

5.7 Education For All- the Role of Open and Distance Learning

By
Professor Ram Takwale
Chairman, NAAC

Emeritus Professor, Pune University & YCMOU

1. Introduction:

Indian Constitution has adopted responsibility for the state to provide free and compulsory education for all till the age of 14 years. This challenge for Education For All (EFA) or universalisation of basic education is implemented in India through three major programs:

- Universal Elementary Education for children in schools by eliminating drop out rate.
- Non-formal education for school dropouts and left-outs.
- Literacy for the adult illiterates and neo-liberates in 15-35 years.

On the whole the EFA program is limited to imparting 3R and functionality for neo-literates in their life-situations. The program has succeeded in raising literacy rate from 18.33 in 1951 to 65.38 in 2001, increased school enrolment up to 8th standard from 22.3 million (Gross Enrolment Ratio – 32.1) in 1950 – 51 to 158.7 million (GER – 82.4) in 2001-02 ; but it is yet to succeed in eliminating school dropouts which is still 66 % in 1992-02.

The Open and Distance Learning (ODL) started with correspondence courses nearly four decade back, has by now grown to offer complete alternative to the formal system by offering parallel channel of education right from school to the Ph. D. level.

The development of non-formal education has been supported by many policy decisions. One of the policy adopted by the University Grants Commission in 1976 made extension education as the third dimension of higher education, teaching and research being the other two dimensions. The concept of the university extension was different than the extension adopted in the Agricultural Universities. The university extension implied extending knowledge and education to the community, particularly to the disadvantaged sections of the society, to bring them in the mainstream of development. The universities and colleges in India have participated in these programs in diverse ways by establishing Adult and Continuing Education and Extension Departments in the universities, and by organizing extension programs for education and services through students and teachers from colleges and universities.

* Source : Sympo 2003-FHE-FA -Role of ODL -

The Open and Distance Education system contributed to the EFA by offering courses to neo-literates and less educated through skill and competency based courses. NOS has offered many vocational and technical courses to less educated. YCMOU and IGNOU have offered programs

in partnership with others that covered the non-traditional target groups not usually covered by the university education(Table)

The emergence and use of the Information Technology (IT) in all walks of life and work has created completely different context and approaches for both the EFA and ODL. The process of globalization generated and the integrated use of the multi-media in ICT is creating Information or Knowledge Society, which is expected to offer new ways working and creating wealth. / Mashelkar R A/. The new scenario is creating variety of possibilities of addressing illiterate and less educated target groups for bringing them in the mainstream of development. The use of ICT is making outreach possible to anyone, anytime and anywhere; and is creating possibilities of developing new paradigms in EFA.

The EFA and ODL are essentially two aspects of the same concept; one represents the target and the other approach to reach it. Both EFA and ODL have to expand the coverage of target groups so as to extend to all society, levels of education needed and expand use of media with a view to making knowledge accessible to all, right from illiterates and less-educated to highly educated. Such efforts are going on to expand coverage of people, places, ideas and methods to extend education to all as a life-long-learning for continuing development.

The YCMOU is perhaps one of the few Open University, which has kept in its Act the goal of becoming Mass-varsity. It has therefore adopted educational programs and training useful to all sections of the society at all levels; and adopted a less educated (school dropouts) as one of the major target group for its educational offerings. IGNOU is offering extension programs for functionaries of Panchayat members (elected representatives of the village self-government), tannery workers, women in rural areas etc. Some of the Open Universities are integrating school education with their tertiary educational programs. In fact the challenge before the Open Learning System (OLS) is to offer learning and educational opportunities for continuing and life-long learning for all in the present changing scenario and emerging Information Society.

This paper deals with the concept and paradigms essential for evolving ODL system that will support EFA through the Information Communication Technologies. It also develops perspective and vision for EFA through e-Education and suggests creation of National / Regional Educational Network to promote various developmental models appropriate for Indian developing society.

2. Social Transformations and Educational Paradigms:

Social Transitions:

Human society has seen **two major transitions**; one from tribal society to agrarian society and the other from agrarian society to industrial society. The driving forces for transformation are in each case different; for the first transition it is the knowledge of nature about sowing seeds & growing plants and tools and techniques necessary for agriculture. The agrarian society used animal power for doing agriculture and ensuring its security. The second transition came up with the evolution and use of auto-machine (the driving force) and created

industrial society. The **third transformation** has begun since 1995, when extensive use of Internet accelerated development and growth of Information Technology. The Information Communication Technology (ICT) is the driving force for this transition, and is transforming rather, very rapidly, the way we communicate, work, entertain, organize etc. In all these changes now taking place in diversity of processes used in industrial society, one **key process** stands out uniquely; the convergence of communication technologies, integrating computing, tele-communicating and broadcasting sciences. Development and progress in Information Technology (IT) has created global communication networks and generated globalization.

Educational Models:

In Agrarian Age, education was very much at the feet of Guru in the Ashram Schools /Gurukuls. It was very **personalized education**; and content, level of achievement and objectives of learning were different for different learners. The teacher decided methods of teaching and learning; and learners received knowledge from Guru through oral and personal communication. Memorization was resorted to since books or *pothi* were either not available or were perishable. The education was localized dependent on the teacher expertise available locally; and students had to move to other places in search of Guru and experts in various field. The same methods continued during the early centuries of second millennium.

However with the emergence of industrial society, when more manpower was needed in various trades, production and service centers, educational institutions started admitting more students to fulfill the needs of industrial society. The form of education changed from personalized education to **mass education**; and a mechanism of a classroom was evolved in which a large number of students were instructed by a single teacher/lecturer.

A teacher can teach and interact intimately with a group of 5-6 students. When the number goes beyond 12-15, as is usually prescribed for a tutorial class, the teacher has to resort to different methods of teaching for giving personal attention. Beyond this and particularly when class strength goes beyond 25-30 the education becomes a large number activity, and personalized attention becomes rather difficult.

Classroom based education introduced new methods and practices such as common syllabus, uniform examinations, common achievement levels for passing and grading usually decided by the teachers to suit economy and convenience of the educational system. In the industrial society, the skills and competency levels and content were broadly linked with the needs of the production and service sectors.

The form and structure of educational institution in industrial society is often described as the 'Factory Model' of education. It uses books, labs to train simultaneously a large number of students, and uses an assessment mechanism- final product testing / examination- wherein some pass with grades/classes and some fail. The education has a form of mass education, is institutionalized and decided by academia. It is therefore teacher-centric. The education is localized in the sense that it is available at the local and nearby institution with all its advantages and disadvantages. Students have to move to other institutions, and even go abroad for further and higher education. The unit cost of higher education is quite high; since major expenditure is on salaries/honoraria of teachers and cost of infrastructure facilities. As education and higher

income in most cases are linked, there is a high pressure in developing societies on places in educational institutions.

New Paradigms:

Dr. Chitra Naik / 2 / has raised a very interesting question: “Do we accept the industrial metaphor of ‘input-process-output ’ in which the learner is treated as a chunk of raw material to be processed into uniform bits of product, or do we agree to consider education as a ‘blossoming out’ process in which an organism grows to its full capacity because of its symbiotic relationship with its environment?”

The industrial society model may be appropriate to the Industrial Society, which is inherently an exploitative system, exploiting workers by treating them as cogs in the machine, and society for selling the products and services created by industry for the benefits of the producers. The ‘blossoming out’ or self-actualization model is close to the educational model of agrarian society; and is not now replicable since supportive environmental nature for all development and growth is not available due to so much of exploitation of nature and social transformation during the last millennium or more. However, creating environment that would give freedom to individuals and communities to think and act, to pursue self-actualization activities in accordance with one’s own or of community conception is certainly possible.

One direction of development is certainly discernible through these social transformations; the development of **mass personalization** that could be used by individuals, groups, institutions and of **systems of education to empower** people, their institutions and communities; and create a new social order based on freedom, equity and justice as the founding values.

OLS has this challenge to evolve the new educational paradigm using mass personalization.

3. Problems and Issues faced by the Indian Education System:

India has successfully created one of the biggest educational systems in the world. Quality of many top institutions is recognized to be comparable to the best in the world. However, Indian education system faces problems and issues that originate from disparities and developmental models adopted. With all the impressive development in the areas of Information Technology, space science, nuclear technology, oil exploration, industrial production etc., India could not solve its problems of poverty, ignorance and underdevelopment completely and successfully due to various reasons. Nearly 25% people are still below poverty line; one-third are illiterate and disparities amongst rich-poor, urban-rural, educated-uneducated are extremely high, and are creating enormous social tensions. The country has to face challenges of globalization and pressures of liberalization while continuing its fight against poverty, illiteracy and disadvantages.

The major problems and concerns before the Indian Higher education are /Ram Takwale /:

- Comodification of Education.

- Global Competitiveness.
- Concerns of weaker institutions.
- Developmental disparities and unsolved Indian problems.
- Weak linkage of education with developmental processes.
- High unit cost of education not affordable to common people.

The major issue and challenge is to use IT and evolve a new system of education that may enable educational institutions to develop appropriate paradigms of development and education, and to increase coverage by serving larger numbers so as to move towards **education for all** so essential for knowledge-based society.

The new paradigm and system of education will need mode and technology independent processes that form foundation for any educational system. Such processes are /Ram Takwale/:

- **Educating:** Teaching, Learning, Evaluation,
- **Creating Knowledge Resources,**
- **Developing Infrastructure Facilities,**
- **Creating Educational Environment and**
- **Managing Education**

The five processes form basis for building any educational system. They could be used for designing new paradigms for the changing and emerging society of the Information Age.

The OLS has been institutionalized as the non-formal system at school (National and State Open Schools) and higher education (National and State Open Universities) Many other private and public institutions are using distance education, particularly the new media and networks for delivery of their educational offerings.

The challenges before the OLS are:

1. **Expanding the coverage** for primary, secondary and for tertiary age groups.
2. **Networking all** the educational institutions, social, industrial and institutional resources of private and public institutions and organizations for the purposes of EFA.
3. **Promoting Life-long-learning and Learning Communities** by organizing Special Interest Groups / Swadyaya & Prayog Pariwar / as continuously learning groups and their communities.
4. **Empowering the groups and communities** economically, socially, culturally and politically.

The Open Learning Systems already created in the country are best suited for the leadership of this networking and mobilization, since they have:

1. **Friendliness for adopting ICT and openness to change.**
2. **Integrative skills** for mobilizing groups and organizations.
3. **Pedagogically well-designed print materials**, which could be easily converted into e-content.

4. IT Development in India:

Information Technologies are fast changing and might take a decade or two till they get matured when further developments in IT have hardly any significance and impact. During this period, the educational system, and for that matter any system, has to be designed to be open to the changes both in IT and in socio-economic processes.

The major trend-setting technologies that will affect educational communication between teachers and learners are:

- **Broadband and Mobile Internet:** With the emergence of broadband and mobile Internet, current efforts by various Internet Service Providers (ISP) are to connect all cities, towns and villages, and offer Wireless in Local Loop (WLL), Direct to Home (DTH) and other latest technologies to all. In India networking is going on fast and coverage of 5 million people by mobile phones in half year just indicates the growth rate at the initial stage of creating infrastructure.
- **Networks** are being created by various communication, production, financial and service sectors with a view to offer speedy, economical and cost-effective products and services to customers. For this purpose, building LAN and WAN and creating sectoral networking – Banking network, railway booking network etc- is progressing fast in India. The UGC has also started building Indian Educational Network by linking all universities and colleges in India.
- **The last mile problem of Connectivity:** In the near future, electronic networks offering 2 Mbps connectivity, based on Right of Way, by leveraging on existing networks of ISPs and telecom providers are going to come up to provide voice-data-telephony multi-services. The last mile problem will be solved by offering all available connectivity solutions, namely, dial-up, ISDN, leased line, DSL, cable modem, wireless, etc. Indian Space Research Organisations's (ISRO) Educational Satellite (EduSat) scheduled to be in the Indian sky by the end of 2004 with 72 channels offering ku-band reception and broadband connectivity all over India will make DTH (Direct to Home) communication a reality.
- **Networking Architecture** is moving from cluster to **grid networking**. The grid computing network is a new advancement in high-performance computing which has moved from cluster of multiprocessor server architecture to a network of geographically distributed heterogeneous desktop, server and storage resources. A state-of-the-art computing and network grid will provide for multi-service convergence (data-voice-video) services. It is a distributed server network connected to every computer.
- **Tools and Techniques for Personalization and Community Mobilization:** Development of software tools and technologies for various functionalities of people and institutions engaged in various pursuits in various walks of life and work is the basic necessity of the Information and Knowledge Based society. The IT enables customization and hence development of personalization technologies is being given high priority in the IT development for success in any sector of activity. Simultaneously it is essential to develop mobilization and organization technologies useful for groups and communities for their empowerment.

All these advances in communication technologies offer fantastic possibilities of developing new processes and new ways of communications in education. The issues of inclusion of deprived learners due to rural inhabitation, poverty or illiteracy and access to IT (digital divide) are tasks, which need special attention- political as well as socio-economic. It is however conceivable that within this decade, the problems of network access and inclusion of the disadvantaged in India could be solved.

The **broadband Internet** with **grid network** enables us to create educational programs that could:

- Make teaching and learning possible from Anywhere, Anytime,
- Link education - learning with life and work related processes and places,
- Create National /Regional Grid network of educational content and services, which can flow in the network and support the processes of educating- learning, teaching and evaluating- anywhere anytime; and
- Enable educators and educational institutions to create new paradigms of education dependent on various developmental processes and models

The process essentially generated by these types of changes would lead to reorganization and /or deinstitutionalization of existing institutions.

Perspective of Networked and Knowledge Based Society:

Development and progress of IT and its wider applications in all walks of life and work will be creating a society, in which every individual, group, community will be linked through Internet with others. People will be using small hand-held and table-top devices to communicate, access and send information, participate from a distance in talks, seminars, workshops and small/big group activities. In such a networked society, all communications and information could be stored some where, which could be accessed, sorted out, analyzed and useful information could be found out. Useful information or knowledge could be utilized for value addition or wealth generation. The persons who could find useful knowledge by using various IT tools and techniques, and could have related functionality to convert that knowledge into wealth will be successful in 21st Century society. Education has therefore, to cultivate skills and competencies in using IT tools and techniques in the networked globalised context with a view to creating and nurturing innovativeness and entrepreneurship to convert knowledge into wealth. Education has to help in identifying and creating work and employment opportunities that would lead to new types of self-employment opportunities such as, knowledge workers, information service providers, tools/technique developers, process/system software designers, developers and implementers.

Education For All is to be conceptualized in such a knowledge based society and should help in its formation and growth.

5. e-Education for EFA:

e-Education is essentially the same education with the same basic processes of educating, creating, developing and managing which are carried out by individuals, institutions and

communities for achieving the goals of education. In the information age it is supported by IT enabled and IT driven processes made accessible through IT tools and techniques to make education globalised, localized and personalized. The outcome of this application of technologies would be in a form of organizations and institutions, which may be quite distinct and different from the existing institutions.

Networked society will require educational system that will be able to offer educational opportunities to all anywhere, anytime. The IT developments and emerging technologies are ensuring such communication. The development processes and activities now supported by IT are driven by market forces and wealth they create. India can become Knowledge Super Power, a goal often kept by the Indian leaders before the nation, if it succeeds in offering learning opportunities and necessary education and support of tools and technologies to all people of India. e-Education has the capacity and potential to fulfill that role of **education for all** and simultaneously enable people to address many of the issues and concerns faced by the nation..

Any **networked society** will need.

- **Network** with broadband connectivity linking hardware and appliances at various places for giving access to anyone, anytime, anywhere.
- **Software tools**, techniques and applications for enabling people and groups to communicate with others quite intimately.
- **Content** needed and shared by groups of people, organizations/institutions, which enables providers to offer services to users and customers.

With greater ICT use, now trends are to offer services that would fulfill customer requirements (personalization of services) and ensure customer satisfaction.

Education can now use the networking technologies for developing educational system (e- Education).

e-Education System requires the following **framework and infrastructure**:

1. **Network** with latest hardware and technologies along **with broadband connectivity and grid architecture** giving network access to anyone, anywhere, anytime.
2. **Software tools and techniques** that enable creation of databases and information flows, offer facilities to learners, teachers and institutions to receive / give personalized education on a mass scale.
3. **Content in e-formats** on a **knowledge grid** that enables teachers and students get personalized curriculum of high quality, relevance and utility.
4. **Educational delivery system** that ensures quality and developmental relevance of educational offerings (Developmental Education) for individual, institutions and community.
5. **Quality Assurance and Certification Mechanism** to maintain competitively high and acceptable standards at national and international levels.

The Framework given above can serve as a national and regional infrastructure to support educational processes of any provider institution, individual and organization in India. The five

basic educational processes identified above could be established by using the infrastructure and environment of the Network; and helps provider of education to design their content and delivery channels through the e-Education Framework for any educational program and its management.

The correspondence could be as follows:

- **Developing Infrastructure Facilities:**
Networks: with Websites of the provider institutions and their sub-net, broadband linkages with school/college/university Learning Centers and Distributed Classrooms, Access to Knowledge Grids and Meta-data-base with appropriate platform for creating, preserving and upgrading data, Supportive system to upgrade and maintain hardware and software.
- **Creating Educational Environment:**
Educational Environment with software that enables institution to carry out all its educational and management functions (Software for digital school/college/university offering possibilities of designing new paradigms), Tools and techniques for various functions of individuals (teachers, students, learners, providers etc), groups, communities with personalization approach, Community mobilization tools and technologies etc.
- **Creating Knowledge Resources:**
Content creation with participation from all teachers, experts, learners and learner communities, Universal educational content in static and dynamic formats at various levels to fulfill education/training needs and demands of just-in-time education of learners.
- **Educating and Managing Education:**
Educational Provider organization offering their own model of education relevant to learner needs and learning services in a continuing process of education and development. They will use the infrastructure and environment offered by the Educational Network; and design and deliver their own educational program offerings.

Content Creation:

Content is the key component in the networks. By using all the media of print, audio, video, animation and simulation, content in e-education can be developed in a static and dynamic formats of:

- e-Lectures
- Multi-media materials in distance education formats.
- Interactivity based content out of
 - ≡ Questions & answers, seminars, workshops
 - ≡ Assignments & projects done by students

Content output could be stored on servers at various places that form the Knowledge Grid in the network.

In formal & non-formal systems, content packaging is done through a course of a program, and delivered to a class of students or a group in a college / university. It uses the principle **‘one size fits all’** and does not take into account personal background, needs & requirements, prior learning & experiences as well as outputs and outcomes essential for a learner to be successful in a life and work situations. It is, therefore, essential to store content in such units that it can allow packaging of various units to suit the learner needs. Such methods and technologies are getting developed in e-Education.

- Content Storage- Meta-database:

In e-education, content has to be developed and stored in such a way that a teacher or learner should be able to combine various small units or granules of contents (reusable content) with definite learning objectives and outcomes. A granule could be conceived as the smallest learning or teaching unit with a single objective and definite output /outcome. A granule may contain a large number of content items, often called objects, in the form of texts, pictures, graphs, audio, video, animations and simulation; each one requiring study time of one to fifteen minutes. Each object could be tagged to reuse it in different contexts and at different levels of learning.

A database could be created in which a large number of learning objects and granules are created and deposited by all the teachers and experts (**universal content contributions**) with tags attached to each object and granule. The tags will enable a search engine to select appropriate objects and granules to form a syllabus/curriculum needed by a student. This leads to a personalized syllabus for a student.

Database of such a transformed content will be extremely big- **meta-database**- and could be made available and accessible to all learners and teachers. International norms are getting evolved in developing databases (SCORM compliance) so that databases could have wider accessibility, transferability and usability.

- Content Delivery:

Technologies are essential for offering personalized curriculum to each individual. They are being developed for various customizations. Such Personalization Technologies allow teachers and providers of educations to dynamically recognize the role and profile of each learner and respond according to the needs and requirements of a student. A good teacher will formulate a curriculum for the student (**personalized curriculum**) by prescribing learning (**Prescriptive Learning**) by identifying learning and knowledge gaps; and setting a correct learning path for the student. This will enable student to build on whatever is known and achieved earlier and reach the objects / goals set for him/her in the curriculum. Such a learner-centricity achieved through educational technologies will ensure success for every student. The e-education framework and infrastructure through personalization technologies will ensure ‘access and success’ in the field of education.

Learning takes place when a learner is interacting with the instructional materials and sources, with tutors and peers, while working at work places and while living in family and community.

Designing a delivery model, which incorporates all possible learning opportunities, is going to be the challenge of provider institutions.

- **IT Enabled and IT Driven Education:**

Many formal and open universities are at present using IT for fast communication between institution/teachers and students, and for administration of student and teacher activities. These are the 'first generation' technologies and help provider institution to achieve better efficiency, reduce costs and extend outreach and coverage to larger number of students outside the usual jurisdiction of an institution. This may be called IT Enabled education_(enabled by 1st Generation Technologies), since it basically does not change the model of education, and retains the earlier methods and processes of teaching learning and evaluation.

Development of Meta-Database with reusable content granules and packaging of the content to suit individual needs is creating personalization of education enabled only by the use of technologies. The learning technologies developed and used for learner-centricity and personalized education are termed as 'second generation' technologies / Massood Zarrabian /and offer IT Driven Education. They are changing the methods of content generation, content storage, content packaging and content delivery and hence offer entirely new paradigm of education.

With appropriate models of development and delivery it is possible to employ IT driven education to achieve:

- Access and success to all
- Substantial cost reduction.
- Quality education for all
- Just-in-time education.
- Learner autonomy

The learner autonomy would employ learner freedom in deciding the goals, content and outcomes of education and the path of development to achieve the goals.

Many of the problems and concerns could be addressed successfully by creating National and Regional e-Education Network with a framework and infrastructure. By promoting teachers, experts, educational managements, industries and social and community leaders to use the Network for evolving various developmental models that could addresses the problems of disparities, underdevelopment and disadvantages.

6. New Age Organizations- Virtual Institutions:

Classroom.

During the last few years, many universities and colleges are getting ready to face the impact of globalization and emerging competition in marketing education by forming consortia of colleges and universities. The major approach employed is to partner with other colleges and universities and to offer the best available educational expertise, courses and services to students both on-campus and off-campus. This is also aimed at survival of small institutions against the

competition from the big ones; and is using IT for various educational functions for cost reduction, increasing access and serving distant learners. Many colleges and universities have formed partnerships- virtual colleges / universities- by using essentially the 'first generation technologies' for becoming competitive and earning resources to support their institutional development./ Glen Ferral /

A challenging vision of a virtual institution as an organization of the 21st century in the form of a consortium of educational institutions in which strengths of each institution are combined and used for offering relevant and useful education to learners and learner communities. The virtual institution will have to use the second-generation technologies or IT driven educational processes to offer relevant and demand driven education to all.

The virtual institution is a concept at the initial stage of development and operations, and offers an opportunity to radically transform the existing models and practices of education. Education can now be made central to all the human developmental activities by developing radically different paradigms of education.

New institutions appropriate for 21st century are getting developed at the university level. In India Virtual Academy for Semi-Arid Tropics (VASAT) by ICRISAT, Hyderabad and MS Swaminathan Foundation, Chennai, Virtual University for Maharashtra Agrarian Prosperity (VUMAP) by Agriculture Department, Government of Maharashtra, Virtual University for Trade in Kerala and MS Swaminathan Foundation's Virtual University for Food Security are some initiative at their initial stages of development. Virtual universities use essentially broadband connectivity and second-generation technologies,

With the perspective of ICT scenario, we believe that a **National e-Education Network** could be formed to offer **education for all** in India. The framework will enable educational institutions in India to form consortia to offer different forms and models of development education and create competing situations that may help in addressing the age-old issues and concerns of India.

7. Existing Efforts in Networking and Infrastructure Developments Relevant to EFA:

Many national bodies and organizations have taken initiative to create infrastructure and facilities to support education in various ways. Some of the initiatives are listed below.

- UGC has taken initiative to create network, which could connect all universities and most of colleges in India by creating network and by offering resources for developing IT infrastructure in universities and colleges. UGC has also undertaken a program of e-content creation and development of guidelines and program, which will enable students to take courses or degree/diploma from more than one university. Universities, jointly in partnership, can offer courses and certification.
- Indian Space Research Organization (ISRO) is developing an EduSat with more than 70 channels with ku-band transmission. EduSat will have footprint on all over India and will be launched around December 2004 or beginning of 2005. ISRO has already started pilot projects to

create distributed classroom, e-content and educational applications in three states: MP, Maharashtra and Karnataka. The pilot program in YCMOU at Nashik aims at creating network of distributed classrooms with teaching end at Nashik and receiving rooms at about 100 places in Maharashtra.

- IGNOU is having a national TV channel for education, and is going to have about 5 more channels to support higher and school education as well as agriculture education. One of the channel is used as a distributed classroom by Indian Technological Institutions to offer their courses.
- Maharashtra Knowledge Corporation (MKCL www.mkcl.org, www.parivartan.net) in Maharashtra has established a network of about 3500 network access centers, which covers 330 blocks out of the total of 360 in the state, Network uses e-governance, works entirely on paperless environment and has enrolled half million students within 15 months period. MKCL is also developing software for digital college and digital university, learning /content / delivery management systems and is engaged in developing e-assessment and accreditation system in partnership with NAAC.
- VASAT and VUMAP have undertaken a task of network building and content creation. They are using Dr. M S Swaminathan's Hub and Spokes model for localization of the network activities through local participation.

All these efforts could be integrated and a national network could be built by providing direction of development and support for infrastructure.

8. Developing EFA under Virtual Institute / Organization:

VUMAP and VASAT are creating regional network in Maharashtra with the help of MKICL and YCMOU. For this purpose, MKCL is building a network with Network Access Centers (NAC) and Community Learning and Information Centers (CLICs) and the is supported for technological, expertise and resource by 40 Local Lead Centers (LLC) spread all over Maharashtra districts. MKCL plan of networking includes creation of distributed classrooms at universities and colleges/LLCs. Through VPN, the network outreach can be extended to schools and CLICs in rural areas. In partnership with NETRA, MKCL has launched a website Parivartan. Net for rural areas and farmers. The website generally serves all citizens, rural or urban.

The VUMAP plans to establish 10 000 CLICs in all over Maharashtra and has a program of covering 10 million farmer families in Maharashtra. The VUMAP network will be supported by all the Agriculture Universities in Maharashtra, YCMOU, various Agriculture Departments of the Maharashtra State, non-agriculture universities and voluntary organizations for the content and expert /learning support to farmers and rural people. The network will be shared by VUMAP and VASAT.

Target Groups:

The target groups for both the institutions will consist of all villagers and urban citizen. However focus will be on the Primary Target Group consisting of:

1. Farmers, women, villagers and citizens in general from rural and urban areas.
2. Village level workers, various local service providers, rural social /voluntary workers etc.
3. Panchayat and local/village level organizations and institutions.
4. Small traders, entrepreneurs etc.

The Secondary target group will include knowledge generators, policy makers, state and district Government. Officials and Rural Development managers.

The primary target group will be served through the network of CLICs established and managed by MKCL.

Strategies:

1. **To build network of public, private and voluntary organization** who will be providers of information/education-training/activities and of CLICs at village level to ensure info flows. The network is supported technologically by 40 LLCs, which will also work as hubs with spokes at CLICs. LLCs are also centers for facilitation and resources for supporting the networked delivery of various providers. The CLICs and LLCs work as change agents in the process of transformation.
2. **Development of content platform for meta-database, Knowledge Grid and Personalization Technologies** is in progress and will be made available to providers and users. Usual databases are now being used on MKCL and Parivartan websites. Personalized query system for farmers is already being used on Parivartan net.
3. **Development of bank of software tools and techniques** is a continuing process that could be used for functionality of common people in their daily activities of living, working and developing. Attempt is made to offer affordable access to users from rural areas.
4. **Sound Business or Financial Model** is developed for the CLICs, LLCs and content providers by using economies of scale for reducing cost. The efforts are going on to make CLICs financially self-supporting by creating various services that could be paid by the farmers, a very difficult task to accomplish, since rural farmers are mostly poor and are not used to pay since various welfare system evolved so far offer free services to them. For ensuring self-sustainability of CLICs, LLCs and provider institutions, various income generating and demand driven activities are being planned.
5. **Linking working and learning /knowing** in all the life and work related services and information is being adopted in all the services offered and organized on the www.parivartan.net, and are expected to be useful to everyone in all their situations. This needs a wider participation and is a continuing task of information generation, preservation and upgradation.
6. **To generate a movement for creating e-learning resources and e-services for all** with wider participation of people, institutions, organizations, industry and the state departments is essential

for the networking. It should help generate IT enabled content and IT tools and techniques; and to establish a principle of '**Content is free, services are charged**'. Voluntary organizations and public institutions may then offer affordable services to all, particularly the disadvantaged.

7. To offer **certification and quality assurance services** in various functionalities.

VUMAP is at the developmental stage and will get functional form within the next one year. It has already identified two areas;

- Marketing information of all market places useful for farmers to sell their produce and for traders to procure products from growers. and
- Information and services for nearly 90 agricultural schemes already in use to be given to farmers and villagers all over Maharashtra.

VASAT has started developing content and is offering services through its website www.vasat.org in its main areas of draught mitigation and management for the farmers in Semi-Arid Tropics. The VASAT will be an international institute and will have participation from national and international agencies and organizations.

Both the organization will use MKCL network as their delivery net for all their services and products in Maharashtra.

MKCL is also undertaking organization of Maharashtra Virtual School to supplement and complement the school learning system and also to offer an alternative to the formal schooling system.

9. Creation of National and Regional Infrastructure for EFA:

By employing IT expertise and experiences of IT industry and IT educational institutions, it is possible to design the **National and Regional e-Educational Network** prescribed earlier that would support all educational systems for higher and school education, adult and continuing education, open learning systems with a goal of reaching out to every village and habitat all over the country.

Development of such a network would create infrastructure and framework, which could help weaker and disadvantaged institutions and organizations engaged in education and development to join regional/national consortia and offer best educational services to their local students by offering personalized and mobilization services. Such a networking alone will support the open learning system for all and will make EFA reality.

The major components of the National /Regional Network will be: -

1. **National educational network connecting** all institutions and their classrooms/learning places through broadband connectivity.
2. **Indian Knowledge Grid** to enable content to flow to anyone anywhere and anytime.
3. **Granulated Object Based Content** in a Meta-database

4. **Promotion of national and region level consortia of institutions, industries and communities /society.**
5. **National quality assurance and accreditation mechanism.**
6. **National and regional credit banking and certification** mechanism for students to take education from different educational institutions of their choice and need.
7. **Movement for giving services to weaker and disadvantaged for ensuring quality, justice and equity for all..**
8. **Promotion of public-private partnership** for creating self-employment for graduates in various fields of human activities.

Such a National e-Education Network could help in establishing Education For All by using Open Learning System.

10. Concluding Remarks:

Since independence India is struggling to evolve its Indian National System of Education, which is capable of addressing the issues of quantity, quality and access & success on the basis of Indian culture, heritage and value system. The National /Regional e-Education Networks will enable the Indian educationists to evolve new models of education for EFA that can shape emerging new society; and devise new strategies in 'marketing' of education with developmental models appropriate to the developing society.

National and social objective of the e-education in a developing society has to fulfill aspirations of the people and nation and to address the age-old problems of poverty, ignorance, underdevelopment and disadvantages. If the education system in India is given the right framework and national infrastructure, educationists can have a great opportunity to bring education up to the center stage in every activity of human endeavor, and give academic leadership in a knowledge-based society. The crucial test lies in addressing age-old problems successfully by mobilizing common people and creating learning communities to achieve *Antyodaya* (upliftment of the lowest) with equity and justice.

Table

Inclusion of Non-Traditional Groups as Students – Target Groups & Experiences

YCMOU:

- Less educated school drop-outs - Tech-Voc courses.
- Farmers' - Crop-wise and Agriculture Courses
- Prayog Pariwar - Group learning and experimenting in local conditions.

IGNOU:

- Training of Village level functionaries- Panchayat Members.
- Construction Workers' Training at Work Places.
- Tannery Workers Training even to include illiterates.
- Women empowerment, Youth leadership programs.

Lessons:

- Teaching - Learning should be more through demo and oral communication.
- Partnerships with organizations and institutions working with the target group are essential.
- Learning - Education has to be work place based & work-related.
- Virtual University objects and functions should include 'Social Mobilization' with self-directed development.
- Ensuring partnership with Voluntary Organizations, , NGO, Govt. Organisation is essential for success.

References:

1. R A Mashelkar: 'Economics of Education' – A global perspective; 16th Dr. C D Deshmukh Memorial Lecture, January 14, 1999, India International Center, New Delhi.
2. Chitra Naik: Role of the Open Learning System in Education For All – Address at the International Workshop in the Report Education For All- Edited by Mridula Virmani and published by National Open School, New Delhi,1994.
3. Ram Takwale: 'Challenges and Opportunities of Globalization for Higher Education in India- Alternatives through e-Education', a paper to be published in the UGC Golden Jubilee Lecture Series 2003, University Grants Commission, New Delhi. .
4. Ram Takwale; Presidential Address on 'Convergence of Educational Modes – An Opportunity for Evolving New Paradigm of Education' at the IDEA 2002 Conference held at University of Jammu, Jammu, during 1-3 March 2002:
5. Massood Zarrabian: The Learning Market: It's About Learner, Not the Instructor! <http://elearning.org>.
6. Glen Farrell, a study team leader and Editor; The Development of Virtual Education: A global perspective; Report by Commonwealth of Learning, Vancouver, Canada (1999).
7. Glen Farrell, a study team leader and Editor; The Changing Faces of Virtual Education: Report by Commonwealth of Learning, Vancouver, Canada (1999).