

Distance and Flexi-Education and Training of Constructional Professionals

K.N. TRIPATHI¹ and PANKAJ KHARE²

¹Delhi University, Delhi, India

²Indira Gandhi National Open University, New Delhi, India

Abstract: *Distance Education represents a variety of educational models that have in common the physical separation of the faculty member and some or all of the students. (IDE, 2000). Of late, distance education has emerged as a tool to cater to the needs of masses and has played an important role in life-long-learning of knowledge based society. The requirements of flexibility and competitiveness are imperative to economic transformation in today's insecure world of work that is always in a state of flux. Shifting workplace and job necessarily causes concern for quality, skills encompassing wider connotations, and capacity to learn 'how to learn'. The new Millennium will be characterised by accelerated rates of change which includes change in delivery of higher education and opportunities for continuing education and training.*

There is and has always been a gap between education and its utilisation in industry. In order to cope with the fast changing working culture and to have workforce with multifaceted capabilities and multi-skills, the organisations have created their own training and orientation centres. These training centres provide customized knowledge to mould unskilled/semi-skilled worker into skilled to multi-skilled workforce.

In India, the construction industry, the second largest after agriculture, has a critical role to play in terms of developing the infrastructure to sustain the desired rate of growth of economy. This sector does have the training and skill improvement centres but the mass population engaged in the construction industry gets little or no opportunity to get trained for the job assigned to them.

Open and distance learning as a system, with its capability for mass dissemination of education, thus, turns out to be the only viable alternative to generate a skilled workforce. Indira Gandhi National Open University, as a premier institute in the area of open and distance learning system, using the acquired experience in designing, developing and delivering multi-media self instructional materials, multi-channel delivery of instructional inputs, provision of support services, and on-line networking is capable of cooperating and collaborating with industry in generating the workforce required by the nation. It is in this order, IGNOU-CIDC (Construction Industry Development Council) collaboration has allowed launching of certificate programmes (Construction Workers Vocational Qualification) to upgrade the skills of the construction workers. The present paper tries to look into the capabilities of distance education, and open learning institutions in organizing industry-customized training by collaborating with the partners.

Introduction

Lifelong learning is a crucial imperative in knowledge-based societies characterized by rapid technological, economic, cultural and demographic changes. The new millennium will be characterized by accelerating rates of change. This applies immense pressure on individuals for skilling, reskilling and multiskilling in response to the changing demands for “work skills” and “life skills”. The requirements for flexibility and competitiveness are a necessary corollary to economic change in the increasingly “insecure” world of work (Khan, 1999). The types and organisation of the workplace and of skills needed by workers and employers are in a constant state of flux. In order to cope with these changes, it has become essential to build flexible, multiskilled workforce. Supporting the capacities of workers to shift from one task to another, one workplace to another and even from one job to another becomes crucial in this context. In the future, autonomy in groups/networks; concern for quality; analytical and decision-making skills; and capacity to learn ‘how to learn’ would acquire increasing significance at the workplace.

The period from 1969 onwards has been the most progressive period for the development and credibility of distance and open education in the world. The establishment of open universities in the 1970s and 1980s have been attributed to several factors, such as :

- increase in the opportunities of university education
- realization that adult persons with jobs, family and social commitments constituting a large group of part-time university students
- offering continuing education opportunities to the individual, society and among them the disadvantaged groups.

There are 38 Open Universities in the world. Majority of them (25) are in the Asian Continent, 6 in Europe, 3 in South America, 3 in North America, 1 in Africa and none in Australia (IDL Database, 1998). However, Australia has a very strong dual mode system to promote distance education. It is quite obvious that distance and open education is being adopted in more developing countries, as there is a greater need to expand educational opportunities to cover larger proportions of their populations. In India, there are 10 Open Universities including one operating at international level (IGNOU). Distance Education in general has been promoting unconventional educational programmes everywhere. Here we look at its potential in retraining the construction workers in India.

The Indian Construction Industry : Needs for Skilled Workforce

In India, the construction industry is the second largest industry, next only to agriculture (Saxena, 1999). The construction industry has a critical role in infrastructure development in the country. It has been estimated that over 100 billion dollars would have to be invested between 1997-2005 in infrastructure development (Srinivasa-Raghavan, 1999) to sustain the required 7-8% growth in the Indian economy. The huge volume of human power required to sustain the construction industry with the concomitant needs for knowledge and skill upgradation and multiskilling can be appreciated in this context.

Rough estimates suggest that at present approximately 31 million people (engineers, skilled/unskilled workers) are employed by the construction industry (Raju, 2000). Of these 3-4% are university/college educated engineering degree/diploma holders, 10% have some schooling without proper qualifications in engineering and the remaining 87% constitute an illiterate workforce.

In 1997, 15,757 civil engineering diploma holders constituted the out-turn from 1135 institutions (Institute of Applied Manpower Research, 1999) with an average growth of 10% each year. In the same year there was an out-turn of 8,862 degree holders in civil engineering from 607 institutions. In 1997, 3665 ITI s had the capacity to train 573,467 persons. The estimated stock of civil engineering degree holders in 1997 was 163,740. These figures highlight the huge demand for upgradation and reskilling of building professionals.

The training requirements of this workforce basically depends on :

- how has the work changed?,
- how is the workforce changing?,
- what are the learning needs of the new workforce?,
- what has been the impact on peoples' approaches to learning with the move to increased levels of work casualisation and outsourcing?, and
- what do these changes in the nature of work mean for the design and delivery of learning programmes? (NCVER, 1999).

With these aspects of changing growth of construction industry, the questions that needs to be asked are: Are the training houses capable of handling the training and skill enhancement of the masses of workforce with changing culture of work?; How do they really go for quality assured work completion with set targets?, What are the external resources available which can increase the potentialities of the industry?.

A survey conducted by the National Centre for Vocational Education Research (NCVER) Australia, responsible for the collection of national vocational education and training statistics and for managing employer, student and graduate survey related to vocational education and training outcomes and performance, depicts that the success of external training is more than that in-house training (Fig.1).

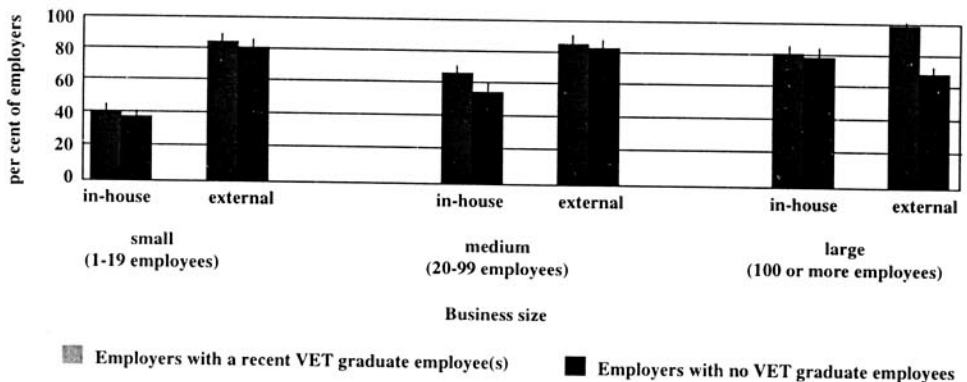


Figure 1: External Training Vs In-house Training

That means, the demand of skilled workforce cannot be met by traditional training houses within industry or by traditional educational institutions. ODL is the only alternative for provision of continuing professional development (CPD) inputs throughout the working lifespan.

ODL and Requirements of Construction Industry

ODL can be considered to be one of the most significant educational innovations of the 20th century, particularly for mass education. This can be attributed to the ability of ODL systems to address critical challenges such as access, equity, cost, need to meet demand for lifelong learning, quality and relevance. Therefore, ODL has tremendous potential to transform educational provision in developing countries. Bridging the geographical and transactional distance between teacher and learner provides unique opportunities to meet the rapidly increasing demand for learning throughout life in resource-scarce environments. The mass workforce engaged in construction industry can be addressed by ODL for strengthening the educational base for further utilization of technological know-how, and research conducted elsewhere without disturbing the work.

The rapid growth of open and distance learning systems in the country can be attributed to key features such as learner-centredness rather than teacher-centredness, ease of access, cost effectiveness, flexibility, use of modern information and communication technologies, resource sharing, modular programmes/courses/training capsules. All such areas directly link up with the functioning of the construction industry workforce. The target learners thus can have independent studies where print materials can serve as educational tool; cost of learning could be very low; the studies do not hamper the work assigned; and technological innovations and developments can become effective facilitators.

The design, development and production of self instructional, multi-media materials in ODL institutions, such as that of IGNOU focus on the following steps:

- identification of educational needs and target groups
- planning and design of the curriculum
- production of multi-media self-instructional materials.

Evaluation procedures focus on formative and summative assessments which suit the construction work force where grading/marketing of assignment responses (done at the workplace) and term-end examinations provide the formative and summative assessment components.

The total training programme thus can be based on three broad categories distinguishable as multi-channel delivery system :

- **Direct to learners** : with provision of print materials, audio-visual cassettes, broadcast of programmes (radio, TV, ITV etc), on-line computer network, CD-ROMs and distance learning facilitators (DLFs) or mentors or coordinators. Here, the learners shall be interacting with pedagogical tools by themselves and with locally available assistance.

- **Through Resource Centres :** Here, the learners will be detaching from the work and shall be getting formal educational inputs through study centres, work centres etc., Partner institutions, multi-media learning centers and local institutions/ organizations providing total delivery of services including counseling and examination support.
- **Through Extension Activities** (in collaboration with Governmental and Non-Governmental organizations)

Implications of technological advances

The convergence between communication and information technologies has resulted in an unprecedented increase in the capacity to generate, store, retrieve and distribute knowledge. There are far-reaching educational implications of these developments (Khan, 1997). These include:

- time, space and socio-economic factors which are no longer major barriers to learning);
- decentralized nature of the new technology that frees the learner from the technology provider);
- learners' access to a variety of learning resources;
- up-to-date information from the most authoritative and reliable sources drawn from any part of the world;
- new media that allows interactivity (the learner need not be a passive recipient of knowledge); and
- new technology that allows the learner to receive information in a variety of formats.

The new technologies have made learning a highly private, individualized experience. Concomitant with individualisation comes the growing autonomy of learners. Technology, particularly its applications in flexible, open and distance learning situations can be considered vital for increasing and widening access to learning and also for the learner to become more autonomous. The flexibility of open and distance learning methodologies is the key factor in their emergence as the primary mode for lifelong learning. Also, "learning to learn" using new technologies or, in other words, building techno-literacy can help to build the confidence to use the technology as a tool to further the learning experience even without the mediation of a learning institution (Khan, 1999). This is a major challenge for developing countries engaged in construction projects.

Collaboration between Industry and ODL Institutions

Partnerships between the construction industry and ODL institutions in the new millennium would be shaped by the following key features (Khan, 2000):

- Student volume and economics
- Learner choice and autonomy

- Mobility of jobs and people
- Explosion of knowledge and technology
- Interdependency
- Universalization

IGNOU, in collaboration with the Construction Industry Development Council, has launched a certificate programme (Construction Workers Vocational Qualification) aimed at upgrading and certifying the skills of construction workers and supervisors. The University also offers B.Tech degree programmes in the area of construction management. The modular structure of the programme also makes it possible for learners to earn an advanced diploma in the area.

The importance of standard norms for trained manpower in terms of professional competencies has been acknowledged. In the context of GATT/WTO, thirteen developed countries have come to an agreement that such norms would be formulated and become operational by 2003 (Chakraborty, 2000). Such standards would acquire increasing significance for building professionals in a globalized, networked world. We have to prepare learners for the dynamic realities in the workplace and equip them with the ability to adapt to widely varying contexts, environments and situations.

Conclusion

Today, the industries, particularly construction industry, need a ready to use workforce. They look upto educational institutions to cater to their demands right at the beginning of conceiving of human resources. On the other hand, their own training houses are not in a position to handle the vast workforce in moulding them for the requirements of growing and changing demands of the nation. Distance education has originated as a tool to bridge all the gaps as are envisaged by the construction employers and the traditional educational institutions. The multimedia approach, provision of the opportunities for continuing education, lifelong education, customised education and capability in the determination of target and direction makes distance education the only available alternative. The collaboration between industry and distance education institutions will certainly make different, and the nation will be empowered with more of skilled workforce to cater to the demand of infrastructural needs.

References

- Chakraborty, S.S. (2000) '*Relevance of HRD in Indian Construction Industry: Initiatives for Further Action*', Paper presented at the Third National Conference on Construction: Globalization – Challenges for the Indian Construction Industry, Construction Industry Development Council, New Delhi, 10-11 February.
- Khan, A.W. (1997) '*Introduction in Educational Technology 2000: A Global Vision for Open and Distance Learning*', Conference Papers, Vancouver: Commonwealth of Learning.
- Khan, A.W. (1999) '*Application of New Technologies for Non-formal Distance Learning*', Paper presented at the Panel on Lifelong Learning and Technologies, 19th ICDE World Conference on Open Learning and Distance Education, Vienna, Austria, 20-24 June.

- Khan, A.W. (2000) 'Collaboration and Cooperation in Specialized Education', Address at 27th World Marketing Congress, Institute of Marketing and Management, New Delhi, 22-25 January.
- Raju, V.S.(2000) 'Human Resource Development in Academic Institutions and Industry Related to Construction Technology and Management', Paper presented at the Third National Conference on Construction: Globalization – Challenges for the Indian Construction Industry, Construction Industry Development Council, New Delhi, 10-11 February.
- Saxena, J.M. (2000) 'Present State of HRD in Indian Construction Industry: Initiatives Taken and Plans for Further Action', Paper presented at Third National Conference on Construction: Globalization – Challenges for the Indian Construction Industry, Construction Industry Development Council, New Delhi, 10-11 February.
- Srinivasa Raghavan, T.C.A (1999) Infrastructure Development: Policy Lessons of an Ill-spent Decade, *Asian Transport Journal*, Annual Number, December.
- Institute of Applied Manpower Research (1999) *Manpower Profile-India*, <http://www.education.nic.in/htmlweb/iamrstat.htm>
- National Centre for Vocational Education Research (NCVER) (1999), <http://www.ncver.edu.au/coinfo/what.htm> and <http://www.ncver.edu.au/statistics/sev99/indsatis.htm>.
- University of Maryland, Institute for Distance Education (2000), 'Models of Distance Education, A Conceptual Planning Tool' developed by University of Maryland University College for the University System of Maryland Institute for Distance Education, <http://www.umuc.edu/ide/modlmenu.html>.

[**Prof. K.N. Tripathi**, presently serving as Professor in University of Delhi, Delh, Former Pro-Vice-Chancellor, Indira Gandhi National Open University, New Delhi, India.

Pankaj Khare, Deputy Director, Material Production and Distribution Division, Indira Gandhi National Open University, New Delhi-110068, India].