programmes in the interactive mode. However, direct mode in none of the seven IGNOU ETVs programmes was found to be effective than the interactive mode. In four out of seven IGNOU ETV programmes, the interactive mode was found more effective than the talkback mode. Talkback mode was not more effective than the direct mode in any of the programme. In terms of achievement of viewers, direct and talkback modes in all the seven programmes were equally effective.

### MANAGEMENT AND COMPARATIVE STUDIES IN DISTANCE EDUCATION

The studies in the organisation and management of different aspects of distance education in comparative perspective have been conducted by various researches.

Kanchan Bala (1996) undertook a study to investigate to what extent distance education programmes introduced by the Institute of Correspondence Education, University of Jammu and IGNOU were feasible in Jammu region in respect of their relevance to the needs of the students, problems faced by these organisations in the implementation of distance education programmes, and realisation of objectives set out by the two universities in the context of admission procedures, enrolment trend of students, infrastructural facilities (building, classrooms, audio-video, library, technological gadgets etc.), staffing patterns, orientation of teachers, teaching strategies, use of media-print and electronic, dissemination of information, study materials, assignment system, evaluation, counselling and placement services, management system, and co-ordination between various agencies of Jammu University and study centre of IGNOU. Using historical and descriptive survey methods, the findings revealed: (i) instruction to distance learners enrolled with both the institutions is mostly imparted by the teachers drawn from formal system and hence most of them are not specifically acquainted with the instructional technology of distance education and open learning; (ii) enrolment percentage of female students enrolled in distance education programmes of Jammu University is higher than that of males in almost all the categories, viz. rural, urban, general, SS, SAT, married, unmarried and employed categories. But in case of IGNOU, males enrolment percentage was higher in all the categories than the females; (iii) professional courses like B.Ed., and M.Com. offered in Jammu University distance education programmes were popular among the females in comparison to males, but in case of IGNOU such courses like B.Com., MBA, DIM and DMM were more popular among the males; (iv) institute of correspondence courses, Jammu University has provision for reservation of seats for SC, ST, OBCs and physically challenged students. Since there is no prescribed limit of seats, this reservation does not serve any purpose. In case of IGNOU, the admission is open to all students except MBA in which there is reservation for SC, ST etc.; (v) admissions to various courses are made using counselling and mass media, viz., radio, TV, and newspapers by

both the institutions; (vi) the contact programmes are organised by both the institutions for the benefit of students. However, the institute of correspondence courses, Jammu University faces number of problems due to lack of sufficient accommodation for organising such programmes in Jammu city as well as outside for students and resource persons. However, study centres of IGNOU in Jammu does not face such problems; (vii) lecture method followed by discussions are used by the teachers engaged by both the institutions. Brain storming technique and seminars are also used by the teachers associated with IGNOU; (viii) teachers engaged by IGNOU are provided orientation through seminars, workshops, and refresher courses. The teachers are also trained in the use of latest technologies so as to equip them with innovative techniques which they may use in the development of self-instructional materials and other software; (ix) IGNOU also provides help to distance learners through TV and teleconferencing; (x) pattern followed by the Jammu University in the preparation of instructional material is more or less like a textbook. But in case of IGNOU, the modular approach is specifically followed, with adequate number of examples, illustrations, learning exercises, activities, self tests and references. The materials are developed by the experts and edited meticulously for which experts are paid reasonable honorarium; (xi) the submission of assignments in both the institution is compulsory. The scores obtained by the distance learner in the assignments are given weightage (25 per cent) in their final examination results; (xii) some professional courses for the benefit of Gujjars and Bakerwals need to be started; and (xiii) teachers of both the organisations favoured autonomy for organising distance education programmes. The tendency of duplicating the courses of traditional universities need to be discouraged and the curriculum of distance education programmes should be initiated by the organisations at their own level.

The study by Patel (1997) centred upon the different aspects of distance education in Karnataka with a view to identify its trends in terms of growth of higher education in the state and its normative futures towards 2005 A.D. It also compared the management of distance education through correspondence courses

offered by university of Mysore (ICCCEM) with that of IGNOU in the context of Karnataka state. The findings of the study indicate that 'students support services' of ICCCEM comprised mainly of printed instructional material supplemented with short term contact programmes. In case of IGNOU the services are available in the form of print based materials, media like TV, radio and teleconferencing along with occasional counselling sessions. The evaluation system of ICCCEM comprises of term examinations whereas in IGNOU, it is continuous evaluation. The teachers of ICCCEM used lecture method and highlighted the role of Personal Contact Programme whereas in case of IGNOU, teachers supplemented lectures with discussion with emphasis on self-evaluation. The average expenditure borne by the students of IGNOU was found comparatively less than that of ICCCEM. It was due to the fact that the students had to incur more expenditure towards travelling, lodging and boarding due to non-availability of study centres in their nearby places. The experts' view on the normative futures of distance education in Karnataka revealed that the system should cope up with the future increase in the enrolment of students. It should incorporate networking with other distance education institutions and even conventional (formal) mode in the areas of instruction, practicals and utilisation of infrastructural facilities.

The academic achievement of students of formal and non-formal school education programmes in Jammu Region has been compared by Nanda (1997). She had also explored status and management of non-formal education programmes with special reference to enrolment, number of centres, infrastructure, role of instructions and supervisors; factors which are helpful or create hindrances in the promotion of non-formal education. The findings of study indicated that the academic achievement of students enrolled in non-formal programmes was better than the formal education students. Lack of proper training of instructors and supervisors, shortage of buildings and teaching materials, and less salary of teachers were the main hindrances in the promotion of non-formal education programmes. Early marriage of girls and non-availability of instructional materials were the

main reasons of dropout from the non-formal system.

Sharma (1999) compared the distance education programmes of IGNOU and the Directorate of Correspondence Courses, Himachal Pradesh University (now International Centre for Distance Education and Open Learning : ICDEOL) with respect to growth and development, functioning and management, staffing pattern, orientation of teaching faculty, teaching strategies, preparation of instructional materials, evaluation, assignment system, finances, infrastructural facilities, counselling and student support services, and academic benefits to disadvantaged groups (SC, ST, OBCs and rural women). Using historical and descriptive survey methods, the findings indicated that the: (i) male student enrolment of ICDEOL was higher than that of females in almost all the categories of rural, urban, SC, ST, married/unmarried, employed and all students in the age group of 20 to 30 years; (ii) the percentage of male students enrolled in different courses with IGNOU regional centre (H.P.) was more than that of females in almost all the categories of SC, ST, rural, urban etc.; (iii) ICDEOL and IGNOU have given due consideration to the recommendations of UGC and both the institutions cater to the needs of local community and students in starting courses through distance mode; (iv) both the institutions have neither started any special course for the disadvantaged groups of Himachal Pradesh nor they have any plan to start any such course in the near future; (v) the students belonging to reserved categories, viz., SC, ST, OBCs and physically challenged admitted in IGNOU are entitled for reimbursement in fees whereas, which such categories do not get in ICDEOL; (vi) students are admitted to various courses in ICDEOL on the basis of marks obtained in the last qualifying examinations except B.Ed. course in which the admission is made on the basis of marks obtained by them in the last qualifying examination and teaching experience. In case of IGNOU, students are admitted on the basis of marks obtained by them in the last qualifying examination except in case of MBA and MCA. In MCA only those students are admitted who have passed either of the (CIC, BCA, DCO) course from IGNOU. In case of MBA, the admission is made through entrance test;

(vii) distance learners enrolled with both the institutions do not receive instructional material well in time; (viii) importance and usefulness of contact programmes have been appreciated by the IGNOU teaching faculty and students; (ix) ICDEOL receive financial assistance from state government and UGC. Tuition fees charged from the students provides a useful source of earning. In case of IGNOU, funds are received from the central government and UGC; (x) in case of ICDEOL, 63.32% and 62.4% of total expenditure was spent on the salaries of the staff respectively for the session 1996-97 and 1997-98. The share of expenditure on academic staff was 28.4% and 26.1% whereas in case of non-academic staff it was 38.83% and 36.3% respectively. The other charges accounted for 32.19% and 36.54% of the total expenditure for the session 1996-97 and 1997-98. The expenditure on remuneration and capital accounts was less than one per cent for both the sessions 1996-97 and 1997-98. The IGNOU, regional centre (HP), spent 27.55% and 23.8% of the total expenditure on the salaries of the staff for the 1996-97 and 1997-98. The share of expenditure on academic staff was 9.75% and 8.6% whereas, in case of non-academic it was 17.8% and 22.2% respectively for 1995-96 and 1997-98; and (xi) in case of ICDEOL, for 1996-97 and 1997-98, recurring cost per students was Rs. 477.50 and Rs. 528.98 respectively. However, non-recurring cost per student was Rs. 228.47 and Rs. 308.83 respectively for the 1996-97 and 1997-98. Furthermore, the total per student cost was Rs. 705.98 and Rs. 837.79 respectively for the two sessions.

The organisation and management of distance education programmes under the control of Dr. B.R. Ambedkar Open University was studied by Naidu (2000). The study also identified the problems encountered by the university in planning, organising and administering distance education programmes. The findings indicated that there is a need: (i) to evolve strategies by the university to develop better relations with students, meeting the problems of dropouts, meeting the needs of the students through well organised programmes of counselling and guidance and augmenting new infrastructure facilities for future courses and programmes; (ii) for establishment of more number of study centres to provide

opportunities in remote and backward areas where higher education facilities either do not exist or are meager; and (iii) for policy making and better student support services including delivery system.

### OVERVIEW

In the proceeding section, the discussion and analysis of the research studies conducted during the period 1993-2000 in India reveal the following significant features in the emerging area of distance education and open learning.

1. The status of research during 1993-2000 in the distance education and open learning has remained more or less similar as was reflected during the period 1988-92 in the Fifth Survey of Educational Research. Barring a couple of studies, it has not shown any mark in terms of qualitative growth with respect to the theory and practice of distance and open education. Most of the researches are descriptive surveys confined to comparison of enrolment figures of students in distance education courses offered by various institutions. The specific causes of high enrolment or dropout in different courses/institutions have not been studied in any of the researches. Moreover, taking education to the doorsteps of the 'needy' is the prime mission of distance and open education programmes, there is hardly any study to trace specifically the enrolment of learners from the far flung hill areas, tribal habitations, coastal and desert areas, slums, and areas which remain snow bound during most part of year. No indepth studies using case studies have been undertaken to identify the specific causes of dropout phenomena among distance learners in the context of girls and other disadvantaged groups like scheduled castes, scheduled tribes, OBC, and ruralites. The issues related to the needs and characteristics of distance learners; status of study centres; students support services in terms of counselling, production and delivery of instructional materials, organisation of personal contact programmes; and finances have been studied as isolated events lacking diagnostic, follow-up and remedial research.
2. Almost all the studies have been undertaken on distance education programmes at tertiary level offered by institutes of correspondence education of conventional universities and open universities. Studies on the role of open schools (NIOS and SOS) on various important issues of school education in the context of universal elementary education (UEE) and education for all (EFA); vocationalisation of education; and equity, relevance and excellence have been mostly neglected.
3. Research studies have mostly adopted descriptive survey approach and quantitative analysis techniques. The experimentation for testing the efficacy of various approaches, interventions and models; case study approach; use of interviews and observations; qualitative data analysis techniques have been neglected in the conduct of studies. Impact and intervention studies for programme development and evaluation of distance education system have also been ignored.
4. Studies are based on arbitrary combinations of variables relating psychology, economics, sociology, pedagogy, media (print and electronic), management, etc. without taking into consideration their implications for the clientele and catchment area, thus lacking long-range perspective and relevance to future planning of distance education programmes.
5. The findings of the studies in comparative perspective indicated that the instructional material prepared and developed by IGNOU is greatly appreciated by the teachers associated with distance education programmes and distance learners. The quality and standard of the course content is maintained by involving professionals and experts from the field and adequate time is devoted in preparing the materials. However, course materials prepared by most of the correspondence/distance education institutions of conventional universities are poor in quality and prints because these institutions hardly involve professionals of quality due to lack of finances. The materials are mostly prepared in hurry.
6. In the management and organisation of contact programmes, a number of problems

pertaining to infrastructure, use of technologies, accommodation for resource persons and distance learners have been highlighted by the studies. Such problems are more prevalent in case of distance education programmes of institutes of correspondence courses of conventional universities.

7. The distance education programmes offered by conventional universities use print-based instructional materials. However, some state open universities use multi-media-based instructional technology. IGNOU, in addition to multi-media, use latest communication and information technologies including teleconferencing in providing instruction and counselling to distance learners.
8. There is no provision of 'Regional Study Centres' in most of the conventional universities in their catchment areas for providing services to distance learners. However, IGNOU has established an extensive and effective network of Regional Study Centres all over the country for providing services to its clientele in registration, enrolment, contact programmes, counselling and other academic support.
9. The teachers associated with the distance education courses in conventional universities are hardly provided any orientation in the theory and practice of distance education programmes. IGNOU is providing orientation to course writers through seminar and workshops. Distance Education Council of IGNOU is also taking effective steps in assisting other state open universities and conventional universities offering distance education to share the expertise and resources of IGNOU for faculty improvement, and development and use of instructional materials.

#### **FUTURE RESEARCH PRIORITIES**

India is the most diverse country in the world. In 1947, when it attained freedom from the British rule, most of its diversity was latent within the passive underclass at the bottom of the socio-economic pyramid. Over the years the population has tripled to the tune of over 100

crores and side by side there has been an increasing manifestation of social and economic diversities in terms of caste and community, dialect, manners and customs, ways of life, and entertainment, education, health, levels of development and so forth. It is expected that by 2025 that India's diversities will stand fully revealed when its population will have grown to about 130-140 crores. Accordingly, during the next two decades, the system of education needs changes and improvements keeping in view objectives of equity (social justice), relevance, liberty (empowerment), fraternity (togetherness as citizens) and excellence (quality).

In last five decades, the efforts in expending and equalising educational opportunities to all at the school and higher stages have been encouraging. The results are visible even in the rural and backward regions of the country. But the progress in terms of providing equal opportunity in education to all is not evenly distributed. The degree and level of education varies from place to place, depending on the nearness or accessibility of a village to the urban centres, the rate of literacy, the quality of local leadership, the traditional roots and attitude towards modernisation, communication network and exposure to the outside world, basic economic problems as a result of poverty, and the interaction at the socio-economic levels. In this context, the education system requires to handle large numbers and be accessible to people at large especially at the bottom of the 'socio-economic pyramid' so as to meet the goals of social justice. The formal classroom system alone is unable to cope up with the situation. Research is therefore, needed to make distance education and open learning system an effective and meaningful alternative mode. Proper data and research base are needed for strengthening the links between policy, planning and practice in distance education. The research in this emerging area must be able to: (i) generate knowledge on various components of distance education: theory and its relevance with aspect to different dimensions of Indian society, process and product, and cost effectiveness; (ii) enable practitioners in the distance education system to encapsulate their experiences for the benefit of the system and future researchers; (iii) identify the underlying issues of learner characteristics

and needs; (iv) study the influence of media upon the instructional system; (v) focus on the issue of equity of access to interactive delivery systems; (vi) identify the roles of teacher, counsellor/facilitator, and student in the distance education process; (vii) contribute to the emergence of distance education as a discipline; (viii) strengthen the morale of the distance education community in the country and help to attract talent to this emerging area; and (ix) provide results of empirical researches with regard to the potential of distance education to ensure high quality and relevant education to a large number of needy learners at a reasonable cost. To achieve these objectives, it is suggested that IGNOU and UGC at the tertiary level, NIOS and NCERT at the school level may undertake the responsibility of commissioning and assisting research projects jointly so that the two systems – formal/conventional and the distance/open – could come together. This will help the students in the open system to enjoy the benefits of the more flexible system together with the credibility which the conventional system offers.

The research in distance education and open learning needs to relate itself effectively to the formulation of the theory and practices of the system. Some priority areas are identified which may be of immense help to researchers in selecting the problems.

1. There are diverse groups in India with specific needs. The identification of the academic, professional and vocational courses keeping in view needs of diverse groups with the help of comprehensive survey studies is needed.
2. In most distance learning situations, a culture specific/localised theory has a greater prospect of success than a general instructional theory intended to function satisfactorily in diverse settings with a variety of practitioners. Studies for developing localised/culture specific teaching-learning modes need encouragement.
3. Interest in distance education is especially high in the areas where the student population is widely distributed and scattered. Research may be undertaken to help each area to plan and design its own form of distance education in accordance with the local needs and resources, target groups, and background of organisations which provide instruction.
4. The curriculum development process for distance education, consists of the customary stages of design, development, evaluation and revision. In designing effective distance curriculum programme, one must consider not only the goals, needs and characteristics of teachers and distance learners, but also content requirements and technical constraints. The course materials alongwith their technological requirements need to be developed using experimental and follow up studies for testing their adequacy and efficacy.
5. Orientation and training of teachers, administrators, and other supporting staff associated with distance education and open learning system should be based on various models developed through experimental and longitudinal studies. The models may be restricted to script writing, editing, organisation of contact programmes, evaluation of assignments, computer applications, office management, production of audio-video programmes, choice media and communication technology.
6. Studies on augmentation and strengthening of student support services, improvements in the delivery system, decentralisation of administration and extensive use of communication technology may be undertaken using experimental and case study approaches.
7. The evaluation of learning outcomes of distance learners need not be done using a system of formal/conventional mode. It should keep in view the needs and requirements of distance learners. Thus well designed experimental studies for developing comprehensive formative and summative models for evaluating the performance of distance learners may be undertaken.
8. Studies for evolving model guidelines/parameters for assessing and monitoring the quality of the educational provision available in the distance education institutes in conventional universities, open universities,

- and open schools using longitudinal and experimental designs may be conducted.
9. Cost-effectiveness of the on-going programmes of distance/ open education in relation to institutional costs and private costs need to be studied.
  10. Impact studies pertaining to organisation, methods, procedures, and results in terms of the learning outcomes of distance learners, and the impact of distance education on the different aspects of development of various target groups be encouraged for policy planning.

Indira Gandhi National Open University at the higher education level and National Institute of Open Schooling (NIOS) at the school stage, as the apex autonomous institutions, are taking effective steps to promote the cause of open education for the benefit of needy and unreached groups of Indian society. Besides providing education to out of school children through distance mode, National Institute of Open Schooling has introduced 'Examination-on-Demand Scheme' to reduce the burden of examination among the distance learners. The NIOS claims that this innovation will give a big boost to the open learning system in the country. The NIOS proposes to have content free and competency-based examinations, which means that no particular book will be used to formulate questions, but the questions would be set from general reference. The two-elementary

educational programmes of the government – 'National Literacy Mission' and 'Education for All' – are based on learning through experience. The NIOS plans to develop certain guidelines and study materials which will further provide a frame of reference to develop parallel local-specific materials in self learning style. The NCERT in its *National Curriculum Framework for School Education* (2000) has suggested that for maintaining parity of standards at the school level, the formal and open learning systems can have separate but comparable syllabi in each school subject. All these steps need a sound research base which can be provided by initiating action research, experimentation and case studies on various themes of open education at the school stage.

IGNOU, through its Distance Education Council, has taken various initiatives for promoting quality research in distance education and open learning at the fundamental and applied levels in order to constantly enrich the theory and practice of distance education. It has introduced Ph.D. programmes in some disciplines and proposes to start M.Phil courses. This would be helpful in promoting on-campus and off-campus research activities, which must aim at improving the effectiveness and efficiency of the system itself. The financial support for research fellowships and projects by DEC is also a major initiative to encourage researchers for undertaking quality research in distance and open education.

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