

E-LEARNING – EDUCATING A NEW GENERATION

ADIL SIDDIQUI

B.Tech, E.C.E, 4th Yr

INDERPRASTHA ENGG. COLLEGE

GHAZIABAD, INDIA

E-MAIL: adilz127@gmail.com

MEENAKSHI SHARMA

Associate Prof., E.C.E

INDERPRASTHA ENGG. COLLEGE

GHAZIABAD, INDIA

ANNU KARIR

B.Tech, E.C.E, 4th Yr

INDERPRASTHA ENGG. COLLEGE

GHAZIABAD, INDIA

E-MAIL: annu9karir@gmail.com

ABSTRACT

From the ages, there is a force which has made civilization possible. And that force is INNOVATION. People have thought ahead of their times and made their thoughts a reality. From the past two decades their has been an increased research interest in the field of education and methodologies of learning. And gradually various methods of e-learning and distant learning have been evolved. Globalization and technological change—processes that have accelerated in tandem over the past fifteen years—have created a new global economy “powered by technology, fueled by information and driven by Knowledge.”The emergence of this new global economy has serious implications for the nature and Purpose of educational institutions^[1]As the half-life of information continues to shrink and access to information continues to grow exponentially, schools cannot remain mere venues for the transmission of a prescribed set of information from teacher over a fixed period of time. Rather, schools must promote “learning to learn,”: i.e., the acquisition of knowledge and skills that make possible continuous learning over the lifetime. Information and communication technologies (ICTs)—which include radio and television ,as well as newer digital

technologies like computer and the Internet have been touted as potentially powerful enabling tools for educational change and reform.

KEYWORDS

ICT, infrastructural, distant learning, blended learning, e-learning, OLPC

INTRODUCTION

ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a^[2] “diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.” These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony. The United Nations Educational, Scientific and Cultural Organization (UNESCO) uses the term *ICTs*, or information and communication technologies, to describe^{:[3]}“...the tools and the processes to access, retrieve, store, organise, manipulate, produce, present and exchange in formation by electronic and other automated means. These include hardware, software and telecommuni- cations in the forms of personal computers, scanners, digital cameras, phones, faxes, modems, CD and DVD players and

recorders, digitized video, radio and TV programmes, database programmes and multimedia programmes". Any kind of technology Can be understood as a tool or technique for extending human capacity. In this sense, ICTs extend our human capacity to perceive, understand and communicate. The mobile phone enables us to speak from wherever we are to others thousands of kilometres away; television permits us to see what is happening on the other side of the planet almost as it happens; and the Web supports immediate access to, and exchange of, information, opinions and shared interests. In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. But ICTs are more than just these technologies; older technologies such as the Telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools.^[4]For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and

developing countries.^[5]The use of computers and the Internet is still in its infancy in developing countries,if these are used at all, due to limited infrastructure and the attendant high costs of access. In the field of formal education,ICTs are increasingly deployed as tools to extend the learner's capacity to perceive, understand and communicate, as seen in the increase in online learning programs and the use of the computer as a learning support tool in the classroom. Although universities were certainly leaders in engineering the Internet and interoperable computer systems to connect researchers for e-mail and data exchange, the use of ICTs for education and training has lagged behind other sectors in society. Education is seen as key in the process of achieving sustainable development.

E-LEARNING

It is a collective term for all the integrated learning methods that uses computer or the internet or various elements of element.



Fig 1: concept of E-Learning

E learning has basically 2 components, learning and knowledge management. Learning is providing of academic education based on the curriculum of the course and giving adequate training by efficient electronic methods. 2nd component is the knowledge management. This refers to both information management and technology management. Information management refers to management large quantity of information in form of electronic content and arranging that information in various courses, chapters and topic and then to different users from different fields. Technology management refers to the management of technology i.e software and hardware used in the management and distribution of the information in various ways. Thus these two elements and with the the necessary monitoring and infrastructure govern the E-learning phenomenon. The worldwide e-learning industry is estimated

to be worth over thirty-eight (38) billion euros according to conservative estimates, although in the European Union only about 20% of e-learning products are produced within the common market. Developments in internet and multimedia technologies are the basic enabler of e-learning, with consulting, content, technologies, services and support being identified as the five key sectors of the e-learning industry.

BLENDID LEARNING

Another term that is gaining currency is blended learning. This refers to learning models that combine traditional classroom practice with e-learning solutions. For example, students in a traditional class can be assigned both print-based and online materials, have online mentoring sessions with their teacher through chat, and are subscribed to a class email list. Or a Web-based training course can be enhanced by periodic face-to-face instruction.

“Blending” was prompted by the recognition that not all learning is best achieved in an electronically-mediated environment, particularly one that dispenses with a live instructor altogether. Instead, consideration must be given to the subject matter, the learning objectives and outcomes, the characteristics of the learners, and the learning context in order to arrive at the

optimum mix of instructional and delivery methods.

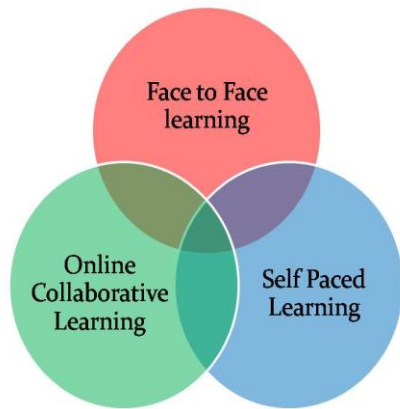


Fig 2: concept of blended learning

OPEN AND DISTANCE LEARNING

Open and distance learning is defined by the Commonwealth of Learning as “a way of providing learning opportunities that is characterized by the Separation of teacher and learner in time or place, or Both time and place; learning that is certified in some way by an institution or agency; the use of a variety Of media, including print and electronic; two-way communications that allow learners and tutors to Interact; the possibility of occasional face-to-face meetings; and a specialized division of labour in the Production and delivery of courses. Such courses are beneficial where the distance between the teacher and the learner is very large and hence face to face learning is not possible. Thus the electronic

learning material is provided to the learner by post or by internet. Nowadays instructions and lectures are also delivered online to assist the students in distant learning. And there are provisions of electronically submitting the assignments and giving exams and evaluation and grading. Distant learning have taken education, specially specialized courses and language courses to the places where face to face learning never reached or if reached was never utilized. It has made education more reachable and understandable to each and every section of the society. Nowadays people from urban areas as well as villages are taking to distant learning courses. These have specially helped women who after marriage often have to sacrifice their education. But now they can take to distant learning and get the desired course at their door step without moving out of their homes. Distance learning has also made the children and youngsters to explore greater options in education.

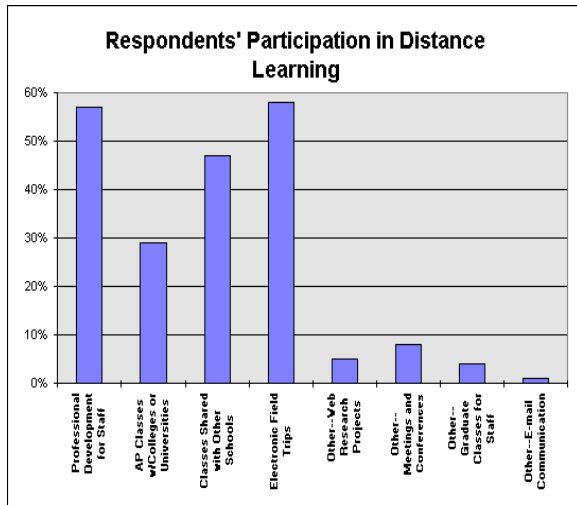


Fig 3: response to distant learning

This graph shows that the response of people towards distant learning through various means is quite high. People are increasing using this form of learning to enhance their technical skills in a very short span of time and in an economical way.

E-LEARNING CHALLENGES IN DEVELOPING COUNTRIES

^[9]These challenges are course challenges, challenges related to characteristics of an individual, technological challenges and contextual challenges.

❖ **COURSE:** The most frequently mentioned challenges concern issues relating to the course given. Concerns are raised about the content of the course, the activities undertaken during the course, the support functions provided, and the delivery mode of the course. The

first issue identified here is the curriculum which stipulates much of the course actions and content. There are discussions on the need to develop new curricula specifically designed for an e-learning setting; thereby showing awareness that e-learning is different from traditional class-room based teaching. The subject content of the course also matters and refers to what is actually being taught or learned. Some discuss whether the content is interesting and relevant, accurate, up to date and in line with the needs of future employers. The Teaching and Learning Activities (TLAs) used during a course evidently affects e-learning. Another course issue is the delivery mode of the course. One talks about different levels of flexibility and how much personalization is needed for the students to be able to pass a course. The factor concerns whether students should be allowed to learn at their own pace and take the examinations when they want and if they should be allowed to choose the medium of content delivery.

❖ **INDIVIDUALS'**

CHARACTERISTICS

The characteristics of the individual student, and in some cases the teacher, are much researched in developed countries, less so in developing ones. Student motivation is a factor that is frequently discussed in surveys on what affects students' satisfaction and capacity. Highly motivated students perform well in most cases whereas non-motivated students tend to drop out. The relation between motivation and other e-learning factors is rarely elaborated; the reasons for success or failure in the studies are simply referred to as "personal motivation" or "lack of motivation". Another factor is conflicting priorities, which has to do with the amount of time students have to, and want to, devote to the course. Having enough time for learning is an important predictor of a student's learning and retention and those who study more hours are generally more successful in their studies. A third concern is the student's *economy* and the economic prerequisites for studying. Financial difficulties and lack of student

funding can be a predictor of student withdrawal. The student's *academic confidence* seems to be another good predictor of a student's success or failure in e-learning courses. According to some research academic factors such as previous academic experience and qualifications are the best predictors of a student's performance. The students also need some technological confidence; just having access to the technology is obviously not enough.

Finally, the teachers' qualification and competence (in general and in online teaching in particular) and the time they have available for developing and taking part in e-learning courses matters.

❖ **TECHNOLOGICAL CHALLENGES**

Issues discussed are choices of technologies – radio, computers, audio cassettes, different Learning Management Systems (LMS) and so forth; the costs of using the technologies, how they are accessed and in what language they are available. One commonly discussed factor is access. The use of ICT for

distance education evidently makes access to the technology an enabling or disabling factor and in developing countries the issue of access is often discussed in terms of availability of so called telecentres and Internet cafés. Access refers not only to whether one has physical access to a computer and an Internet connection, but also to the reliability of the connection and the bandwidth – basically everything that is needed to access the full range of the content needed. A second factor is the cost of these technologies. This factor is only discussed in developing countries where there is a need for affordable and low-cost ICT alternatives (such as television, radio and telephones) and low user charges. A third factor corresponding to the technology is the software and interface design. Aspects that are discussed are whether the LMS chosen supports the chosen learning model and pedagogy and if the software is easy to use (i.e. human-computer-interaction issues). Finally there is the issue of localization; to what extent the technology and

software should be adapted in order to fit local culture and languages.

❖ **CONTEXTUAL CHALLENGES**

The context of e-learning includes the context of the delivering organisation (typically a university setting) as well as the context of the society in which the e-learning takes place, including culture, traditions, rules and regulations. A frequently addressed issue here is that of the organisation's knowledge management or knowledge building. This factor is addressed in terms of the need for a knowledge repository built on research and evaluations and some discuss the importance of sharing experiences among e-learning institutions and to establish e-learning units. E-learning programs also need economy and funding for their activities (both in terms of human resource development and for the technology). In the papers this issue is also discussed in terms of getting return of investments and cost sharing for e-learning projects. Another institutional issue is to make provision for the required training of teachers and staff, an often neglected factor.

CASE STUDIES

1) ONE LAPTOP PER CHILD(OLPC)

^[1]The One Laptop Per Child Association, Inc. (OLPC) is a U.S. non-profit organization set up to oversee the creation of an affordable educational device for use in the developing world. Its mission is **"to create educational opportunities for the world's poorest children by providing each child with a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning.**



Fig4: Logo of OLPC

MISSION OF OLPC

^[3]Nicholas Negroponte, chairman of OLPC said that "It's an education project, not a laptop project."

The goal of the foundation is to provide children around the world with new opportunities to explore, experiment, and express themselves. To that end, OLPC is designing a laptop, educational software,

manufacturing base, and distribution system to provide children outside of the first-world with otherwise unavailable technological learning opportunities. OLPC lists five core principles:

- Child ownership
- Low ages.
Both hardware and software are designed for elementary school children ages 6–12.
- Saturation
- Connection
- Free and open source

THE TECHNOLOGY

- THE XO LAPTOP



Fig 5: The XO laptop

FEATURES OF XO

- ^[5]XO is about the size of a textbook and lighter than a lunchbox. Thanks to its flexible design and “transformer” hinge, the laptop easily assumes any of several configurations: standard laptop use, e-book reading, and gaming.
- The laptop has rounded edges. The integrated handle is kid-sized, as is the sealed, rubber-membrane keyboard. The novel, dual-mode, extra-wide touchpad supports pointing, as well as drawing and writing.
- XO is fully compliant with the European Union's RoHS Directive. It contains no hazardous materials. Its LiFePO₄ or NiMH batteries contain no toxic heavy metals, plus it features enhanced battery management for an extended recharge-cycle lifetime. It will also tolerate alternate power-charging sources, such as car batteries.

NEXT GENERATION: XO 1.5 TO XO3

^[6]In 2009, OLPC announced an updated XO (dubbed *XO-1.5*) that takes advantage of the latest component technologies.

- The XO-1.5 includes a new VIA C7-M processor and a new chipset providing a 3D graphics engine and an HD video decoder. It has 1GB of RAM memory and built-in storage of 4 GB, with an option for 8 GB.
- The XO-1.5 uses the same display, and a network wireless interface with half the power dissipation.
- An XO-1.75 model is being developed that will use an ARM processor, targeting a price below \$150 and date in 2011.



Fig 6: XO 2 design

XO 3 CONCEPT

- The XO-3's new design features an all plastic tablet screen which is semi-flexible and extremely durable, and just like the original XO, the display can be optimized in both transmissive and reflective modes for

indoor and outdoor lighting conditions.



Fig 7: XO 3 concept

- The XO-3 supports many use scenarios to fulfill kids' learning needs: from horizontal book mode to portrait reading mode to multi-touch--so many hands can play and learn together on the same screen--to a full-touch keyboard and a back facing camera.



Fig 8: tablet mode

SOFTWARE SUPPORT TO LAPTOPS

SUGAR LABS

- ^[7]The Sugar Learning Platform is a computer environment composed of Activities designed to help children

from 5 to 12 years of age learn together through rich-media expression. Sugar is the core component of a worldwide effort to provide every child with the opportunity for a quality education—it is currently used by nearly one-million children worldwide speaking 25 languages in over 40 countries.

- Sugar sets aside the traditional “office-desktop” metaphor and, through its Activities, engages even the youngest learners in the use of computation as a powerful “thing to think with.” They quickly become proficient in using the computer as a tool to engage in authentic problem-solving.
- Moreover, most Sugar Activities can be shared by learners between machines—children learn as a group, not as a collection of individual users.
- Sugar runs on most computer hardware, including slower machines.

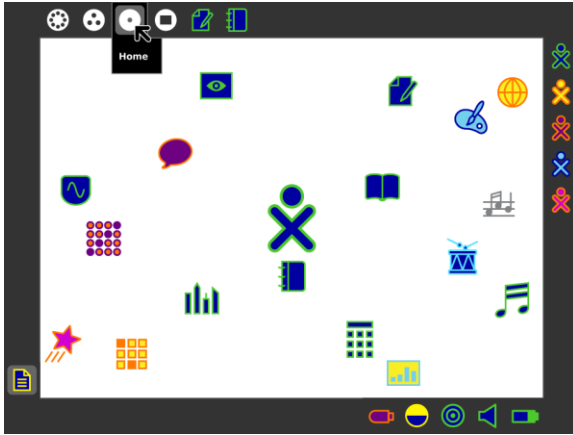


Fig 9: Sugar interface

CASE STUDY OF INDIA

❖ BRIHASPATI

This project executed at IIT Kanpur, aims at developing a platform-independent highly scalable content delivery system for web-based e learning system. It enables instructors to enhance on-campus learning by sharing course materials, having class discussions, and making assessments on the web.

It can also be used to deploy e-learning content for off-campus learning which can be self as well as mentored.

❖ MULTIMODAL DIGITAL DISTANCE EDUCATION FOR IT & OTHER CRITICAL TECHNOLOGIES

OBJECTIVE: To evolve appropriate Courseware Engg.

Methodologies for making available quality coursewares at reasonable cost. Field experiments with different modes of Digital Distances Education modes.

ACHIEVEMENTS AND OUTCOMES:

- PG Courses in 6-semester M.Tech. IT (Courseware Engineering) has been designed, developed and offered through Multimodal Digital distances Education format.
- 6 semester ME in Software Engineering course in Multimodal Digital distances Education format (Eleven module have been designed, developed).
- 4 semester M.Tech. IT (Courseware Engineering) course has been designed, developed and offered through face-to-face mode since July 2004.
- 4 semester PG Diploma course on Multimedia and Web Technology has been designed, developed and offered through Multimodal Digital distances Education format.

❖ NATIONAL DIGITAL LIBRARIES CELL

Various digital libraries formulated by different agencies in collaboration with the dept. of information technology are:

- Indian National Library in Engineering Science and Technology Consortium (INDEST), IIT-Delhi-
www.indest.iitd.ac.in
- Indira Gandhi National Center for Arts (IGNCA), New Delhi -
www.ignca.gov.in
- Vidyaniidhi Digital Library, University of Mysore. -
www.vidyanidhi.org.in
- ERNET, India New Delhi, Digital Library -
<http://www.digitallibrary.ernet.in>
- Information and Library Network Centre, Ahmadabad - Gujarat -
www.inflibnet.ac.in
- National Institute of Science Communication and Information Resources (NISCAIR), Dr. Krishanan Marg, New Delhi-110012 -
<http://www.niscair.res.in>
- V.V.Giri National Labour Institute, Noida: www.vvgnli.org

CONCLUSION

Thus we can say that ICT has the potential to replace a teacher by a computer and it is doing so with greater pace. The policy makers should make greater effort to solve the various issues coming in the path on implementation of ICT effectively in

education like cost and infrastructural needs. If these issues are dealt with effectively then the ICTs could transform the face of education in an unimaginable better way. It could take the education to the roots where it is most needed to bridge the digital gap. And once this is achieved then it is very much possible to achieve the high levels of literacy by developing countries like India.

REFERENCES

- [1] Fetaji, B. (2006). Issues and solutions in authoring e-learning content in South East European University. In P. Kommers & G. Richards (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2006 (pp. 254-259). Chesapeake, VA: AACE.
- [2] Kumar, P. (2006). Using Universal Design Principles for e-learning. In T. Reeves & S. Yamashita (Eds.), Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2006 (pp. 1274-1277). Chesapeake, VA: AACE.
- [3] Liu, L., Maddux, C. & Johnson, L. (2004). Computer Attitude and Achievement: Is Time an Intermediate Variable?. Journal of Technology and Teacher Education. 12 (4), pp. 593-607. Norfolk, VA: AACE.
- [4] Gatling, S., Stevens, G. & Quarless, D. (2005). A Case Study: E-Learning Strategies for Diverse Middle School Students. In C. Crawford et al. (Eds.), Proceedings of Society for Information Technology and Teacher Education International Conference

2005 (pp. 3553-3558). Chesapeake, VA: AACE.

[5] Johnson, K., Gatling S., Hill, J. (1997). The Black College Guide. New York: Middle Passage Publications, Inc.

[6] Felder & Soloman: LEARNING STYLES AND STRATEGIES, (Richard M. Felder & Barbara A. Soloman) (online Accessed: 20 October 2006) <http://www.ncsu.edu/felderpublic/ILSdir/styles.htm>

[8] Lee C.Y. (2000) Student motivation in the online learning environment. Journal of Educational Media & Library Sciences, 37(4), 365-375

[9] Fig 3: <http://laptop.org>

[10] Fig 4: <http://laptop.org>

[11] Fig5: Wikipedia.org, document about OLPC

[12] Fig 6: Wikipedia.org, document about OLPC

[13] Fig 7: <http://sugarlabs.org/>

[14] Fig 8: <http://laptop.org>

[15] Ueno, M. (2004). Animated agent to maintain learner's attention in e-learning. In G. Richards (Ed.), Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2004 (pp. 194-201). Chesapeake, VA: AACE.

ADIL MEHMOOD SIDDIQUI

C-37 H ROAD, Maha Nagar extension,
Lucknow,
Uttar Pradesh .India
Mail: adilz127@gmail.com
Ph: +91-9555737215 / 9935326918

Objective

Poised to contribute strong technical, communication and interpersonal skills to your firm in more than an entry level capacity, whereby securing a promising position that offers both a challenge and a good opportunity for growth in an innovative and competitive world.

Education

B.TECH.(ECE)	Inderprastha Engineering College, Ghaziabad	UPTU	Till 6 th Sem	67%
Intermediate	Cathedral School, Lucknow.	CBSE	2006	83%
Matriculation	Cathedral School, Lucknow.	CBSE	2004	87.8%

Publications

- ❖ Paper titled '**RFID based Mobiles: Next Generation Applications**' at the 2nd *IEEE International Conference on Information Management And Engineering* , at Chengdu, China in 2010
- ❖ Paper titled '**E-Learning in emerging economies: A dawn towards development**' at the *LINC 2010*, at **MIT(Massachusetts institute of technology)**, Boston, USA
- ❖ Paper titled '**RFID based Bus transit system**' at the 3rd *National Student Convention* at New Delhi in 2009.
- ❖ Paper titled '**Electronic Judicial System**' at the 4th *National Conference on 'Computing for Nation Development'* at New Delhi in 2010.
- ❖ Paper titled '**Performance Improvement in Noisy Image Enhancement**' at the *International Conference on Futuristic Computer Applications*' at Bangalore in 2010.
- ❖ Presentation on '**RFID based VOTING SYSTEM**', at Ghaziabad in 2009.

Achievements & Activities

- ❖ General Secretary of GENTRONIX –The electronics forum of Inderprastha Engineering College (Leading 700 students) in 2009-10.
- ❖ Organizer of the first ever inters collegiate Techfest of Inderprastha Engineering College, TECHNO-UDBHAV'07 (footfall of 2000 students).
- ❖ Organizer of the inter collegiate Youth fest of Inderprastha Engineering College, UDBHAV'09 (footfall of 5000 students).
- ❖ House Captain in class 12th at Cathedral School, Lucknow.
- ❖ Active Member of Rotatory Blood Bank Club in organizing various Blood Donation camps.

Awards

- ❖ Won 1st prize in Inter college competition on Marketing Plan at IPEC, Ghaziabad.
- ❖ Won 2nd prize in SMART ENGINEERS organized by *Career Launcher*.
- ❖ Won 1st prize in Debate on 'INDIA CALLING' at IPEC in 2009.
- ❖ Won 1st prize in debates on 'USED OF ARMED FORCES IN THE INTERNAL CONFLICTS OF INDIA' at ipec in 2009
- ❖ Regular Student Award at IPEC in 2008-09.

Technical Skills & Interests

- ❖ Programming languages: BASIC, C, C++.
- ❖ Operating System: Microsoft Windows.
- ❖ Communications,ICT

Hobbies

Public Speaking, Freelancing, Anchoring.
Organizing Cultural and Technical events and travelling, sports.

Projects

- ❖ Currently working on "SUBSTRATE INTEGRATED CIRCUITS AND DEVICES"
- ❖ "RFID BASED VOTING SYSTEM FOR INDIA" based on RFID technology.
- ❖ "Line follower and Wall follower" by MITBOTS in 2009.

Training

- ❖ 30 days training in RELIANCE COMMUNICATION on "SDH TECHNOLOGY"

Personal Profile

Mother's name: Mrs. Sara Siddiqui
Father's name: Mr. Afzal Husain Siddiqui
Date of Birth: 12-12-1987
Linguistic abilities: Proficient in verbal and written English & Hindi.
Permanent Address: C-37 H-ROAD, Maha Nagar, Lucknow. Uttar Pradesh .India

Declaration

I hereby declare that the information furnished above is true to the best of my knowledge.

Date: 7/1/2011

Place: GHAZIABAD

(ADIL MEHMOOD SIDDIQUI)