UNIT 6 MEDIA AND ICT IN TEACHING LEARNING: IGNOU EXPERIENCES

Editorial Note:

Media and ICT has emerged as a powerful tool in teaching learning, this is more so in the distance education. Generally the ODL can be defined as "any meaningful communication is education. If it is written or produced in multi/ multiple media, it is called Open and Distance Education" (Dr. Rampelli Satyanarayana).

This article on Media and ICTs in Teaching Learning in IGNOU: Experiences is a shared view of existing practices of media and ICT issues focusing on the teaching learning in general and IGNOU experiences in particular. Ms. Sujata Santosh has made an attempt to focus on the existing media and ICT usage in Indira Gandhi National Open University. The article also covers extensively role and importance of media and education in developing countries. The author has also discussed issues of national level policy initiatives and provision for the use of ICT in education in India. She has extensively dealt with various media provisions available in teaching learning in general and specific to educational media and ICT in IGNOU. The author explains audio video and interactive radio and various television channels available at IGNOU. She had also explained the virtual classroom network, IGNOU's eGyankosh (presumed to be understood as OER), the collaborative Youtube facility flexi learning platforms, education broadcasting, online learning initiatives, globalising attempts such as Pan-African e-Network Project, National Knowledge Network, Sakshat Portal, Distance Education Programmes (DEP-SSA), Rajiv Gandhi Project and IGNOU initial OER policies. A reading of this unit will help the learners to appreciate the media and ICT infrastructure facilities available at IGNOU. By studying inferences based on IGNOU practices, one can explore media and ICT policies for distance education institutions. The whole debate may sensitise the learners upon the issues of media and ICT choices in teaching learning in the developing countries like India. While taking a policy decision, the choice before the policy makers many times is to use minimum technologies for maximum uses or maximum technology for maximum or minimum usages. However the policy choice is always important to evolve an effective media viability according to each institution's relevance, context, purpose, cost, time and ultimately the media ICT policies which must be fittest to the each institution's purpose. This is otherwise called quality in education lastely, it is well said that Media and E-Learning is not a religion to search but it is one of the most powerful tool to practice. As much one practice so much one gets familise with media and ICT.

Abstract: The learning environments of today are gradually being transformed by the use of Media ICTs and the use of multimedia technologies has become a vital component of the teaching learning process. The extensive use of multimedia in education depicts the convergence of the developing computing technology and internet technology leading to an enriched teaching learning process. Educational multimedia systems endeavor to make learning easier, more convenient, and thus more effective. Radio and Television have been used to deliver innovative educational content as they have a wider reach. At present there are dedicated educational channels on TV such as GyanDarshan I, II, and on the Radio such as Gyanvani. Though delivery of education through TV and radio however has limited interactivity and lacks flexibility. The Electronic Media Production Centre (EMPC) of Indira Gandhi National Open University (IGNOU) has emerged as a major hub for the use of electronic and broadcast media in distance education.

In the country, a number of initiatives aimed at promoting the use of ICT have been taken up. According to World Bank report almost all the states in the country are implementing central schemes such as ICT @ Schools, SSA, Mission on Education through ICT and have significant number of students enrolled in open learning systems at the school and college levels. There is a diffusion of ICTs in Indian Universities and colleges to meet the educational requirements of today. Indira Gandhi National Open University (IGNOU), a leader in the field of ODL, has adopted a multimedia approach for reaching out to its learners. Different communication technologies are used in IGNOU's instructional system though with technological developments over time there have been significant changes in the use of different media. The instructional packages for learners include self-instructional print and audio/video materials, radio and television broadcasts, interactive radio counselling, face-to-face counseling, laboratory and hands-on experience, teleconferencing, videoconferencing, CD-ROMs, and Web-based content delivery. IGNOU has taken certain major initiatives towards the development of interactive multimedia content and learner support through web-based platforms for the distance learners.

MEDIA AND ICT IN TEACHING LEARNING: IGNOU EXPERIENCES

—*Sujata Santosh*

Introduction

The learning environments of today are gradually being transformed by the use of Media ICTs and the use of multimedia technologies has become a vital component of the teaching learning process. ODL systems of today are marked by advancements such as eLearning, online student support, digital repositories and open source courseware. Indira Gandhi National Open University (IGNOU) has contributed significantly to the development of higher education in India through the open and distance learning (ODL) mode. IGNOU has emerged as the largest university in the democratic world, providing quality higher education opportunities to the unreached through its wide range of programmes. It serves the educational aspirations of around 2.8 million students in India and 32 other countries. IGNOU has adopted a multimedia approach for reaching out to its learners. IGNOU's instructional system involves integrated use of different communication technologies and media to provide access and opportunities to its varied learners. The instructional multimedia packages provided to the learners include a wide spectrum of technologies from print to audio-video programmes, broadcasting, interactive radio counselling, teleconferencing, CD-ROMs, and Web-based content delivery. This paper discusses the initiatives and practices taken up at IGNOU towards the use of ICT in teaching and learning. Dedicated educational channels on TV such as GyanDarshan I, II, and on the Radio such as Gyanvani are being used to deliver innovative educational content. The Electronic Media Production Centre (EMPC) of Indira Gandhi National Open University (IGNOU) has emerged as a major hub for the use of electronic and broadcast media in distance education.

ICT is being increasingly used in the developing countries. In India also, the policy framework has laid immense stress on the overall importance of using ICT for promoting and improving education. The paper presents use of ICT and the related policies in India and other developing countries. A large number of meaningful initiatives aimed at promoting the use of ICT at all levels of education are also presented.

Role and Importance of Multimedia in Education

Multimedia has become an integral part of educational environments. Advances in technology have enhanced the use of multimedia in teaching learning, and this use seems to be set for continued expansion in future also. Multimedia has proved to be an effective learning aid. It has offered new ways in which learning can happen. Use of multimedia in ODL systems enables in providing a student centered learning environment which is customized according to the learner's educational requirements. The use of multimedia in education has influenced and changed the delivery mechanisms and content of education in the educational systems. This has also created opportunities for improving access, quality and efficiency of education at all levels.

Developments in technology provided new means of instruction. First radio then TV was used extensively as teaching aid. Then computers came to be used for instruction. Devices such as tape recorders and video camera are also used extensively in teaching and learning for students to record their own activities. The extensive use of multimedia in education depicts the convergence of the developing computing technology and internet technology leading to an enriched teaching learning process. Multimedia is a concept that emerged in the 1950s and commonly referred to a method that combines at least two media formats such

as text and video or audio at one time to derive a more complete, not necessarily educational, effect (Heinich, Molenda, Russel, & Smaldino, 1996). Multimedia use grew rapidly during the late 1980s and 1990s due to improved technologies that allowed better compression, better graphics accelerators, faster chips, and two or three dimensional images with a variety of file formats and faster connections online (Jalobeanu, 2003).

Multimedia can be defined as an integration of multiple media elements (audio, video, graphics, text, animation etc.) into one synergetic and symbiotic whole that results in more benefits for the end user than any one of the media element can provide individually (Reddi & Mishra, 2003). The term is now firmly associated with computer-based delivery, usually over the Internet and accompanied and supported by interaction provided via some form of Computer Mediated Communication (CMC) (Fahy, 2005). Roblyer and Schwier (2003) defined multimedia as "A computer system or computer system product that incorporates text, sound, pictures/graphics, and/or audio". Multimedia is also interactive; it enables both the student and the teacher to control the content flow of information (Vaughan, 1998).

The use of multimedia technologies in educational institutions is seen as necessary for keeping education relevant to the 21st Century (Selwyn & Gordard, 2003). Educational multimedia systems promise to make learning easier, more convenient, and thus more effective. For example, classroom teaching enriched by vivid presentations promise to improve the motivation of the learner. Concepts may be given a perceivable existence in a video show and important details can be stressed. Video capturing of lectures has become common practice to produce distance education content directly from the classroom. Simulations allow learners to explore experiments which would be otherwise impossible to be conducted physically.

The pedagogical basis for the use of educational multimedia technologies has perhaps been the greatest driving force for the massive investments made by educational institutions into multimedia technologies. Certain factors such as pedagogies, skill of teachers, adoption patterns are crucial for effective use of multimedia in education. The integration of multimedia technologies will lead to a transformation of pedagogy from traditional instructivist teacher-centered approaches to the more desirable constructivist learner approaches that are seen as embodying essential characteristics of more effective learning environments (Tearle, Dillon, & Davis, 1999; Relan & Gillani, 1997; LeFoe, 1998; Richards & Nason, 1999). The potential of multimedia technologies to reshape learning contexts (Relan & Gillani, 1997; Lefoe, 1998) will only be realized by informed pedagogical decision making and the formulation of teaching strategies designed to exploit multimedia technologies within the curriculum context.

Multimedia is increasingly being used in open and distance educational systems. Universities and educational institutes are embracing multimedia technology. New sources of education and training with integral multimedia components are appearing every day. Internet has emerged into a space for networking and knowledge sharing, thus enabling creation, sharing and reuse of educational content. Web based programmes and information systems providing easy access to remote learners have become distinguishing features of open and distance learning environments. Various initiatives taken up at the national level are mentioned in detail the following sections.

Use of Media ICTs in Education in Developing Countries

Interest in the use of ICTs for education has grown steadily over the past decade in almost all the developing countries. This has led to a larger emphasis on policy development. Most of the governments in developing countries have drafted

or approved ICT policies in education. In India also, the policy framework has laid immense stress on the overall importance of using ICT for promoting and improving education. A large number of initiatives have been taken in various developing countries for encouraging and facilitating the use of media ICTs in education.

In most of the developing countries there is relatively high penetration of mobile phones, radio and TV. Innovative efforts are also being made to use mobile technology for education. There is an increased interest in providing low-cost computing devices — laptops, PCs, mobile phones, and PDAs— to schools in developing countries. However, according to World Bank, the use of ICTs in education in many developing countries, especially the "poorest of the poor," is associated with high cost and potential failure. Limited resources, poor infrastructure, weak implementation capacity of the government, lack of quality content in local languages, poorly trained teachers, inadequate monitoring and evaluation strategies are some of the constraints faced by these countries (Kelly, 2010).

In counties such as India, Pakistan, Maldives, Bhutan, Sri Lanka, and Afghanistan there is a policy framework related to the use of ICT in education. Bangladesh does not have any distinct ICT in education policy and the use of ICT has largely been in the non formal and continuing education sector. In Nepal the IT Policy primarily focuses on building a knowledge-based society and making ICT facilities available to the public. India has clear policies pertaining to the use of ICT in education. In Pakistan, the policy framework focuses on strengthening the ICT infrastructure in schools and educational institutions. There is a greater focus on the incorporation of ICT as a subject in the curriculum than on using ICT as an instructional aid for improving the quality of education.

Numerous initiatives involving innovative applications of ICT in distance education strategies have also been taken up. Open and Distance learning systems are well established in almost all the South Asian countries. *Indira Gandhi National Open University* and the *National Institute of Open Schooling* in India, *Allama Iqbal Open University* and *Virtual University* in Pakistan, *Bangladesh Open University*, and *Sri Lanka Open University* are some of the examples. These systems promote mass education using traditional print, as well as video and radio based instructional materials. With the availability of new technologies these systems have begun to utilize the internet, CD ROM, video conferencing and other multimedia tools. There are dedicated educational TV channels such as Gyan *Darshan* I & II in India, *Nenasa* in Sri Lanka. Radio (*Gyan Vani* in India) and community radio (*Radio Sagarmatha* in Nepal, *Radio Kothmale* in Sri Lanka) are also widely used for delivering educational content and messages (Kelly, 2010).

Most of the African countries such as South Africa, Egypt, Algeria, Libya, Morocco, Sudan, Cameroon, Ghana, Mauritius, and Botswana, have developed or are in the process of developing national ICT policies. Most of the universities lack access to infrastructure, affordable and sufficient bandwidth, and the human resource capacity to exploit the technology (Glen & Issacs, 2007). National research and education networks (NRENs) are therefore, being developed to enable connectivity among universities and, eventually all educational institutions in these countries. Universities are also developing their own internal ICT policies. The African Virtual Open Initiatives and Resources (AVOIR) project is a collaborative effort of higher education institutions from different countries for the development and use of free and open source software. One of the initiatives is the KEWL Nextgen e-learning platform. In Egypt the Egyptian Education Initiative (EEI) has been established to improve education through effective use of ICTs.

Apart from policies addressing the use of ICT in education, technology infrastructure in terms of hardware and connectivity has been established at the secondary level in most countries such as Jamaica, Anguilla, Trinidad, Tobago and Barbados. Most of the universities have built technical capacity to support the development of technology-related skills. Turkey and many other countries are focusing on the use of technology to improve teaching and learning across the curriculum (Edmond, 2008).

National Level Policy Initiatives for use of ICT in Education in India

In India, the policy framework has laid immense stress on the overall importance of using ICT for improving education. The education system in India is administered by the Ministry of Human Resource Development (MHRD) at the center and the different Departments of Education at the state level. The policy framework, financial support and guidelines to ensure a national standard of education are provided by the Government of India through the MHRD. The Department of Information Technology (DIT) in the Ministry of Communications and Information Technology (MCIT) is responsible for formulation, implementation and review of national policies pertaining to information technology. Core infrastructure policies provide for electrification and physical facilities. India has a certain amount of basic infrastructure in place by way of access to hardware and connectivity. The IT and telecom sector in India have also made significant progress. Clear guidelines and policy framework are extremely crucial for encouraging the use of ICTs in education at all levels. These policies are then translated into initiatives and schemes through different mechanisms. Their success is dependent on integration of policy objectives in the ICT and Education policies, and administrative capacity of Education departments.

The focus of Indian policy on developing ICTs as a vehicle for promoting education is visible since the use of satellite in early 1970s. The long road traversed till now has led to launching of dedicated satellite for education (EDUSAT) (Snehi, 2009). In early 1990s a number of online educational enterprises were started. The National Policy on Education, in 1992, emphasized the use of educational technology to improve the quality of education. In 1998 with development of Information Technology as one of its top priority Indian National Task Force on Information Technology and Software Development was constituted by the Government. The Task Force came out with an IT Action Plan (GOI, 1999). Major emphasis of the Plan was on expansion of IT education at school and university level including all national level institutions. Consequently, a number of programmes were developed and initiated for example, Virtual Campus Initiative of IGNOU and NIIT Net-varsity (Snehi, 2009).

The Tenth Plan provided further impetus to use of ICTs in education in the 21st century. The plan outlined goals for strengthening of the education system, as well as expansion and diversification of the Open Learning System. It emphasized knowledge and use of new information and communication technology for ensuring quality in teaching and research. During the Tenth Plan, the UGC embarked upon the promotion of information and communication technology (ICT) in a modest way by providing UGC INFONET, e-Journal Consortia, and e-Content Development (UGC, 2011).

The Eleventh Five-Year Plan also stresses on the importance of ICT in the education scenario of India. To harness the capacity of ICT in delivering educational services, the National Knowledge Network (NKN), a national ICT initiative, was launched based on the recommendations of the National Knowledge Commission (NKC). It was a collaborative effort of the Ministry of Human Resource Development (MHRD), Department of IT and Department of Telecom, to provide a unified high speed network backbone for knowledge-related institutions. The main focus is to facilitate collaborative research and

knowledge sharing. During the Eleventh Plan, significant progress was also made in the areas of expansion, inclusion, quality improvement and increased private participation.

Further, the National Mission on Education through ICTs (NMEICT) was launched by the MHRD to leverage ICTs to provide quality, personalized, interactive knowledge modules over the Internet/intranet to all learners in higher education institutions, any time anywhere (Kelly, 2010). It aimed to provide enhanced connectivity, content and access devices to educational institutes. Under this initiative, 392 universities and 18,374 colleges were provided with broadband connectivity. The development of virtual reality labs and initiatives for the creation of e-content were also taken up. In addition, a low cost computing cum access device, *Akash*, was also developed.

ICT Interventions and Initiatives in India

In India a large number of meaningful initiatives have utilised ICT to augment the quality of education (Harishankar, Balaji & Ganapuram, 2013). These initiatives are aimed at promoting the use of ICT at all levels of education. Some of these are at a pilot stage while others are fully operational. Efforts are being made to adequately leverage the opportunities made available through technology. The success of open education system has convinced the policy makers that use of ICT in education has great potential to supplement the formal education system and to provide quality education to large segments of population through cost-effective, open, and flexible manner (Kelly, 2010). The government has taken up various steps to ensure the availability of basic infrastructure but the development of relevant content and applications and their use for enhancing learning is also essential. The success of these initiatives depends on a coherent and robust policy level framework for the use of ICTs in education. The ICT initiatives need to be further strengthened with quality content and the ability of the teachers and students to integrate technology in their teaching learning practices.

In India, individual states have significant ICT-related interventions in their education systems. However, some of the major initiatives operating at a national level in educational institutions in India are as follows:

- The Consortium for Educational Communication (CEC) is one of the inter-university centres set up by the University Grants Commission (UGC). The main objective of the centre was to address the needs of Higher Education through the use of powerful medium of television along with the appropriate Information Communication Technology (ICT). Realizing the potential of television as an effective medium of dissemination of educational knowledge, UGC started the Countrywide Classroom Programmes in the year 1984. For production of educational programmes, initially Media Centres were set up at 6 Universities. Subsequently CEC was setup in 1993 as a nodal agency to coordinate, guide and facilitate the production of such educational programme through its Media Centres. Around, 22 Media Centres, known as Educational Multimedia Research Centres (EMRCs), are working towards achieving this goal. With the help of these educational multimedia research centres, the CEC produces TV programmes on syllabus-based topics. These are archived in a learning object repository.

- The National Council of Educational Research and Training (NCERT), makes its textbooks available online through its website to ensure easy and free access by teachers and learners. Similarly, NSDL, an initiative of the Council for Scientific and Industrial Research (CSIR), provides free access to supplementary curriculum based content.

- Project Ekalavya is an open source educational initiative by the Indian Institute of Technology, Bombay, for content development in Indian languages. It is an endeavour to provide an interactive platform for the creation, absorption, dissemination and usage of knowledge. The project attempts to bridge the gap between the seekers and givers of knowledge by creating innovative channels of communication.

- National Programme on Technology Enhanced Learning (NPTEL), a joint effort of the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc), has created lectures aimed at students and faculty in private engineering colleges. Originally intended as recorded or web-based lectures, they are now popular as YouTube lectures. This is an instance of the open access concept being used in the face-to-face and formal mode of education.

- VASAT, a wing of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), has created open access learning materials on agricultural practices, aimed to promote natural resource literacy. Under a Creative Commons licence enabling reuse, these materials are presented as PowerPoint slides, Flash videos and HTML files. VASAT materials reveal a simple and effective sharing of resources in the non-formal education sector.

- Media Lab Asia (MLAsia), set up by the Department of Information Technology, Government of India, is a not-for-profit Research and Development organization. MLAsia works with academic and R&D institutions, industries, NGOs, and the Government to develop relevant technology and culturally appropriate solutions in the areas of ICT for healthcare, education, empowerment of the disabled and rural connectivity. Some of the education-related projects undertaken are Gyanpedia and Virtual Laboratories for Life Science Experiments. Gyanpedia is an interactive portal for collating, organizing, and circulating contents generated in schools in India through a single open web platform. MLAsia in collaboration with Centre for Development of Advanced Computing (C-DAC) has developed 40 Virtual Life Sciences Experiments, which use multimedia technology to simulate a virtual classroom environment. These virtual classrooms are available on CDs and multimedia cards for mobiles. Many other small-scale initiatives are being piloted in collaboration with Indian Institute of Technology and other research organizations in different states of the country.

- Towering over these initiatives is the NME-ICT, launched in 2009, and its Web portal — Sakshat — that provides one-stop access to e-content, e-journals and e-books. In addition, the National Educational Foundation, under the aegis of the National Knowledge Commission, seeks to develop web-based open resources. The Mission has two major components - (a) content generation and (b) connectivity along with provision for access devices for institutions and learners. It plans to focus on appropriate pedagogy for e-learning, providing facility of performing experiments through virtual laboratories, on-line testing and certification, on-line availability of teachers to guide and mentor learners, utilization of available Education Satellite (EduSAT) and Direct to Home (DTH) platform, training and empowerment of teachers to effectively use the new method of teaching learning etc. The Mission shall work in close cooperation and collaboration with other Missions/Schemes such as the National Translation Mission, Vocational Education Mission, and National Knowledge Network, Scheme of ICT @ Schools etc., to avoid any duplication and attain synergy.

  (http://www.nme.bsnl.co.in/)

- The ICT @ Schools scheme was launched in 2004 with a view to provide opportunities to students to develop their ICT skills as well as use ICTs to aid the teaching learning process. Under this scheme, support is provided for procurement of computers, peripherals, software, connectivity, and so on. The scheme is currently being implemented in all states and union territories of India in government and government-aided secondary and higher secondary schools.

Almost all the states in the country are implementing central schemes such as ICT @ Schools, SSA Mission on Education through ICT and have significant number of students enrolled in open learning systems at the school and college levels (Kelly, 2010). These initiatives span different levels of education (primary, secondary, and tertiary) and different types of providers (government, public, private). However, they converge in their attempts to provide access to quality teaching and learning resources (Harishankar, Balaji & Ganapuram, 2013).

To address the challenges in the higher education sector, several government initiatives have been proposed in the Twelfth Five Year Plan. These include extensive use of ICT, shift from input-centric to learner-centric, promotion of innovation and research by creating synergy between teaching and research, development of virtual labs and open access content repositories, and capacity-building measures to adopt technology-mediated pedagogy in classrooms. There is a strong need for proper coordination of these initiatives using ICT for education with the help of a clear framework and guidelines to enable seamless integration of ICTs in education.

Developments in the Use of Educational Media in IGNOU

The term, ICT though commonly associated with computers, covers a broad range of technologies such as television, radio, handheld devices, and various communications technologies, such as telephones and networks. According to Gardiner (2002) the use of media has expanded from memory and speech to reading, writing to telephone, and radio to internet, multimedia and now is expanding again to a possible benign or troubling future. He has organized history of media around four generations:

i) First generation—memory and speech;

ii) Second generation—print and film;

iii) Third generation—telephone and television; and

iv) Fourth generation—multimedia and internet.

Gardiner argues that the hypermedia setting is educationally superior to these because it simulates the real life situation of the student and just as in the real life situation student deals with information from many sources. All these media are being used in ODL mode, but there is a lack of proper integration. The use of ICT aims at enhancing the effectiveness of the entire teaching-learning process and to achieve this end there is a strong need to integrate different media into the curriculum properly.

IGNOU has adopted a multimedia approach for reaching out to its learners. Different communication technologies have a pivotal role in IGNOU's instructional system though rapid technological developments have led to considerable changes in the use of different media. The multimedia packages arranged for learners include a wide spectrum of technologies from print to audio-video programmes, broadcasting, interactive radio counselling, teleconferencing, CD-ROMs, and web-based content delivery. The preparation of audio and video programmes is undertaken at the Electronic Media Production

Centre of the university. The different media and their use in the educational programmes of IGNOU is explained below.

Audio and Video

Since 1987, audio and video cassette-based programmes have been produced at IGNOU as a supplement to the self-learning printed materials. As a rule, an 8-credit course (1 credit = 30 student study hours) may contain at least 4 video and 6 audio programmes. The audio and video programmes were could be used in group learning situations with replay facilities available at study centres. In addition to the audio cassettes in non-broadcast mode IGNOU has also been using radio broadcast.

Radio

Radio has been perceived to be a cost effective tool for greater learning at all levels. From the very beginning, AIR started broadcasting school programmes from metropolitan cities. In 1956 it attempted to broadcast programmes for rural adults, and in 1965, programmes on agriculture and allied subjects. The use of radio in open and distance learning system started in 1965 catering to the needs of distance learners at the tertiary level. Both general and curriculum based programmes were produced and broadcast by AIR. IGNOU started broadcasting its radio programmes through AIR stations at Mumbai, Hyderabad and Shillong. The programmes were aimed at learners of both the conventional and open universities. Launched in 2001, Gyan Vani is a network of FM radio stations operating from various places in the country. It operates as a media cooperative with programmes being contributed by educational institutions, NGOs, government and semi-government organizations, and UN agencies. Gyan Vani was also intended to cater to the entertainment, information and educational needs of local audiences, starting from primary school to tertiary level education.

Television

In India, television was first used for education as a pilot project in 1959, in some selected secondary schools of Delhi. With the availability of the American satellite, ATS-6, Satellite Instructional Television Experiment (SITE) was conducted in 1975–76 as an attempt to use TV on a mass scale for improving the quality of primary education in rural areas. Indian National Satellite System became operational in 1983 and national school television was introduced. The IGNOU-Doordarshan telecast started in May 1991 through the national network of Doordarshan, for provide tele-counselling to students of open universities in remote areas. In January 2000, Gyan Darshan, the exclusive Educational TV Channel of India was launched jointly by the MHRD, Prasar Bharti (Broadcasting Corporation of India) and IGNOU for the benefit of Indian learners. Gyan Darshan now has capacity for three channels to deliver educational programmes and has become a nationwide platform beaming educational programmes round the clock for all categories of learners.

Teleconferencing

Teleconferencing was introduced in India by the UGC in 1991 and subsequently by IGNOU as an additional element of interactivity to supplement satellite-based television broadcast. The first 10-day experiment on teleconferencing for distance Education, conducted in October 1993, highlighted the issue of interactivity. It further led to its regular use, by IGNOU and other organizations, for education, training and business meetings. IGNOU now uses this facility to motivate learners through induction programmes, to train counsellors and to conduct extended contact programmes as well as contact with the Regional Centres for various administrative facilitations. Gyan Darshan is being used for extensive coverage.

EduSat

Satellite services have been used in India for about three decades now. The Satellite Instructional Television Experiment, the world's largest techno-social experiment, was carried out in India during 1975–1976 with the help of ATS 6 Satellite of the USA. Since then, satellite has become an integral part of Indian broadcasting and telecommunication services. The Indian National Satellite (INSAT) system provides telecommunication and broadcasting services, as do several foreign satellites. A revolutionary change and progress in the satellite-based educational communication in the country occurred in September 2004 when a satellite fully dedicated to education and training was deployed. The channel provides facilities such as digital resource repository, virtual classrooms, data transmission, and video-on-demand.

Interactive Radio Counseling

IGNOU-All India Radio (AIR) broadcasts were started in 1992 for students of distance education. In 1998, Interactive Radio Counselling (IRC) was started as an experimental programme, for one year at the Bhopal AIR, to provide on-the-spot advice to the learners. In March 1999, IRC was extended to 8 other AIRs. With the support of AIR and its own Gyan Vani Network (IGNOU) has been using interactive radio too cater to the needs of the distance learners all over the country. This particular facility is being shared with state open universities also.

Educational Broadcast

Educational broadcasting in India is more than 40 years old. UNESCO played an important role in promoting use of electronic media for education. In 1961, the Delhi School Television Project was initiated in about 150 higher secondary schools of Delhi. (Agrawal, 2005) Since then, both radio and television have been used for educational broadcasting. The National Policy on Education (1986) gave due emphasis to educational broadcasting. Now the recent developments in information technology have added a new dimension to learning.

Electronic Media Production Centre at IGNOU

The Electronic Media Production Centre (EMPC) of Indira Gandhi National Open University (IGNOU) has emerged as a major hub for the use of electronic and broadcast media in distance education. It is aimed at reaching the learners using a variety of communication technologies. The major activities undertaken by the Centre are the production and dissemination of educational audio-video programmes. It produces curriculum-based audio and video programmes to supplement the SLMs (Self Learning Materials) of various academic programmes and courses of IGNOU.

Table 6.1: Programmes Produced by EMPC

S. No.	Programmes Produced by EMPC	In the year 2011-12	Cumulative Total
1.	Video Programmes	274	3940
2.	Audio Programmes	222	1777

(Source: Indira Gandhi National Open University, 2012)

Over a period of time it has diversified its activities manifold, from production of audio and video programmes to interactive transmissions through radio and television and Edusat based teleconferencing. EMPC serves as a nodal centre for managing Gyan Darshan channels and Gyan Vani Stations. The facilities are being shared with various educational and training institutions, State Open Universities, Central and State Govt Ministries/Departments, NGOs, corporate bodies and other sectors. EMPC also provides technical, professional and

academic expertise for various training and capacity building programmes of IGNPOU and other institutions. EMPC coordinates the following:

- Gyan Darshan: A fully digital 24 hour exclusive Educational TV channel.
- Gyan Vani: Stations which relay programmes contributed by the government, NGOs, state open universities, governmental institutions et cetera.
- Teleconferencing: One-way video and two-way audio teleconferencing facility.
- Interactive Radio Counselling: A live phone-in counselling program.
- Education Research and Training (ERT): ERT unit of EMPC is engaged in developing academic programs, conducting research and training related to media and communication.

Gyan Darshan

Gyan Darshan is a major milestone in the field of Educational Television in India. It is a joint venture of Ministry of Human Resources Development (MHRD), Ministry of Information and Broadcasting (I&B Ministry), IGNOU and Prasar Bharati. IGNOU is the nodal agency for coordinating and up-linking the bouquet of four educational TV channels under the banner of Gyan Darshan (GD). It has four round-the-clock channels offering interesting and informative programs for school-going children, college students, and youth seeking career opportunities.

- *GD-1* is a 24-hour exclusive educational channel which telecasts educational programmes for target audience of different age groups. Programmes of NCERT/CIET, IGNOU, NIOS, DST and others as well as programmes acquired from independent producers and foreign broadcasters are telecast through this channel.
- *GD-2* Channel is an interactive channel used by the university for tele-counselling, tele-training and tele-convocation. Important nationwide programmes for IGNOU learners, lectures by eminent experts/dignitaries, discussions with Regional Centre (RC) staff, tele-counselling sessions for various programmes are being conducted through this channel.
- *GD-3,* known as Eklavya Channel, is exclusively devoted to technology education for the benefit of students of IITs and other engineering colleges in India.
- *GD-4* called Vyas Channel, telecasts higher education programmes produced by EMMRCs under UGC's 'Country-wide classroom'. *GD-4* is co-ordinated by Consortium for Educational Communication (CEC), University Grants Commission (UGC).

Gyan Vani

Gyan Vani, is an educational FM Radio Channel operating through several FM stations from various cities in the country. At present, around 37 FM stations are operational. Gyan Vani aims to enhance and supplement the teaching learning process by reaching the learners through a low cost popular mass medium using interactive formats. Gyan Vani Stations operate as media cooperatives with the day-to-day programmes contributed by various educational institutions such as NCERT, NIOS, IGNOU and State Open Universities, NGOs, Ministries, government organisations and foreign broadcasters. Each Gyan Vani Station has a range of about 60 kms and covers an entire city/ town including the adjoining rural areas. Gyan Vani serves as an ideal medium for niche audience addressing the local educational, developmental and socio-cultural requirements. The flavour of the channel is by and large local and the medium is English, Hindi or language of the region. Live phone-in programmes are popular components of the network.

Virtual Classroom Network

Edusat is a collaborative project of ISRO, MHRD, IGNOU and State Departments of Education. This satellite provides interactive distance education system through audio-video streaming and data exchange facilitated through a computer network. IGNOU has already established 182 SITs (Satellite Interactive Terminals) across the country to facilitate regular two-way video conferences. The teaching end is co-located with the Hub (earth station) at EMPC, IGNOU. The Hub serves the IGNOU network as well as seven other networks of other institutions.

Interactive Radio Counseling (IRC)

Interactive Radio Counseling (RC) facility is being provided by GV Stations to enable students to interact with the faculty, academic counsellors and student support staff. The IRC sessions are conducted by Regional Centres through respective Gyan Vani Stations. A toll-free telephone facility is available to enable learners to interact with experts.

Media ICT Initiatives & Practices in IGNOU

The lndira Gandhi National Open University (IGNOU) has emerged as a national resource centre for open and distance learning (ODL), with international recognition and presence. The university uses a variety of media and latest technology for providing continual professional development and training to all aspirants for further empowerment through education. At IGNOU emphasis is laid on developing interactive multimedia and online learning, and adding value to the traditional distance education delivery mode with modern technology enabled education within the framework of blended learning. To reach out to the unreached IGNOU has taken certain major initiatives towards the development of interactive multimedia content and learner support through web-based platforms for the distance learners. Some of the initiatives taken up at IGNOU are eGyanKosh, FlexiLearn, Education Broadcast. These are mentioned below.

IGNOU's eGyanKosh

IGNOU initiated the development of a knowledge repository in October 2005 to store, index, preserve, distribute and share the digital learning resources developed by the ODL institutions in the country. This repository, named eGyanKosh (www.egyankosh.ac.in), has emerged as one of the world's largest educational resource repositories. It offers free, open access and is available to the world to facilitate self-learners and empower educators (Fig. 6.1).

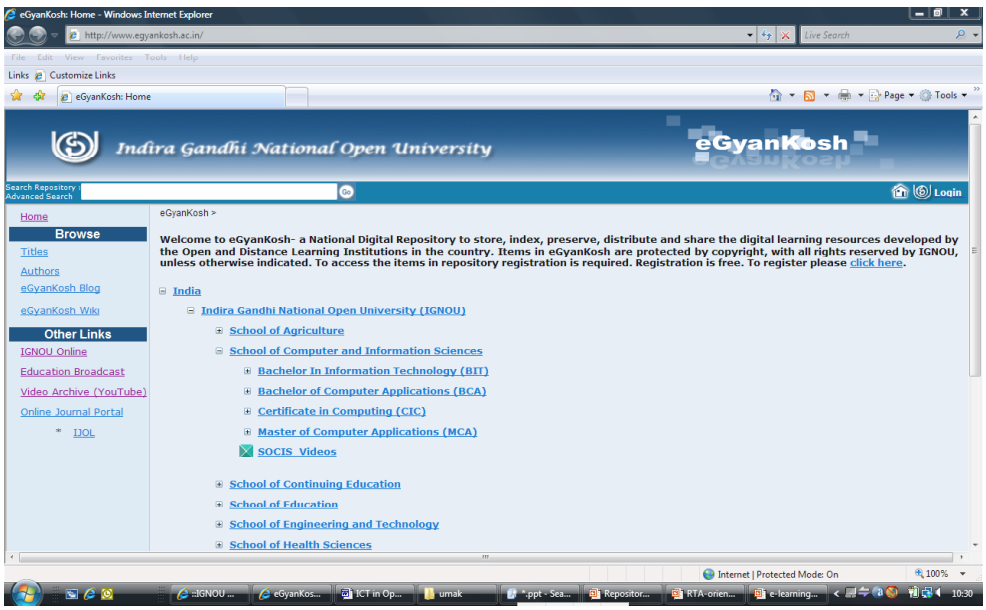

Fig. 6.1: eGyanKosh Main Page
(Source: *http://www.egyankosh.ac.in*)

Around 95 percent of the self-instructional print material (around 2481 courses) of IGNOU and more than 2,200 courses and 2,000 video lectures are available online through the repository. The print-based contents are available as PDF files and the video programmes are provided through a YouTube channel (Fig. 6.2). established for eGyanKosh, with the metadata link in the repository. The repository also has a wiki for collaborative content generation.

FlexiLearn

The facilities of eGyanKosh have been further extended with a FlexiLearn platform. The FlexiLearn website (www.ignouflexilearn.ac.in) is a personal learning space where free learning resources are integrated with a learning management system for anyone who wants to learn, whatever their educational needs and experience. Any one can register and explore courses for free (Figure 6.3). More than 936 open courses are available on FlexiLearn for self guided and self-paced learning.

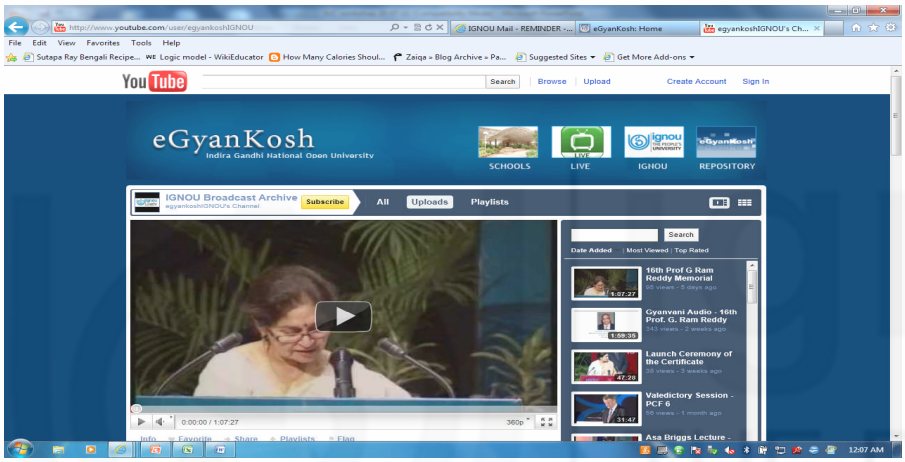

Fig. 6.2: IGNOU-YouTube Collaboration

(*Source: http:// www.youtube.com/user/egyankoshIGNOU)*

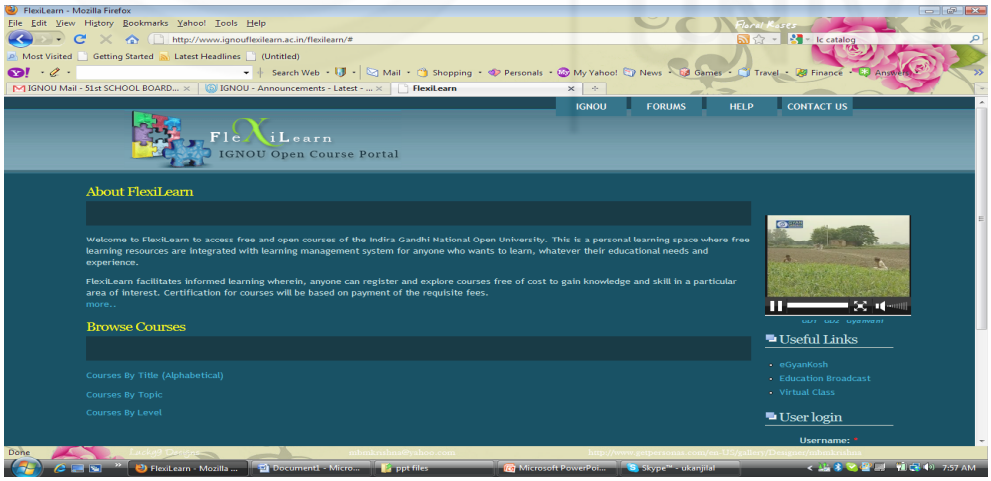

Fig. 6.3: FlexiLearn Main page

(Source: *http:// www.ignouflexilearn.ac.in)*

The idea is to promote self-learning through community-based interactions with built-in Web 2.0 tools. (Kanjilal, 2013). Whilst anyone can register for free to access the online courses, for certification requisite fees have to be paid through an online payment gateway. To earn a degree or diploma, the learner will have to fulfill necessary qualifications and complete the programme as per the university's established standards.

Education Broadcast

Fig. 6.4: Education Broadcast

(Source: *http:// www.ignouonline.ac.in/Broadcast)*

Live educational programmes are available through the webcasting facility at Education Broadcast (Fig. 6.4) (www.ignouonline.ac.in/Broadcast). This webcasting platform provides access to broadcast channels such as Gyan Darshan-1, Gyan Darshan-2 and Gyan Vani (Delhi), with many more channels planned for addition. The platform supports multiple operating systems, processors and devices.

Online programmes

Fig. 6.5: IGNOU Online

(Source: *http:// www.ignouonline.ac.in)*

The university at present is offering 27 major online programmes (Fig. 6.5) using an eLearning platform developed in house, and more than 5,000 students are registered for these programmes. The platform provides a complete virtual learning environment covering all the activities, from registration to certification. The platform has integrated tools for question bank generation, course management, assignment management, online examination etc. The eLearning platform is mainly used to provide interactive services to learners both in real time and asynchronously (Kanjilal, 2013).

Pan-African e-Network Project

Pan-African e-Network Project is another major initiative on the online education front where IGNOU is participating. This is a collaborative project of the Ministry of External Affairs, Telecommunications Consultants India Limited and IGNOU, under which IGNOU is to provide tele-education to 53

countries of Africa. This ICT project between India and the African Union seeks to enable sharing of expertise in the areas of tele-education, telemedicine, resource mapping, e-governance and e-commerce. The project links 7 Indian and 5 African universities, 12 Indian and 5 African super-specialty hospitals and 53 telemedicine and tele-education centres in Africa. Regular Tele-Education live sessions are being conducted from India. The project is now proposed to be expanded to establish the Indian Africa Virtual University. As part of its objectives, the virtual university will formulate academic programmes, promote collaborations for distance education, coordinate special action plans and strengthen the consultation mechanisms on education between India and African nations.

National Knowledge Network

The National Mission on Education through ICT, launched in 2009, aims to leverage ICTs for enhancing the teaching learning experience of learners. A high-speed digital broadband network, the National Knowledge Network, is envisaged for interconnecting the country's major research and educational institutions, colleges, and universities. A structured empowered committee will be in charge of coordinating the activities of creation and implementation of the content, application, and establishment of the network. The Mission has two major components: content generation and providing connectivity, including last mile connectivity for students and institutions. On the content generation front, a wiki style collaborative platform under the supervision of content advisory committees is envisaged. Renowned institutions and educators will be part of the content generation effort and different activities in respective areas of excellence may be coordinated by them.

Sakshat Portal

The Sakshat Portal (www.sakshat.ac.in) launched by the MHRD in 2006 is a single window portal for all education-related needs of students, teachers, and lifelong learners. It provides a range of services from informational services like details of scholarships, tests, educational resources, as well as interactive services like a discussion forum, one-on-one sessions with teachers, career counselling, and video conferencing facility. Sakshat has been designed and developed with the help, cooperation and participation of the Indira Gandhi National Open University (IGNOU), Delhi University, Indian Institute of Science, Indian Institutes of Technology and other educational institutions. The portal addresses the educational requirements of learners from Kindergarten to PhD. All the e-learning content is disseminated through Sakshat portal free of cost. The portal offers various online courses under Spoken tutorials and NPTEL programs.

Distance Education Program (DEP-SSA)

The Distance Education Programme (DEP) is a major intervention under the Sarva Shikha Abhiyan, created by the MHRD, Government of India to implement the distance education activities under SSA in the country. This national level project aims to provide need-based and local specific training to teachers and other elementary education functionaries associated with SSA by employing the open distance learning mode. Through the DEP-SSA, teacher training is imparted without dislocating the functionaries from their place of work and is paced as per their convenience. The DEP-SSA strengthens the on-going efforts of capacity building at elementary education level, through multimedia inputs which include print, audio, video, multimedia and teleconferencing, thereby facilitating work place and multimedia based training and content generation. Indira Gandhi National Open University is the nodal agency responsible for implementing the distance education component throughout the 28 states and 7 Union Territories of the country. The DEP-SSA strengthens the ongoing efforts of capacity

building at elementary education level through distance learning inputs such as development of Self Learning Material (SLM), Audio/Radio/Video scripts, Multi-Media Package (MMP), Users Manual for Distance Learning (DL) Materials and training through teleconferencing

Rajiv Gandhi Project

The Rajiv Gandhi Project for EDUSAT (Education Satellite) Supported Elementary Education (RGPEEE) is another initiative aimed at harnessing the benefits of EDUSAT. It is a collaborative project of MHRD, IGNOU and ISRO. It is operational in Madhya Pradesh, Bihar, Chhattisgarh, and, Uttar Pradesh. The project promotes the use of EDUSAT in enabling teachers to incorporate ICT in elementary education. It aims to provide education through massive satellite connectivity up to grass-root level. The focus of the project is on development of district level networks for interactive online modes of communication to meet the education and training requirements. The district networks connecting more than 862 Schools, District Institute of Education and Training (DIET) and Block Resource Centres (BRCs) in the districts have been set up. Apart from providing training to the school teachers, the facility of tele-medicine is also provided by connecting selected District Hospitals.

SMS Alert Service

SMS Alerts Services were first launched by IGNOU on November 2008 at its headquarters in New Delhi and a select number of regional centres across the country. At present SMS Alerts Services enables all its 48 regional centres, 21 schools, 15 centres and 12 divisions to send SMS to their respective students in their jurisdiction. This enables each and every constituent department of IGNOU to send communications by SMS to the learners and other stake holders attached to them. The SMS service aims to reduce the communication gap between IGNOU and its learners.

IGNOU: Policies and Perspectives

The adoption of ICT in education system requires proper planning, basic policies related to infrastructure, connectivity and communication. The use of ICTs in education has influenced the delivery mechanism and the content of education. These developments also necessitate proper implementation strategies at the institutional level to ensure proper use of ICTs for improving the quality and efficiency of education. Policies, standards and guidelines related to the development of quality content help to ensure quality in the digital content being produced. IGNOU has been a pioneer in the use of media ICTs in distance education.

IGNOU's OER Policy

The National Knowledge Commission (NKC) set up by the Government of India recommended the use of globally available OER and open access (OA) materials for achieving the widespread availability of high-quality educational resources. In India an increasing number of OA electronic journals, OA repositories and open source software based repositories have come up.

IGNOU's eGyanKosh is a significant effort towards use of OER in higher education. The courses available on eGyanKosh and FlexiLearn so far are licensed materials and the available content is non-derivative, non-reusable and governed by copyright rules (Kanjilal, 2013). IGNOU aims to promote the use of its own as well as other OER in the teaching learning process at all levels within the university system. Towards this end, the university's Board of Management decided that all the learning resources of eGyanKosh and FlexiLearn should be offered as OER with an open license policy. The university plans to adopt an

OER policy to guide the promotion, development and use of OER and further ensure that the highest standards of education are achieved (Kanjilal, 2013). IGNOU's OER policy aims to:

- Make materials available under Creative Commons (CC) licenses.
- Support voluntary participation of faculty and others in developing OER content.
- Advise faculty and other participants on publication rights and licensing issues.
- Provide guidance in development and review of OER materials prior to sharing them on a worldwide scale.
- Define collaborations within and outside the university, with the intent to allow access to open content.

The proposed OER repository will be a platform for educators to share educational resources with others worldwide (Kanjilal, 2013). The repository will include content available as an entire course, a complete book or a more granular piece, such as a single learning object, based on the following criteria:

- The content will be made publicly available.
- The content will be made available in digital or electronic format.
- The content will be made available free, at least for educational purposes.
- The content will be governed by Creative Common licenses, making it reusable, distributable and adaptable for other audiences and technology platforms.

All materials released on the IGNOU OER repository site will be covered under the Creative Commons Attribution-NonCommercial-ShareAlike 2.5 India license (CC BY-NC-SA), which will allow anyone to freely modify, rework and extend any of the material, and later distribute it, under the following conditions (Kanjilal, 2013):

- The user provides attribution to the creator of the material (i.e., IGNOU in the case of IGNOU's learning materials).
- Material may be reused and redistributed for non-commercial purposes.
- The derivative version must be licensed under the same licence (CC BY-NC-SA).

This will enable adaptation of IGNOU materials by other institutions for noncommercial use and foster creation of derivative works by other individuals and institutions, to be released under the ShareAlike (SA) licence.

The university plans to provide resources of the highest quality through its OER repository. The reviewing process will be carried out at different levels. In addition to the review processes, users will be able to leave comments and grade content. At the university level, an OER Board is proposed to review policy, as well as the production, delivery and access processes for OER. With the adoption of its OER policy, IGNOU will be the first university in the country to offer all its educational resources under Creative Commons open licenses. The university is now in the process of implementing the policy and setting up the OER platform for content development and sharing.

Conclusion

Educational multimedia systems have come to play a pivotal role in the teaching learning process of today promising to make learning easier, more convenient, and thus more effective. In this unit we discussed about the use of Media ICTs in education systems especially the ODL systems of today. A policy framework enables in proper development use of ICT in education at all levels. We discussed the ICT policies related to the use of ICT in education taken up by various developing countries such as India, Pakistan, Maldives, Bhutan, Sri Lanka, and so on. Most of the countries in Africa have also developed or are in the process of developing national ICT policies. We examined the policy framework in India which has laid immense stress on the overall importance of using ICT for improving education. We also discussed a large number of meaningful initiatives taken up in India for utilizing ICT to augment the overall quality of education. These initiatives span different levels of education (primary, secondary, and tertiary) and different types of providers (government, public, private). We also discussed the multimedia approach adopted by IGNOU for reaching out to its learners. The instructional material is provided through wide spectrum of technologies from print to audio-video programmes, broadcasting, interactive radio counselling, teleconferencing, CD-ROMs, and Web-based content delivery. The preparation of audio and video programmes is undertaken at the Electronic Media Production Centre of the university. Towards the end of the unit, we discussed certain major initiatives taken up at IGNOU towards the development of interactive multimedia content and learner support through web-based platforms for the distance learners. Policies, standards and guidelines related to the development of quality content help to ensure quality in the digital content being produced. Towards this end IGNOU has adopt an OER policy to guide the promotion, development and use of OER

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Dear Student,

While studying the units of this block, you may have found certain portions of the text difficult to comprehend. We wish to know your difficulties and suggestions, in order to improve the course. Therefore, we request you to fill out and send us the following questionnaire, which pertains to this block. If you find the space provided is insufficient, kindly use a separate sheet.

Questionnaire

Enrolment No. ☐☐☐☐☐☐☐☐☐

1) How many hours did you need for studying the units?

Unit no.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
No. of hours										

2) Please give your reactions to the following items based on your reading of the book:

Items examples , if	**Excellent**	**Very Good**	**Good**	**Poor**	**Give specific**	**poor**
Presentation Quality						
Language and Style						
Illustrations Used (diagrams, tables, etc.)						
Conceptual Clarity						
Check Your Progress Questions						
Feedback to CYP Questions						

3) Any other comments:

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