

# IDRBT's Working Paper No. 1

## Technology Based Distance Learning "A New Vistas For Banks"

- V. Radha, V. P. Gulati and K. R. Ganapathy

### Abstract

*Technology was once regarded as a back office function that rarely rose to the attention of senior management, says Comptroller of the currency (US) - Eugene Ludwig. 'Today, it is vital that the banks' senior management - right up to the Chief Executive Officer - understand the risks and opportunities presented by technology'. Never before has the rapid increase in new knowledge and technology and in the base of change itself demanded a learning response as great as what is now required to remain competitive ..... Today, individuals and organizations must become continuous learners. It is not surprising to find that most successful organizations operate in a continuous learning mode.*

- Michael J. O'Brein, Ed.D.

- Learning organization Practices Profile

### 1. INTRODUCTION

Distance Learning is one of the ways of training in which the training goes to the trainee instead of the trainee coming to the trainer. Distance learning systems use TV networks, computer networks, self-learning material sent by post and PC-based modules that are entirely different from the traditional class room training. The nature of work is changing constantly, compelling the employees to adapt to new concepts, management and technology. Today's employee is knowledge hungry. He/she is constantly in search of knowledge, updating his/her skills so that he/she can compete with the dynamic world. To keep pace with the demands, the training methods are changing dramatically, Distance Learning (DL) through computers being one of them.

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**We are thankful to Dr. A. Vasudevan, Executive Director, RBI for his valuable suggestions and time he could spare in helping us to prepare this paper since its inception.**

This paper explores –

- Why ‘continuous learning’ is necessary for an organization ?
- Towards the development and training trends in Banking sector
- The traditional ways of training and their limitations
- Distance Learning Methods
- Methodology to develop a computer based training
- Distance Learning through WEB
- Learning Environment Plan of IDRBT

## **2. NEED FOR CONTINUOUS LEARNING**

The rapid changes in technology make the skills of the workforce obsolete very fast demanding the need for continuous learning to keep pace with technology. To compete effectively and particularly with the global banks, Indian banks have to adapt new technologies. While new technologies enable an organization to operate efficiently, they make many demands at the policy making level and the management of change will be a challenge at the operating level. Technology deployment for organisational efficiency and consumer satisfaction can be a daunting task. These changes have to be reflected across the banking industry consistently, requiring continuous updation of knowledge and bringing in technology awareness in employees at all levels. This would have to be achieved by providing training to bank personnel on the changing systems and procedures at the right time.

The transformation of an organization would invariably depend on the role assigned to the ‘training and education’ within the organization. Organizations must get away from the temptation of providing quick-fix training solutions, and must concentrate on the process of developing a total learning culture. Philip J. Harkins - places this idea in a future perspective with the remark: “Public and private education is not producing enough talented workers who are prepared to meet the challenges of our New Worker/Learner Age”. Mr. Harkins suggests the following to accelerate the evolution of continuous learning organisation:

- Centralize the role of education
- Tie the educational mission to the company's strategic goals
- Make a long term continuing commitment to educate employees by treating education as part of the operating budget
- Find new and better ways to speed up the training and development of employees at all levels

Steven J. Gill argued: "Modern businesses are good at creating infrastructure for decision making. They are not good at creating infrastructures for learning. But learning and the application of learning are critical to organizational success in the knowledge age".

### **3. TOWARDS THE DEVELOPMENT AND TRAINING IN THE BANKING SECTOR**

Banks in India play crucial role in promoting India's overall economic growth. Banking and financial institutions are witnessing major changes from 1992. Narasimhan Committee's Report (1991-1992) was the first major report to discuss the financial sector reforms in detail. Further structural changes have been recommended by subsequent Committees such as the Committee on Capital Account convertibility and the Narasimham committee II on Banking Sector reforms. The changing economic and financial policies and competition from new private and foreign banks are forcing Indian Public Sector banks to change their strategies and policies. Besides, the ethos of efficient customer services that has evolved in recent years has brought in a refreshing change in the outlook towards Information Technology (IT) - IT works as a tool that supports management in bringing out higher productivity and efficiency in the operating environment. The IT adoption in banks, however, requires acquisition of new skills, knowledge, attitudinal change in bank employees at all levels, change in work methods and work culture, Human Resource Development (HRD) policies etc. There is a growing need for appointing 'Chief Knowledge Officers' (CKO) to oversee the knowledge management projects. The CKO can bring out the organisation's best practices and past lessons learned, worldwide trends in the banking sector to the fingertips of every employee.

Banking is one special industry, which has to build cadres through job rotation, encouragement of self learning supported by ongoing formal training and education. To train employees in the emerging areas of banking, the industry in general and individual banks in particular should become self sufficient in training infrastructure in terms of equipment, trainers, training material and training methods. The training should be of high quality based on focussed studies on various topics related to banking – like payment systems, capital markets, corporate finance, financial management, risk management, general banking, Electronic Funds Transfer (EFT), security management and topics related to technology that are fast changing the banks' operating methods such as Information Technology, Computers & Communications, Computer Networks, Network security, Multimedia, Data warehousing. The training courses and training materials have to be continuously updated to cope with the changing business environment. This calls for new methods in developing and updating training material. Training schemes should ensure that training reaches every one, should be received as soon as necessary and should be conducted in ways that would not interfere with everyday work.

#### **4. TRADITIONAL TRAINING METHODS**

4.1 The traditional approach is to set up a training institute and hold regular courses for the bank employees away from office premises and during office hours. This is a laborious process, simply because of the large number of branches to be covered and the very high staff strength to be served. Annexure - 1 gives bank-wise staff and number of branches of public sector banks. From the Indian banks context the task of training through the setting up of institutes should not be the only way to address the problem of training needs. The problems with this method are in fact many. Some of them are :

- Given the vast network of banks and the large workforce with diverse skill promotion, training institutes find it difficult to impart training in a uniform and efficient way.
- As the training sites are away from the work place, not all the employees can be given training and ultimately very few employees would be sent from each bank resulting in little impact of training in the system.

- Absence of coordination between training programmes and the actual work needs.
- The number of employees to be trained at a time are restricted to a few (20-30) and so the same training course has to be scheduled again and again. Apart from the high operational costs for conducting such courses, the course becomes repetitive for the trainers.

4.2 Yet another method of training is to impart trainings to employees at their workplace by sending the trainers to the workplace. This is also a very costly solution as the banking network has spread across the length and breadth of the country.

While it is true that no other way of teaching can be as effective as direct communication by an instructor, it is very difficult to engage instructors to impart continuous knowledge to such a large number of employees and still expect the instructors to be up to date and versatile. The traditional training systems in banks were therefore not cost and quality effective. Through 'Distance Learning' particularly using computers and communication, a wide range of audience can be targeted and training material can be updated and delivered to the audience quickly.

#### **5. DISTANCE LEARNING**

Distance Learning reverses the traditional approaches to training in that it brings the training and training material to the desk of the trainee. The concept of distance learning can also be viewed in two ways. First is distance learning conducted through distribution of materials in the form of paper, audiocassettes, videotapes by post and by broadcasts of television and radio programs. Feedback from students under this method was also by means of post, telephone or meetings with tutors. The second and more promising way opens up new vistas of opportunities, when satellite broadcasts of studio discussions are supported by live feedback from students over audio or video conferencing links. Today interestingly the Internet-technology allows video, audio and messaging chat sessions at a very reasonable cost. Such IT-based distance learning helps in providing uniform quality education to trainees at diverse locations. This is where the future of distance learning lies.

Computers have become a major part of the work place as they can assist the employees in executing many tasks efficiently. As computers changed their face from being mere computing machines to information processing/knowledge gathering, content presentation and excellent communication tools with multimedia support, their role in education and training has become critical.

Distance learning using computers can be rendered effective by distributing Computer Based Training CD-ROM (Compact Disk – Read Only Memory) with training material to the trainees or by using Internet Technology. If a reliable communication network is in place, specialized training programs can be conducted and broadcasts to different locations can be made by using audio-video equipment and computers. It could be implemented as two-way voice and one-way video.

The Computer Based Training can be Web-enabled. As it is expensive to create CD-ROMs whenever, changes take place in the topics covered, IDRBT is planning to provide upgrades/enhancements in the topics as extensions to CD-ROMs. Clicking the button "More Information", while browsing through the CD-ROM, makes all the latest enhancements accessible to the user by connecting the user to the IDRBT web site.

## **6. COMPUTER BASED TRAINING**

Computer Based Training is one way of delivering the knowledge in an effective way. With computers having facilities to play audio, video and animation and display good graphics illustrations, CBTs have become a useful means to deliver the training courses. Employees are often seen to be able to retain more from interactive multimedia than the traditional classroom courses. A study from British Audio-Visual Association showed that people retain

10% of what they see

20% of what they hear

50% of what they see and hear

80% of what they see, hear and do.

While distance learning through other methods like postal, television and radio can make employees retain up to a maximum of 10-50 per cent of the delivered items, multimedia can retain up to 80 per cent of the delivered items. Interactive multimedia

training courses are essentially active – they encourage students to act and react, not merely watch and listen.

Multimedia has been used for some years to enhance CBT systems for off-line training – the system whereby employees leave their jobs for a day or a week in order to be trained on a dedicated system. But now as many of the employees' desks are equipped with PCs, employees are able to go through the material on CD as and when it is required. In the coming years their PCs will get connected to internet and employees will be able to go through the study material, answer questions and chat with faculty on the websites of institutions.

Some of the benefits from Training through Multimedia CBT Technology are worth noting:

- Personalized individual training based on employee's prior knowledge level
- Many people can use same course
- Travel time to attend the course away from the office can be reduced
- Employees can learn at his or her own pace, so the average training time per employee is reduced
- Full time classroom instructors are no more required
- The content and quality of each course will be uniform across the whole organization
- By forcing the trainees to answer questions before they can advance to further topics in the course, CBTs can keep the trainees more active.
- By using a variety of questionnaires like multiple choice, true/false, match-the-following and quizzes a trainee's performance not only can be checked but can keep the trainee interested and engaged in the course.

Special effects such as music and voice can be added to multimedia training courses to

- attract the attention of students
- create a particular mood
- explain the key idea, process or concept using voice narration along with still pictures or animation.

Speech processing and voice recognition is a major research area in multimedia applications. Once the technology improves and costs come down, training through Multimedia would be more effective.

**New User Interfaces:** As of now, though the multimedia PC is able to capture and playback information from multiple media, the user interface has not advanced from the existing Graphical User Interface on personal computer to take advantage of the multimedia facilities. As operating Systems such as Microsoft Windows start supporting wide range of data inputs, it is more likely that a new type of interface – Multimedia User Interface would emerge. This interface allows users to command the computer using speech and gestures.

#### **7. MULTIMEDIA CBT DEVELOPMENT METHODOLOGY**

Multimedia CBT development is not exclusively IT oriented. It requires cross-functional teams including specialists - creative writers, artistic designers, psychologists, and knowledge engineers apart from software developers and hardware suppliers. Persons with film or TV production experience would be helpful if video material has to be specially shot.

Broadly speaking, the main areas in developing multimedia for learning purpose are

- Content gathering & preparation: Content is the king in multimedia
- Design and analysis of the presentation style and interactivity design
- Programming to support and integrate the content with the presentation style using authoring tools or programming languages

For a good CBT to come out successfully all these three areas should be given equal importance. Any imbalance among them may lead to a total failure, even if one of them was done extremely well.

The existing systems analysis and design is not sufficient for CBT development as it involves parallel activities. Activities like content gathering, writing text, designing and creating graphics, audio & video production and the software development which allows the user to navigate through the material can be carried out in parallel, as these activities require different kinds of expertise and usually done by different individuals.

The following table summarizes the activities of multimedia development

Stage	Main Activities (Content)	Main Activities (IT)
Pre-Production	Design Concept Story Boarding Building Prototype Scheduling Budgeting	Project Planning Requirement Specifications Analysis & Design
Production	Image gathering Audio gathering Video gathering Design & create artwork Prepare 2D/3D animation Record audio Shoot video	Programming Unit testing Integration testing
Post Production	Edit audio, video, animation	Integrate the media with the program System testing User acceptance testing
Distribution	Transfer to other formats suitable to be distributed by CD-ROMS Distribute the final copies	Deciding on the final backup storage

## 8. MULTIMEDIA CBT DEVELOPMENT TOOLS

To carry out the above activities developers use a variety of tools. These tools could broadly be categorized as

### 8.1 Media development tools

These tools are used basically to create or edit data of different media like graphics, audio, video and animation

The popular tools used to draw illustrations: Corel Draw and Adobe Illustrator.

Edit (modify) the scanned photographs: Adobe Photoshop

2D/3D animation: Macromedia Extreme 3d, 3D Studio, AutoCad

Edit Audio: Soundforge

Edit Video: Adobe premiere

## 8.2 Authoring Tools

These tools basically allow the developer to integrate different media using media development tools in a meaningful way. Authoring tools allow the authors to specify navigation strategies through the content using hypertext, hotspot, buttons etc. The popular tools in this category are Authorware and Director. These two tools come with a scripting language providing basic programming constructs like 'if ... then', 'do.. while' to the developer to control the presentation.

## 8.3 Programming Languages

Though the commercial authoring tools like Authorware and Director are good for developing prototype applications they have limitations for developing production systems. They are not flexible enough for the developer to fully incorporate his/her ideas. Often developers have to look for a programming language that supports implement their design. Most popular among them are Visual Basic, Java, C, C++ and Visual C++.

## 8.4 HTML or Hyper Text Markup language

Authoring tools and programming languages are not enough to target all the hardware and software platforms. As browsing tools on almost all platforms are available and all of them can read files in specific format i.e., HTML – a standard to deliver the content mainly on Web, HTML files have become a popular way of delivering the multimedia content to a large audience.

## **9. DISADVANTAGES OF CBT ON CD-ROM AS A DISTANCE LEARNING TOOL**

- As the CD-ROM is of 'read only' nature, once the CD-ROM is cut, the content cannot be modified later on.
- Once the CDs are distributed, any additional content to be sent would be by floppies or another CD.

- Communication back to the author would be by post or at most e-mail
- Time gap between course preparation and delivery of the course could be high.
- Difficult to distribute CDs to the audience spread across a wide geographical area

The developer can overcome these difficulties with CD-ROMs by using internet - World Wide Web or a combination of Internet and CD-ROM: in which clicking "More Information" while navigating through the CD-ROM makes all the upgrades in the course material available to the users by connecting the users to the IDRBT web site.

#### **10. DISTANCE LEARNING THROUGH INTERNET**

Commonly referred to as Net, World Wide Web or W3, the Internet is the largest computer network in the world. It interconnects many thousands of smaller networks operated by universities, research centres, government departments, non-profit and commercial organizations worldwide. About five years back no one used Internet, but now it is fast growing by an estimated 30,000 new users per day, 1000 new Internet sites created every day. By 2000 there could be around 200 million users worldwide.

Earlier many of the Internet users were computer specialists from universities and research centres. Today it has become the common medium to obtain and share the information, learn and do business. Information on the Internet is normally free of cost, however a site can offer different levels of access to its registered members- particularly in the case of distance learning courses.

Information is made accessible on the Internet using a mark-up language called HTML (Hypertext Markup Language). This language provides a common protocol for providing rich formatted text, embedded graphics, sound, movies and hypertext. Standards in this language are still emerging to support a variety of media formats and to include more and more interactivity. ActiveX, Dynamic HTML, XML and SGML are a few in this development. To provide documents with the HTML capabilities a World Wide Web server has to be setup at the content provider site.

The CBT development methodology is almost the same as the content and media development for both the CD-ROM and Web based delivery except the integration or programming activity where the programmer generally uses scripting languages such as HTML in the case of Web targeted CBT development. But with ActiveX documents and new techniques that allow a complete application to be deployed onto Web, all activities can be same for both in near future.

In case of CBTs on CD-ROM, each CD-ROM consists of one or very few courses, whereas in case of WBT & (CBT on Web), the hosting site offers many courses to the users. The management of too many courses in the web site, archiving of multimedia content, putting them into searchable indexes, creating and managing question banks, issuing certificates etc., will be a tough task for any web master. To ease this administration process, Lotus Corp., and Folio have come up with products like Lotus Learning space from Lotus Corp., and Publisher, Builder, Site director etc., from Folio. These products help the course designer as well as web master to conduct web based courses in an effective manner.

### **10.1 ADVANTAGES OF WEB BASED COURSES**

The advantages are:

- The difficulties in using CD-ROMs could be overcome
- It facilitates any time any where learning
- Users can register themselves for the courses of their own interest
- Feed back from the users can be through online feedback forms and instant replies can be expected
- Users can form into groups of similar interest and can share the information by uploading (able to put their files in the server) their research content to the IDRBT server
- They can subscribe to various newsletters of their interest, and these can be sent by e-mail without being hooked on to Internet continuously

## 11. LEARNING ENVIRONMENT PLAN OF IDRBT

IDRBT is proposing to provide learning environment to the banking and finance sector which will have multiple effect. Traditional courses will be mainly for trainers and specialised functional executives. The programme participants in turn can train their own employees. Traditional methods will help to structure the course material for new emerging training methods.

Some of the new methods proposed are:

- Develop and distribute the Computer Based Training (CBT) on CD-ROMs
- Make available full fledged courses on IDRBT web site
- Various On-line News Letters
- On-line publishing of discussion papers and research papers by faculty, professional bankers as well as students

Figure – 1 broadly depicts the facilities proposed by IDRBT server and the databases the server will be connected to.

### 11.1 Facilities proposed to be offered by IDRBT Learning Server

<b>E-Mail</b>	For trainees to interact with the faculty
<b>Chat</b>	For on-line interaction between two or more persons (Trainees and trainers)
<b>Electronic Bulletin Board</b>	A 'Notice Board' where information can be placed by selected authorized persons and accessed by all.
<b>Discussion Groups</b>	Various discussion groups can be formed based on topical interest and individuals can subscribe to the topics' groups they are interested in and the whole group can participate in those discussions
<b>Academic Schedule</b>	This service provides the users with information such as the training schedules, computer based training courses, course syllabus, conferences etc.

<b>Registration</b>	This service gives information on the services (like News letters, discussion groups, CBTs, e-mail etc) available, the ways to go about registering for these services, the charges for each service and also on-line actual registration.
<b>Bibliographic Inf. Access</b>	Users can access the library database, which has bibliographic information such as abstracts of important papers, project reports etc.
<b>Web Based Training</b>	Users can access courseware on various topics using Internet
<b>Computer Based Objective Testing</b>	Trainees can be evaluated using this on-line testing. Trainers and trainees get immediate feedback and trainers can change the course material based on the performance.
<b>On-line Queries</b>	Using this service, users would be answered regarding the services offered by IDRBT and functioning of the Institute.
<b>F A Q s</b>	Using this, an individual can get answers to their queries from the faculty on-line/off-line if the faculty is not available. The questions and answers will be recorded in a database and can be browsed at a later date.

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ANNEXURE-1

Name of the Bank	Staff Strength		B R A N C H E S				
	Officers	Total Staff	Rural	Semi-urban	Urban	Metro	Total
Allahabad Bank	6895	22831	1008	305	338	212	1863
Andhra Bank	5107	15066	383	269	207	115	974
Bank of Baroda	13664	45759	1217	451	461	326	2455
Bank of India	12144	53849	1251	431	386	388	2456
Bank of Maharashtra	3980	16852	587	173	188	199	1147
Canara Bank	14597	54316	751	617	472	421	2261
Central Bank of India	16146	50372	1438	715	517	417	3087
Corporation Bank	2948	9379	156	134	120	97	507
Dena Bank	4103	15610	497	195	222	224	1138
Indian Bank	9630	27268	562	386	312	225	1485
Indian Overseas Bank	8565	28644	577	329	248	211	1365
Oriental Bank of Commerce	4489	13580	246	228	185	96	755
Punjab & Sind Bank	4497	5356	301	111	195	97	704
Punjab National Bank	17034	67616	1921	659	676	509	3765
State Bank of India	61299	236204	4390	2290	1340	816	8836
Syndicate Bank	8641	36905	649	389	274	298	1610
UCO Bank	8790	33574	895	322	337	243	1797
Union Bank of India	9762	32764	844	444	426	316	2030
United Bank of India	5742	22301	673	203	239	218	1333
Vijaya Bank	4216	14268	267	181	212	175	835

