

Virtual education: Issues, Challenges and Prospects



A Compilation of :

Consortium For
Educational Communication,
(An Inter University Centre Of U.G.C, India)
Aruna Asaf Ali Marg,
New Delhi

© CEC, New Delhi, 2012

Published by:

**Director, CEC,
Consortium for Educational Communication,
IUAC Campus
Aruna Asaf Ali Marg, New Delhi - 110067**

**This publication is available for reference
online at www.cec.nic.in**

FOREWORD

The Indian higher education system is said to be one of the largest sector in the world with around 600 universities and 35, 000 colleges. Despite of this, India is hardly able to register 15% of the Gross Enrollment Ratio as against 23% GER at global level. The Government of India, MHRD is honestly trying its best to enhance the GER so as to bring it atleast at par with the world average. As a result, several institutions of higher education (central universities, IIT's, IIM's, Institutes of Research) have been set up in the recent past and more are likely to be established during the current five year plan. The country's priority being the health, sanitation, communication, rural development, defence etc. a sizable fund would eventually go in for attending to these interests and the education may again come later, after the former have been taken care of.

Realizing the fact that the demand for higher education shall always surpass the given infrastructure, the University Grants Commission, way back in 1984, had launched the Countrywide Classroom (CWCR) programme to experiment with the dissemination of education using some slot on national network of Doordarshan. This eventually gave rise to set up Electronic Multimedia Research Centres (EMMRC's) for production of educational programmes and Consortium for Educational Communication for co-ordinating the whole activity.

The CEC together with its 19 media centres is now entrusted with the running of 24x7 Vyas Higher Education DTH Channel and generating the e-contents for the courses at Undergraduate level based on the syllabus as approved by UGC which had further philip with the launching of National Mission for Education - Information Communication Technology (NME-ICT) by MHRD, GOI.

With the hard work of CEC and its media centres and liberal support and guidance both from UGC and MHRD, the CEC has now a repository of about 18,000 educational programmes and good number of e-Content material with Short Learning Objects and multimedia based lectures in major subjects at U.G. levels which are being broadcast on Vyas Higher Education channel and are also available on internet and World Wide Web, respectively.

A large number of private enterprises are engaged in the task of educational communication worldwide, especially in SAARC and other countries. The requirement of Life Long Learning Models and Virtual Learning Environments call for a thorough review of available models, concepts, tools, techniques and opportunities to promote Virtual Education Systems in India. It was therefore, imperative to bring all concerned experts and users to a common platform to share their expertise and knowledge. It is in this backdrop, the CEC with the support from U.G.C and in collaboration with COL/CEMCA, South Asian University and MTU Noida, U.P. organized the International convention on Virtual Education from 24th – 25th February, 2012 at India International Centre, with an aim to engage the educationists and other experts working in India and abroad, to discuss about various aspects of using the ICT for better access, quality and equity of virtual higher education with the following objectives:

- To bring the academics, broadcasting, content developer as well as the in-house and other media experts at a common platform to discuss various aspects of development, sharing and dissemination of e-learning resources.
- To deliberate on convergence in video and multimedia technology.
- The quality aspects of contents and their sharing in the SAARC countries, other international organizations.

-
- Best practices in the use of ICT towards its reach, quality with the reasonable cost while creating and disseminating the knowledge-ware.

A large number of participants from Central universities, State Universities, IIT's and other educational institutions within the country and several delegates from abroad participated in the convention. In the Convention, quality papers were presented on focused sub-themes on (i) Virtual Reality (ii) Virtual classroom vs. face to face learning – reality and myth (iii) Content development for different digital delivery platform (iv) ICT Capacity Building (v) Innovation in creation and use of content and (vi) Multimedia quality standards and benchmarks. Looking at the quality content of these papers and the extent of the interest shown by the participants in the convention, written consents of the presenters was obtained to include a summarized part of their papers in the compilation of CEC now, in hand. A group of selected Rapporteurs from CEC and media centres had done a wonderful job in putting together the salient recommendations made in the various sessions in the convention. The generic recommendations as collated based on the papers presented and discussion emerged are as under:

- Virtual Education will certainly help to enhance the GER, under the concept of anytime – anywhere learning methods. Through a consortium approach, in association with some selected universities, career oriented courses shall be organized by the CEC.
- To cope up with the demand of having trained man-power with all ICT skills, the CEC shall conduct series of training programmes to school and college teachers in instructional design, e-content development and delivering lectures for virtual classrooms.
- The CEC shall evolve a framework to establish the first VIRTUAL UNIVERSITY IN INDIA, which will offer hundreds of on-line courses using several modes of education.
- CEC shall act as a technology based solution provider to the universities in establishing virtual class rooms, media centres and media content creation programmes.
- CEC shall prepare a evolve and release a manual for quality control and assurance in Multimedia – based Learning Material production and usage.
- CEC shall have the national level knowledge portal containing the repository of e-content made for higher education.

Dr. Balasubramanian, Director, EMMRC Mysore, Mysore and Dr. Rajendra Mishra, Research Scientist, CEC were entrusted with the task of compiling this compendium. Without their untired efforts it would have not been possible to bring this compilation to you. My special thanks to them for the job well done.

I trust, that collection of these quality papers and the recommendations made in the convention shall be helpful to the academic, students pursuing ICT as career and the policy makers to enable them to accord appropriate place and attention for use of ICT in dissemination of education.

I also thank all concerned to make this convention a success and also to the contributors of the papers for this compilation.

Dr. Tilak R. Kem
Director, CEC

ACKNOWLEDGEMENTS

With the approval of Governing Board, CEC a two days International Contention "***Virtual Education: Issues, Challenges and Prospects***" was organized on 24th & 25th February, 2012 at India International Centre. We have on record that the successful conduct of the convention was acknowledged by a large number of participants including few from abroad. The convention being on international level, naturally, had to involve several people from CEC and media centres and academia at large.

I am grateful to Prof. Narendra Jadhav, Hon'ble Member, Planning Commission of India, Chief Guest, Prof. Ved Prakash, Chairman, University Grants Commission, Dr. Jabbar Patel, Chairman, Governing Board, CEC, Prof. Arun Nigvekar, former Chairman, UGC, Dr. R. Sreedhar, Director, CEMCA and other eminent dignitaries who spared their valuable time to attend the inaugural session of the convention.

Being the Organizing Secretary I thank all the delegates whose papers have been included in this compilation, of course, after having obtained their written consent.

I would also like to thank the Vice Chancellors of various Central universities, State universities, Directors of IITs, Professors and Deans of various universities and all the national and international participants who participated in the convention.

My thanks are also due to the Directors of Media Centres particularly Dr. M. Alagar, Dr. V. Sobhana Bai, Mr. Damodar Prasad, Dr. S. Bhowmik, Dr. Prabhakar Singh and Dr. Shahid Rasool for being the Rapporteurs of the various sessions and Prof. A. Balasubramanian for compilation of the session reports.

I also thank Dr. C.S.R. Prabhu DDG, N I.C., Hyderabad, Dr Arun Nigavekar, Sr. Advisor, University of Pune, Dr. Mangala Sunder K, Professor, IIT Chennai, Prof. R.K. Shevgaonkar, Director, IIT Delhi, Prof. S.K. Kak, VC, M.T.U., Noida, Dr. R. Sreedher, Director, CEMCA for sparing their valuable time to chair various sessions

I owe my thanks to my colleagues in CEC particularly, Dr. Sunil Mehru, JD(s), Mrs. Josie Mathew CAO, Mr. Nageshwar Nath, ME, Mrs. Jayaja Krishnan, MTL who have rendered their unqualified support as Chairpersons of various committees to make this convention a grand success. I also thank Mr. Mukesh Prasad, Accounts Officer, Mr. Pawan Bharadwaj, Private Secretary, Mrs. Kavita Harish, PA and the staff of CEC, at all levels, to render their wholehearted support and assistance.

I owe special thanks to the Director, CEC for reposing in me the confidence and giving me the responsibility to organize this convention.

**Dr. Rajendra Mishra
(Research Scientist, CEC)
Organizing Secretary**

CONTENTS

| | |
|------------------|------|
| FOREWORD | I-II |
| ACKNOWLEDGEMENTS | III |

| <u>SL. NO.</u> | <u>NAME AND ADDRESS</u> | <u>TOPIC</u> | <u>PG. NO.</u> |
|----------------|---|--|----------------|
| 1. | M. Arul Moorthy, Davinci Media College& Digital Magic, Chennai | Virtual Reality in Education | 5-7 |
| 2. | Dr. S. Visalakshi Rajeswari & Dr. G. Bagyalakshmi AIHS&HEW, Coimbatore | Dovetailing Virtual Reality in Fashion and Interior Designing- Pros and Cons | 8-13 |
| 3. | N.V. Abhishek, Shashank Mathur, S. Bhuvaneshwari & Dr. B.S. Rajpurohit, IIT, Mandi | Experience of Virtual Education at IIT Mandi: Perspective of Users | 5-18 |
| 4. | Dr. Manan Sachdeva, Kanya Maha Vidyalaya, Jalandhar | Virtual Classrooms: A new Possibility | 19-23 |
| 5. | Sooryanarayana Bhat P., SDM College, Ujire | Exploration of a Facilitator's Experiences in Teaching-Learning a Foreign Language: A Comparative Study of Virtual Classroom and Face to Face learning | 24-27 |
| 6. | P. Govindaraju, B. Nidhya & M. Maani Mabel Manonmaniam Sundaranar University, Tirunelveli | A Case Study of Learning through Multiple Approaches | 28-32 |
| 7. | Dr. I. Kaspar Raj, The Gandhigram Rural Instt. & A. Jacqueline Regina Mary, Jayaraj Annapackiam College for Women, TN | Impact of Computer Simulation in learning Science | 33-35 |
| 8. | Dr. V. Hema Nalini & Ms. Jeevaratnam G., AIHS&HEW, Coimbatore | A Comparative Study of Traditional and E-Portfolio Assessment in Language Classroom in the Indian Context | 36-39 |
| 9. | Dr. G.B. Singh, FTII, Pune | Virtual Classroom vs. Face to Face Learning – Reality and Myth | 40-44 |
| 10. | Chandra Sekar D. & Dr. C. Pichandy PSG College of Arts & Science, Coimbatore | Adoption of e-learning in higher education amongst college students | 45-46 |
| 11. | Dr. Vasantha Kalyani David & Dr. G. Jayagouri AIHS&HEW, Coimbatore | Going Global with M-Learning | 48-53 |
| 12. | Vivek Hebbal, EMMRC, University of Pune | Content development for two | 54-57 |

| | | | |
|-----|---|---|---------|
| | | Different media: Exploring the Possible UGC-CEC e-Content Video & UGC-CEC Vyas Television Video Programming | |
| 13. | Dr. P. Santhi & Mrs. J. Arthi, | Designing ICT Capacity Building Strategies For teachers in Higher Education Institutes Through Empirical Analysis | 59-69 |
| 14. | Monika Puri & Neelam Kataria R.M.S. College of Education, Gurgaon | Virtual Education & Multimedia Educational Requirements | 70-74 |
| 15. | M. Rajendran, Central Institute of Education University of Delhi | Virtual Education: Teacher Capacity Building | 75-79 |
| 16. | Dr. C.P. Satheesh, Sree Narayana College Kannur | 21 st Century Skills and ICT Capacity Building | 80-82 |
| 17. | Dr. G. Victoria Naomi, AIHS&HEW, Coimbatore | E-Lesson: Orientation and Mobility Skills | 83-85 |
| 18. | Darshana Hooda, Deenbandu Chhotu Ram University Of Science & Technology, Murthal | Capacity Building in Virtual Education for Social Development | 86-90 |
| 19. | G. Satyanarayana, Dr. V.S.K. Govt. Jr. College, Visakhapatnam | Virtual Education: Issues, Challenges & Prospects | 91-94 |
| 20. | Neelam Kataria, Sunita Yadav & Suman Lata | Virtual Education | 95-97 |
| 21. | Nutan Bharati, NIIT University | ICT Capacity Building – Learning as Social Entrepreneur | 98-100 |
| 22. | Amit Kumar & Prof. A.K. Singh BBABU, Bihar | Semantic Web Architecture Based on Agents for creation and use of content | 101-105 |
| 23. | Prof. R. Charles Williams, Govt. College of Education, TN | The role of e-content in fostering character education among teacher trainees | 106-109 |
| 24. | Dr. (Mrs.) S. Ananthalakshmi & Dr. (MRs.) T.K.S. Lakshmi Priya AIHS&HEW, Coimbatore | Extended e-Learning Awareness in the Virtual Education Ecosystem | 110-116 |
| 25. | Mr. Pankaj Kumar & Dr. A.K. Singh BRABU, Bihar | Network Security with or without Wireless Network in Virtual Classes | 117-119 |

| | | | |
|-----|--|---|---------|
| 26. | Ms. Piu Sur, Web Development Corporation, Kolkata | Interactive Design a solution to effective content Delivery | 120-123 |
| 27. | Premanand M E., University of Calicut, Kerala | Tablet – A pill for Virtual Education? | 124-127 |
| 28. | Rajesh Kumar, Navin Kumar & Dr. A.K. Singh BBABU, Bihar | Distributed Educational Infrastructure for Virtual Classes | 128-131 |
| 29. | Ariff Syah Juhari, Rosmah Mohamed & Siti Farina Sheikh Mohamed, Open University Malaysia, Kuala Lumpur | Enriching Learners’ Learning Experiences through Virtual Learning Environments in Open University | 132-135 |
| 30. | Dr. Prakash Gambhir, ASC University of Pune | Importance of Learning theories in Knowledge | 136-141 |
| 31. | Dr. Christina Rebecca & Mrs. E. Indira, AIHS&HEW, Coimbatore | Resuscitate Bridge Course through ICT | 142-145 |
| 32. | Dr. Rajendra Mishra, Consortium for Educational Communication, New Delhi | Educational Effectiveness Standards: A Step towards Quality Assurance of e-Content: Instrument for Assessing Educational Effectiveness of e-Content Multimedia material (Version 1.2) | 147-155 |

Sub Theme:
Virtual Reality

VIRTUAL REALITY IN EDUCATION

M.ARUL MOORTHY, CHAIRMAN AND M.D.,
DAVINCI MEDIA COLLEGE & DIGITAL MAGIC, CHENNAI

Imagine a class room with 20 students, all of them learning how to service a small electronic equipment, say a laptop computer. When the faculty is demonstrating on a small component, almost sure only he will have a clear look at the work that is being done. Others depending on their distance from the seat will have to use their imagination to understand. Same thing is being thought to using a 3D stereoscopic projector, with students wearing the 3D glasses, the subject being projected on to a 12 feet screen. All the students will have an equal opportunity to understand what is really happening with the work. The above is an example of how using technology, it will be possible to teach the students from KG to PG through the immersive experience in the subjects that they are studying. With all the senses, Vision, Audio, Touch, Smell, taste it is possible for the students across India and World to get the experience of TRUE learning, that will enable them innovate and invent. It can be a true transformation, where the democratically, whether the student is from a city or village, Rich or Poor, Smart or not so smart to enjoy the subjects they are learning, and move up in the value chain. I will like to demonstrate the above experience, by giving the 3D glasses to the participants, and show how the subjects can be and should be taught in the future. I am sure, it will be an eye-opener to the participants, and make progress in this wonderful world of education through virtual reality. I will be using cutting edge, state of the art technology to showcase this which will involve real time motion capture, High End Computer graphics as part of the demo.

Introduction

Human Senses

The five senses namely **Vision, Hearing, Touch, Smell, Taste** forms the channels of information to the man-kind, for that matter for all the animals. So when these senses are applied in conjunction, they naturally become more enjoyable experience. The technological developments that is happening in **the telecommunications, Multimedia, Nano technology** makes this possible.

Imagine when the **cinema** was invented, it did not have sound, and the picture was only **black and white**. But later, when **sound** was introduced the effect was an amazing experience. Then the **color** was introduced, and the people felt, it is life like. This is later enhanced by **bigger picture size, and digital sound**. It was possible at this time to listen to whispering sound of a bee flying, as well the thunderous hurricane as it was in the real life. **The 3D stereoscopic** movies, with **Aroma Rama** effect gave the experience of the life like

experience where the audience were able to **see, hear** and **smell** the scenes, while the vision and sound were perfectly presented with 100% synchronization to the scene, where as the smell was presented at selected scenes. This was followed by **touch sensation** using ticklers in the small, venues such as thrill rides, where the audience were touched by the grasses in the forest or water that was sprayed in sync with the visual and sound, that was greatly experienced. Only thing, that is not yet tested is the **taste**, I am sure time is coming where that will also be covered in the palette of senses in the coming months and years.

The advantages of the virtual reality

Gone will be the days, soon, where the students have to cut the real animals, such as poor frog and cockroach, where they have to dissect and understand the parts. This poses many issues such as, availability of these animals, cruelty of killing these for the purpose of

learning, hesitation and aversion for students who have not killed any animal in their life time. This becomes more, when the younger generation today is growing by watching the cartoons, which have always have animals as their hero and heroines.

So let us take an example of a virtual experience that I have developed for this presentation. In this system, we have a **real person invited to the stage**. We are going to study the **human anatomy**, in an interesting way. Instead of simply looking at the human anatomy, which is just a still image, and that too in black and white in most cases, we will give the experience of **x-ray vision**, of the human anatomy.

[Demo: A real person, a volunteer is invited to the stage, where he is asked to stand and move around. A state of the art motion sensor stereo camera, is sensing and analyzing his body movements, which in turn is send the data to the software, which has the 3D model of the human anatomy. The audience are presented with a 3D glass, where they will be viewing the result of the animation in 3D effect]

This software make the animation of this human model which has various layers such as **Muscle Layer, Bone Layer, Organ Layer, Nerves Layer** and so on. So as the person moves around, all these layers also make the movement at the same time, so it is possible for the students to study the behavior of the various body parts in movement. Also, the **stereoscopic** effect of the visual gives more immersive experience.

The various advantages of the Virtual Reality for education are immense. It is achieved through the following:

1. The **animated image** is far better compared to a small still image which is in black and white.
2. The ability of the audience to take a **closer look**, enable them to view the details more clearly.
3. The advantage of seeing the object or the scene in **various angles** is feast to the inquisitive mind, so they decide in what angle to see the subject.

4. The ability to **touch and feel** the subject makes them to feel 'being there' effect, which enhances the learning.

5. These experience are **repeatable at a low cost**, hence it will be able to reach to a wider audience, without the boundary of city-rural, rich - poor, English literate-non-English literate and so on.

Challenges and Opportunities

As the technological landscaping is changing fast in front of our eyes, we can see there is a great number of opportunities emerging.

1. As we had seen the benefits of virtual reality , which is for sure going to become more and **more immersive** and enjoyable in the coming days.

2. The technology will become **more affordable**, so the learning centers will be able to afford them to utilize them in mass.

3. **New possibilities** will emerge such as smell being recreated in perfect sync to the visual and sound. The basic constituents of taste are reconstructed and presented to the audience the way vision and sound presentation has matured.

4. The touch, also will become **more responsive**, so the students not only feel just touch but various other elements such as heat or cold, soft or hard, friction or slippery and so on.

The challenges that will come in the form of:

1. Making use of these technologies by way of **creatively and technically perfect lessons to be developed**. We had seen companies rushing into capitalizing simply by presenting the same text book in the electronic format without applying the mind to make use of these technologies.

2. **Making the teachers to understand** how to use these technologies so that they can teach these subjects much better than what they are doing today. They must understand their existence is not threatened by technology and they are the last mile stones of passing the knowledge to the students, and these devices are the tools that are enabling them to be more effective.

3. In a country like India, where the literacy level is low, and the socio-economic divide is having a big contrast, **making these technologies available to all** in the strata will be a big challenge. And these technologies are really state of the art and cutting edge, so investment in these infrastructures is huge.

DOVETAILING VIRTUAL REALITY IN FASHION AND INTERIOR DESIGNING -PROS AND CONS

DR. S. VISALAKSHI RAJESWARI
PROFESSOR IN RESOURCE MANAGEMENT,
VISAMANI2@YAHOO.CO.IN

&

DR. G. BAGYALAKSHMI
ASST. PROFESSOR (SS) IN TEXTILES AND
CLOTHING, GBAGYAA@GMAIL.COM
AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND
HIGHER EDUCATION FOR WOMEN,
COIMBATORE -641043.

Virtual reality (VR) is a catch phrase that applies to [computer-simulated](#) environments that can simulate physical presence in places in the real, and imaginary worlds. As a pre-production tool and an emerging reality in the fashion and interior design world affords positive benefits and uses in architecture, industry and fashion design. The item sold is a building or a fashionable outfit, the ability of the client to see and visualize with realistic representations positively influences both the evolution of the design and the attitude of the client.

Creating perfect interior living spaces can be fun. It all begins with a plan. Traditional methods in interior design usually lack depth and sense of realism and require the designer and the client to meet in one place. These problems are solved by utilizing shared VR in the design process in recent days. A building can be created with navigable, interactive, and immersive experience while still being designed when both architect and client can experience the structure and make changes before construction begins. Every building built today is actually a physical prototype, leaving little room for input or changes until after construction.

VR allows creation of an electronic prototype amenable to modification, so that costly changes during or after construction can be avoided. Though clients will not only be able to see the structure, they would hear sounds from within it, feel its textures, and experience its fragrances. Home builders and real-estate developers particularly are excited about the potential of virtual reality to sell their designs. Those who offer their clients such an option remain a cut above all others.

VR allows creation of an electronic prototype amenable to modification, so that costly changes during or after construction can be avoided. Though clients will not only be able to see the structure, they would hear sounds from within it, feel its textures, and experience its fragrances. Home builders and real-estate developers particularly are excited about the potential of virtual reality to sell their designs. Those who offer their clients such an option remain a cut above all others.

Virtual Fashion Designing is again a great way to make unique style ideas come to life. Fashion identity and styling, are possibly the most consistent, popular activities in virtual worlds. Fashion business is booming and clothing designers are experimenting and promoting design systems that permits to bring in creative fantasies to life, like running a complete draping simulation. In future, customers could choose fabrics /patterns for their garments as well. Through VR, customizing the model -"dressed" in the chosen garment and moved around - is made possible.

Designers re-create and express in 3D virtual online world offering low entry costs to actively encourage user generated content and creative social development projects. Nevertheless, it is imperative that the social implications of the technology be analysed. The argument put forth is whether designers should surrender their originality, creativity, ingenuity and indigenoussness to this upcoming technology? Would VR in the real sense address the philosophical trends, intellectual inclinations, psychological concepts, socio-economic factors, affordability and the question of access – specific to the developing countries and India in particular? The article analyses these prospects.

Introduction

Many science fiction books and films have imagined characters being "trapped in virtual reality". A comprehensive and specific fictional model for virtual reality was published in 1935 in the short story 'Pygmalion's Spectacles' by Stanley G. Weinbaum. In the story, the main character, Dan Burke, meets an elfin professor, Albert Ludwig, who had invented a pair of goggles which enable "a movie that gives one sight and sound, taste, smell, and touch. You are in the story, you speak to the shadows (characters) and they reply, and instead of being on a screen, the story is all about you, and you are in it, similarly can forget the thrill of reading 'Alice in Wonderland' – a VR story of bygone days.

Note another character in the Mahabharatha war scene - Sanjayan ---he describes the war,scene by scene,to the blind king Dhridarashtra using his extraordinary vision - Doordarshan --given by Vyasa Rishi----is it possible?---But, it really had happened in the Trojan war too; the Trojan king was watching all the events sitting in the fort walls, it was quite possible to accurately see all the happenings in the war which was going on in the ground level. His ministers were watching the events and describing to him. Only when important clashes occurred the king Priam used to come personally and watch.

Scope

VR creates a winning situation for homeowners, designers, contractors, buyers or investors The interior design renderings bring any property to life. They are very artistic, realistic, affordable, and custom designed to client specifications. 3D virtual tour of interiors produce a lasting impression by helping one to

visualize how each room in an apartment, home or office will look like in the concept stage itself before even a brick is laid. Knowing in advance how one's living space, kitchen or dining room will look enables a client to make the necessary changes to turn one's beautiful dreams into reality. Client gets the flexibility to assess how each furniture, fabric or lighting looks and change them to suit personal tastes.

3D furnished interior design walkthroughs perform as effective and compelling sales tools by helping buyers appreciate the possible future layout of space they intend to purchase, be it for office, restaurant, apartments, homes, church, shops or commercial buildings. The technology provides a total visual experience to see the layout, fixtures, furniture options and colour and texture coordinates in an interior. Additional service of animating one's furnished interior renderings in real time is an added advantage. This enables viewing the designs from various angles by rotating the 3D visuals with a click of the mouse. More and more people are opting for interior renderings as they feel the need to visualize in understanding and deciding on their choice before committing to final plans. It creates an atmosphere of being present at the location and looking around in person. The designers would simulate redecoration, including changing the colour of the walls, replacing furniture, reupholstering, putting in new carpet or any physical change a homeowner or potential homeowner can imagine. An interior decorator can put the whole look together in minutes and show the buyer exactly how an entire room will look. The simple interface gives consumers the power to try different arrangements for their new home. Once consumers approve, they can simply hand the directions to movers, making moving less stressful and saving moving costs, time and money.

A realistic virtual reality space will supply an excellent solution for interior design and marketing. After modelling a room or other space in 3D system it will be easy to test different surface materials and furnishing elements in order to find out visual impression, functionality or ergonomics, opine Kuusisto and Launonen (1997). A traditional two dimensional image gives very limited possibilities to test different alternatives in a realistic space. Virtual reality offers a possibility to influence human sensory processing and perception and reality judgments by altering the quality of sensory data.

Other programs, some available commercially on CDs and others appearing for free on Web sites, let people learn about the world by paying virtual visits to distant places. Many virtual tours feature panoramic views through which a visitor can turn by using a mouse. Some panoramas also allow the viewer to look up and down, as if standing in a cube or a bubble, and to zoom in on particular parts of the panorama. Clicking on certain spots in the panorama may take the viewer to other panoramas, still photos, or text information about those spots. Getting acclimated to a virtual 3D experience will provide designers with the ability to think and conceptualize in 3D.

The term “virtual fashion” can refer to fashion developed specifically for end use in the virtual world or fashion that is developed “virtually” via a multi dimensional application or “in the virtual world” for the real world global apparel industry. Virtual reality is creating a highly photorealistic environment in fashion related education and business. Fashion designers could possibly be creating environmental simulation on their creative projects. Virtual reality provides hyper-realistic simulations to fashion designers by removing their habitual thinking, and giving chances to fashion designers to experience both physical properties of fabrics and clothing, and theoretical concepts such as lighting effects, colour and atmosphere in a three-dimensional view. The technology also enables fashion designers for:

- Arrangement of patterns on the virtual human forms
- Simulated garment assembly
- Virtual pattern and garment alteration
- Texturisation of the apparels
- Animation of computerised garment

The global apparel industry is now transitioning over to multi dimensional product development applications that will empower the industry to develop in virtual 3D digital format [using virtual avatars]. Fashion applications in the industry have only recently realized the critical necessity of integrating 3D technology into existing 2D applications. The user can draft a computerized sloper into Pattern Design System that can be endlessly modified to include original styling lines. 3D draping cloth simulation and modeling engine that enables textile designs to be applied to a specific type of fabric and draping, weight, volume, density, etc. properties of the fabric can be programmed in to simulate the real thing. This is used for garment draping and 3D visualization. The fabric is simulated on to the garment pattern and the model can be placed into static poses that can be captured from a 360 degree angle. This fully integrated 2D>3D>2D system can transform the fashion product development process by saving valuable development time.

Designers and stylists have been exploring and testing new concepts using 3D representations. Integrating design, simulation and collaboration tools, designers can see exactly how their ideas will come to life on a three dimensional plane and immediately make any change they can imagine, unlike challenges faced using traditional fabric and pattern design. This multidimensional application will provide a significant impact on the resulting quick response, cost effectiveness, global fitting standardization, pre-marketing and marketing uses of fashion industry. The online communication of the virtual garment to the various levels of supply chain (designers, producers, merchandisers, forecasting teams, buyers, vendors and consumers) for the product acceptance, is an added advantage of the virtual garment prototyping.

Virtual Fashion Designing is again a great way to make unique style ideas come to life. Fashion identity and styling, are possibly the most consistent, popular activities in virtual worlds. Fashion business is booming and clothing designers are experimenting and promoting design systems that permits to bring in creative fantasies to life, like running a complete draping simulation. In future, customers could choose fabrics /patterns for their garments as well. Through VR, customizing the model -"dressed" in the chosen garment and moved around (Virtual garment customization) is made possible. Commercial simulated user-interactive try-on systems such as E-fit Simulator,3D Male Avatar Adam,Parametric Pattern Generator,Virtual stitching: V-stitcher by Gerber,V-Styler,Virtual Styling: Jasmine,Optitex, Assist Bullmer etc provide an cutting edge to the designers for exploring and creating newer styles.

Exciting Possibilities

Virtual Reality in these two domains provide with lateral prospects which:

- Enhance use of artifacts to augment interpersonal communication codes.
- Enable to feature real world experience as future real world norms and practices -the real world of virtual space.
- Promote individual freedom, help simulate real- life face- to- face interaction, and facilitate to contact people from diverse backgrounds.
- Lead to an increasing emphasis on interdisciplinary perspectives, technology training and thrust on applied research.
- Augment demand for virtual goods and services and help increase economic productivity-'virtual economy'.
- Motivate hands- on training and improve design skills development in younger generation.
- Encourage indirect entrepreneurship and employment avenues.
- Enlist photo-realistic renderings of furnished interiors with visual 3D that

give you a competitive edge to hard sell a project or win construction contracts.

- Motivate VR reconstruction: Virtual reality enables heritage sites to be recreated extremely accurately, so that the recreations can be published in various media (Pimentel, K., & Teixeira, K,1993) The original sites are often inaccessible to the public, or may even no longer exist. This technology can be used to develop virtual replicas of caves, natural environment, old towns, monuments, sculptures and archaeological elements (King,2005).
- Provide fashion education programs with the tools to teach students a specialized (fashion) conceptual skill set from working in a 3D virtual reality environment that is free enabling open access for all fashion programs.
- Prepare students with virtual skills to satisfy employer expectations relating to 3D conceptualization.
- Virtual worlds hold great promise for product development, just-in-time manufacturing and multidimensional retailing.
- Design clothing used to increase or decrease the salience of body shape or motion in fashion designing.
- Eliminate steps and cut process costs in fashion industry.
- Conceptualize 2D patterns being pieced together and sewn into a 3D garment right in front of their eyes.
- Emphasis perfect fit, mass customization, cost effectiveness for design, development, prototyping and e-commerce marketing.
- Create customized industrial patterns and market them directly to the public using the custom avatar imagery that was created in the product development process.

Frightening Visions

- Cues that the human brain uses to make sense of the real world are left out in virtual environments. This may

-
- result in misinterpretation of sensory data and poor cognitive performance. Likewise, if sensory input is not properly coordinated, it may result in negative consequences. For instance if vision and balance are not properly coordinated it may result in motion sickness, disorientation, poor motor coordination and so on and so forth.
- Only computer literates can access and benefit from the technology
 - Offers limited access: only those who can afford can access and is meant mainly for affluent, urban based population.
 - May widen gap between haves and have-nots.
 - Employment farfetched for computer-savvy and digital – oriented aspirants.
 - VR worlds are limited by processing requirements and equipments are still relatively expensive.
 - Struggle over how the technology is to be designed, used and understood still persists.
 - Interpersonal communication is based on voluntary consent and ‘social contract’.
 - VR is likely to bring up problems of identity theft, issues of intellectual and virtual property rights.
 - Fetishism
 - Designers may lose their inherent abilities of creativity and imagination.
 - Difficult to create a high-fidelity virtual reality experience, due largely to technical limitations on processing power, image resolution, and communication bandwidth; however, the technology's proponents hope that such limitations will be overcome as processor, imaging, and data communication technologies become more powerful and cost-effective over time.
 - Accuracy of the simulation for representing accurately wrinkles, folds, permanent creases and refined design details need to be speeded up.

- Clients may face dearth of variation; rather the process may end up as “monotonous”.
- Anchorage for, “survival of the fittest”.
- Vertical mobility and patronage only for those on the trade. Convention based designers may fade away from the field creating too many Fabians and laggards.

Success of the technology

Cognitive processing, psychological stability and social relationships are the three key concepts that make up the Hierarchy of Design considerations in this technology, that is, a user must be able to understand, to act within, to influence and to interact within a virtual environment. Success then would depend upon the players’ integrity coupled with their ethical sense and of the plausible answers to the following:

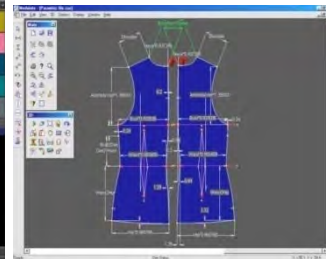
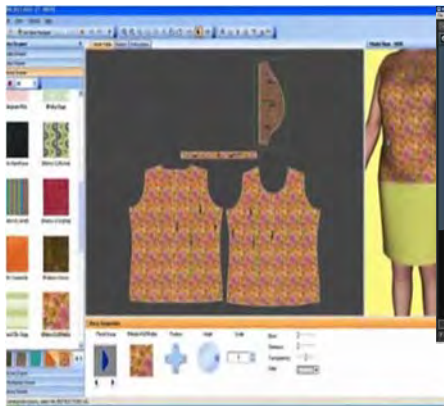
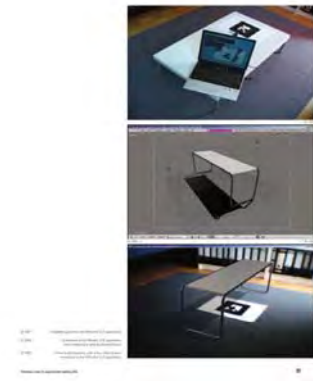
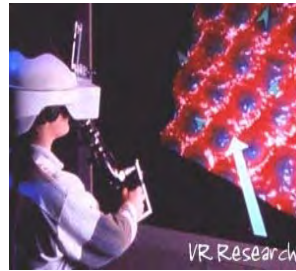
- What is life like in virtual space?
- How does the virtual world influence the real world?
- How do individuals respond to new social and environmental conditions?
- What limitations do those entail and what are the acceptable limits?
- What are the potential impacts of these elements?
- Will the designer be responsible for a user’s satisfaction and well-being?
- Will the designs be legally/ morally responsible for poor system design of products?
- How to create a social and material environment which promotes human thriving and well being?
- Question of need for autonomy and safety.

Suggestions for perusal

- Understand human compatibility requirements within virtual worlds.
- Formalize ethical and design principles for the development of virtual worlds.
- Do research studies on feasibility of virtual reality (ID and FD) Vs India and Indians.

References:

- Pimentel, K., & Teixeira, K. (1993). Virtual reality. New York: McGraw-Hill. **ISBN 9780830640652**
- King, T (2005)"Architecture's Virtual Shake-Up", *Click*, BBC World News (2005-10-28)
- Kuusisto. M and Launonen. R. (1997) Virtual Reality for Visualisation of Interior Decoration and Furnishing, ERCIM News No.31 – October
- Wolfgang, H (2009) Interactive environments with open-source software, Springer Wien, New York.
- Barnard, M(2003), *Fashion as Communication*, 2nd ed., Routledge,
- 2002. Beck Proceedings of the IEEE *Virtual Reality*.
- Pascal. V, Frederic. C& Magnenat. T.N.(2005): From Early Virtual Garment Simulation to Interactive Fashion Design, *Computer-Aided-Design*, 37, 593-608.
- Volino .P. & Magnenat .N.T,Virtual Clothing - Theory and Practice.
- Chatterjee.K.N, Khanna. S., and Chaudhary. J,Simulated reality: A boon to fashion industry, *The Indian Textile Journal*, August 2011.
- www.optitex.com



Sub Theme:

**VIRTUAL CLASSROOM Vs.
FACE TO FACE LEARNING-
REALITY and MYTH**

EXPERIENCE OF VIRTUAL EDUCATION AT IIT MANDI: PERSPECTIVE OF USERS

N. V. ABHISHEK, SHASHANK MATHUR, S. BHUVANESHWARI
AND

DR. B. S. RAJPUROHIT
INDIAN INSTITUTE OF TECHNOLOGY MANDI
MANDI-175001, H.P., INDIA

bsr@iitmandi.ac.in

TEL: 91-1905-2357917, FAX: 91-1905-2357942

The objective of present work is to share the experience of virtual education gained at IIT Mandi as well as to present advantages and difficulties/short-comings of virtual-learning capabilities as the perspective of users. Few possible remedies will be discussed to improve the virtual-learning capabilities.

India is a country in heavy technological development with a promising young population crying out for better education and possibilities. With current investments in IT-education and -infrastructure, e-learning initiatives is a challenging new discipline that pushes the demands for optimal workflows with both technical and social actors. IIT Mandi nestled in the Sivalik Range of the Himalayas, away from the any big city is among the youngest member of all IITs. A few hours before the Himalayan resort Kullu in Himachal Pradesh, once considered "the end of the habitable world", the youngest IIT is coming up. The location is the forested hills of Kamand on the banks of the Uhl, a tributary of River Beas. The historic town Mandi in Himachal Pradesh is 12 km away.

Learning is a non-substitutable necessity and an everyday phenomenon of every one's life – right from a toddler with 2 legs to the toddler with 3 legs (inclusive of the support stick!). This being a widely accepted fact, learning and education becomes an irreplaceable necessity of mankind. But, not all get to fulfil or utilise their basic 'Right to Education'.

The growing popularity of E-Learning has introduced new terms to education, as virtual classroom, where student will be present with his professor and fellow learners in a classroom. They will not be present physically in the classroom but connected to the classroom via Internet. Virtual classroom aims to simulate the experience of attending a class over the web. So everyone is able to see other participant virtually. Virtual learning has proved a key factor in teaching/learning as well as communication with subject experts nationally as well as globally. The objective of present work is to share the experience of virtual education gained at IIT Mandi as well as to present advantages and difficulties/short-comings of virtual-learning capabilities as the perspective of users. Few possible remedies will be discussed to improve the virtual-learning capabilities.

The work will address the virtual-learning difficulties/advantages issues apart from collaborative efforts and capacity building challenges to be placed to use efficiently the virtual learning facilities. Few of them listed are:

Limitations of Virtual Classroom:

1. Lack of hands-on learning

-
2. Interaction with the students and classroom co-ordination becomes difficult
 3. Doubt clarification outside the class
 4. Technical Limitations
 5. Assignment work
 6. Effective monitoring of students becomes difficult
 7. Feedback of the students to the teacher
 8. Delay in content delivery

Advantages of a Virtual Class room

1. Removal of geographical barriers (Anywhere learning)
2. Sessions can be recorded
3. Collaborative learning
4. Multiple-Class room learning

Introduction:

If you say Education is gardening, we say *Virtual Education* is a mode to create an artificial, though effective, environment incorporating all necessary conditions for survival and development for plants like learners. The label 'virtual' is widely and indiscriminately applied around the world, and frequently used interchangeably with other labels such as open and distance learning, distributed learning, networked learning, Web-based learning, and computer learning. Furthermore, it is used in some regions to refer to systems that combine broadcast and interactive teleconferencing technologies that operate in real time.

Knowledge based society demands lifelong learning. In view of the changing definitions of learning, the traditional teaching methodologies need to change and undergo a paradigm shift. This is the most effective and pervasive medium for lifelong learning. Bridging the digital divide at the grassroots, depends upon availability of low cost, high quality, high speed and widely accessible methodology for supporting lifelong learning. eLearning is perhaps the most effective, affordable and faster means of equitably enabling life-long learning. The emergence of virtual institutions is directly linked to the development of, and access to, the infrastructure supporting information and communication technologies. In general, the strategic planning for the development of this infrastructure, when it exists, gives little or no consideration for educational applications.

Department of Information Technology (DoT), Government of India (GOI) has created a state-of-art facilities at all IITs including IIT Mandi under the project 'Creation of National Knowledge Network (NKN) Virtual/Electronic Classroom' and facilities are being efficiently used to hold interactive classes, meetings and seminars. The objective of the National Knowledge Network (NKN) is to bring together all the stakeholders in Science, Technology, Higher Education, Research & Development and Governance. The NKN is a revolutionary state-of-the-art multi-gigabit pan-Indian resource-sharing network aimed at digitally connecting all national universities, colleges and research establishments to create country-wide virtual classrooms. Network will consist of an ultra-high speed Core (multiples of 10Gbps and upwards), and over 1500 nodes. It is scalable to higher speed and more nodes also. The Core shall be complemented with a distribution layer at appropriate speeds. The participating institutions can directly or through distribution layer connect to the National Knowledge Network at speeds of 100 Mbps /1 Gbps. The infrastructure bandwidth will facilitate high speed classroom sessions. The facility can be used to transmit satellite television programs also. With just 4 megabit connectivity an institution can simultaneously conduct up to 250 classroom sessions. Since establishment of NKN based virtual classrooms, IIT Mandi is very fortunate to witness the evolution of the "virtual teaching" through NKN in India right from the beginning including first

implementation of a multi-institutional course through the NKN and course delivered by IT University of Copenhagen, Denmark.

The objective of present work is to share the experience of virtual education gained at IIT Mandi as well as to present advantages and difficulties/short-comings of virtual-learning capabilities as the perspective of users. Few possible remedies will be discussed to improve the virtual-learning capabilities.

Advantages of a Virtual Classroom/Education

- 1. Removal of Geographical Barriers (anywhere learning)** - Not many students get the opportunity attending the lectures of experienced teachers. NKN helps to overcome this issue by enabling world renowned faculty members to teach at IIT Mandi with quality infrastructure. In a virtual classroom environment, students can talk to the teacher and to each other, and although this communication is not as rich in a traditional classroom, it still can help learners, since it is one to one.
- 2. Sessions can be Recorded** - If learners miss a traditional classroom-based session, they have very little opportunity to replay and engage in the learning experience that took place. A virtual classroom has a facility to record the session so students or teachers can replay it afterwards. Teachers too, get an opportunity to review their own or their colleagues' performance.
- 3. Collaborative Learning** - The students can be linked with the students of other classes of other institutes and can be assigned group projects. The teacher can have rich subject-oriented discussions with more number of students (which means more innovative ideas propping up on a certain topic as the students hailing from different backgrounds and different institutions interact).
- 4. Multiple-Class Room Learning** - Virtual Class room serves the facility of having a course of an experienced faculty conducted across the multi-institutes simultaneously hence it can save the time.

Limitations of the Virtual Classroom:

- 1. Lack of Hands on Learning:** Though the teacher can show the practical lab demonstrations to the students, the student will not be able enjoy the actual hands-on experience and the consequent learning experience that they would derive when they handle and operate the equipments will be lost. Any concept involving a lab experiment can be completely understood with the demonstration and performing it himself/herself. Theoretical knowledge can be gained but the doubts are cleared only through lab demonstrations which are missing in the virtual class room.
- 2. Interaction with the Students Becomes Difficult:** The real solid 3dimensional teacher is much more effective than his virtual, plane, 2 dimensional counterparts. There is a possibility of a debate to rise up between the students and the teacher. Here the teacher may have to show some diagrams or few mathematical expressions or the student which is quite difficult to happen in a virtual class and is time taking.
- 3. Doubt Clarification outside the Class:** Doubt clarification outside the class is not possible in a virtual environment since the conversations and the meetings of the "remote" teachers with the students are timed discontinuously. Conversations could still be possible through emails but these may not enhance the complete numerical interpretation of the doubt.
- 4. Technical Limitations:** Technical issues such as speed of connection or power failure may create problems while the presentation is going on. In case of internet connection, when the speed is slow proper presentation of the subject is not possible by the lecturer. He can neither have a proper look of the class nor can the students have a clear presentation of the teacher. Power failure will lead to cancellation of class

decreasing the time to cover the desired topic.

5. **Assignment Work:** A student will be able to know his learning of a concept only through assignments. Unless these assignments are corrected the student will not be able to his mistakes. Evaluation of these assignments becomes difficult due to distance factor.
6. **Effective Monitoring of Students Becomes Difficult:** The exact and complete composition of the class including the student activities and their response cannot be seen by the instructor with a clear resolution at a time within the boundaries of the computer screen. A good self-motivation from students is required otherwise physical absences of teacher in very large class create inconvenience to the students.
7. **Feedback of the Students to the Teacher:** The transmission of the feedback of the students to the teacher becomes a comparatively abrupt or disturbed. It's general that an instructor can ask his students questions in the class which involve diagram and gets them checked. But in case of a virtual classroom it won't be possible. May be he would show the diagram and ask the students to check whether they have done it correct or wrong but he won't be able know the exact feedback i.e. how many could do it.
8. **Delay in Content Delivery:** The normal response time required for effective communication between the students and the teacher in a virtual classroom is

much more than compared to a classroom where they have face-to-face interaction.

Conclusions: Based on the arguments, we can, to an extent conclude that a 2-dimensional teacher can be as good as his 3-dimensional counterpart in majority of aspects of learning and teaching. As technology improves, the technological revolution has a quicker and deeper impact on more and more lives. One such milestone of this contemporary technology is a virtual classroom. As enlisted above, the new system of teaching has its own advantages and limitations. But some limitations can be overcome. A major part of problems arise on account of disruptions in the internet connectivity, its speed and other aspects, which can be overcome with a reliable ISP provider and also with modern advancements in broadband connections in India(3G spectrum). Other problems that might arise due to virtual education like lack of hands-on learning can be overcome if an advanced method of teaching, making use of simulation softwares, is undertaken. For example, a typical electronics laboratory course can be taught online using simulation softwares. With the initial instruction using these simulation softwares, further work can be done hands-on by the students themselves in the laboratory. But, there are certain shortcomings of a virtual classroom that need to be born silently, given the present level of technology. For example, you may not get to experience that gentle, most cherished pat from your teacher on answering his question posed in class. You need to be contented with his 2-dimensional smile and applause from the screen.

VIRTUAL CLASSROOMS: A NEW POSSIBILITY

DR. MANAN SACHDEVA
DEPT. OF FINE ARTS
KANYA MAHA VIDYALAYA
JALANDHAR

The world is getting super hi-tech day by day. In every sphere the customary set-up is being challenged by the highly sophisticated systems. Their success rate depends however, on the approach of their utilization rather than mere installations of fancy gadgets. In many a circumstances, it is the well-balanced, well-coordinated with combination of tradition and modernism that makes the perfect winning recipe.

To keep pace with changing world, one cannot at large keep away from the quickly penetrating technology. On the other hand, technology alone is insufficient in providing the all in all solutions. As far as education is concerned, the traditional classroom teaching is being continuously under debate since the virtual classrooms have come into being. This paper analyses the growing challenges for the face to face learning by the virtual classrooms.

Virtual classrooms benefit the learner in another way also that it allows a single learner to access the information wherever and whenever required. It is not bound by a group instruction method followed in face to face teaching. Similarly there are many other advantages of the virtual or online classrooms but their effectiveness cannot be generalized based on these points. There are a few crucial issues which need to be addressed while researching the online learning-teaching process.

To teach effectively in an online classroom, teachers must respond to the constraints of distance and asynchronicity by being exceptionally clear and explicit in their instructions, by finding ways to encourage and monitor full class participation, and by using good questioning techniques. On the other hand, they can respond to the limitations of distance and asynchronicity by increasing opportunities for independent learning, as well as for meta-cognition and reflection.

Virtual class-rooms are of various kinds like:

- There are a few courses for the students of regular class-rooms, given to them online during a session.
- There are full-fledged self- paced online courses offered to anyone who is eligible for that particular course.
- There are online assignments and projects used as supplementary tools for face to face teaching.
- There are a few courses which involve practical work. In such cases the theoretical part is done online and the practical part is offered at the various small campuses set-up by the host institution at various locations.

Keeping in mind the above genres, there are also issue concerning online pedagogy, efficient delivery and desired outcome under the strict quality control measures. This paper explores these issues in detail as well as the limitations in online learning process which are easily worked out in face to face learning.

Introduction

The world is getting super hi-tech day by day. In every sphere the customary set-up is being challenged by the highly sophisticated systems. Their success rate depends however, on the approach of their utilization rather than mere installations of fancy gadgets. In many a circumstances it is the well-balanced, well-coordinated combination of tradition and modernism that makes the perfect winning recipe.

To keep pace with changing world scene, one cannot at large keep away from the quickly penetrating technology. On the other hand, technology alone is insufficient in providing the all in all solutions. As far as education is concerned, the traditional classroom teaching is being continuously under debate since the virtual classrooms have come into being. This paper analyses the growing challenges for the face to face learning by the virtual classrooms.

Educational policies increasingly emphasize innovation and organizational change of educational institutions that are considered necessary to better align education and lifelong learning with the requirements of the knowledge society. However, new educational approaches are not easily found and their implementation will be difficult if they require considerable transformations of current educational frameworks and practices.

The widely increasing penetration of the computers as well as internet makes it an effective teaching option in the areas where schools and colleges are less and at far away distances. Presently this might be a far fetched idea but with the rate of growth at which usage of computers and internet is increasing in India, it will be an achievable target. With PCs like recently introduced Akash priced at Rs. 2500/- and internet connections available at as low as 99/- per month packs, virtual learning is quite an affordable option. Recently the government of India has issued a statement stating that the country will be requiring 22 crore Akash PCs,

mainly to be used by the students from all sections of society.

Moreover, no other infrastructure, like buildings, furniture etc is required – making it to fit within the means of a common man. Optimistic commentators see a new world of an educational process. As Benjamin and Salmon have stated “Every learner can, at his or her own choice of time and place, access a world of multimedia material...immediately the learner is unlocked from the shackles of fixed and rigid schedules, from physical limitations...and is released into an information world which reacts to his or her own pace of learning”.

Virtual classrooms benefit the learner in another way also that it allows a single learner to access the information wherever and whenever required. It is not bound by a group instruction method followed in face to face teaching. Similarly there are many other advantages of the virtual or online classrooms but their effectiveness cannot be generalized based on these points. There are a few crucial issues which need to be addressed while researching the online learning-teaching process.

How one defines Virtual Class-room and its working is a pivotal issue concerning the logical perception of online teaching-learning. What role can be attributed to the constraints and affordances of the online classroom and how much to other factors? To teach effectively in an online classroom, teachers must respond to the constraints of distance and asynchronicity by being exceptionally clear and explicit in their instructions, by finding ways to encourage and monitor full class participation, and by using good questioning techniques. On the other hand, they can respond to the limitations of distance and asynchronicity by increasing opportunities for independent learning, as well as for meta-cognition and reflection. Do these constraints and affordances apply to all types of online classrooms or only to some? If only some, which are they and what are the factors involved?

synchronous time and space—the definitive nature of virtual learning.

Virtual class-rooms are of various kinds like:

- There are a few courses for the students of regular class-rooms, given to them online during a session.
- There are full-fledged self-paced online courses offered to anyone who is eligible for that particular course.
- There are online assignments and projects used as supplementary tools for face to face teaching.
- There are a few courses which involve practical work. In such cases the theoretical part is done online and the practical part is offered at the various small campuses set-up by the host institution at various locations.

Keeping in mind the above genres, there are also issues concerning online pedagogy, efficient delivery and desired outcome under the strict quality control as well as the limitations in online learning process which are easily worked out in face to face learning.

Taking a few classes online not offered by the public school system is one thing, but problems occur when a student's primary educational experience exists online. In his article, "Preparing Students to Join the Online Learning Community," Gregory A. Differding, focused on the sense of isolation that students get when starting out in virtual schooling. He argues that the "comfort zone" factor is not a commodity and that these students "are missing the structure, the friends, [and] the camaraderie" of a face-to-face, classroom-based education.

This is true, even though the design for many e-learning environments is very student-friendly and does not create any technical handicaps for the student, but still there are social inhibitions. In most cases, the student has no interaction with a real life teacher who can guide him or her through the aspects of an online lesson. The sense of community that a student shares with his or her peers who, too, are engaging in the same lesson is lost, due to the absence of

The quality control in the virtual courses can be measured at three levels. First and foremost is the input, i.e. the actual content of the course. Its confinement to the regulatory bodies etc. is very essential as well as its appropriateness. The second factor is the use of interactive and multi-media techniques to make the content user-friendly and also self-explanatory. The third factor is the outcome based on the comprehension and performance of the student. It also includes feedback and remedies for future.

The major challenge here lies for the teachers or the content-developers. The mastery over the subject, the ability to convert it into short modules for internet, the originality of language and case-studies, the knowledge of the possibilities which can be explored through multi-media platform, the knowledge of copy right issues etc are very vital. The agencies like CEC-UGC in India are doing a fine job by giving training to various teachers for e-content development. Their modules are different in another way also as they incorporate the full video of the lecture also along with downloadable content, glossary, assignments, case-studies, FAQs, etc.

Today we need a constructivist paradigm in which learners and teachers will explore, discuss, and solve problems collaboratively. This will include active searching for relevant information, re-use and enrichment of content, and sharing of study results with other learning communities. A stronger momentum in virtual teaching can be achieved by fostering the development of educational content in which enhancement and outcome of teaching-learning are considered most valuable.

Collaborative learning practices are most likely to allow for such results to emerge and progress, because the learning community will:

- use some existing digital content or courseware as a starting point;

-consult other available content from e-learning repositories or other relevant sources of information;
 - document their own study process and results, such as use cases, experiences, lessons learned, guidelines, etc.

- make this enriched content available again to other learners, e.g. via repository and/or syndication services, and
 - thereby share the results for re-use, and enrichment, by other learners.

The content model for face to face learning and virtual class-room can be compared broadly through this table:

| | Face to face learning | Virtual Classroom |
|-----------------------|---|---|
| Basic Notion | Courseware, textbook, supplementary material, etc. | Web of various kinds of information resources (including open courseware, etc.) |
| Role of Teacher | Instructor, dispenser of knowledge | Facilitator of learning processes, coach/mentor; learning context manager |
| Role of learner | Receive, digest and reproduce knowledge | Active learner who develops competences, knowledge and skills |
| Status of Content | Certified educational material, aligned to curriculum | Content as deemed useful by teachers and learners in a certain learning context |
| Creation/authors | A few professional authors ("high value products") | Many authors, including professional authors, teachers and learners |
| Content Process Model | Create, assemble, package and deliver (one to many) | Create, share, re-use, improve and enrich (collaborative) |
| Quality Control | By subject and instructional experts | By learners and teachers in the learning process (study group, community of practice) |
| Access | Restricted, registration and authentication | Open access, but some parts of a project may be for "members only" |

This table gives us the broad indicators under which the possibilities for Virtual classrooms can be explored and utilized for maximum advantage.

Virtual class-rooms are beneficial not only at primary and secondary levels of education but for young professionals who want to upgrade their knowledge. . In fact, the expected annual growth in India is predicted to be anywhere around 20-25 percent. Global companies in sectors like KPO's, BPO's, publishing houses (ElementK, McGraw-Hill, Lionbridge, Skillssoft,

IBM, and Oracle) along with domestic retail education have established centres in India. Companies like NIIT and Tata Interactive Systems are considered pioneers of the industry.

To conclude, there are both restrictions and possibilities for virtual class-rooms as compared to face to face learning. But in order to tap its full potential, the academicians, the administrators and the industry people have to act rapidly and wisely as the implementation of the scheme is much more important than its

conception, especially in this era of quickly changing technologies.

References

Benjamin, A. "Affordable, Restructured Education: A Solution through Information Technology." *RSA Journal* (1994)

Differding, Gregory A. "Preparing Students to Joining the Online Learning Community." *SDSU Educational Technology*. 25 Nov. 2008 <http://coe.sdsu.edu/eet/articles/stuprep/start.htm>.

Wahlstedt, Ari, Samuli Pekkola, and Marketta Niemela. "From e-Learning Space to e-Learning Place." *British Journal of Educational Technology* 39.6 (2008): 1020-30. *Academic Search Complete*.

Zongmin Ma et al. *Web-Based Intelligent E-Learning Systems*. Idea Group Publishing, 2005. 24 Nov. 2008 <<http://ezproxy.gsu.edu:2224/toc.asp?bookid=12293>>.

Open educational practices and resources. OLCOS Roadmap 2012. Edited by: Guntram Geser, Salsburg Research, Edumedia Group.

EXPLORATION OF A FACILITATOR'S EXPERIENCES IN TEACHING- LEARNING FOREIGN LANGUAGE: A COMPARATIVE STUDY OF VIRTUAL CLASSROOM AND FACE TO FACE LEARNING.

A TOPIC CHOSEN UNDER THE CONFERENCE HEADING: VIRTUAL CLASSROOM
V/S FACE TO FACE LEARNING – REALITY AND MYTH

SOORYANARAYANA BHAT P,
SR. LECTURER IN ENGLISH, COORDINATOR:
EDUSAT NETWORKING, CHAIRMAN, LEARNING RESOURCES
COMMITTEE, SDM COLLEGE, UJIRE
KARNATAKA 574240.
sooryabhagavan@gmail.com TEL: +91 9448726880

Access to information and knowledge is the mantra of the day. Technology is explained to be a problem solver and an entry point to increase access, efficiency, productivity, transparency, service and delivery. In the field of Higher Education, after the constant innovations and inventions, we envisage a silver lining in the form of ICT. It acts as a powerful access tool in the hands of academia to the information and knowledge warehouse. Though Virtual Classrooms are at its infancy, we foresee greater potential in it. Changing global scenario necessitates the learning of foreign languages: having hype in demand for learning important foreign languages. The unavailability of resource persons and faculty members to teach such important languages was one of the hurdles of the problem. In such a context, technology enabled classroom [Virtual Classroom] ceases to exist the dearth of resource persons locally. Such changes in the classroom structure are definitely going to provide unseen results. At SDM College Ujire, we had an opportunity to learn French as a foreign language in the virtual mode. As the language, technology, facilitator and the circumstances were completely new, the learners and the facilitators had unique experiences in the process. The observations in the virtual classroom led me to undertake a research on the experiential learning under virtual classroom environment and compare the findings with the face to face classroom learning experience. The paper explores the findings of the research undertaken focused on the facilitators' experiences in teaching - learning a foreign language.

1. Introduction

Languages are learnt for linguistic purposes and communication aspects. Today, greater emphasis is seen for the latter than the former. English is truly a 'Foreign Language' in a place where I hail from. It is, therefore also learnt as a second language. Due to irresistible demand and international employment opportunities, there has always been a constant demand for the language studies. The information, knowledge and skill sets in this language needs to be internationally intelligible and communicable to keep the employability at the highest level. The bottom line is that the resources of such knowledge and skill sets are not available locally may be in terms of human

or in the form of materials and must be availed with every effort.

Number of experiments has been conducted in disseminating the knowledge and skill component in the language. In every aspect, physical movement of the resources is one of the biggest hurdles. In this context, the technological boon came up in the form of virtual classroom education alongside the face to face learning. This introduction necessitated redefinition of number of traditional aspects. The role of an institution, objectives of a course of study, set skills required, teacher, student, textbook, study material, , tests, examinations

and evaluation and other components are redefined.

2. Face to face learning and virtual classrooms: the reality and myth

2. A. In a face to face learning the common procedure followed starts from advertisement, enrolment, entry level test, assessment and evaluation, bridge courses if required, syllabus designed classroom activities, continuous evaluation, term end tests/exams and evaluation, assessment of the performance and certification. A teacher/ teachers need to facilitate the learning in a classroom/s specified. As the participants of learning are available in a specific location, and autonomous within the 'time jurisdiction' for academic activities to meet the objectives, ample opportunities are witnessed regarding time management and syllabus management. If the student teacher ratio is minimal, the individual attention provided will be further effective. The facilitators may observe the individual learner's growth very closely. Hence the flexibility of the learning quotient is large. A good facilitator may provide ample opportunities to the learners to make the learning effective and lasting.

2. B. National Knowledge Network focuses upon the Government building IP Network with gigabit capabilities to connect 1500 plus nodes across the country for Education and Research to expand, excel & collaborate. Under the plan all the universities will be included able to establish a telecommunication network with the best quality bandwidth. The first phase of NKN is operational with 2.5 gigabits for 57 institutions, 43 virtual classrooms, 95 crores allocated for the project and in the final phase 550 institutions are connected by March 2011. NKN spines Education, Health, Research and multiple applications for the future by establishing multiple virtual networks in the country.

2. C. In the virtual education system, the learning space and the teaching space is bridged with the technological insurgence. With the number of technological-electronic amenities, managed by computer assistance, the audio visual inputs are provided to the participants in order to establishing a learning space. The establishment of Wide Area of networking is made by a broadband or lease line facility. With the high bandwidth, high definition video and

audio streaming is made. CEC with EDUSAT has demonstrated the possible best example of virtual education in India by providing virtual classrooms and virtual courses in various topics and subjects whom every Satellite Interactive Terminals of EDUSAT may avail live for interaction.

2. D. Internet mailing and social networking sites [Gtalk, Skype, Yahoo Messenger etc.] provide multimedia communication facility. However, the low quality packet input - output did not suffice the academia requirement. Further, the streaming was not provided with the feature of recording. In the public IP networking system, this limitation is sorted out. The installation of HD cameras, PTZ features, Audio, video mixers amplifiers and other features ameliorated the classroom requirements.

3. Facilitator

3. A. Educational experts and scholars in the field feel that a teacher's role is to facilitate learning amongst the learners. In this context number of pedagogical experiments has been conducted to ensure the learning amongst the learners. Almost all the experiments uphold the fact that the teaching must be interactive and should lead to the learner participation. Some of the finest findings of the research say that the audio visual inputs provide lasting impressions amongst the learners.

3. B. As facilitators in the modern education institutions, mostly our job doesn't get over when we complete our set syllabus and prepare the student for the exams. There has always been a constant demand to bridge the gap between academia output and industrial input. The employability and market acceptance aspect heavily depends upon the availed global skills sets such as communication in English language, analytical reasoning and presentation skills.

3. C. The generation gap between the teachers and the learners is quite vivid and most often the set skills we possess seems to be obsolete in the modern world while imparting the required knowledge component. Alongside, providing maximum options to the learners to choose is highly appreciated. Further, the learners need to be encouraged to take up heuristic learning methods. For this, the entire study materials

need to be rearranged to meet the learning requirements in the teacher's absence.

3. D. The facilitators in this context need to be well equipped not only with the subject specifications but also technology and its specification. One of the most haunting aspects of computer technology is that in every 6 months' time the market is flooded with an updated version which is offered for half the price and double the speed, functionality and features! Hence the technology demands specialized technicians at teaching as well as student ends along with the facilitators.

3. E. Institutions of Higher Education run the courses based on a syllabus, classroom activities, examinations and evaluation. The virtual classrooms come into rescue when the guest/special lectures are to be arranged. Further it provides a different dimension to the distance education programmes. [It was really a challenging job to coordinate a session of the Principal's Conclave, Mangalore University Area in the EDUSAT interactive programme on RTI act way back in 2005-6].

4. After facilitating/coordinating number of lectures on Demand and eCourses through EDUSAT Networking and personally participating in some of them, following is my observation.

4. A. Selecting the course requirement

Upon the relevance and the level of demand by the learners a subject of study is identified. Often the topics for which the facilitators/resource materials are not available locally are chosen at the first priority. [Justification for the technological insurgency!]

4. B. Designing a curriculum

First of all these classes should not come in the way of the regular classroom activities. The facilitator must look into the syllabus, timetable, teacher requirement, learner requirement, provisions in the technology and the total plan outlay. The study materials need to be produced in the electronic format. Technologically, a multimedia e-Content developed with audio visual inputs is well received. The facilitator must also act as a link between the teacher and the learners in every aspect. Hence the facilitator's job is further redefined to be a learning coordinator's one.

4. C. Presentation in the virtual mode demands a different orientation. My first facing the web

camera and appearing on the screen with my college name, I remember distinctly, that it dried my throat and choked my voice for a while. The initial stages of virtual interaction were really apprehensive and took a little time to settle down. To be frank, in the beginning, asking a question on a live interaction was an adventurous accomplishment! As a matter of fact, I used to focus on the questions to be asked; sometimes without even noticing the answers provided. Of late I realized that I can even suggest answers and participate in the discussion.

4. D. In the EDUSAT Networking one teaching end is connected with almost hundred and odd SITs. Therefore the lectures are delivered continuously for about 30 – 40 minutes and the separate time is allotted for interaction. A host of the programme coordinates the process by anchoring the show. As the topics would be of a general interest, we can find an episodic structure in the lectures delivered. In the eCourses, may it be on script writing, editing for films or business communication, multiple arrangements are made to avail the eContents to the participants. In a fixed day and time, arrangements are made to interact with the resource person for clarification of doubts.

4. E. In the IP Networking, the resource person may deliver the lecture either looking at the camera, screen or a teleprompter. Hence it is possible to see what is happening at the student end and the teacher can involve the learners in the process. Pointing, Tilting and Zooming [PTZ] facility in the modern video capturing facility provides intensive display of the classroom.

4. F. As coordinator/facilitator it wasn't enough to have an orientation on the subject to be taught, but also the technological knowhow in which the lessons are taught. Further, it was necessary to explain the technological layer to every stakeholders of the process eventually.

4. G. in reality, the class components do not change much. It's only the methodology that takes a different shape. If the facilitator is dynamic, it is really possible to have engaging activities for the participants. Every action by the participants may be noted and corrected if required. [In my experience, when we were learning French Language through Virtual Classroom, we could zoom the camera to

display the lip movements of the individual learners and receive correction in pronunciation.] Phonetics of French is really complicated as the spelling and the pronunciation often do not go hand in hand.

4. H. In the face to face classrooms much is said about maintaining the eye contact in order to sustain interest in the subject. Sustaining the enthusiasm and interest amongst the learners is the most challenging job amidst the technological interregnum. Making individual participant visible to the teacher makes them alert and insist to participate in the classroom activities.

5. Tests and Examinations

After the lengthy and exhaustive coursework, every stream of study must make an assessment of learners' understanding of the subject. At EDUSAT Networking eCourses, the tests and assignments are conducted on online. The participants are given Multiple Choice Questions to be answered in a phased manner. The MCQs are evaluated and the results are announced at once when you press the submit button. It takes some time to go through the written assignments submitted electronically. I remember my participation in the first eCourse on Script Writing and Dr. Shubha Das Mailok from EMMRC Calcutta providing us invaluable suggestions in the return mails.

6. Evaluation

The UGC guidelines clearly mention the continuous evaluation system amongst the academic endeavours. Hence the assessment of individual learners' growth needs to be assessed time to time. The term end exams must ensure whether the learners have reached the expected level or not before certifying the

completion of the course participation. In the virtual courses experiments are being conducted to go for online evaluation, oral tests, presentation evaluation and written tests. The bottom-line of the process ensures that the learners are not only learning the subject taught but also the technology with which it is being taught. Hence the learners are equipped with multiple skills in the course of study.

7. Conclusion

It may be too early to write a conclusion to the paper as the findings are yet to be discussed analyzed and observations are time tested on Virtual Education. The efforts in establishing a virtual classroom is not to dehumanize the education system but to find a possible solution for the emerging needs through technological assistance. When we move from subjective classroom environment to the subject specific virtual education, the learners' comfort must also to be addressed fundamentally. I may fall short if I don't throw light upon the researches being taken up at SDM College on the Virtual and face to face learning.

1. Linguistic Cognitively of a Foreign Language in the Local Context through Virtual Mode of Learning by the Department of Psychology.
2. Economic Implications of Virtual Classroom Activities by the Department of Commerce and Economics.
3. Changing Role of a Teacher in the Technological Juncture by the Department of English and Education.
4. Computer Networking and Tele Communication facility by the Department of Computer Science.

A CASE STUDY OF LEARNING THROUGH MULTIPLE APPROACHES

P. GOVINDARAJU
PROFESSOR & HEAD,

B. NIDHYA
RESEARCH SCHOLAR

&

M. MAANI MABEL
RESEARCH SCHOLAR
DEPARTMENT OF COMMUNICATION
MANONMANIAM SUNDARANAR UNIVERSITY
TIRUNELVELI

The drastic change in the social, economic and technologic developments have created a demand for education and knowledge gaining as mandatory in the recent decades than ever. Though the scenario shows an accommodating environment for literacy, the existing educational systems in the most of the regions struggle to achieve education for all and also to supply demand based graduates with required knowledge and skills. In most cases, the content of syllabi does not meet the changing job sector. The nations have refined their educational policies and programmes as the highly developed countries have attained the higher educational levels. Most of the nations have employed Information and Communication Technologies (ICT) to achieve the educational goals since the ICT has been rapidly diffusing amongst the rural communities. The ICT promises a practical and realistic approach to curriculum development. The rapid growth of ICT based educational modules gives hope for an educated society. ICTs include Audio-visual aids, Television, Radio, Internet and Computer. Formal, informal and nonformal educational institutions are set with ICT infrastructure to make the learning easy and rapid. Nowadays, apart from the printed materials distance mode education widely use videos, videoconferencing facilities, CD-ROMs, email and the internet.

Though the integration of multiple media into the educational stream promises “interactivity, flexibility of use, and connectivity”, they were under study by various researchers. The method would be no longer a synchronous, if the student and the teacher were not present in the course of learning simultaneously. There is a wide difference of time between the moment of content preparation and content consumed. Researchers strongly recommend that the ICTs could only supplement and can never replace the existing system. James Kulik(1994) in Meta-analytic studies of findings on computer-based instruction found that, “students usually learn more in classes in which they receive computer-based instruction, students learn their lessons in less time with computer-based instruction, students also like their classes more when they receive computer help in them, students develop more positive attitudes toward computers when they receive help from them in school and computers do not, however, have positive effects in every area in which they were studied”. These kinds of research stress that ICT can only supplement to the learning process and makes the learning easier and rapid.

At this juncture, there is an increasing need in studying the modules that employ multiple methods as it enhances the learning process. The present study adopts the case study methodology and the researchers have employed field observation, in-depth interview, focus group discussion and mail survey methods to collect data among the teachers and learners in INaWORD. The study has revealed that if ICT has been used along with the other traditional methods can compliment to the learning process.

Introduction

ICT promises a practical and realistic approach to curriculum development. The rapid growth of ICT based educational modules gives hope for an educated society. ICTs include Audio-visual aids, Television, Radio, Internet and Computer. Formal, informal and non-formal educational institutions are set with ICT infrastructure to make the learning easy and rapid. Nowadays, apart from the printed materials distance mode education widely use videos, video-conferencing facilities, CD-roms, email and the internet. Differently-abled especially the visually impaired are made to participate in the educational system and make them prepared for the job market. Specially designed softwares are available in the market for differently-abled to listen to the printed materials and to document. "ICTs have the potential to bring the products of the best teachers to classrooms anywhere in the world". The earlier phase of distance education mode is considered as asynchronous teaching method which could be now complimented by the new Information and Communication Technologies.

Background of the study

A language education study by Devi (2000) has emphasized the use of technology in language learning and explained how the computer mediated communication makes the language learning more effective. She elucidated the role of web based technologies in language learning and use of e-mail, chat rooms, and blogs in English language learning. She has also stressed web based learning as a complementary tool and the role of teacher is also significant.

Innovation in foreign language teaching began in the 19th century and became very rapid in the 20th century. The evaluative report of "Use of technology to improve language learning outcomes" revealed that the range of resources available through ICTs enable all learners to experience success. While the output observed in this study varied in length and complexity, the instant graphic and verbal individual feedback which ICTs can provide was seen to have a positive influence on motivation, and allowed learners to learn from their own

mistakes as they had developed their understanding of the language. ICT based programs provided security, support and challenge as learners experimented with the target language through graded activities. Researchers noted positive learner response to reinforcement activities including games and quizzes which provided enjoyment, competition and/or interactivity (Stephanie, Vince ,

Gayleen, Michael 2009). The report also discussed the barriers of ICT learning : access issues were compounded by a lack of technical and ancillary staffing in some schools, leaving teachers feeling unsupported.

James Kulik(1994) in *Meta-analytic studies of findings on computer-based instruction* found that, "learners usually learn more in classes in which they receive computer-based instruction, learners learn their lessons in less time with computer-based instruction, learners also like their classes more when they receive computer help in them, learners develop more positive attitudes toward computers when they receive help from them in school and computers do not, however, have positive effects in every area in which they were studied". These kinds of research points out that ICT can only supplement to the learning process and makes the learning easier and rapid.

Language education is the teaching and learning of a foreign or second language. Language learning has become mandatory at present. Apart from the mother tongue, learning other foreign language during the adulthood is crucial for language learners to learn and acquire all the skills of this language such as reading, writing, listening, and speaking effectively and efficiently. Technology is a powerful means to enhance our abilities, to think, to learn, to communicate and to use our brains creatively and logically. Use of technology in language learning has made the learning more effectively.

CMC for foreign language learning

The **Computer Mediated Communication (CMC)** is a new use of language

permitted for the first time by computer application such as online learning environments, email, chat rooms, videoconferencing, online discussion forums, blogs etc. Warschauer (1995) argues that communicating by computer is different from normal communication primarily because it is text-based and computer-mediated, allows many-to-many interaction, and can occur over long distances. Use of CBT – Computer based Tutorials for learning is a new trend. CBTs provide learning stimulus beyond traditional learning methodology from textbook, manual, or classroom-based instruction.

Traditional methods of language teaching

Zettel methods, flash cards, word scramble game, black board and class room lectures were identified as the main traditional methods to teach a language. Learners have to wholly depend on the trainers for materials. Though flash card and zettel methods are effective, they are time consuming.

CEFL Learning

The Common European Framework of Reference for Languages: Learning, Teaching, Assessment (French, German and Spanish) abbreviated as CEFR, is a guideline used to describe achievements of learners of foreign languages across Europe and, increasingly, in other countries (for example the Philippines). Its main aim is to provide a method of learning, teaching and assessing which applies to all languages in Europe. The six reference levels (see below) are becoming widely accepted as the European standard for grading an individual's language proficiency. The Common European Framework divides learners into three broad divisions which can be divided into six levels:

A Basic Speaker

- A1 Breakthrough or beginner
- A2 Waystage or elementary

B Independent Speaker s

- B1 Threshold or intermediate
- B2 Vantage or upper intermediate

C Proficient Speaker

- C1 Effective Operational Proficiency or advanced
- C2 Mastery or proficiency

This paper is intended to study the new approaches in teaching Common European Foreign Languages.

About INaWORD

INaWORD is a language learning institute for beginners and advanced learners of English, Spanish, French, German, Japanese and Mandarin Chinese. INaWORD is a specialized training institute which adopts CEFR. With a team of experts, the institution adopts “role play methods, lively discussion, extensive use of audio-visual aids and other state-of-the-art teaching materials” to improve conversational skills. They also use the audio and visual content from websites to make the learning more effective.

Ranging from house wives, corporates, adults and children, INaWORD uses the audience centered technology and content in each level. The classrooms are WiFi connected and have been equipped with other requisite infrastructure. Courses have been tailored to build in audio-visual elements using internet and DVD-based content. This Institute employed ICT based teaching methods to teach a new language. They use audio-visual aids, smart class rooms with projectors and power point presentations to teach the basics of a language and also the culture of the country. People want to learn the language and who wants to make a language as a career approach this institute. This institute followed a multi approach method which includes ICT based teaching, Class room lecture, Face to Face (f2f) communication and chalk method.

The study was conducted among the tutors and learners of INaWORD a European language training institute which follows CEFR guideline.

Research Design

The study adopts the case study methodology and the researchers have employed field observation, in-depth interview and focus group discussion to collect data among the tutors and learners in INaWORD.

As a part of observation, researchers visited INaWoRD language learning institute in adyar, Chennai. The observation during the language classes and indepth interview with the faculty members of INaWORD has given more

insight into the teaching methods being deployed in the institute. In the focus group discussion, learners expressed their views and opinions with regard to their learning.

Findings emerged from the observation method and in depth Interview

Approaches in language teaching followed by INaWORD

In all the four levels the following methods are adopted to teach a language. More emphasize is given on CMC learning.

- **Interactive Classes**

Conversation classes, Group discussion and interaction based activities are given to the learners. They are expected to talk in target language with the trainer. They prefer 8:15 teaching attention and 1:1 conversational classes.

- **Audio Aids**

At the listening level, audio cassettes and CDs which contain new words are provided to the students. Tutors find it as the effective way to teach the accents of the target language. Translation exercises are given to the learners in which they are expected to translate Tamil songs into the target language. Radio programme in the target language are also given to the learners to improve their speaking skills.

- **Video**

INaWORD also teaches the culture of that country while teaching the language. i.e., teaching german culture for the learners who study German. Learners are asked to watch a movie/short film which is followed by discussion.

- **Role play methods**

At the speaking level, Learners will be taken to hotels, cafes, malls and they have to pretend like a waiter or customer and perform a skit in the target language.

They have to prepare vocabularies and act as a waiter. Learners were asked to prepare vocabularies in the target language. Language tutors feel that a language teaching could not be complete within four walls and outdoor communication is also important.

- **Games**

Words Scramble Game: Learners have to frame different words from a given one word to learn more words easily.

Bingo: It is a game of chance played with randomly drawn numbers which players match against numbers that have been pre-printed on 5x5 matrices. The matrices may be printed on paper, card stock or electronically represented and are referred to as cards. The game in target language will be given to the learners. This is considered to be the easiest method to memorize the numbers in the target language.

Writing: 20 words will be given to the learners and they have to compose a song with those 20 words. Word mapping game, Snake and ladder and memory game are also some of the games given in a target language.

- **CBT**

Computer based tutorials are prepared by the tutors. They have smart classroom setup with projectors. They teach language through PowerPoint presentations and flash tutorials. They download authorized content and prepare an updated CBT with the help of internet.

- **Library**

INaWORD library includes text books, audio and video discs, audio cassettes, games and other teaching materials.

- **Teaching Materials**

The institute issue text books with visuals/text and they stress more visuals will convey the language easily.

Tutors' approach

- ❖ Tutors exchange teaching methods.
- ❖ Reliance on traditional books for teaching materials.
- ❖ Teacher use e-mail communication for sending lectures, CBT to the learners.
- ❖ A class in target language – English is used only when required.
- ❖ They conduct 1:1 classes if required.
- ❖ Conduct workshop and seminars.
- ❖ Ready to adopt new pedagogies.

Predominant findings from the focus group discussion with the learners

- ❖ Learners are comfortable and felt it very easy to understand the target language with the methods followed by INaWORD.
- ❖ They are all happy about the teaching materials and CBT provided by INaWORD.
- ❖ They prefer audio CDs than printed text materials for listening level.
- ❖ They are willing to learn in outdoor environment.
- ❖ They are able to understand the culture by watching a particular movie in that language.
- ❖ Even though there are different technologies, the rapport between learners and teacher is also important.
- ❖ The batch completed a foreign language training has got a good score in international exams.
- ❖ They are active in group classes.
- ❖ They opine that power-point presentations and flash player lessons help them to understand the grammars and vocabularies.
- ❖ They prefer more interactive classes for speaking level.
- ❖ Learners preferred INaWORD for their new approaches in teaching.
- ❖ As they have access to technologies, they feel ICT based learning as more comfortable.

Conclusion

The study conducted in INaWORD language learning institute revealed the new approaches in teaching a language and also if ICT has been used along with the other traditional methods can compliment to the learning process.

. From the feedback of the learners and their score in international exams after completing the course in this Institute, it was found that multi method approach will make language learning easier and faster than an individual method. Foreign language learning is a crucial process. From this study it is noted that teaching alone will not make the language learning interesting, technology combined with the innovative teaching methods will make the learning interesting and encourage the active participation of the learners.

References

- *Devi Archana Mohanty (2006)* 'Bye Bye Blackboard: Learning Language through Web Technology'
- *Kulik, J. A. (1994)*. Meta-analytic studies of findings on computer-based instruction. In E.L. Baker & H. F. O'Neil, Jr. (Eds.), *Technology assessment in education and training*. Hillsdale, NJ: Erlbaum.
- *Strommen, E.F., & Lincoln, B. (1992)*. *Constructivism, technology, and the future of classroom learning*. New York: Institute for Learning Technologies.
- *Tinio L., Victoria*, ICT in Education. Accessed at URL: http://www.saiqontre.com/FDFiles/ICT_in_Education.PDF
- www.INaWORD.org
- U.S. Department of Education. (1993). *Using technology to support education reform*. (ISBN-0-16-042048-2; OR-93-3231). Washington DC: U.S. Government PrintingOfficeURL: <http://www.ed.gov/pubs/EdReformStudies/TechReforms/title.html>

IMPACT OF COMPUTER SIMULATION IN LEARNING SCIENCE

DR. I. KASPAR RAJ,
THE GANDHIGRAM RURAL INSTITUTE – DEEMED
UNIVERSITY, GANDHIGRAM, TAMIL NADU, INDIA
&
A. JACQUILINE REGINA MARY
JAYARAJ ANNAPACKIAM COLLEGE FOR WOMEN
(AUTONOMOUS), PERIYAKULAM, TAMIL NADU, INDIA

Students of Rural area mostly find difficulty in learning the basic science theories at the first year of their undergraduate studies. It is also very difficult for teachers to teach science theories in rural colleges without much laboratory facilities. In such situation computer simulation helps the students to learn the theories without much difficulty. Computer simulations are playing major role in virtual learning and in e-learning. In this paper we present the results of a sample study on the impact of computer simulation in learning science theories at a rural women's college. The results show that students are able to understand the basic science theories easily with help of computer simulation. This study also indicates that the Free laptop scheme of Tamil Nadu and the issue of low cost Tablet PC Aakash from Government of India will help the rural students in learning the science subjects.

Key words: E-learning, Virtual learning, Computer Simulation

1. Introduction

In general, college science teachers use different ways to teach science theories for undergraduate students. Computer simulation aids the teachers in rural colleges to teach science where they have less equipped laboratory facilities. The Honorable Chief Minister of Tamil Nadu Selvi.J.Jayalalitha announced the ambitious free laptop scheme, the first-of-its-kind in the country, under which 6.8 million laptops are to be distributed to government-aided higher secondary school, arts and science colleges, engineering colleges and polytechnic colleges [1]. Hence under this scheme in one or two years all the rural government and aided college students in Tamil Nadu are able to have their own laptops. The Government of India has also announced to distribute low cost Tablet PC Aakash to all College and University students [2],[3]. The Honorable Minister for Telecom and Education, Kapil Sibbal, said at the launch of Aakash, "The rich have access to the digital world, the poor have been excluded. Aakash will end the digital divide." Aakash is capable of supporting multimedia and web based contents [4]. So students can learn the basic science theories

using computer simulation through these devices.

A computer simulation is a computer program that attempts to simulate an abstract model of a particular system. Computer simulations are playing major role in virtual learning and in e-learning.

We have conducted a sample study to know the impact of computer simulation in learning science theories at a rural women's college. We have involved first year undergraduate physics students for our study. We have used the web based freely available simulation on basic physics topics. We have divided the students in to two groups say group A and group B. Teachers used computer simulation for group A when teaching the basic theories and the group B students have only theory classes without computer simulation. Students' performances on learning were evaluated. The results show that Group A students had better understanding than the group B. Hence our study shows that the computer simulation helped the students to understand basic physics concepts easily. So the ambitious free laptop scheme of the

Government of Tamil Nadu and the low cost Tablet PC Aakash from Government of India will also have great impact on students learning, especially in rural areas.

The rest of the paper is organized as follows. In Section 2 we briefly outline computer simulation in learning basic science theories. We describe the sample study in section 3. The experimental results are discussed in Section 4. Finally we conclude this paper in Section 5.

2. Computer Simulation in learning Science

Computer simulation enhances active learning environment of students. Many research studies have been conducted on the effectiveness of computer simulation in science teaching. Dr. Sami Sahin reviewed the use of computer simulations in science education in his review paper [5]. In science education a computer simulation according to Akpan and Andre is the use of the computer to simulate dynamic systems of objects in a real or imagined world [6]. Computer simulations supports student learning in science as well as strategies for choosing and appropriately incorporating them in the classroom [7].

Kennepohl emphasised the advantages simulations in practical science learning [8]. Web based simulations are freely available on the internet for the teaching and learning community. Web-aided instructional simulations are useful on science learning [9], [10]. Thus researchers studying the use of simulations in the classroom have reported positive findings overall. Computer simulation enhances student understanding of general science theories, including physics, chemistry, biology, and Earth and space science. It is also implied that computer simulations are good supplementary tools for classroom instruction and science laboratories.

In our study we have taken a rural women college students who have less exposure

to basic science theories during their school studies. Learning basic Physics theories were taken for our study on the impact of computer simulation in learning.

3. Our Experiment.

The students belong to first year Bachelor of Science(B.Sc) Physics, a three year six semester course were taken as sample for our study. Mostly the first year students have basic topics on physics during their first two semesters. We have taken the concepts of fundamentals of electricity which had 12 hours teaching in duration of three week.

The simulation used in these studies was developed and tested by the Physics Education Technology (PhET) project [11]. The PhET project has developed freely downloadable physics, chemistry, and mathematics simulations. We have taken the simulations related to electricity.

We have divided the students in to two groups say group A and group B. Teacher used computer simulations for group A when teaching and the group B students have only theory classes without computer simulations. Students' performances on understanding were evaluated at the end of the third week.

4. Results and Discussion

The evaluation consists of both objective and descriptive questions. The objective questions were framed to evaluate the understanding of the key technical terms involved in the lessons. The detail procedures of the experiments were asked in the descriptive questions. We have taken the first Year B.Sc Physics students studying at Jayaraj Annapackiam college for women, Periyakulam, Tamil Nadu, India. Periyakulam is an agricultural based rural area situated in the foot hills of Kodaikannal. The students are mostly from villages.

The table 1 and fig.1 show the average marks scored by the group A and B students.

Table 1: Performance of the Students

| Group | Objective Questions | Descriptive Questions | Total |
|-------|---------------------|-----------------------|-------|
| A | 61.05 | 52.89 | 56.97 |
| B | 50.79 | 40.53 | 45.66 |

From the table it can be observed that group A had better average mark than Group B in all aspects. It clearly indicates that Computer simulation enhances the knowledge understanding of the basic science theories.

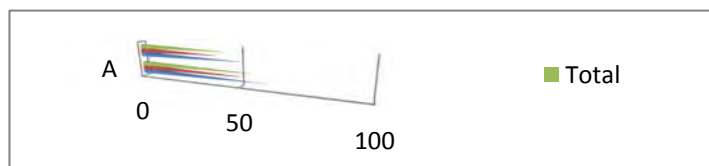


Fig. 1 Performance of the Students

These types of computer simulations are more interactive. So if every student is provided with the computer system, it will be more effective in learning. But the rural colleges are not having such facilities. The Free laptop scheme and low cost PC Tablet distribution will solve the problem. Hence these computing devices will be more useful for the poor rural students in learning the science subjects more effectively.

5. Conclusion

This is only a small sample study on the impact of computer simulation in learning. However the findings of this experiment explore the importance of computer simulation in learning science theories at rural colleges. Hence the Free laptops from Government of Tamil Nadu and the low cost Tablet PC Aakash from Government of India will become greater aids to rural college students in learning the science subjects.

References

1. Tamil Nadu G.O.(Ms.)No.1, Special Programme Implementation Department, dated 03.06.2011
2. India Announces World's Cheapest Tablet. India Real Time, via The Wall Street Journal, Tripti Lahiri, October 5, 2011.
3. News Article about launch, Pluggd.in. Retrieved December 30, 2011
4. Aakash tablet will end 'digital divide' Montreal Gazette, Jason Magder, October 6, 2011.
5. Dr. Sami Sahin, Computer Simulations in Science Education: Implications for Distance Education, Turkish Online Journal of Distance

Education- Volume: 7 Number: 4 Article: 12, 2006

6. Akpan, J. P., & Andre, T. (1999). The Effect of a prior dissection simulation on middle School students' dissection performance and understanding of the anatomy and morphology of the frog, *Journal of Science Education and Technology*, 8, 107-121. , 2003
7. Bell, R.L., & Smetana, L. Using computer simulations to enhance science teaching and learning. In R.L.Bell, J. Gess-Newsome, & J. Luft (Eds.), *Technology in the secondary science classroom*. Arlington, VA: NSTA Press, 2008.
8. Kennepohl, D. Using computer simulations to supplement teaching laboratories in chemistry for distance delivery. *Journal of Distance Education*, 16(2), 58-65 2001.
9. Hsu, Y., & Thomas, R. A. The impacts of a web-aided instructional simulation on science learning. *International Journal of Science Education*, 24, 955-979., 2002
10. Bell, R. L., & Trundle, K.C. The use of a computer simulation to promote scientific conceptions of moon phases. *Journal of Research in Science Teaching*, 45(3), 346 - 372., 2008
11. Physics Education Technology Project, <http://phet.colorado.edu>

A COMPARATIVE STUDY OF TRADITIONAL AND E-PORTFOLIO ASSESSMENT IN LANGUAGE CLASSROOMS IN THE INDIAN CONTEXT

DR. V. HEMA NALINI & MS. JEEVARATNAM G.
AVINASHILLINGAM INSTITUTE FOR HOME SCIENCE AND
HIGHER EDUCATION FOR WOMEN, COIMBATORE - 641043

The premise of this paper is to bring out the salient features in language assessment with reference to English and French languages in the blended learning environment existing in India. Teachers and scholars today are experimenting with alternative techniques and procedures of evaluation to traditional test which is held at the conclusion of a unit of study. However, researchers have started questioning the adequacy of the single test at the end of the course as no single measure seems capable of estimating the diversity of skills, knowledge, processes, and strategies that combine to determine students' progress. Marks or grades do not adequately capture the level of understanding of the language competence of the students. Thus teachers have begun to incorporate alternative assessment techniques to yield more useful information about students' achievement and classroom instruction. One of these alternative assessment techniques is eportfolio assessment incorporating web based technologies and rubrics.

The aim of this study is to combine research evidence on e-portfolio use with practical feedback from the students in an attempt to develop easy-to-use criteria designed to support active self regulated language learning. The research findings of the study assert that rubrics help students in self-evaluation and peer assessment and establish clear benchmarks for achievement; internet technology such as E-mail, blogs and Web Quest provide a platform for expressing and exchanging meaning in French language learning. In conclusion, this paper summarises current trends in educational assessment and relates these to the assessment of the students' outcomes on language learning; emerging networked technologies that integrate explicit teaching strategies are slowly transforming traditional classrooms into lifelong learning. Demystifying some of the myths that enshroud both face-to-face learning and virtual learning would help educators view reality in clear light.

Introduction

Performance assessment is best understood as a continuum of assessment formats ranging from the simplest student-constructed responses to comprehensive demonstrations or collections of work over time. Portfolios have a vital role to play in performance assessment. Much has been written about the usage of portfolios in language learning from 1990s. With the increasing integration of technology into school and higher educational contexts, electronic portfolios, or ePortfolios, are gaining currency as formal and informal assessment across disciplines. Juxtaposingly, with ePortfolios, rubrics are also gaining ground as assessment tools; rubrics are set of criteria and standards typically linked to learning objectives. They are being used in countless classrooms to evaluate

an individual work or a student's entire body of work.

A review of the literature has shown that Rubrics have been identified as an important tool for assessing student performance, teacher effectiveness, and program quality. For example, Jonsson & Svingby (2007) reviewed 75 empirical research studies on rubrics and concluded that rubrics had the potential of promoting learning and/or improving instruction because they make expectations and criteria explicit, and also facilitate feedback and self-assessment. In addition, rubrics enhance the reliable scoring of performance assessments, especially if they are analytical, topic-specific, and complemented with exemplars and/or rater training.

Interviews with teachers who were mentored to use rubrics showed that those teachers found rubrics useful for grading assessments and for conveying assessment expectations to students (Maxwell, 2010).

Objectives

1. Enabling learners acquire language learning strategies, develop critical thinking skills, and utilizing current technologies to assist students in their language learning.
2. Construction of Rubrics for Self-assessment and teacher evaluation

Sample

The sample comprised of 138 B.Ed students with General English as their II optional and 72 students who have chosen French language for Part B Undergraduate Programme belonging to various streams such as Humanities, Science and Management. All 138 B.Ed students were divided into 3 groups – Traditional Assessment Group, E-Portfolio Assessment Group and E-Portfolio Assessment with Rubrics for the teaching and learning of grammar. French language students were also divided into 3 groups as done in the case of B.Ed but the establishment of criteria for Rubrics alone differed. For B.Ed students, Traditional Assessment was done by the teacher for the traditional way of teaching and learning of grammar and E-Portfolio Assessment was done both by teacher and the students without Rubrics and for the third type Rubrics was used. For French Language learners, the same strategies of assessment were used but they learnt French basically through E-mail, blogs and Web Quest. Common stock phrases in French for communication were identified and made use of.

The instruments that were used for collecting data were:

1. Rubrics used for Teaching and Learning of English Grammar
2. Rubrics used for Teaching and Learning of French

Methodology

E-portfolio was used both for evaluating learning processes and learning outcomes. The instructors asked students to provide input on the criteria that should be included in each. This approach enabled the learners to become more comfortable with the use of alternative assessments and helped students understand how they will benefit from alternative assessment and how they can use it effectively. In the present study, Multitrait Rubrics is used as it allows for rating performance on three or four dimensions rather than just one. Multitrait rubrics resemble analytic rubrics in that several aspects are scored individually. However, where an analytic scale includes only conventional aspects such as content, organization, and grammar, a multitrait rubric involves dimensions that are directly related to the topic or work that is being carried out by students. For teaching and learning of English grammar, students were assigned topics based on Wren & Martin Grammar Book and they were also asked to incorporate appropriate pictures that would illustrate the sentence they have chosen as examples. Rubrics used for teaching and learning of English grammar are established with the following criteria:

RUBRICS USED FOR TEACHING AND LEARNING OF ENGLISH GRAMMAR

| Activity | Exemplary | Adequate and appropriate proficiency | Satisfactory but with errors | Incomplete |
|---|---|--|--|---|
| Points | 6 Points | 4 Points | 2 Points | 0 Points |
| Usage of the structures in contexts and situations | The student has created perfect real world communication contexts and situations and the sentences are error-free | The student has attained proficiency and created appropriate contexts and situations | The student has understood the structural patterns but there is no understanding of the contexts and situations. Writing does not consistently follow appropriate style and/or format. | The student has no comprehension of the grammatical pattern. Frequent errors in spelling, grammar (such as subject/verb agreements and tense), sentence structure and/or other writing conventions distract the reader. |
| Creative use of language rather than simple repetition | The student has learnt to use the structure creatively and demonstrates thoroughness and competence | The student has adequate creativity and does not repeat the structures mechanically | The student has understood the grammatical patterns but does not use it creatively. Writing contains numerous errors in spelling, grammar | The student has no understanding of using the language creatively |
| Usage of pictures to convey the structural patterns | The student has chosen pictures and sentences very effectively | The student has adequate interest in the topic and used appropriate pictures and sentences | The student has shown adequate interest but several errors were found | The student has not understood and has problems in the usage of the structural items |
| Successful completion of communication tasks | The student has exemplary mastery over communication | The student has adequate mastery and proficiency in communication. | The student commits lots of errors but is able to communicate | The student is not successful in the completion of the tasks assigned |

RUBRICS USED FOR TEACHING AND LEARNING OF FRENCH LANGUAGE

| Activity | Exemplary | Adequate and appropriate proficiency | Satisfactory but with errors | Incomplete |
|---|---|---|--|--|
| Points | 6 Points | 4 Points | 2 Points | 0 Points |
| Usage of the French language in Emails | The student is able to write Emails using French language perfectly and without any error | The student is able to communicate but has not attained proficiency | The student has understood the critical usage of the language but the language is error-ridden | The student is not able to communicate in French and has not understood the usage of the language in real-life situations. |
| Dynamic usage of blogs for enhancing | The student has created good | The student has created blogs but | The student has understood the usage | The student has not understood the usage of blogs |

| | | | | |
|--|---|--|--|--|
| French language skills | quality blogs that are interactive, allowing visitors to leave comments and even message each other | interconnectivity is not achieved | of blogs but is not successful in her attempt | for French language learning and does not come forward to create or use blogs |
| Usage of Web Quest in learning French | The student has effectively and efficiently made use of Web Quest in learning French | The student has interest in Web Quest and has made use of it in enhancing her skills in French | The student has shown adequate interest but is not able to access the information required | The student has not understood and has apprehensions about the usage of Web Quest. |

Results and Discussion

The results indicated that E-portfolio assessment increased student involvement in their assessment and their interaction with other students. The study also threw light on the importance of self assessment and reflection. Charting their own progress with emphasis more on their strengths than their weaknesses enabled students to take ownership of their learning and provided self-direction. It helped instructors emphasize that the point of language learning is communication for meaningful purposes; this kind of assessment gives the instructor multiple ways of measuring progress without increasing the time students spend taking traditional tests.

Conclusions

With the rubric as a guide, students learnt to monitor their own progress and make improvements in a timely manner. The primary responsibility for the learning experience rests with the student who must be motivated (have a reason that is important to him/her) to be an effective learner. The teachers used the materials to complete both formative and summative evaluation of progress. The results also indicated that e-portfolio assessment is not completely without any weaknesses; major responsibility of learning falls on the students. Motivated learners do well but unmotivated students found it a formidable task and some students never completed the tasks. Lack of IT infrastructure and lack of adequate computer knowledge in students are some of the

impediments that were faced in blended learning situations as existent in India. The research findings of this kind strengthen the need for performance assessments in Indian classrooms.

This research paper investigates language assessment in terms of teaching and learning of English grammar and French. An attempt is made here to show that self-assessment serves as a learning strategy and further research may provide conclusive evidence. This study is the result of a collaborative effort by the two authors, Dr. V. Hema Nalini and Ms. Jeevarthnam. G. The definition of the research questions, the review of literature, the preparation of the rubrics for self assessment as well as an evaluative tool by the teacher, the discussion of the limitations of the study and the conclusion with recommendations were shared equally by the authors.

References

- Jonsson, A., & Svingby, G. (2007). The use of scoring rubrics: reliability, validity and educational consequences. *Educational Research Review*, 2, 2, 130-144.
- Maxwell, S. (2010). Using rubrics to support graded assessment in a competency based environment. National Centre for Vocational Education Research (NCVER). ERIC Document Reproduction Service No. ED509189.

VIRTUAL CLASSROOM VS. FACE TO FACE LEARNING – REALITY AND MYTH

DR. G.B. SINGH, ASSOCIATE PROF., FTII, PUNE

Education is the process by which society deliberately transmits its accumulated knowledge, skills, and values from one generation to another. From the Gurukul concept (ashram of guru) to the Classrooms of the 21st century containing interactive white boards, tablets, mp3 players, laptops and internet the education has undergone a sea change. Today, the teachers are encouraged to embed technological devices in the curriculum in order to enhance students learning and meet the needs of various types of learners. The term "computer-assisted learning" (CAL) has been increasingly used to describe the use of technology in teaching.

Virtual classroom learning in simple words- instructions in a learning environment where teacher and students are separated (away from each other) by time or space, or both, and the teacher provides course material / content through the use of methods such as multimedia resources, the internet, and videoconferencing. Students receive the contents and communicate with the teacher via the same technologies. This mode of education is a boon for the students of higher education, researchers, doctors, scientists and all other professionals who need the latest information and references on their subjects of interest instantly. The information is just at a click away. Video conferencing is a handy tool for doctors who can operate upon a patient, prescribe medicines, ask and consult the expert on the new techniques of the treatment / surgeries.

A classroom teaching cannot be totally replaced with Virtual classroom teaching / learning especially for the young learners who need continuous support and guidance from their teachers. The presence of the teacher in the classroom makes the session live, interactive and gives a feeling of intimacy which is a vital part of the communication to happen.

We have made Param Computer. We are much ahead of most the countries in Software developments. Today, we have all the technologies with us whatever the other countries have. Our countrymen are techno savvy at the quite young age (in the cities).

The biggest advantage with us is that we have large number of young and talented population in our country in the age group of 18 to 35. This segment of the population can do wonders for us and themselves. They may bring the desired change.

The problem with us that hinders the success is the non availability of basic infrastructure in the rural areas such as electricity, roads and very low income of the people. There is scarcity of good teachers and schools as well. The majority of the people lives in the villages and cannot be ignored. They have very low purchasing power. In rural areas the computer is still a big dream.

Our main thrust should be as to how to reach the needy people / students. We have to produce the contents with trained teachers and professional media persons. The contents should be presented in an interesting way by using all the technological softwares such as 2D / 3D animation, Paint Box, Simulation packages, interactive homework etc.

There is an urgent need of strong coordination between the subject experts and the professional media persons to produce the good quality of contents. I am sure, we will overcome the problems in due course of time.

Introduction

Education is the process by which society deliberately transmits its accumulated [knowledge](#), [skills](#), and [values](#) from one generation to another. Classrooms of the 21st century contain interactive white boards, [tablets](#), [mp3 players](#), laptops, etc. Teachers are encouraged to embed these technological devices in the curriculum in order to enhance students learning and meet the needs of various types of learners. The term "computer-assisted learning" (CAL) has been increasingly used to describe the use of technology in teaching. The Indira Gandhi National Open University combines the use of print, recorded audio and video, broadcast radio and television, and audio conferencing technologies.

Virtual classroom learning in simple terms instructions in a learning environment where teacher and students are separated (away from each other) by time or space, or both.

This mode of education is a boon for the students of higher education, researchers, doctors, scientists and all other professionals who need the latest information and references on their subjects of interest instantly. The information is just at a click away. Rare information and latest developments can be accessed through Internet. But yes, the books have their own importance and cannot be ignored. This is also very helpful for those who could not complete their education due to various reasons beyond their control and now they can fulfill their dreams of education.

Video conferencing is a handy tool for doctors who can consult the experts to prescribe medicines and know the new techniques of the treatment / surgeries.

A classroom teaching cannot be totally replaced with Virtual classroom teaching / learning especially for the young learners who need continuous support and guidance of their teacher. The presence of the teacher in the classroom makes the session live, interactive and gives a feeling of intimacy

which is a vital part of the communication to happen.

Characteristics of virtual education

It is an online (or offline using CD/DVD) education using the Internet and other Information technologies. A virtual program is a study program in which all courses, or at least a significant portion of the courses, are virtual courses, whether in real time or in self-paced formats. It may also be placed with distance education in some sense.

Virtual courses are delivered on the Internet. The student may receive the required material through internet or video conferencing.

The current intersection of technology as a means to facilitate real-time communication with community-centered interaction, and the increasing acceptance and employment of those developments in the broader culture, have uniquely positioned virtual schools in a position of significant innovation and responsibility.

Instruction modes for virtual education

Many virtual study programs are mainly text based, using HTML, Power Point, or PDF documents. Any attempt to personalize the educational experience is essential in that students respond to personal attention and feedback. Today, a wide spectrum of instruction modes is available, including the following:

- **Virtual Classroom:** Live teacher instruction and feedback online that enables real-time voice interaction, whiteboard sharing, and breakout sessions to enhance a student's learning experience. This provides students an opportunity to interact with the teacher as well as classmates by oral and written communication.
- **Virtual operating room:** giving students a space to learn the basic induction procedure before stepping foot in the real-life operating room. The softwares make it easier for the students of Medical sciences how to operate upon a patient.
- **Hypertext courses:** Structured course material is used as in a conventional distance education program. However, all material is

provided electronically and can be viewed with a browser. Hyperlinks connect text, multimedia parts and exercises.

- **Video-based courses** are like face-to-face classroom courses, with a lecturer speaking and Power Point slides or online examples used for illustration. Video-streaming technologies are used. Students watch the video by means of freeware or plug-ins.
- **Audio-based courses** are similar but instead of moving pictures only the sound track of the lecturer is provided. Often the course pages are enhanced with a text transcription of the lecture.
- **Animated courses:** Enriching text-oriented or audio-based course material by animations is generally a good way of making the content and its appearance more interesting. Animations are created using Macromedia Flash or similar technologies.
- **Web-supported textbook courses** are based on specific textbooks. Students read and reflect on the chapters by themselves. Review questions, topics for discussion, exercises, case studies, etc. are given chapter wise on a website and discussed with the lecturer. Class meetings may be held to discuss matters in a chat room.
- **Peer-to-peer courses** are courses taught "on-demand" and without a prepared curriculum.

Communication and interaction

Students in virtual education acquire knowledge in a uni-directional manner (e.g. by studying a video, reading a textbook chapter), this would be known as asynchronous instruction. Subsequent discussions of problem solving exercises, case studies, review questions, etc. help the students to understand better what they learned before. This learning is delivered at the students pace, not instructed live by a teacher. Although asynchronous courses are student driven, teachers are often needed to act as a guide. Therefore teacher facilitators are often available to provide any assistance that may be needed throughout the course. Communication with teacher facilitators is accomplished through discussion boards and email.

A real teacher in real time delivers virtual classroom instruction. The virtual classroom teacher uses the computer screen as the board delivering instruction by using videos, Power Points, or pod casts in conjunction with audio of the teacher's voice. Students enrolled in the virtual classroom have opportunities for immediate teacher feedback and input while logged into class, just as they would in a traditional classroom. Students can also interact with other students via notes, texts, and emoticons. Additionally, many conferencing platforms used by virtual educators allow for students to work in small groups during class time, thus again mirroring the look and feel of a traditional classroom. Electronic media like a discussion forum, chat room, voice mail, e-mail, etc. are often employed for communication in both synchronous and asynchronous courses.

Homework assignments are normally submitted electronically, e.g. as an attachment to an e-mail or uploaded to the LMS system in a view complete. When help is needed, lecturers, tutors, or fellow students, or a help desk are available, just like in a real university. The difference is that all communication occurs via electronic media.

Virtual teachers are encouraged to use technology more in the classroom. They are also motivated to share their ideas and lesson plans with other teachers through wikis, blogs, facebook, etc.

Communication in the synchronous virtual classroom is a collaborative learning experience. Students are encouraged to interact with peers through web-conferencing technologies. Small-group and whole-group collaboration is a suggested platform for virtual education. Communication can take place in real-time, i.e. during a class session. This is a platform that allows real-time, social interaction between students. Students collectively work on a learning task designed by the virtual classroom instructor.

Limitations

1. Not suitable for Primary and Secondary education. The young students take it as entertainment rather than education. For them, the teacher cannot be replaced with virtual classrooms.

-
2. Except videoconferencing, it is a one way communication where feedback is missing. Secondly, the teacher has to be in front of the students to make them feel the intimacy which is otherwise missing.
 3. The TV channels like Vyas, Gyandarshan and others telecast good educational programmes for various levels of education. How many students do really watch these programmes is a question to be answered.
 4. Reading text on the screen is a tiring and cumbersome job unlike books. To refer the material again and again, print out is to be taken for easy access.
 5. There is no facility of computers, TV sets and the electricity in rural areas to access this mode of education. Unfortunately, no centre is opened in the villages. The technology is limited to the cities at present.
 6. The reach of the technology, at present, is limited to the urban areas. It needs to be expanded to the rural areas so that maximum number of people may use it .

Myths and Reality

The myth that the education is incomplete without a guru / teacher has partially been overcome by the use of current technology. Of course, the gurus are helping the millions of students sitting at their homes. The students do not know who their teachers are. Almost all the information related to all subjects is available on internet.

Doctors, scientists, engineers and researchers use video conferencing and internet to get the desired help from the experts of their fields. Electronic media has proved itself a good tool for educating the masses in various ways.

The channels like Vyas, Gyan Darshan telecast educational programmes produced by UGC, CEC, EMRC and Balchitravani etc. The programmes are very rich in contents. They can further be improved by using new technology. To produce an educational programme we have to think more upon the following –

- i. Objective of the programme
- ii. Target audience / viewers

- iii. The producer should have the flavor of teaching
- iv. Time of telecast / broadcast
- v. Presentation style
- vi. Use of animation & graphics to illustrate the diagrams and contents
- vii. Technical quality i.e. Audio - Video quality of the programme and broadcast.
- viii. Use of colour scheme to make programme more effective
- ix. Media for which it is being produced - Television, Radio, Internet or making CD / DVD
- x. Limited words on the screen as the screen size is smaller

The government's policy to distribute Tablet computers to the students at a price of approximately Rs. 1200/- is a very bold step towards the e- education in the country. Now-a days, the internet surfing can also be done on mobile phones. This will enable the parents to give their children a **digital education**, and help close the **digital divide** across the world.

Little more efforts and resources are required for educating the rural people who cannot afford the electronic gadgets. Let us call the scheme as "Rural Computerization and e-learning". In our country almost 70% of the population lives in villages, we cannot ignore this fact and if the country is to make a progress, the villages are to be equipped.

India is now developing technologies that will skip land based telephone and internet lines.

A Case Analysis

Parents Divided - The parents are divided over whether education through use of latest gadgets is distractive and will hamper kid's growth.

School claims - Podar International school, santacruz, Mumbai has instructed all its students to buy iPads to impart education. The school claims that a comparative assessment between the usual method of teaching and that with the iPads and realized that this form of

technology will help in the active learning of the student as it induces multisensory stimulation for the students. The technique will reduce the time for teachers as they can plan lectures in advance and deliver better in classrooms.

It is extremely helpful for students for students, especially younger ones, to make use of iPads while learning alphabets and playing memory games. It helps slow learners and special students. Their communication skills have improved after the use of iPads said the chairman of the school. With the help of 3 D images, topics such as solar system can be taught effectively, instead of teachers talking in the class.

Tech boost worries psychiatrists - Teacher – student bonding is the best method of education, everything else is an accessory. Students remember schools for the personal interaction they have had with teachers and colleagues.

Conclusion: Technological tools and softwares are the teaching aids. No doubt, they make teaching and learning easier. Since we are now introducing these tools, its effects are yet to be found out through research.

Reference:

1. Wikipedia (internet)
2. Times of India, Pune , Dec. 15, 2011

ADOPTION OF E-LEARNING IN HIGHER EDUCATION AMONGST COLLEGE STUDENTS

CHANDRA SEKAR .D

HEAD, DEPARTMENT OF VISUAL COMMUNICATION & ELECTRONIC MEDIA,
PSG COLLEGE OF ARTS & SCIENCE, COIMBATORE, TAMIL NADU.

&

DR. C. PICHANDY

HEAD, DEPARTMENT OF JOURNALISM & MASS COMMUNICATION,
PSG COLLEGE OF ARTS & SCIENCE, COIMBATORE, TAMIL NADU.

The author has conducted systematic research to gain an understanding of the impact of Information and Communication Technology (ICT) mediated e-learning environment among the students of PSG College of Arts & Science, Coimbatore, Tamil Nadu, India.

The study focuses on the quality and quantity of e-learning with the changing patterns of learning among the higher education student community. It would also analyze the adoption of ICT's and its role in e-learning.

The student community of PSG College of Arts & Science was chosen as there are more than 5,000 students from diverse backgrounds studying in 41 undergraduate and 27 Post graduate programmes along with PhD programmes in 18 disciplines.

The study aims to understand how ICT has been a mediator in e-learning among the students community.

Introduction

With schools providing smart classes, e-learning has become indispensable for higher education. Since higher education is more of self learning unlike school education, it is imperative that the college students adopt e-learning as an important aspect of their learning.

With some governments such as Tamil Nadu are providing free laptops for college students while most colleges are Wi-Fi enabled campus, the college students should not have any difficulty in adopting e-learning. Even for the other state college students, the introduction of "Aakash" tablet at Rs. 2,500 is a boon while most colleges are Wi-Fi enabled. The "Aakash" website introduces the tablet as: "The world's cheapest tablet PC, Aakash, will soon be available to the students on rent in their college libraries. The rented Aakash will have preloaded video tutorials on all disciplines including

Science, Engineering and many more. According to the sources, the Ministry of Human Resource Development is offering Aakash tablet at half the price to the state governments. Main goal of this progress is to encourage the state governments to issue Aakash tablets to the college libraries for free, thus the colleges can offer them on rent to the students." and "The ultimate target of the government is that the tablet should reach all 220 million college and school students." Tony bates, research associate, Contact North, writes in his blog that "I am completely in line with their prediction for adoption of tablets and mobile apps in 2012. I think learning analytics will be adopted more quickly than the Horizon timeline, but that's a matter of timing rather than direction."

A study of adoption of e-learning around the world has revealed that there are

some challenges in e-learning. In his blog Tony bates reports that “David White, Director, EU Commission DG Education and Culture, Lifelong Learning, in his keynote presentation Innovative Learning for Europe at the 2008 EDEN conference in Lisbon, expressed his concern about the lack of return on investment. He pointed out that national governments and the European Commission have invested over a billion dollars in ICTs for education, but have seen little change or improvement as a result.” He also reports that “the other, related issue is the lack of innovation. The World Economic Forum’s Global Advisory Committee on Technology and Education at its meeting in Dubai (November, 2008) commented: ‘Education is in a state of transition from a traditional model to one where technology plays an integral role. However, technology has not yet transformed education’. He further states that “Thus, while plenty of evidence (e.g. Allen and Seaman, 2008; Instructional Technology Council, 2008) can be provided to show that computers and the Internet are now widely used by a majority of faculty and students in post-secondary education, there is also at the same time widespread dissatisfaction with the results.

In light of above, a systematic survey was carried out on adoption of e-learning in higher education. The study focused on the quality and quantity of e-learning with the changing patterns of learning amongst the higher education student community. It also analyzed the adoption and its role in e-learning.

METHODOLOGY

The survey was carried out amongst the students of a premier college in Coimbatore with more than 7,000 students from diverse backgrounds spread over 70 departments with undergraduate, post graduate and PhD programmes. The sample size comprised of 120 respondents. 10 closed ended questions were asked and 5 statements offered on the Likert scale. The respondents comprised of both boys and girls studying under- graduation and post- graduation in Arts and Science. The responses were converted into percentages for analysis.

RESULTS & ANALYSIS

The surveyed showed that all the college students browsed the internet and visited educational websites. Apart from visiting purely educational websites they used the internet to do their assignments and gather information on their subjects. The average time spent on the internet per month by the students was only 2 hours. This is probably because presently access to the internet to most students is limited. Though most of the students visited educational web sites only very few students regularly visited them. All the students found the educational websites useful, thus making e-learning a part of their educational process.

The students strongly felt that the internet helped them to learn their subject’s better. This could be attributed to the additional information on various subjects available on the internet. Some students felt that the cost of using the internet is a barrier in learning from it, these students are probably from the lower middle-class families who do not have access to the internet. All of students agreed that the pattern of learning has changed because of the internet. This can also be attributed to vast amount of information available on the internet.

Most of the students agreed that information sharing among classmates has improved because of the internet. With every student having an e-mail ID, class notes and information downloaded from the internet are exchanged among classmates. All the students agreed that adoption of using the internet for learning has been easy. User friendly browsers and search engines have made using the internet easy.

CONCLUSION

We find that though e-learning is prevalent amongst the college student community, it has not played a significant role in their education. Perhaps a change using the educational websites as a part of the course curriculum would help the college students to be at ease with e-learning.

Apart from the provision of tablets and laptops by the government, internet tariffs also need be low for the lower middle class to affordably access the internet at home.

Sub Theme:

**CONTENT DEVELOPMENT
FOR DIFFERENT DIGITAL
DELIVERY PLATFORM**

GOING GLOBAL WITH M-LEARNING

DR VASANTHA KALYANI DAVID

ASSOCIATE PROFESSOR IN COMP SC

vasanthadavid@gmail.com

&

MRS G. JAYAGOURI

SYSTEM ANALYST,

jayagowind@gmail.com

AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION
FOR WOMEN, UNIVERSITY, COIMBATORE -641 043, TAMIL NADU

The main purpose of employing Information and Communication Technology in Education is to enhance the quality of implementing ICT Equipments and Tools in Teaching-Learning process. The Information and Communication Technology sector includes traditional Telecommunications, Telephony, Fax, TV, Radio, Audio/video Cassettes, CD ROMs, Multimedia, Internet and Geographic Information Systems .The educational institutions need to develop, in individuals, the ability to transform information into knowledge and to apply that knowledge in dynamic and cross-cultural contexts. ICTs promote equity in education by providing educational opportunities to people of all ages, including those in rural and remote areas, women and girls, and persons with disabilities. The different delivery platforms are the internet, mobile and the other electronic devices (mostly for film, games and entertainment based).The most powerful and useful supplement to ICT is mobile learning which has found great favour among the youth. Mobile Learning or m-learning is where the mobile becomes our computer and goes global. The five basic parameters for the production and development of m-learning are Portability, Social Interaction, sensitivity to context, Connectivity and Customized learning. A basic m-learning infrastructure includes a Learning Management System (LMS) together with a micro-portal interface layer that facilitates access to mlearning services through a variety of mobile devices and also enhances its reach through web and TV access. The benefits brought forth by m-learning are Interactive learning experience, easy accessibility, anywhere and anytime use, occupying lesser space when compared to the computer and its size, shape and portability making it a boon to people with disability. The obstacles are the small screen size, limited storage, low backup for the batteries and constrained bandwidth when wireless networks are engaged. The mobile content is developed once (single source) and deployed in multiple formats to multiple handhelds, mobile phones (Symbian Phones, BlackBerry, Windows Mobile Pocket PC's, iPhones etc.) and tablets. Use of a communication platform that is device and operating system independent is a solution when everyone has a different device and is on a different platform. The task now is to write once to publish on many platforms. Finally the LCMS (Learning Content Management System) manages the contents, production, maintenance and reuse of the digital contents.

Introduction

The main purpose of Information and Communication Technology (ICT) in Education is implementing ICT Equipments and Tools in Teaching-Learning process as a media and a methodology. Traditional Telecommunications, Telephony, Fax, TV, Radio, Audio/video Cassettes, CD ROMs, Multimedia, Internet and

Geographic Information Systems constitute the Information and Communication Technology sector. There is a need for the educational institutions to develop in individuals the ability to transform information into knowledge and to apply that knowledge in dynamic and cross-cultural contexts. ICTs can improve access to and promote equity in education by providing educational opportunities to a greater number

of people of all ages, including those in rural and remote areas, women and girls, and persons with disabilities.

ICTs for Development

ICTs can be applied directly wherein their use benefits the disadvantaged population or can be used to assist organizations or non-governmental organizations, governments and business to improve their general socioeconomic conditions. This field is interdisciplinary and improves the income, education, health and security or any other aspect of human development. Information and Communication Technologies for Development (ICT4D) refer to the application of ICTs within the fields of socioeconomic development, international development and human rights. ICT4D will improve the flow of information and communication in a society. A good example of ICTs impact is that of farmers getting better market price information and boosting their income in Philippines. Mobile telecommunications and radio broadcasting are

Different digital delivery platforms

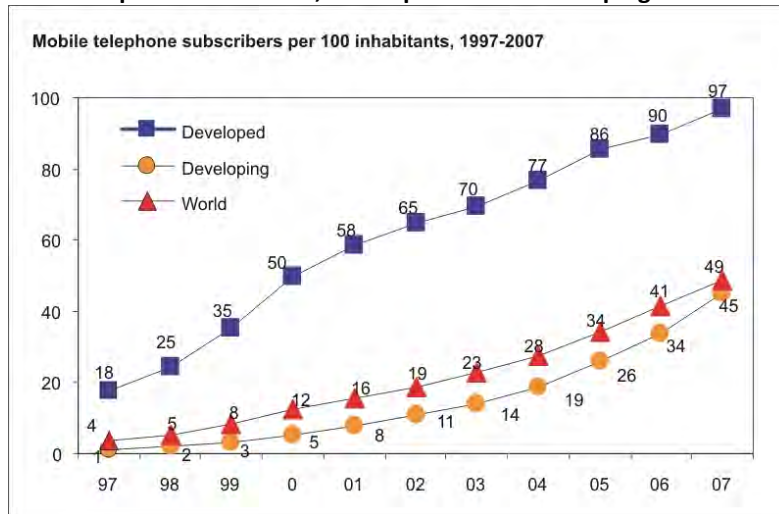
The different delivery platforms include the internet, mobile and the electronic sell through (mainly for films, games and entertainments). M-learning is currently the most powerful and useful supplement to ICT, online learning and other traditional learning methods, and plays a vital role in providing a rich learning experience. It is so effective in engaging the youth in active learning wherein the traditional methods have faltered. In India the total number of mobile phone subscriptions reached 851.70 million in June 2011 among which 289.57 came from rural areas with higher percentage of increase than urban. This unexpected growth of affordability and coverage of mobile telephony services has increased its importance as a means of ease-of-access to information to all. Advanced models of mobile phones can take pictures, record videos, receive radio frequencies, share and receive multi-media and get connected to the internet as well.

used to fight political corruption in Burundi. In India Mumbai's dabbawallas with an identity of their own are moving forward with technology at their heels. Though they relied on manual labour but are now slowly sitting down at a computer and are taking tentative steps in going hi-tech. Ordering a dabba (lunch box) is now just a click away (website www.mydabbawala.com) or an sms can assure the customer of instant service. Customers are moreover invited to write their feedback to encourage two-way communication between the dabbawallas and their customers. In India the affordability of mobile phones allowed more people to acquire mobile phones before learning to use the computer. Nevertheless there are difficulties for some ICT4D projects to take initiative, due to lack of power supply, bad roads, water scarcity, health services and employment. Hunger, illiteracy, corruption, short term grants, training programmes during unsuitable time for users, applications not being user friendly, encouraging brain-drain and lack of support from the local government also hampers in introducing ICTs in India.

M-learning

Mobile Learning or m-learning is where the mobile becomes our computer and goes global. Mobile learning is aimed at phone users of 16-24 age group based on their needs, preferences, attitudes and habits. Autonomous learning is promoted by m-learning which targets on people who are always on the move. M-learning has made an exponential leap from theory explored by academicians to a real contribution towards learning. The five basic parameters for the production and development of m-learning are Portability, Social Interaction, Sensitivity to context, Connectivity and Customized Learning. A basic m-learning infrastructure includes a Learning Management System (LMS) together with a micro-portal interface layer that facilitates access to m-learning services through a variety of mobile devices and also enhances its reach through web and TV access.

ICT developments over time, developed versus developing countries



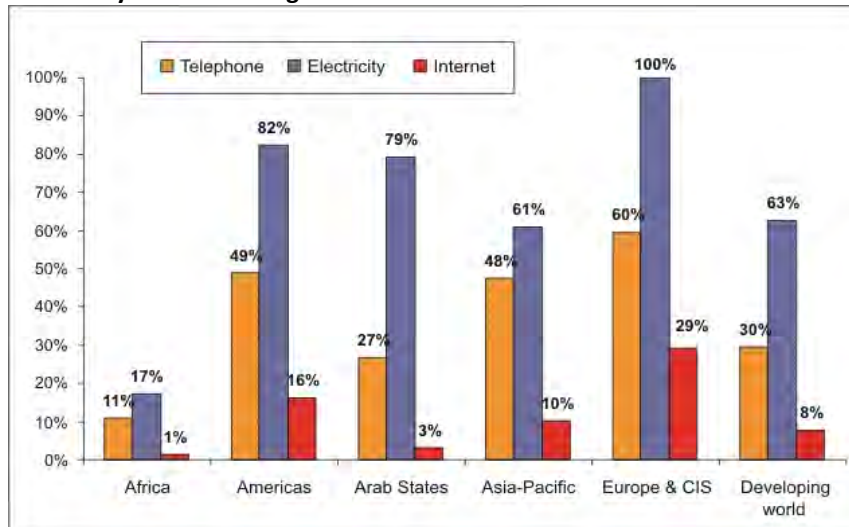
Source: ITU World Telecommunication/ICT Indicators Database.

M-learning in rural areas

Mobile phones impacted rural living in various ways like Entrepreneurship and Job search. Mobile phones reduce the cost of running a business and in some cases enable a user to start one. Many women in Pakistan offer beauty and hair dressing services via their mobile phones without setting up beauty salons. Clients could easily contact them via their mobile phones, fix an appointment and enjoy their services. Valuable and easy access to information such as prices, arbitrage and market or trade opportunities enable users to prepare themselves for future business transactions. Farmers and fisherman have been empowered to realize their potential in their bargaining processes with their customers. The information and services available through mobile phones would prevent exploitation by middlemen or traders, provide employment opportunities

especially for rural women, reduce information gaps, reduce cost and time and strengthen the access of service providers to rural people. Women can be empowered economically when community relevant information regarding education, emergency, situations, markets and weather are shared with them. Traders need to travel less as mobile phones will make sure that demand is there for their products even before they leave their rural homes. In cases of drought, floods, wars and weak economy mobile phones can be used to keep in touch with one's home community. In disaster relief efforts and providing emergency-related communications, mobiles have been very helpful. Locally-generated and locally-relevant educational and health information are spread through mobile phones in the local language too. Participants can act together more efficiently to pursue shared objectives by promoting cooperation among social networks.

Availability of ICTs in villages



Source: ITU/BDT research.

M-learning in Higher Education

Universities today face new challenges. Exponential growth in the demand for higher education, significant decrease in government funding for education, the changing nature of knowledge, changing student demographics and expectations, global competition in the provision of higher education and rapid advances in information and communication technologies demand a re-examination of how the universities can fulfil their core functions of storage, processing, dissemination and application of knowledge to real life problems. Virtual universities are attempts by institutions of higher education to change with time in order to remain relevant in future. Educational processes with the application of up-to-date electronic media should be customized to student's need in terms of study, style, culture, time and space. Quality in any new educational approach is critical and a useful framework for evaluation is provided by the Sloan Consortium

Mobile communications allow networks to embed themselves not only in socio political organizations but also in just-in-time, just-for-me access to personalized education which is different from PC based platforms. Five levels of usage of technology in education namely

presentation, demonstration, drill and practice, interaction and collaboration are essential for m-learning too. The time and place of mobile learning is based on when and in what circumstances m-learning occurs. Many museums world wide use hand-held mobile technology as an educational resource. Students interact with the exhibits with quick, sharp questions and communicate through SMS with the instructors/museum personnel to gain knowledge. When asked how a software engineer uses a mobile the answer from Archana David was " basically I use my mobile for checking Facebook & email, playing games with stylus, watching movies, watch my missed out serial "Wizards of Waverly place" on YouTube, Google Maps to check if am going the right way ,taking notes[like class notes via my stylus] and learning just before the interview using pdf/word doc viewer, storing data....like a pen drive , listen to music/radio, take pictures.....when I found something nice on it and on the whole it is a mini computer with a camera". Metcalf notes "I used my hand held devices for "stolen moments of learning" while standing in line for the bank or waiting for an appointment". It is hence the responsibility of educators and learning innovators to design for the needs of education's changing audience. The UOC (Open University of Catalonia) based in

Barcelona, Spain is a 100% internet –based university and the world’s first continuous and sustainable Virtual University, having grown from 200 students in 1995 to a student community of 55,000 (with 6000 international) and the numbers still on the rise. Students of UOC demand that social network tools be integrated into their Virtual Campus for synchronous communications.

Open learning, e-learning, online learning, virtual education and m-learning approaches are subsets of distance education. The conventional modern university focuses on acquisition of knowledge, whereas mobile learning ensures a better alignment between the learner’s expectations and societies’ demand for new kinds of skills and the university’s capability to respond. Here teachers help students to apply knowledge to real life problems using the telecommunications and computing infrastructures particularly the internet. M-learning liberates learning constraints of time, speed, and space offering education on both national and global scales. Thus the paradigm shifts from teacher- centric to learner-controlled learning systems. The teachers have to redesign instruction to retain knowledge in a new technological mobile environment. Teachers have to design constant and instant communications in minute(s)-long sound bytes, podcasts and video clips via mobile phones, PDAs and Blackberries. The latest advertisement from IDEA highlights the power of mobile telephony wherein the campaign by the Bollywood actor Abhishek Bachan, playing the head of an institution who when challenged with the traditional, physically bound classroom methodology uses mobile telephony to reach out to the masses who are in need of education.

Many of our transactions now like banking, shopping, gaming and learning involves mobile technology. What needs to be taken care of is a standard set of tools to develop m-learning, a sound theoretical m-learning framework, auto-adaptation of different platforms, good examples of research on sustainable m-learning, the capability of integrating m-learning with LMS and course/ instructional design.

Merits and Demerits of m-learning

The benefits brought forth by m-learning are Interactive learning experience, easy accessibility, anywhere and anytime use, occupies less space when compared to computer and its size, shape and portability for the effective usage by people even with disability. The obstacles are the small screen size, limited storage, low backup for the batteries and constrained bandwidth when wireless networks are engaged.

Mobile Content Development Features

The mobile content development should be in such a way that the content is developed once (single source) and deployed in multiple formats to multiple handhelds, mobile phones (Symbian Phones, BlackBerry, Windows Mobile Pocket PC’s, iPhones , etc.) and tablets. Use of communication platform that is device and operating system independent is a solution when everyone has a different device and is on a different platform. The task now is to write once to publish on many platforms. The device independent mobile content should be developed so as to create surveys, quizzes, and assessments. By device independent we mean that it is developed once and the system adjusts to the display factors for different devices. The ability to create mobile content independent of the mobile device allows organizations not only to save on content development but also provides faster time-to-delivery. The content is delivered to any internet-enabled mobile device without the need for customization. This includes basic mobile phones, Smart phones, and tablets. Once delivered it has to be analyzed for its mobile content usage in real time. This can be done through a LMS that provides instant feedback on a mobile content’s use and effectiveness.

Conclusion

Globally speaking, the kind of penetration that mobile phones have reached is astounding and no other device can come any closer to mobiles, not even computers. No demography is untouched by the mobile phone

and it is associated with the youth in a big way. M-learning is the future learning. The content developed for m-learning has progressed in a way to benefit learners having sensory difficulties (i.e) with provision like speech to text and vice-versa. Much research is going on to deliver contents effectively on different mobile platforms. All put together the LCMS (Learning Content Management System) manages the contents, production, maintenance and reuse of the digital contents. According to Dotmobi, more than half the global population is connected via mobile phones today and there are already 4 times as many internet-enabled phones in the world than there are PC's. Google estimates that about 40 million access internet in India through their mobile phones which resulted in 30 million applications download in a week. The number of search queries originating from mobile phones has grown four times in the last 12 months and 50 times since 2007 and it's also predicted that more than 300 million people in India would be hooked on to mobile internet by the year 2015.

References

1. Bruce Wilcox, Thomas Greaves and Scott Garrision , *ED TECH Industry Summit*, " Trends in Mobile Learning " May 2010
2. Lalitha Rajasingham , *Educational Research International*, "Will mobile Learning bring a Paradigm Shift in Higher education " , vol 2011 (2011)
3. Mark R Nelson, National Association of College stores and ECAR , *EDUCAUSE – Centre for Applied Research-Research Bulletin*, "Digital Content Delivery trends in Higher education , Issue 9, Apr 2006
4. Wai-Kong Ng, Fengchun Miao, and Molly Lee, *Digital Review of Asia Pacific*, "Capacity-building for ICT integration in education", 2009–2010
5. Introduction to MOBILE LEARNING, Retrieved from <http://elearning-india.com/content/view/9/26/>
6. Juxt study, "Rural mobile phone users in India overtake urban",
7. Wikipedia, "Information and Communication technologies for Development "

Other Web Resources

- <http://ocw.mit.edu/>
- <http://stackexchange.com>
- <http://openstudy.com>
- www.scholar.google.com
- www.nptel.iitm.ac.in
- www.m-learning.org
- <http://www.eldev.com/services/mobile-content-development.php>
- <http://www.itu.int/ITU-D/ict/statistics/ict/index.html>
- <http://www.itu.int/ITU-D/ict/datacollection/>
- <http://www.hindawi.com/journals/edu/2011/528495/>
- <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats>
- <http://www.youtube.com/watch?v=0bh3HP51rJs>

CONTENT DEVELOPMENT FOR TWO DIFFERENT MEDIA: EXPLORING THE POSSIBLE UGC-CEC E-CONTENT VIDEO & UGC-CEC VYAS TELEVISION VIDEO PROGRAMMING DISTINCTIONS.

VIVEK HEBBAL
ASSISTANT ENGINEER- EM2RC
UNIVERSITY OF PUNE,
GANESHKIND ROAD, PUNE

It is said that each Medium has its own strengths & weaknesses. You can't create content for one medium & use the same for another different medium in its entirety, without any change. It is like making a one size fit all shirt.

And what if there is also a (slight) difference in the Target audiences between the two? Will you still use the same content for both the media?

To find out if there's any substance in this, an experimental Research is being conducted to find out answers to some questions like 'What difference does it make?' & 'If there is a difference, how much will it be appreciated by the Target Audience?' etc.

The point in Question is our e-Content Video which is meant for the Net medium is also being sent for Vyas Television transmission, without any alteration.

As it is seen in some cases, an e-Content programme is being edited, a full length programme is made first for Vyas and then it is chopped into pieces for chunking into e-Content Video. Or as I see another producer shooting an e-Content programme in chunks. & for Vyas delivery the chunked video raw shots are pasted together to make one big chunk Vyas programme. WHICHEVER way it is done, the programme is prepared for one medium and used for the other medium – without any change. In fact if you ask them 'for which medium are you making the programme?' they say, 'For both' or a return question 'Does it matter?'

The author has attempted to produce two different programmes for the two media. The Topic is the same. Two different Scripts are written – one for e-Content & the other for VYAS – keeping in mind the strengths of each media & a slight difference in the Target Audiences also. The experiences of this exercise are highlighted in this paper.

Introduction

In the context of Mediated Education, the 'Standard Practices' rule for Creating Content for any medium, states that, the Medium Characteristics & the Content Characteristics have to be matched for greater effectiveness of the content for learning. You can't create Content for one medium and push it on to another medium lock stock & barrel, without making suitable changes in it or without repackaging it for the suitable medium. If its not

done, it is looked upon as making a one-size-fit-all- Shirt.

It fits nobody.

The Internet medium & the Television medium are different. They have different strengths & limitations of their own. The UGC-CEC e-Content programmes are meant for the Internet medium – called the New Medium. The UGC-CEC Vyas Higher Education programmes

are meant for the Television Channel - called the old Medium.

Is there any difference in the Programming for these two media? Should we make any difference in the Production of programmes for these two different media?

So what happens when an e-Content Video is sent for Vyas Television broadcasts without making any change? What happens when a Producer shoots a straight 30 mins Video for Vyas & then chunks them to send it as e-Content Video? Or when another Producer shoots a Video in Chunk-form for e-Content and then joins them all together & makes one big chunk of 30 mins & calls it Vyas Video? Whichever way it is produced & whichever way it is sent, is this practice acceptable at a Professional level that we are working in? Is there something to be investigated here? Is there some kind of a 'Trafficking' noticed here – things landing up in wrong places? Are we being accused of being involved in a 'Short-cut Production'? 'Is there a violation of the 'Standard Practices' code here? A Compromise being made? Or is it just Hair-splitting, a non-issue – not a big deal at all?

To find out the deviation, if any, an experimental exploration was undertaken. The Objective of this study was to Explore the main distinctions between e-Content Video & Vyas Television Video, with reference to the UGC-CEC Programme Production & Delivery practices as of Today and build these explored distinctions in the processes of programme production. Listing the differences obtained from brainstorming & feedback from students & using them in the actual production of two programmes.

The following Methodology was adopted. A Topic from Second Year BSc Physics was chosen from the UGC model syllabus.(Our Centre was handling this subject). The Topic of "Transducers & their characteristics: Microphones", was chosen for this exploration. Two different scripts were produced with the help of some questionnaire inputs from teachers of this Topic in the colleges in Pune.

The e-Content Script was developed by a HOD of Physics of a College which taught this Subject at BSc Final level. The Vyas version of the Script was written by me. The Vyas Script when ready was evaluated with two sets of Questionnaires one from the BSc students & the other from other faculty/General audience. Right from pre-Script stage onward whatever thoughts of 'distinctions' came to the mind, by way of research input or by thinking through the issue, all these were incorporated in the production.

Two different full-fledged Pilot Video Programmes were produced on the same above Topic – one for e-Content & the other for Vyas Television channel.

Both these Programmes were shown to the Intended target audiences – BSc students + other students. Evaluation feedback was obtained through two sets of Questionnaires – one for each programme. The Pilot programmes went to the Editing table again & feedback inputs which enhanced the educational properties of the content and fulfilled the Objective of the Research were incorporated.

Some of the main findings that emerged from feedback & personal reflections on the Distinctives are as follows (with Discussion):

Compared to the e-Content programme, make the Vyas programme little less Technical, considering the presence of General Audience & students of other faculties also watching these programmes. Vyas has many Enrichment Programmes everyday (20%) meant for & liked by the General Audience. Vyas also has a fan-following among General audience, from UGC-Countrywide Classroom days! Vyas programmes are also meant for students of Arts & Commerce, as well as Science. So they are also watching this channel as well. So equations, derivations, formulas & other Technical details in the Vyas version were minimized. While as the e-Content programmes on the Net are almost mostly watched by BSc students, all these technicalities were maintained intact.

Reduce the Television version duration to around 20 mins. Applying the Television

grammar, the average attention span of Television viewers now is around 20 mins. (The Television Version turned out to be a good 8 mins less than the e-Content pgm). e-Content can be any length ,in one sense, as it is a non-linear medium. It can be watched in parts. It can be stopped, rewound, watched again at any convenient time of the day or night. Television is a 'once-only medium'. So shorter span, technically little simplified version was appreciated.

Some of the personal discoveries I made as part of exploring the Distinctions while making these two specific different Versions, which may have an echo in reality were, the **e-Content programme was too tied to the Old syllabus** with old bookish knowledge, old figures & diagrams of explanations & lifeless Graphics & outdated Carbon Microphones still being taught in equal measure in the Classrooms, with no mention of the new types. I decided to improve this in the Vyas programme. Vyas was made more up-to date & dealt with the ones which are in the market & in practical use today in the Audio, Video & Film industry.

As far as Graphics was concerned **there was a huge difference in producing graphics & visual inserts for the two media**. Since the Vyas Television programme is not available for Stop, Pause, Replay and is 'one-time' broadcast (though it is repeated thrice in 24hrs on Vyas channel), the Graphics were modified & were given in bite size portions at a time since a Graphics frame should not come crammed with information. We can also help them where to look for in the maze of information using arrows or underlines. I called these Graphics 'Dynamic Graphics', 'Evolving Graphics' or 'near-interactive Graphics'. We don't realize how viewer-friendly these can turn out to be. In e-content you don't have to do much of these, with the same vigor, as the Video can be paused to read any content. Please note, its true that the Vyas schedule repeats each programme three times in 24hrs but I don't think people take time to watch the same programme twice. **The pacing of the Vyas programme was also made a little slower.**

Another finding worth noting was **the standard of English used** – both in the Pronunciation & the delivery of it. The distinction of Vyas being - **National**, and e-Content being-**International** matters here. Accent variation (South-North) is forgivable, but not bad English– grammar, pronunciation & punctuation of English while delivering the Lecture or reading the Teleprompter. When the Script written by the Expert is not language edited, the bad English gets into both the Versions –if not checked.

You produce one bad one & you'll get another bad one Free.

Another finding – **The Production cost of producing these 2 full-fledged Versions was almost double, compared to producing one Video & sending the same for the other**. The cost definitely goes up for sure. So does the time taken to make two versions. So this has to be weighed against wanting Quality programming or Quantity programming?

Another imp finding was **Trafficking from Vyas Video to e-Content Video is very very forgiving!** A lot of the finer points that must be in place for Vyas become sort of ok in e-Content mode because as the e-Content video is completely under the control of the user, he can go back & forth till he understands every point in the topic. For eg. Even if a Graphics frame of Vyas is 'crowded' (it should not be so), but in e-Content this is actually not a big problem as the user can pause it & read it. If the Video turns out to be a 'tough one' to understand or delivered too fast paced, e-Content Video can be seen again & again till understood. This point is a great Saving Grace which covers up a lot of shortcomings, blemishes that may get left behind in Vyas video.

Another distinctive Medium Characteristic that's well accepted everywhere is that 'Television is predominantly an Entertainment medium'. When a person sits in front of a Television he wants to be entertained. Primarily. Not educate-d. The Remote offers him 100+ channels of much more attractive Content. If we want further proof, look at the many Cable operators who don't provide Vyas channel

because of lack of demand from the people (their own Customers). In contrast, the Internet is more associated with Information gathering & Education. So what content goes where? Another 'lecture' of '30mins' may not become attractive to many on Television medium.

Another finding was that this two programmes theory may not work equally well for all Subjects. Depending on the Subject, Programme format chosen, Visual elements involved etc. it can vary.

The greatest Limitation I faced in this Project was that the Feed backs from the Intended Target Audiences - the BSc-II students & others, through Questionnaires, were of help only in making the programmes more effective & not much of a help in finding out the programming Distinctions. They can only tell you what is nice & what more can you add to make it more nice. Looking from Media distinctions point of view, was not their cup of tea. Yet when pressed for a proper answer, they said orally,

- i) The Non-lecture, Conversational language approach of the Vyas Video – good.
- ii) Softening of hard Technicalities of the topic, kept to a minimum in Vyas Video – good
- iii) Up-to-date, non-bookish approach of the Vyas Video - good
- iv) Must find Content Experts who know English well. It is a remedy to many a problems. Bad English spoils the

programme in more ways than one. These oral feedbacks were helpful.

Conclusion

Well there is a violation of code if we go by the book. There are some clear-cut differences—like the ones mentioned above, which can be inculcated to make the programmes more effective for each medium. But if the following reasons for the present condition are genuine – which are

- i) We are into this new medium only recently. Need time to understand the medium
- ii) The cost of production of 2 sets of programmes is too high
- iii) Urgency of Production & numbers wanted to feed Vyas channel and
- iv) There's a Review coming up soon, then I suppose the present practice seems to be a holding-on exercise . The damage being done is done – but should not be for long.

Till then - Each Centre depending on which Subject they are handling, have to consider Tweaking each Programme or Dressing up each programme differently for each medium-as much as they can, so that the effectiveness of the Programmes are not compromised .

- Using this Research Study input as an initiator, this Issue can be taken up immediately at top level discussions.

- Further Research can ascertain how soon and how well the best practices can be adopted into each Programming.

Sub Theme:

ICT CAPACITY BUILDING

DESIGNING ICT CAPACITY BUILDING STRATEGIES FOR TEACHERS IN HIGHER EDUCATION INSTITUTES THROUGH EMPIRICAL ANALYSIS

DR.P.SANTHI,
ASSOCIATE PROFESSOR, DEPT. OF COMMERCE,
AND
MRS. J. ARTHI, ASST.PROFESSOR(SG),
AVINASHILINGAM SCHOOL OF MANAGEMENT TECHNOLOGY,
AVINASHILINGAM INSTITUTE FOR
HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN,
COIMBATORE, TAMIL NADU

With the convergence of technologies, it has become imperative to use information and communication technologies for improving education. In the education sector, ICT can provide a practical and enabling solution for improving the quality of education. The advent of highly responsive networks of information and knowledge as well as rapid development of new software, hardware and other channels of communication have presented real opportunities to creatively solve deficiencies within the educational system.

ICT enabled teaching – learning encompasses a variety of techniques, tools, content and resources aimed at improving the quality and efficiency of the teaching-learning process which ranges from projecting media to support a lesson, to multimedia self-learning modules, to simulations to virtual learning environments. There are a variety of options available to utilize various modes/ICT tools for effective pedagogy. Capacity building among teachers is the widespread infusion of ICT enabled practices in education.

The focus of the study is to assess the current status of ICT applications in teaching- learning process and also to find the enabling environment for ICT capacity building. The empirical study has been attempted with the samples drawn from administrators (10), teaching staff (60), students (75) who belong to the programmes of Arts and science, Management and Engineering from Coimbatore district in Tamilnadu. The primary data is collected through questionnaires developed for each sample segment and the responses rated through Like scaling technique. The collected data were analyzed using descriptive statistics and chi-square test to understand the effectiveness of ICT in teaching and learning process. The study concludes with suggestions related to strategies for capacity building for the teachers in Higher education and the framework of ICT capacity building proves to be a holistic plan in ensuring the appropriate, effective, and sustainable use of ICTs to provide quality education for all.

Introduction

With the convergence of technologies it has become imperative to use information and communication technologies for improving education. In the education sector, ICT can provide a practical and enabling solution for improving the quality of education. The advent of highly responsive networks of information and knowledge as well as rapid development of new software, hardware and other channels of

communication have presented real opportunities to creatively solve deficiencies within the educational system. The initiative of ICT policy in promoting complete education is inspired by the tremendous potential of ICT for enhancing outreach and improving quality of education.

ICT enabled teaching – learning encompasses a variety of techniques, tools, content and

resources aimed at improving the quality and efficiency of the teaching-learning process which ranges from projecting media to support a lesson, to multimedia self-learning modules, to simulations to virtual learning environments. There are a variety of options available to utilize various modes/ICT tools for effective pedagogy. Capacity building among teachers is the widespread infusion of ICT enabled practices in education.

Today, students are technologically advanced and therefore, it is imperative to remodel the pedagogy involved in the teacher-student dynamics. The major aim of capacity building of teachers is to substantiate the existing pedagogy with technology so as to be able to maximise the imaginative potential of the teacher and the student to enhance the process of teaching and learning. Keeping the importance of ICT capacity building among teachers of Higher education institutes in view, the present study incorporates four key dimensions namely Curriculum and Assessment, Learning Resources, Human Resource Development, Physical and technological infrastructure, which are considered to be highly successful and innovative ICT for any educational programme. The focus of the study is to assess the current status of ICT applications in teaching- learning process and also to find the enabling environment for ICT capacity building.

ICT Application of Teachers In Higher Education Institutes (HEIs)-A Back Ground

Underlying the aim of integrating and improving the use of ICT by students is an assumption that teachers themselves are competent and confident in the use of ICT in terms of teaching and learning. A report¹ from the Officer of the Auditor General released in 2001 indicated that over 95% of teachers interviewed assessed themselves as having more than a basic level of ICT operational skill. The majority of these teachers were not, however, confident about applying ICT to facilitate student learning.

Until recently those wanting to harness ICTs for development have focused on getting personal computers into the hands of learners around the world. However, the cellular phone networks report that nearly half the world's

population now either owns a cell phone or has access to one. A growing number of HEIs are experimenting with how to capitalize on this technology, especially in developing countries (e.g. University of Pretoria). Meanwhile, students are using mobile technology liberally for personal purposes (often during lectures!), while their instructors have little idea of how the technology could be applied to improve teaching and learning. Today's students (digital natives) have a different way of approaching and using technologies like cell phones and computers that their teachers (digital immigrants) still need to come to terms with. Educators need to gain an understanding of the virtual worlds that their learners move in so that they can better understand how to interact with them in ways that make sense to digital natives. ICT enabled teaching-learning encompasses a variety of techniques, tools, content and resources aimed at improving the quality and efficiency of the teaching-learning process. Ranging from projecting media to support a lesson, to multimedia self-learning modules, to simulations to virtual learning environments, there are a variety of options available to the teacher to utilise various modes/ICT tools for effective pedagogy. Each such device or strategy also involves changes in the classroom environment, understanding of which has a bearing on its effectiveness. Availability of a wide range of such teaching learning materials will catalyse transformation of classrooms into SMART classrooms.

In an interesting report about the eReadiness of HEIs in Kenya, KENET (2007) has come to the following conclusions:

- HEIs are not ready to use ICT for eLearning.
- ICT is not yet a strategic priority for HEIs.
- ICT strategies have not been aligned with educational and development goals of the HEIs.

Academics have taken to the use of computer in teaching much more readily than they adopted earlier audio-visual media. This is because the strength of computers is their power to manipulate words and symbols - which is at the

heart of the academic endeavour. There is a trend to introduce eLearning or online learning both in courses taught on campus and in distance learning. Distance education and eLearning is not necessarily the same thing and can have very different cost structures. Whether eLearning improves quality or reduce cost depends on the particular circumstances. ICTs in general and eLearning in particular have reduced the barriers to entry to the higher education business. Countries and those aspiring to create new HEIs can learn from the failures of a number of virtual universities. They reveal that ICTs should be introduced in a systematic manner that brings clarity to the business model through cost-benefit analyses.

No knowledge economy can function without ICTs. Therefore, it is imperative that higher education institutions afford their graduates the literacy and competencies that their future work environments are likely to demand of them. Furthermore, being **ICT-rich gives an HEI a competitive advantage in recruiting students.**

Benefits and Challenges of ICTs

Learning and course management systems are useful in generating and managing a variety of student support services and products, such as course outlines, digitally recorded classroom material, discussion groups, laboratory manuals and lab assignments, lecture notes, live lectures for later viewing and re-viewing, links to course specific websites, online tutorials, supplementary readings, and virtual office hours for teacher-student consultations. Virtual libraries, where they exist, are a particular boon to students as they cut down on costs of acquiring expensive textbooks, journals and reference material. Tools are also now available on the Internet to assist both teachers and students to manage writing assignments to detect and avoid the pitfalls of plagiarism and copyright violations.

One of the great benefits of ICTs in teaching is that they can improve the quality and the quantity of educational provision. For this to happen however, they must be used appropriately. While using ICTs in teaching has some obvious benefits, ICTs also bring

challenges. First is the high cost of acquiring, installing, operating, maintaining and replacing ICTs. While potentially of great importance, the integration of ICTs into teaching is still in its infancy. Introducing ICT systems for teaching in developing countries has a particularly high opportunity cost because installing them is usually more expensive in absolute terms than in industrialized countries whereas, in contrast, alternative investments (e.g., buildings) are relatively less costly. The use of information and communication technology (ICT) is becoming an integral part of education in many parts of the globe (Sala, 2004; Kuntoro & Al-Hawamdeh, 2003; Leidner & Jarvenpaa, 1993).

Thus, education is the process by which society deliberately transmits its cultural heritage through schools, colleges, universities and other institutions (Gbemanja, 1989). In order to achieve the above-mentioned purposes in education, information and communication technology (ICT) one could argue is an essential ingredient that could help bring these gains and benefits to the fore. Realistically, several researchers and commentators in the developed West admitted that problems abound in educational systems that ICT could help improve (Leidner & Jarvenpaa, 1993).

For some time now, there were predictions that new teaching and learning technology would replace teachers, textbooks and even schools. It was also anticipated that the major method of learning by 2000 would involve for example, the use of modern technology like computers at all levels and in almost all subject areas (Borg, 1980). However, Crook (1994) found that this prediction does not appear to be true.

Need For Capacity Building In ICT Among Teachers In HEIs

- Globalization and the shift to a 'knowledge-based economy' require that educational institutions develop in individuals the ability to transform information into knowledge and to apply that knowledge in dynamic, cross-cultural contexts. ICTs are a means for meeting these twin challenges. ICTs can improve access to and promote equity in education by

providing educational opportunities to a greater number of people of all ages, including the traditionally unserved or underserved (e.g. those in rural and remote areas, women and girls, and persons with disabilities).

- ICTs can enhance the quality of teaching and learning by providing access to a great variety of educational resources and by enabling participatory pedagogies. Third, ICTs can improve the management of education through more efficient administrative processes, including human resource management, monitoring and evaluation, and resource sharing.

In ICT in education programs, teachers are ‘the key to whether technology is used appropriately and effectively’ (Carlson and Gadio 2002, p. 119). Social sustainability comes from the involvement of all stakeholders, including those who will use the technology (teachers, learners), those who will be affected by its use and others with a legitimate interest in education processes (such as parents, political leaders, and business and industry leaders) (Tinio 2003).

The ICT-CST(Competency Standards for Teachers developed by UNESCO,2008) reflects a three-stage model of ICT integration in education based on the idea that education reform supports National, Economic and Social development in one of three ways, namely:

1. By developing technology literate citizens and workers through the incorporation of technology skills in the curriculum (the technology literacy approach);
2. By developing citizens and workers who can apply knowledge to solving complex, real-world problems and thus add value to society and the economy (the knowledge deepening approach); and
3. By developing citizens and workers who can innovate and produce new knowledge (the knowledge creation approach).

The ICT-CST provide a common set of guidelines that professional development providers can use to identify, develop, or evaluate learning materials or teacher training programs in the use of ICT in teaching and learning; and a basic set of qualifications that allows teachers to integrate ICT into their teaching and learning, to advance student learning, and to improve other professional duties. The ICT-CST also aims to extend teachers’ professional development to enable to use ICT to develop skills in pedagogy, collaboration, leadership, and innovative school development; and to harmonize different views and vocabulary regarding the uses of ICT in teacher education.

ICT plays a unique, but complementary role in each of these approaches, with new technologies requiring new teacher roles, new pedagogies, and new strands to teacher education. The successful integration of ICT into the classroom depends on the ability of teachers to structure their learning environments in non-traditional ways, merging technology with new pedagogies. This requires a very different set of classroom management skills to be developed, together with innovative ways of using technology to enhance learning and encourage technology literacy, knowledge deepening and knowledge creation. At the knowledge creation end of the continuum, the curriculum goes beyond a focus on subject knowledge to explicitly include 21st century skills that are needed to construct new knowledge and engage in lifelong learning – the ability to collaborate, communicate, create, innovate and think critically. Teacher development is seen as a crucial component here. It ideally coordinates teachers’ sophisticated professional skills with the pervasive use of technology.

Objectives

- ✚ To provide a valid and reliable assessment of the level and nature of ICT knowledge and skills among teachers;
- ✚ To establish to what extent teachers are integrating their ICT knowledge and skills in classrooms;
- ✚ To determine potential ICT support and development strategies to enhance effectiveness in the future.

Methodology

The empirical study has been attempted with the samples drawn from administrators (10), teaching staff (60), students (75) who belong to the programmes of Arts and science, Management and Engineering from Coimbatore district in Tamil Nadu. The primary data is collected through questionnaires developed for each sample segment and the responses rated through Likert scaling technique. The collected

data were analyzed using Descriptive statistics and Chi square test to understand the effectiveness of ICT in teaching and learning process. The study concludes with suggestions related to strategies for capacity building for the teachers in Higher education and the framework of ICT capacity building proves to be a holistic plan in ensuring the appropriate, effective, and sustainable use of ICTs to provide quality education for all.

Research Outcome

The tables presented depict the consolidated results of the study undertaken across different nature of respondents.

Table 1

Demographic Profile

| Demographics | Number of Respondents | Percentage to the total |
|---|-----------------------|-------------------------|
| Distribution of Administrators | | |
| Administrators of all Disciplines includes Principals, Heads of Departments and Directors | 10 | 100 |
| Distribution of Teachers | | |
| Teachers in Arts and Sciences | 20 | 33.33 |
| Teachers in Business Schools | 20 | 33.33 |
| Teachers in Engineering | 20 | 33.34 |
| Years of Experience | | |
| Below 5 years | 15 | 25.00 |
| 5-10 Years | 22 | 36.67 |
| 10-13 Years | 10 | 16.66 |
| Above 13 years | 13 | 21.67 |
| Status | | |
| Permanent | 40 | 66.67 |
| Temporary | 20 | 33.33 |
| Gender | | |
| Male | 30 | 50.00 |
| Female | 30 | 50.00 |
| Age(in years) | | |
| Below 30 | 13 | 21.67 |
| 30- 40 | 20 | 33.33 |
| 40-50 | 19 | 31.67 |
| Above 50 | 8 | 13.33 |
| Frequency of ICT Use | | |
| Everyday | 34 | 56.67 |
| Weekly once | 12 | 20.00 |
| Once in fortnight | 10 | 16.67 |
| Once in a month | 4 | 06.66 |
| Trained in ICT | | |
| Yes | 50 | 83.33 |
| No | 10 | 16.67 |

The table 1 presents demographic distribution of respondents. Ten respondents were Administrators of all Disciplines includes Principals, Heads of Departments and Directors. Of 60 teachers samples were drawn equally from Arts and science business schools and engineering colleges. 65percent of the respondents were in the age group of 30 to50 years. About 56.67 percent of the teachers used ICT everyday,20 per cent weekly once and 16.67 percent once in fortnight. Majority of the respondents were able to use because 83.88 percent were trained to use ICT. 36.67percent of the respondents with the experience of5-10 Years and 25 percent of the respondents has experience within 5 years.

ICT usage by Students in graduation

The students entering university, sometimes referred to as the „NetGen“ (Net Generation) or 'digital natives' (Oblinger and Oblinger, 2005;

Prensky, 2001). There is a belief that learners think and process information differently - that they are 'multi-taskers' who can 'parallel process' information more effectively than so-called „digital immigrants“ (Prensky, 2001).

Table 2
Profile of Students

| Distribution of Students | | |
|--------------------------|------------------------|------------|
| Nature of Students | No. of Respondents(75) | Percentage |
| Arts and Sciences | 25 | 33.33 |
| Business Schools | 25 | 33.33 |
| Engineering Stream | 25 | 33.34 |

Equal number of students were drawn from arts and science, business schools and engineering colleges totaling 75 in number. The students were asked to report on the usage of ICT skills for rendering specific academic tasks (Table3)

Table 3
ICT Application by Students in Academic Tasks

| ICT Applications | Total number of respondents(75) | | | | |
|--|---------------------------------|----------------------|-------------------------|--------------------|-------------------------|
| | Arts and Science(25) | Business schools(25) | Engineering courses(25) | No. of respondents | Percentage to the total |
| Web assignment | 13 | 22 | 22 | 57 | 76 |
| ICT enabled Teaching | 10 | 19 | 18 | 47 | 63 |
| Additional lecture notes | 7 | 12 | 19 | 38 | 51 |
| Progress report to parents thro' mail | 11 | 12 | 23 | 45 | 60 |
| Online mentoring | 4 | 9 | 11 | 24 | 32 |
| Project evaluations | 19 | 21 | 23 | 63 | 84 |
| Lesson plan posted ahead of classes | 3 | 14 | 16 | 33 | 44 |
| Online notices | 7 | 8 | 16 | 31 | 41 |
| Chat room | 6 | 9 | 10 | 25 | 33 |
| Software Demos | 12 | 21 | 23 | 56 | 75 |
| Application of respective softwares in class rooms | 25 | 25 | 22 | 75 | 100 |
| Email contacts | 11 | 17 | 20 | 58 | 77 |

| | | | | | |
|----------------------|----|----|----|----|----|
| Realtime simulations | 12 | 20 | 24 | 56 | 75 |
| Research Training | 6 | 16 | 20 | 42 | 56 |
| Surfing the net | 23 | 24 | 25 | 72 | 96 |
| Printed Hand outs | 11 | 13 | 19 | 43 | 57 |

Application of respective softwares in class rooms is a predominant practice. The academic task assigned by teachers enabled students to surf the net (96 per cent).The student project evaluations (84per cent), Email contacts (77 per cent), Web assignment (76 per cent), Real-time simulations (75 per cent) and Software Demos (75per cent). It is observed that of all students engineering students used them most followed by students of business schools and students of art and science courses. The least used purpose

were Chat room (33 per cent) and Online mentoring (32 per cent) as reported by students.

ICT skills of teaching staff

Teachers were asked about their use of the following eight commonly used ICT applications. The table depicts about ICT applications used by Teachers.

Table 4
Usage of ICT applications by Teachers

| ICT Applications | Total number of respondents(60) | | | | |
|--|---------------------------------|------------------|---------------------|--------------------|-------------------------|
| | Arts and Science | Business schools | Engineering courses | No. of respondents | Percentage to the total |
| Internet | | | | | |
| Websites | 17 | 20 | 20 | 47 | 78 |
| Basic searches | 20 | 20 | 20 | 60 | 100 |
| Create favourites or bookmarks | 13 | 14 | 16 | 43 | 72 |
| Save images and text | 18 | 19 | 20 | 57 | 95 |
| Use advanced search tools | 11 | 13 | 18 | 42 | 70 |
| Organize favourites or bookmarks | 9 | 8 | 11 | 28 | 47 |
| Use different browsers | 18 | 19 | 19 | 56 | 93 |
| Altering browser preferences | 9 | 8 | 14 | 31 | 52 |
| Downloading | 18 | 20 | 20 | 58 | 97 |
| Installing software | 5 | 10 | 16 | 31 | 52 |
| Conducting complex searches | 8 | 13 | 12 | 33 | 55 |
| Email | 20 | 20 | 20 | 60 | 100 |
| Word processing | | | | | |
| Setting up styles and using mail merge | 10 | 14 | 15 | 39 | 65 |
| File navigation | | | | | |
| Save files | 20 | 20 | 20 | 60 | 100 |
| Create and name file | 20 | 20 | 20 | 60 | 100 |
| Navigate between existing folders | 13 | 17 | 18 | 48 | 80 |
| Copy, delete and rename files | 18 | 20 | 20 | 48 | 80 |
| Select and navigate between drives and directories | 6 | 9 | 14 | 29 | 48 |
| Navigate into a network | 8 | 9 | 11 | 28 | 47 |

| | | | | | |
|---|----|----|----|----|-----|
| Use help file | 4 | 3 | 4 | 11 | 18 |
| Recognize different file types | 9 | 16 | 19 | 44 | 73 |
| Zipping and unzipping files | 3 | 9 | 16 | 28 | 47 |
| Complex searches for files | 4 | 6 | 9 | 19 | 32 |
| Presentation packages | 16 | 16 | 17 | 49 | 82 |
| Spreadsheets | | | | | |
| Entered data into an existing spreadsheet | 18 | 18 | 16 | 52 | 87 |
| Create spreadsheet | 18 | 18 | 13 | 49 | 82 |
| Insert and delete rows and columns | 16 | 16 | 11 | 43 | 72 |
| Other spreadsheet tasks | 12 | 10 | 16 | 38 | 63 |
| Email | | | | | |
| Access emails | 20 | 20 | 20 | 60 | 100 |
| Create and send emails | 20 | 20 | 20 | 60 | 100 |
| Locate sent and delete messages | 12 | 15 | 17 | 44 | 73 |
| Add to address book entries | 12 | 16 | 20 | 48 | 80 |
| Add attachments to emails | 15 | 20 | 20 | 55 | 92 |
| Creating a mailing list | 15 | 16 | 17 | 48 | 80 |
| Adding a signature to emails | 4 | 3 | 17 | 24 | 40 |
| Setting up a discussion list | 2 | 7 | 14 | 23 | 38 |
| Presentation Software | | | | | |
| Create new slide shows | 16 | 18 | 18 | 52 | 87 |
| Edit slide shows | 15 | 16 | 18 | 49 | 82 |
| Insert images | 17 | 15 | 14 | 46 | 77 |
| Change fonts and layout | 12 | 16 | 19 | 47 | 78 |
| Navigate a presentation | 14 | 18 | 19 | 51 | 85 |
| Adding navigation buttons | 4 | 8 | 14 | 26 | 43 |
| Creating an original master | 3 | 2 | 2 | 7 | 12 |
| Using master slide functions | 2 | 1 | 4 | 7 | 12 |
| Databases | 5 | 14 | 8 | 27 | 45 |
| Usage of ICT | | | | | |
| Create materials for students use | 12 | 14 | 15 | 41 | 68 |
| Communicate with colleagues | 7 | 12 | 16 | 35 | 58 |
| Curriculum Administration | 8 | 14 | 14 | 36 | 60 |
| Research | 3 | 4 | 14 | 21 | 35 |
| Best practices for teachers | 5 | 16 | 18 | 39 | 65 |
| Communicate with students | 2 | 9 | 6 | 17 | 28 |
| Communicate with parents | 3 | 5 | 18 | 26 | 43 |
| Online professional learning | 4 | 5 | 9 | 18 | 30 |
| Post info to a website to assist students | 2 | 2 | 8 | 12 | 20 |

The teachers were asked to report on the usage of ICT skills for rendering specific task. It is inferred from table that of the common eight tasks, internet usage was predominant among

teachers. Of which basic searches and Email were used by all the respondents. Downloading (97%), save image and text (95%) were used by all the respondents. About half the total

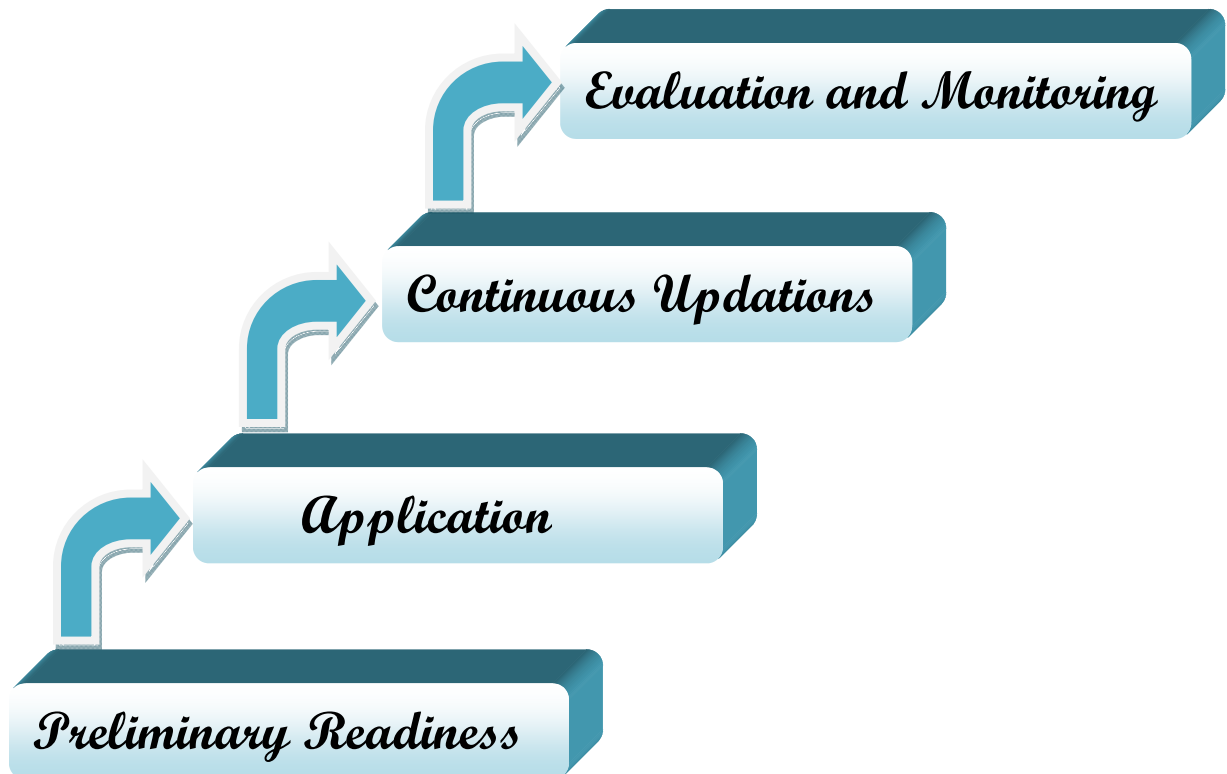
percentage of respondents did organise favourites or bookmarks, installing software and complex searches. In word processing, 65 percent of the respondents used mail merge. Under file navigation, create name and save files were familiar among all the respondents. Spreadsheet functions were performed by about 80 percent of the respondents. All the respondents were familiar with access, create and sending of emails. ICT has been used by 68 percent of the respondents to create material for students use, 65 percent as best practices for teachers and only 20 percent used it for online professional learning and to post info to a website to assist students.

It is understood from individual category of teachers that most of the ICT applications were in large number teachers in engineering courses when compared to teachers in business schools and arts and science colleges.

Capacity Building in ICT for Teachers in HEIs

A model that integrates the various dimensions of building the capacity of teachers to teach effectively with technology is presented-

Capacity Building in ICT for Teachers in HEIs



This framework specifies the following components of TPD (Carlson and Gadio 2002; Haddad and Draxler 2002):

Initial preparation/training or pre-service education that builds a solid knowledge base of teaching, consisting of knowledge of content (subject matter) and the curriculum; instructional approaches and strategies, including assessment; classroom management and organization; learners and their characteristics; educational contexts, purposes, and values; and the use of educational technologies.

Structured opportunities for retraining, upgrading, and acquisition of new knowledge and skills in-service, including workshops, courses, and postgraduate certificate and degree programs.

Continuous support for teachers as they undertake their day to day work.

Conclusions: Key Trends and New Dynamics

The key points which emerged from the study are:

- The integration of ICTs in higher education is inevitable. The very high demand for higher education has stimulated significant growth in both private and public provision. Open universities, which depend on technology-mediated learning, are expanding and multiplying and many conventional HEIs are adopting dual-mode or blended program delivery systems, creating a new dynamic in flexible and lifelong learning.
- ICT is moving beyond personal computers to mobile technology, Virtual World, Cloud Computing etc. HEIs should integrate these emerging technologies into their ICT policies and programmes. The choice between open sources and proprietary software can sometimes be hijacked by interest groups and ideologies. The sensible policy is to do what is appropriate when it is appropriate after a careful analysis of long-term costs and benefits. All software use policies should respect national and international copyright laws.
- Institutional and sector-wide higher education ICT policy and planning should identify the specific role of ICT in enhancing research capabilities and provide for adequate infrastructure backed by capacity building. Digital libraries, access to online databases, networking, etc., can be enhanced through inter institutional collaboration to ensure optimal usage of ICT expertise and resources.
- In many parts of the developing and developed world, HEIs are yet to mainstream policies and programmes on their generative and developmental roles. In the absence of frameworks to define these roles, many ICT activities

are simply ad-hoc projects with limited potential to be self-sustaining and self-generative. ICT can add value to the role of HEIs in economic growth and social development if appropriate perspectives and roadmaps are integrated in the policies.

With the convergence of technologies it has become imperative to take a comprehensive look at all possible information and communication technologies for improving higher education in the country. The comprehensive choice of ICT for holistic development of education can be built only on a sound policy. The initiative of ICT Policy in Education is inspired by the tremendous potential of ICT for enhancing outreach and improving quality of education.

References:

- Anderson, J. (1997). Integrating ICT and Other Technologies in Teacher Education: Trends, Issues and Guiding Principles [Electronic Version]. *Infoshare: Sources and Resources Bulletin*, pp. 33-35. Retrieved 7 March 2010 from www.unescobkk.org/fileadmin/user_upload/ict/e-books/.../4integrating.pdf.
- Arinto, P.B. (2006). Reflections on ICTs in basic education policy and practice in the Philippines. *Paper presented at the 2nd National ICTs in Basic Education Congress*, Waterfront Hotel, Lahug, Cebu City, Philippines, 6–7 September.
- Broere, H. C. Geysler and M. Kruger. **Technology Development: Imperatives for Higher Education**. *South African Journal of Higher Education* v. 16 no. 3 p. 5-12. 2002
- Carlson, S. and C.T. Gadio. (2002). Teacher professional development in the use of technology. In W.D. Haddad and A. Draxler (Eds), *Technologies for education: Potentials, parameters, and prospects*. Paris and Washington, DC: UNESCO
- Cox, M. J., Preston, C., & Cox, K. (1999, 2-5 September). *What motivates teachers to use*

ICT? Paper presented at the British Educational Research Association (BERA), University of Sussex, Brighton.

Farrell, G. and C. Wachholz. (2003). *Meta-survey on the use of technologies in education in Asia and Pacific, 2003–2004*. UNESCO Bangkok. Retrieved 22 November 2008 from <http://www.unescobkk.org/index.php?id=1807>

Gaible, E. and M. Burns. (2005). *Using technology to train teachers: Appropriate uses of ICT for teacher professional development in developing countries*. Washington, DC: infoDev/World Bank. Retrieved 10 August 2008 from <http://www.infodiv.org/en/Publication.13.html>

Guttman, C. (2003). *Education in and for the information society*. Paris: UNESCO Publications for the World Summit on the Information Society. Retrieved 23 November 2008 from <http://unesdoc.unesco.org/images/0013/001355/135528e.pdf>

Haddad, W.D. (2007a). Part 1: Decision makers essentials. *ICTs for education: A reference handbook*. ICT-in-Education Toolkit for Decision Makers, Planners & Practitioners Version 2.0. Washington, DC: infoDev/World Bank. (2007b). Part 2: Analytical review. *ICTs for education: A reference handbook*. ICT-in-Education Toolkit for Decision Makers, Planners and Practitioners Version 2.0. Washington DC: infoDev/World Bank.

Haddad, W.D. and A. Draxler. (2002). The dynamics of technologies for education. In W.D. Haddad and A. Draxler (Eds), *Technologies for education: Potentials, parameters, and prospects* (pp. 2–17). Paris and Washington, DC

Hughes, J. (2004). Technology learning principles for pre service and in service teacher education. *Contemporary Issues in Technology and Teacher Education*, 4(3), 345–62.

infoDev/World Bank. (2007).

Monahan, T. (2004). Technology policy as a stealth agent of global change. *Globalisation, Societies and Education*, 2(3), 355–76.

Prensky, M. (2001). *Digital immigrants, digital natives*. Retrieved May 23, 2007, from <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf>

Russell, M., D. Bebell, L. O’Dwyer, and K. O’Connor. (2003). Examining teacher technology use: Implications for preservice and inservice teacher preparation. *Journal of Teacher Education*, 54(4), 297–310.

Sneha M. Joshi, K. Pushpanadham, and Anjali Khirwadkar. Knowledge Management through E-Learning: An Emerging Trend in the Indian Higher Education System. *International Journal on E-Learning* v. 1 no. 3 p. 47-54. July/September 2002

Uimonen, P. (2004). Empowerment through knowledge: Unleashing the potential of ICT in education, learning and capacity development. In G. Weigel and D. Waldburger (Eds), Retrieved 4 December 2008 from <http://www.globalknowledge.org/ict4d/index.cfm?menuid=85&parentid=52>

VIRTUAL EDUCATION & MULTIMEDIA EDUCATIONAL REQUIREMENTS

MONIKA PURI
&
NEELAMKATARIA,
R.M.S COLLEGE OF EDUCATION GURGAON

The world in which we live is changing rapidly and the field of education. It is also experiencing drastic changes in Media Services. The old days of an educational institution having an isolated audio-visual department are long gone! The growth in use of multimedia within the education sector has accelerated in recent years, and looks set for continued expansion in the future.

Although there is a long and varied history of distance education, the current intersection of technology as a means to facilitate real-time communication with community-cantered interaction, and the increasing acceptance and employment of those developments in the broader culture, have uniquely positioned virtual schools in a position of significant innovation and responsibility. In an educational environment in which school choice for families and students is increasingly valued, "cyber charter schools, as an outgrowth of the charter movement and the virtual school movement, represent a unique group of schools characterized by both their administrative model and their course delivery technology

Virtual courses - a synonym is online courses – are courses delivered on the Internet. "Virtual" is used here to characterize the fact that the course is not taught in a classroom face-to-face but through some substitute mode that can be associated with classroom teaching. That means people do not have to go to the real class to learn.

Virtual education refers to instruction in a learning environment where teacher and student are separated by time or space, or both, and the teacher provides course content through the use of methods such as course management applications, multimedia resources, the internet, and videoconferencing. Students receive the content and communicate with the teacher via the same technologies.

Interactive multimedia weaves five basic types of media into the learning environment: text, video, sound, graphics and animation. This paper analyses the application potential of multimedia in Virtual Education.

Introduction

The world in which we live is changing rapidly and the field of education is experiencing these changes in particular as it applies to Media Services. The old days of an educational institution having an isolated audio-visual department are long gone! The growth in use of multimedia within the education sector has accelerated in recent years, and looks set for continued expansion in the future.

Although there is a long and varied history of distance education, the current

intersection of technology as a means to facilitate real-time communication with community-cantered interaction, and the increasing acceptance and employment of those developments in the broader culture, have uniquely positioned ***virtual schools*** in a position of significant innovation and responsibility. In an educational environment in which school choice for families and students is increasingly valued, "***cyber charter schools***, as an outgrowth of the charter movement and the virtual school

movement, represent a unique group of schools characterized by both their administrative model and their course delivery technology



Virtual courses - A synonym is online courses – are courses delivered on the Internet. "Virtual" is used here to characterize the fact that the course is not taught in a classroom face-to-face but through some substitute mode that can be associated with classroom teaching. That means people do not have to go to the real class to learn.

Virtual education- *it* refers to instruction in a learning environment where teacher and student are separated by time or space, or both, and the teacher provides course content through the use of methods such as course management applications, **multimedia** resources, the **internet**, and **videoconferencing**. Students receive the content and communicate with the teacher via the same technologies

The elements used in multimedia have all existed before. Multimedia simply combines these elements into a powerful new tool, especially in the hands of teachers and students. Interactive multimedia weaves five basic types of media into the learning environment: text, video, sound, graphics and animation

The multimedia technologies that have had the greatest impact in education are those that augment the existing curriculum, allowing both immediate enhancement and encouraging further curriculum development. Multimedia applications for computers have been developed for single computing platforms such as **the PC, Apple Mac and games machines**.

The Elements of Multimedia in Education

It is very tempting to use the latest computer wizardry to represent information and develop computer enhanced learning materials. However, the instructional design of these

systems should be based on a careful examination and analysis of the many factors, both human and technical, relating to visual learning. When is sound more meaningful than a picture? How much text is too much?

Students must be able to select appropriate multimedia tools and apply them to the learning task within the learning environment in order for effective learning to take place.



A Multimedia Learning environment It involves a number of components or elements in order to enable learning to take place. Hardware and software are only part of the requirement. As mentioned earlier, multimedia learning integrates five types of media to provide flexibility in expressing the creativity of a student and in exchanging ideas

Text

Out of all of the elements, text has the most impact on the quality of the multimedia interaction. Generally, text provides the important information. Text acts as the keystone tying all of the other media elements together.

Sound

Sound is used to provide emphasis or highlight a transition from one page to another. Sound synchronized to screen display, enables teachers to present lots of information at once. This approach is used in a variety of ways, all based on visual display of a complex image paired with a spoken explanation for example, **art – pictures are 'glossed'** by the **voiceover**; or **math – a proof** fills the screen while the spoken

explanation plays in the background. Sound used creatively, becomes a stimulus to the imagination; used inappropriately

Video

The representation of information by using the visualization capabilities of video can be immediate and powerful. While this is not in doubt, it is the ability to choose how we view, and interact, with the content of digital video that provides new and exciting possibilities for the use of digital video in education.

There are many instances where students, studying particular processes, may find themselves faced with a scenario that seems highly complex when conveyed in purely text form, or by the use of diagrams and images. In such situations the representational qualities of video help in placing a theoretical concept into context.

Animation

Animation is used to show changes in state over time, or to present information slowly to students so they have time to assimilate it in smaller chunks. Animations, when combined with user input, enable students to view different versions of change over time depending on different variables.

Animations are primarily used to demonstrate an idea or illustrate a concept. Video is usually taken from life, whereas animations are based on drawings. There are two types of animation: Cell based and Object based. Cel based animation consists of multiple drawings, each one a little different from the others. When shown in rapid sequence, for example, the operation of an engine's crankshaft, the drawings appear to move. Object based animation (also called slide or path animation) simply moves an object across a screen. The object itself does not change. Students can use object animation to illustrate a point – imagine a battle map of Gettysburg where troop movement is represented by sliding arrows.

Graphics

Graphics provide the most creative possibilities for a learning session. They can be photographs, drawings, graphs from a spreadsheet, pictures from CD-ROM, or something pulled from the Internet. With a scanner, hand-drawn work can be included.

The reason for this is that images make use of a massive range of cortical skills: color, form, line, dimension, texture, visual rhythm, and especially imagination.

Educational Requirements

Employing multimedia tools into the learning environment is a rewarding, but complex and challenging task. All of the multimedia formats available: text, sound, video, animation and graphics, already exist in one form or another in most libraries. Students can explore an almost infinite variety of information. All these explorations can certainly lead to new discoveries Without a chance to use their new discoveries and demonstrate what they have learned, the knowledge gained soon becomes the knowledge forgotten.

An opportunity to produce multimedia documents of their own provides several educational advantages. Students work with the same information from four perspectives:

- 1) As researcher,
- 2) They must locate and select the information needed to understand the chosen topic;
- 3) As authors,
- 4) They must consider their intended audience and decide what amount of information is needed to give their readers an understanding of the topic;
- 5) As designers, they must select the appropriate media to share the concepts selected;
- 6) As writers, they must find a way to fit the information to the container including the manner of linking the information for others to retrieve

When defining the appropriate medium to use it is vital to 'know' the audience and the technical specification of users' machines. There may be technical reasons for choosing which multimedia element will best communicate certain concepts.

Whatever the latest technological advance, instructional design principles apply. For example, care needs to be taken when using visuals for aesthetic reasons.

1,The misuse of a single visual element can cause misrepresentation of information and become a barrier to content and impede learning,

2, Even if the program overall may, in all other aspects, follow the principles of instructional design.

3, It is important to bear in mind the nature of the audience, especially their age group and culture mix.

Need; Changing roles for teachers and students

In general, teachers often fear that if they are separated from their students the result will be a dramatic drop in effective learning. However, if much of the teaching content is delivered outside of the traditional classroom, teachers are going to find greater flexibility in the use of their time. More emphasis can be placed on activities like counselling, tutoring and remedial work, as well as on student support activities that can significantly improve the quality of the teaching process. Time can also be spent planning and producing learning resources.

Distance Education

A distance education programme can be very challenging for students. Those who have only experienced classroom-based instruction will often struggle with the absence of other students and teachers. These students will need to be taught how to work more independently, how to organise their study time, and how to discipline themselves to study through domestic pressures and other influences. They need to be contacted and counselled on study and learning issues from the start, so that a relationship can be established between student and teacher. Students should be offered help to plan a study programme

On the other hand, there is a freedom about distance education which can be very appealing. Students can design their study programme to suit their lifestyle. There is also a great deal of satisfaction to be gained from succeeding on their own, but these benefits won't come without considerable and continuous support from their training institution.

Vocational student support

Many vocational students are studying subjects related to current employment. Workplace trainers may be able to provide counsel and guidance, and more experienced employees can act as mentors. Local professional or business people can provide useful support, and local

schools may be recruited to provide access to equipment or other resources. The training institution can help set up semi-formal arrangements for their students, with local specialists acting as tutors or carrying out skill assessments on students who demonstrate competence on the job or in the community.

Educational media

Distance education uses various media to deliver learning information and to link students and teachers. Some media can be used for both purposes, but they generally fall into two categories:

- Those which can be used to convey subject content, such as print materials, video tapes, audio tapes, television, computer-based courseware, and CD-ROM
- Those which permit communication between teachers and students, such as fax, radio, teleconferencing, videoconferencing and the Internet

Print resources are relatively cheap to produce, and convey theory and knowledge very effectively with instructional techniques which help students to learn then test their own understanding. Many processes can be demonstrated, but physical operations or interactions are much less successful in the print medium. Most distance education courses are delivered via print resources, often supported by other media components.

Audio resources are a cheap and effective means of conveying information. For example:

- A German language course uses audio tapes to provide vocabulary and conversation exercises .A community services management course uses audio tape recordings of interviews with managers of service organisations as the basis for student.

The resource development process

The key to the success of any distance education programme is the quality of the learning resources used. It's important to search for existing resources before developing new materials; resource development for distance education courses has been a flourishing activity in many countries for years, and a huge body of

material already exists in almost every vocational area. A library search will identify many resources, but a closer examination may reveal the resources support a different curriculum, or use a different instructional approach.

Subject specialists will be responsible for writing the materials, and for the accuracy and appropriateness of the content. The content should be checked by other subject specialists to ensure that it is current and accurate. This process can be more difficult than it first appears. Writers of learning resource materials are often inexperienced and require considerable support. Even the most experienced may encounter problems, and the writing process almost invariably takes longer than anticipated. Because of the many complexities involved in writing and designing resource materials, they should always be trialled with students. Teachers should evaluate the materials and their effectiveness and revise them as part of the resource development process.

All learning resources, in whatever media format, begin life as text; someone has to write the words and instructions for the media producers to use. Once the text has been written, the content checked and the material edited and proofread, the materials producers can get to work.

Audio and video materials can be produced locally, using the kinds of equipment usually available in training institutions. Recording and editing facilities are needed for audio materials. Video production requires an experienced camera operator and video editing facilities. Online materials development requires specialised software programmes and experienced online developers and graphic designers to produce the web pages. You will also need a web site to host the web pages, and a number of site management techniques to enable students to use the communications facilities effectively.

Conclusion

This paper proposes that an effective distance education course requires careful planning by experienced educators, supported by strategically chosen instructional and delivery media components. There is no single response

that fits all distance education situations. The ingenuity and imagination of teachers will be the key factors in the selection of media and the way in which it is used.

When the distance education package has been created, with appropriate media resources to deliver and support the programme, teachers and managers have to address the issue of how students will use the materials. It is the responsibility of course deliverers to ensure that students are able to use any required technical equipment, as well as ensuring that the resources are readily available

Finally, course developers must always bear these key points in mind:

- Distance education should not be a poor cousin of classroom based instruction; the best teaching and learning practices must be used to minimise student disadvantage
- When considering using media in training delivery, always ask WHY?
- The perspective of the students who will use the training programme is a vital consideration

FURTHER RESOURCES

1. Bates, A. W., *Technology, Open Learning and Distance Education*, Routledge, London, 1995.
2. *Emerging Practices In A Flexible Learning Organisation*, TAFE New South Wales, Sydney, 1997/8. This is a series of 20 booklets on a wide range of practical topics ranging from the creation and use of learning resources to student support systems and management issues.
3. Lewis, Roger, *How to Write Self-Study Materials*, Council for Educational Technology, London, 1981
4. Lewis, Roger & Paine, Nigel, *How to Find and Adapt Materials and Select Media*, Council for Educational Technology, London, 1986
5. Rowntree, Derek, *Teaching with Audio in Open and Distance Learning*, Kogan Page, London, 1994. A print and audio package

VIRTUAL EDUCATION: TEACHER CAPACITY BUILDING

M. RAJENDRAN
ASSISTANT PROFESSOR,
CENTRAL INSTITUTE OF EDUCATION DEPARTMENT OF EDUCATION,
UNIVERSITY OF DELHI

The influence of ICT in Education enables a desired paradigm shift in transactional approach. The Virtual Learning Environment along face-to-face mode of ICT transaction has a huge potential to cater our country's aspiration of educational goals. ICT opening new gates for knowledge dissemination to learners placed geographically distinct and remote places. The reason for internet based learning in India is the need for and emergence of anytime, anywhere learning. Owing to modern lifestyles and job requirements, people attempt to gain knowledge within their limited available time duration.

After the National Curriculum Framework 2005, there is a strong emphasis on constructivist based teaching learning process at school education level in India. ICT has a potential to bring the paradigmatic change to support the approach of constructivist based teaching learning process. Efforts were on to and continuously improving in establishing technological infrastructure at educational institutions at different levels. Even though some efforts made to enable our teachers to acquaint with technology in few institutions, so that they can integrate technological advancement into their teaching learning process. But, with the swift technological advancements perpetually occurring, many teachers will find themselves in complex and tenuous situations once they use.

The full potential of ICT in education can be gained only by enabling our teachers to utilize it in their transaction with their fullest. Understanding the current scenario of the country in terms of its lack of ICT infrastructure and less trained human resources there is a need for ICT capacity building.

Capacity building of teachers as well as administrators can play a major role in enabling paradigmatic shift from teacher-centered pedagogy to learner-centered pedagogy. What happens in the classroom affects the success of education system the most. Teachers are "live" infrastructure and the quality of teachers defines the quality of instructions that in turn defines the education outcomes. Deficit of trained teachers considerably impacts the required robust training infrastructure and its linkages with broader pedagogical reforms. At the same time introduction and gaining importance of ICT in education poses new demands on part of ICT capacity building of teachers.

There are issues related to capacity building in our country such as slow increase of ICT infrastructure, restrictive access to ICT facilities, absence of integration and interaction across the institution, absence of trained teachers, Narrow focused targeted interventions, English language dominance on the WWW etc.

The country need to address holistically all these issues by bringing all the stake holders into one platform and at the same time multiple solutions depending on the different field requirement. The present paper discuss the issues of ICT capacity building and provides a suggestive action plan for capacity building by making National ICT Network (NICTN) through establishing National ICT Training Institute (NICTTI) and ICT Training Centres (ICTTC) in every state and union territories. National ICT Training Institute should create a platform where experts from public, NGO and private institutions/firms who can visit and provide expertise to the faculties of NICTTI through various modes such as face-to-face workshops, virtual workshops in regular basis. Through cascade mode this expertise will be shared to all the teachers at different level.

Key Words: ICT capacity building, Virtual Education and Learning Environment.

Introduction

In the last two decades, Indian educational system at different levels observing a paradigm shift in its delivery of educational programs due to Information and Communication Technologies (ICT) through internet services. ICT opening new gates for knowledge dissemination to learners placed geographically distinct and remote places. The reason for internet based learning in India is the need for and emergence of anytime, anywhere learning. Owing to modern lifestyles and job requirements, people attempt to gain knowledge within their limited available time duration. In this context, the development of the Virtual Learning Environment (VLE) seen as an innovation that would be pedagogically more effective and a means to promote real and efficient change in education.

VIRTUAL EDUCATION

“Virtual classrooms” are generally developed as distributed learning environments that can take advantage of synchronous experiences such as classes, seminars, and e-mentoring, as well as digital online courses and flexible learning content creation and deployment opportunities. Today’s more flexible virtual classroom systems for eLearning create more demand for commercial and community-produced learning content assets.

POTENTIAL OF VIRTUAL EDUCATION

The following features state the potential of virtual education:

- Virtual Field Trips: Virtual field trips have a special advantage of being able to make learner to interact with their environment in a very social way.
- Time and Space: It extends education beyond the formal institution in terms of time as well as in space.
- Synchronous and Asynchronous learning environment.
- Virtual learning environment integrates a variety of tools supporting multiple functions: information, communication,

collaboration, learning and management.

EXPECTED CHARACTERISTICS FROM TEACHER AND LEARNERS

Educators take the role of facilitator when dealing with technologies and this is viewed by many in a favourable light. Teachers (1) restructure an environment conducive to untraditional methods of teaching; (2) act as helpers; and (3) make much of the work project-driven (Haycock, 1991; Sheingold & Hadley, 1990).

Learning characteristics of students are to be inquisitive, open-minded, unafraid of failure, and risk takers.

EXISTING REALITY IN EDUCATION

The use of ICT can catalyze the paradigmatic shift from teacher-centered pedagogy to a more effective learner-centered pedagogy. Even teachers of those institutions using technology for educational programme mix their teaching approaches ranging from using traditional teacher-centered approaches to student centered ones. Saye’s (1997; 1998) studies concludes that, “contrary to the expectations of many advocates, study data suggested that acceptance of educational technology may not imply a radical shift in educational practices. Although some teachers appeared to have embraced its potential for alternative approaches to schooling, others adapted technology to bolster traditional, teacher-centered instruction” (p. 223).

After the National Curriculum Framework 2005, there is a strong emphasis on constructivist based teaching learning process at school education level in India. As referred earlier technology has a potential to bring the paradigmatic change in the approach of constructivist based teaching learning process. Efforts were on to and continuously improving in establishing technological infrastructure at educational institutions at different levels. Even

though some efforts made to enable our teachers to acquaint with technology in few institutions, so that they can integrate technological advancement into their teaching learning process. But, with the swift technological advancements perpetually occurring, many teachers find themselves in complex and tenuous situations.

This indicates that, technology by itself is not enough to transform education processes and improve educational outcomes. As Haddad (2007b, p. 60) puts it, 'appropriate and effective use of technologies involves competent, committed interventions by people. The required competence and commitment cannot be inserted into a project as an afterthought, but must be built into conception and design[ed] with [the] participation of those concerned.'

Hence it is necessary to enable the physical and human resources in our institutions and building the capacity to cater the requirement. Therefore we need to train our teachers at various levels to make adequate human resources who can carry out this enormous task.

ICT CAPACITY BUILDING

Important parameters that determine the success of ICT adoption in Education sector are the appropriateness of technologies, the suitability and quality of instructional materials and educational services made available, learning effectiveness and appropriation of new ways of work, and the cost-benefit ratio. The capacity to absorb and invest costs associated with both technology and human capacity building influences the role of ICT to support knowledge and growth.

Capacity building of teachers as well as administrators can play a major role in enabling paradigmatic shift from teacher-centered pedagogy to learner-centered pedagogy. What happens in the classroom affects the success of education system the most. Teachers are "live" infrastructure and the quality of teachers defines the quality of instructions that in turn defines the education outcomes. Deficit of trained teachers considerably impacts the required robust training infrastructure and its linkages with broader pedagogical reforms. At

the same time introduction and gaining importance of ICT in education poses new demands on part of ICT capacity building of teachers. Teachers' capacity building is required in areas like basic pedagogy and ICT. Teacher Education institutions need to play greater role here.

KEY ASPECTS OF CAPACITY BUILDING

The key aspects of capacity building for ICT in education in India based on following critical components:

- Instruction-related aspects
- Institution-related aspects
- Investment-related aspects

Capacity Building at the Instruction-Level

Educational content is a key element of ICT use in education. It is basically the information that is offered to the intended beneficiary through telecenters, multimedia, or Web.

Content Relevance: Unless the intended beneficiaries do not find any potential benefit from the content, no initiative on ICT in education can ever be successful and self-sustainable.

Content Availability: The content that is generally available on the Internet is largely in English and is location independent.

Capacity Building at the Institutional-Level

Institutional capacity building also aims at enabling infrastructure and equipping manpower/teachers and instructors, developing adequate awareness on key ICT developments and opportunities within the local context, and thereby enables development of appropriate policies by the Government.

Capacity Building at the Investment-Level

The most important capacity needs at the investment level is the knowledge and awareness on the selection of the most appropriate technologies or the mix of appropriate technologies.

KEY ISSUES AND CONCERNS IN CAPACITY BUILDING

1. Increase in the use of ICT in education has not occurred at the same pace as that of the increase in overall ICT

-
- infrastructure and, the overall increase in ICT availability has not yet reached a stage of providing access to most people.
2. Absence of integration and interaction across the institution
 3. Absence of trained teachers of high quality and calibre poses a greater challenge
 4. Restrictive access to ICT facilities results in a lack of ICT enablement
 5. Narrow focused targeted interventions limit the overall gain from ICT and miss the broader vision and goals of the sector. The need for an ICT in education policy has emerged only recent period. The country has seen large programs that are driven by agenda of improving access and availability of infrastructure, such as classrooms and computers, and teacher's training; however, to leverage on the availability of infrastructure and capacity there is need to think in broader context.
 6. Teachers often find there is "no training, no software".
 7. The area of education system has been deeply influenced by traditional models of learning and instruction. The tension between newer approaches (e.g., constructivism and active learning) and the traditional (e.g., didactic) is increasing because of distinctive learning paradigms.
 8. English language dominance on the WWW has created a tension between those who understand the language and those who do not.
 9. The concern is that those who have access to technology may enjoy more advantages than those who do not. Still the country is struggling to enable WWW connections to all the educational institutions with different levels.
 10. Flexible access to resources and experts are not always available.

SUGGESTED ACTION PLAN FOR CAPACITY BUILDING:

1. Establishing National ICT Network (NICTN) by including all educational institutions (Government, Private and others) at different levels (schools to IIT's).
2. Enabling ICT infrastructure to all the institutions at different levels
3. Establishing National ICT Training Institute (NICTTI) and Enabling ICT Training Centres (ICTTC) in every state and union territories.
4. Establishing University ICT Training Centres at every university.
5. The Faculty members of Central and State University ICT Training Centres of each state, SCERT, IASE of each state are to be connected with respective ICTTC for getting training. The SCERT and IASE train DIET and CTE faculty members. The DIET and CTE faculty members to train school teachers.
6. To carry out this transition at least one ICT Trainer need to be appointed in each school, DIET and CTE's.
7. National ICT Training Institute should create a platform where experts from public, NGO and private institutions/firms who can visit and provide expertise to the faculties of NICTTI through various modes such as face-to-face workshops, virtual workshops in regular basis. At least one workshop per month to be conducted. The NICTTI call ICTTC faculty members regularly (at least once in two months) to update the new knowledge and skill which they learnt. Adequate financial support to be provided by the government.
8. The required infrastructure are to be updated regularly for NICTTI and through MOU different software firms are regularly update their new innovations, strategies evolved to faculty members.
9. The NICTTI should specifically have a section where professional who were having expertise over different

software are brought and need to develop open softwares' as per the field requirement.

10. The NICTG and NICTTI should get the revenue from private institutions for providing access to information and other services.

CONCLUSION

The technologies at hand provide tools for leveraging conversations over time, space, and scale. They are what Sebastian Fiedler (2003) has termed "reflective conversational learning tool[s]", encouraging a shift in emphasis from teaching to learning, from lecture to conversation. By establishing good infrastructure and enabling a system for continuous capacity building through which we can enable a way for individuals to engage more fully in a democratic knowledge society.

REFERENCES

- Auala, R. K. (2003). UNESCO report on National capacity-building of Lead teacher training institutions in Zimbabwe.
- Sharma, A. N. (). ICT in Teacher Education: the USP Experience
- Wai-Kong, N., Fengchun, M., and Molly, L. (2010). Capacity-building for ICT integration in education. *Digital Review of Asia Pacific 2009–2010*. Pg 67-76. http://www.digital-review.org/uploads/files/pdf/2009-2010/capacity_building.pdf
- infoDev. (2010). Capacity Building for ICT in Education: Information and Communication Technology for Education in India and South Asia. ICT for teacher training downloaded from <http://www.unescobkk.org/education/ict/ict-in-education-projects/other-projects/unesco-projects/ict-for-teacher-training/>
- Russell, G. (2006). Virtual Schools: Reflections on Key Issues. In J. N. Weiss (Ed.), *The International Handbook of Virtual Learning Environments* (Vol. I, p. 326 to 339). Dordrecht, Netherland: Springer.
- Black, J. (2006). Displacing Student-Teacher Equilibrium in Virtual Learning Environments. In J. N. Weiss (Ed.), *The International Handbook of Virtual Learning Environments* (Vol. I). Dordrecht, Netherland: Springer.
- Hung, D. C.-T. (2006). An Overview of Virtual Learning Environments in the Asia-Pacific: Provisos, Issues, and Tensions. In J. N. Weiss (Ed.), *The International Handbook of Virtual Learning Environments* (Vol. I). Dordrecht, Netherland: Springer.
- Waring, M. B. (2004). Learning to Teach, Teaching to Learn: A Developmental Framework for Teacher Training. In D. Preston (Ed.), *Virtual Learning and Higher Education* (Vol. VIII). Amsterdam, New York, USA: Rodopi.
- Bromage, A. (2004). Atavistic Avatars: Ontology, Education and "Virtual World". In D. Preston (Ed.), *Virtual Learning and Higher Education* (Vol. VIII). Amsterdam, New York, USA: Rodopi.
- Halavais, A.C. (2006). Weblogs and Collaborative Web Publishing as Learning Spaces. In J. N. Weiss (Ed.), *The International Handbook of Virtual Learning Environments* (Vol. I). Dordrecht, Netherland: Springer.
- Dillenbourg, P () Learning in the New Millennium: Building New Education Strategies For Schools downloaded from <http://tecfa.unige.ch/tecfa/publicat/dil-papers-2/Dil.7.5.18.pdf>
- Klopfer, E., Osterweil, S., Groff, J., Haas, J. (2009). The Instructional Power of digital games, social networking, simulations and How Teachers Can Leverage Them. Downloaded from http://education.mit.edu/papers/GameSimsSocNets_EdArcade.pdf
- Wagner, E. (2006) Delivering on the Promise of eLearning. San Jose, USA: Adobe downloaded from http://www.adobe.com/government/pdfs/promise_elearning_wp.pdf

21ST CENTURY SKILLS AND ICT CAPACITY BUILDING

DR. C.P. SATHEESH,
SREE NARAYANA COLLEGE, KANNUR

The paper discusses the important issue of capacity building vis-à-vis '21st Century Skills' among the teachers and students of the undergraduate courses in the colleges in the country. It is absolutely imperative that a qualitative change in education is brought about, toward excellence in many new skills, necessary to create a pool of workforce, adept at meeting the requirements and exigencies of globalization and technology driven economy. The skill gap that exists among the fresh engineering and ordinary graduates is so high that many employers are either forced or reluctantly make intakes of sub-standard, half-cooked professionals into their firms. If the country is to make further economic progress its workforce of the future generation has to be moulded in such a way that it caters to the demands of the multinational companies. EnGauge of the North Central Regional Educational Laboratory (U.S.) has recognized as a set of skills which they call "21st Century Skills." They have identified four sets of skills that would be essential for children who are "growing up digital." They are: Digital Age Literacy, Inventive Thinking, Higher-Order Thinking and Effective Communication. The outmoded views and skill sets of the teacher, the traditional pedagogy, the outdated curriculum etc. remain as stumbling blocks to such an educational reformation. Nevertheless, the best way to mould them is to lead them to the world of Web 2.0. and its tools at a very early stage in life. Web 2.0. tools like social and educational networking sites (facebook, my space, classroom 2.0, edublogger, learning 2.0, ning etc.), Wikipedia, twitter etc. Collaborative, active and creative learning do not converge in a better manner at any other platform than Web 2.0. Students can be transformed from being mere consumers to being producers and the teachers have to give up their hostilities and reservations to this change. All these aspects are highlighted in this paper.

Introduction

Information Technology (ICT) enabled education is still at a nascent stage in the vast majority of developing countries. As the world enters into the third decade of globalisation and the developing countries still struggling to cope with the very high competitiveness and rigours of this phenomenon, issues concerning "capacity building", or "capacity development" are always at the centre of any deliberation. It is as important to individuals as it is to institutions. ICTs have become the most indispensable component of capacity building across the spectrum.

Among the many challenges faced by developing countries, wastage of human potential is a matter of grave concern. As large part of the population in several underdeveloped and developing countries remain uneducated and even illiterate, intervention of Information and Communication

Technologies in their educational system have become imperative. Globalisation has become a reality and it is here to stay. Equipping the societies and future generations with the heavy demands and severities of globalization and information & communication revolution have become the priorities of all nations. From a lethargic, traditional economic form of governance and community life, the world has taken giant strides into the evolving information economy. In a world where "professional skills" ruled the roost, "soft skills" have come to dominate.

Technological literacy has become an absolute necessity. However, the perpetual gap that exist between "haves" and "have nots" continue to cast its ugly shadow in the digital world too. The so-called digital divide that currently exists between the rich and the poor; the urban and the rural; the mainstream and the marginal is the greatest challenge that countries

presently face. Hence capacity building in ICTs, both at the individual level and the institutional level is now recognized as a daunting task and one that has to be addressed urgently. Global changes stipulate that the new generation acquire new skills and remain abreast with times. The software firms and multinational business establishments have for the past fifteen years been seeking employees with exceptionally good soft skills matched by core professional skills. A widely cited report brought out by the NASSCOM and McKinsey in 2005 pointed out that only 25% of Indian engineering graduates are employable, i.e. a vast majority of our university and engineering graduates are unfit for high-end jobs in multinational companies generated by globalization. A major skill gap exists and the data collected by various surveys have enabled the employers to perceive that soft skills as more important than Professional Skills.

In this context it would be worthwhile to examine what EnGauge of the North Central Regional Educational Laboratory (U.S.) has recognized as a set of skills which they call "21st Century Skills." The sub-title of the report: *Literacy in the Digital Age*, says it all. They have identified four sets of skills that would be essential for children who are "growing up digital." They are: Digital Age Literacy, Inventive Thinking, Higher-Order Thinking and Effective Communication. The children of today's generation grow up gaming, chatting, texting and browsing the internet. As Douglas Rushkoff has rightly put it, "Children are native to cyberspace and we, as adults, are immigrants" (2001: personal communication).

ICTs have already been acknowledged as powerful and potent tools in effecting vast changes to the quality and quantity of education. The above given skill sets, I believe, are not exclusively meant for the American students or their future generation. On the other hand, it is equally applicable to the students of our country and to the whole world. In our country awareness about core employability skills, communication skills and professional skills are certainly very widespread. However, the curriculum designers, teachers and the student community have not been able to come out of the clutches of teacher-centred

learning environment and mere acquisition of lower-order thinking skills such as knowledge and memorization. Since the employers of the present generation are seeking graduates with good level of higher-order skills, viz. analyzing, evaluating and creating. These higher-order skills do figure in the list of 21st Century Skills and the major thrust of this paper is to figure out how Web 2.0 can facilitate and further the capabilities of the student community in our country and elsewhere.

Although more than nine years have elapsed, after the concept of Web 2.0 had been floated by Tim O'Reilly, the term gained prevalence only in 2009 after the 'Global Language Monitor' recognized it, and consequently gained entry in the lexicon as the one-millionth word in English language. As the general consensus about the main thrust of ICT enabled education is the transformation of the learning environment into one that is learner-centred, Web 2.0 is the best option available at our disposal. According to Wikipedia the various tools of Web 2.0 or read/write Web are "[social networking sites](#), [blogs](#), [wikis](#), [video sharing sites](#), [hosted services](#), [web applications](#), [mashups](#) and [folksonomies](#)."

Capacity building in the realm of Web 2.0 applications is chiefly related to teacher's professional development (pedagogy) and content development (ICT integrated curriculum). Two major obstacles concerning teachers' professional development are: (a) Changing the mindset of the teachers (which includes their evolving role as a facilitator and collaborator) (b) acquisition of skills with particular applications. As collaborative and active learning are at the heart of Web 2.0 applications in education, teachers' apprehension would be mainly related to their right to be the last word on the topic they handle. A large majority of the undergraduate teachers in our country or at least in the state of Kerala are either victims or beneficiaries of reproductive teaching/learning. To replace it or supplement it with creativity or productive learning using blogs, wikis, podcasts, MySpace or facebook is unthinkable for many. The students benefit a lot by becoming micro content writers or self-styled publishers, and by making themselves heard beyond the four walls

of their classroom. The two-way nature of Web 2.0. enables them to have social connections outside their own classroom, institution and familiar circle. We often talk about lack of exposure of a rural or a small town student; to a large extent this shortcoming can be taken care of by educational or social networking. But many among the teaching community are wary about social or educational networking that they think it would be an intrusion into their privacy and security. The “wall” in Facebook neither has the option of “walling in” the private messages nor “walling out” the educational ones.

One need not debate much to establish that the sub-skills of the ‘Digital Age Literacy’ can be enhanced a lot by Web 2.0 based education. Functional literacy in the context of 21st Century Skills context is largely visual literacy. ICTs are all about deciphering and gathering fresh ideas about various images, videos and graphics. Technological literacy and Information literacy are in-built into the matrix of ICT. Socializing over the internet is the best way to get in touch with alien cultures and to get first hand information on their life.

As to inventive thinking, to boost adaptability, creativity and curiosity, construction and imaginative management of web 2.0 enabled blogs, podcasts and Ning platform supported social websites are very helpful. While the majority of Indian students and tertiary level teachers are in the tight grip of Wikipedia—world’s most collaborative writing platform—a small minority have started venturing into the uneasy terrains of podcast, twitter, facebook, classroom 2.0, learning 2.0, and Ning-enabled social websites.

The students who come into the campuses over the last few years have been exhibiting technological literacy and fluency. However, they don’t come to the undergraduate classes with Higher-Order Thinking attributes like critical insight, good judgment, logical

thinking and problem-solving abilities. It is imperative that the present generation of teachers equip themselves to guide these students away from the pitfalls of ICTs. Web 2.0 has a way of transforming the student from consumer to producer and the teacher from a hostile expert to a friendly facilitator. A moderate level of Interdisciplinary competency has already been achieved by those students who access Wikipedia. Students, who are generally scary and wary about topics outside the domain of their subject of study, are cautiously but steadily showing a liking for them. Another area where web 2.0. Enabled tools can contribute is intercampus collaboration in research and training. In Kerala, all the undergraduate courses recently came under the ambit of Choice Based Credit and Semester System. One of the avowed aims is to foster academic sharing between institutions, academics and student community. This is best achieved through Web 2.0. Unfortunately, the constraints of syllabus completion, the volatile political atmosphere and lack of enthusiasm on the part of the teaching community and the authorities have ensured that no such things have happened until now.

As the world becomes increasingly driven by Web 2.0 practices—the Egyptian Revolution which was sparked off by Facebook and the present turmoil in the U.S. and Western Europe—more and more youth will come under the influence of social and educational networking. 21st Century Skills place great emphasis on Effective Communication. Ability to team, collaboration and interpersonal skills, personal and social responsibility, interactive communication and high productivity are the sub-skills required to be an effective communicator. Can anybody disprove the fact that there are no better tools available with the present generation than Web 2.0.?

E- LESSON: ORIENTATION AND MOBILITY SKILLS

DR. G. VICTORIA NAOMI
ASSOCIATE PROFESSOR OF SPECIAL EDUCATION
AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION
FOR WOMEN-UNIVERSITY, COIMBATORE

India is in demand of one lakh Special Education teachers to meet the needs of 30 million children with disabilities by 2020. As a result there is an expansion of teacher preparation in special education courses. Nevertheless the demand cannot be met. Special Education through distance mode is a recent development. But the quality is compromised due to scarcity of qualified and skilled professionals since our country looks for western countries for the nitty-gritty in the field. E-content is a viable option maintaining academic standards to both regular and distance mode students. This paper addresses the e-content preparation in teaching Orientation and Mobility (O&M) skills which involve a series of techniques to special education teacher trainees in Visual Impairment.

The O&M training package is of 60 hours duration at M.Ed level with 30 hours theory and 30 hours in blind- fold simulation practice. The sighted guide techniques include: establishing contact, hand grip, ascending and descending stair cases, walk in narrow space, negotiating doorways, seating in a chair and traveling in vehicles. The Protective techniques involve the Upper body protective technique and the lower body protective technique with different sub skills. The long cane technique includes positioning of the cane, Touch and slide, Touch and drag cane, Three- point touch cane and Diagonal cane technique.

The O&M package in e-content will be with three major lessons with eight hours each to the first two lessons and 14 hours to the third lesson. For each lesson the content module is 30 minutes duration and the video programme for 30 minutes. Prior to the content writing, the objectives with their relevance are clearly stated. The module incorporates interactive and with audio video. The paper aims to focus the need for paradigm shift in teaching learning method in special education.

The challenges may be the infrastructure in respect to connectivity and the computer literacy of the learner. But the silver line is that the computer literacy is increasing. The proposed initiative is in the process of availing the technical experts and software developers.

Introduction:

E- Lesson: Orientation and Mobility Skills

Pre-note:

India is in demand of one lakh Special Education teachers to meet the needs of 30 million children with disabilities by 2020. As a result there is an expansion of teacher preparation in special education courses. Nevertheless the demand cannot be met. Special Education through distance mode is a recent development. But the quality is compromised due to scarcity of qualified and skilled professionals since our country looks for western countries for the nitty-gritty in the field. E-content is a viable

option maintaining academic standards to both regular and distance mode students. This paper addresses the e-content preparation in teaching Orientation and Mobility (O&M) skills which involve a series of techniques to special education teacher trainees in Visual Impairment.

Duration of the Training:

The O&M training package is of 60 hours duration at M.Ed level with 30 hours theory and 30 hours in blind- fold simulation practice. The sighted guide techniques include:

establishing contact, hand grip, ascending and descending stair cases, and walk in narrow space, negotiating door ways, seating in a chair and traveling in vehicles. The Protective techniques involve the Upper body protective technique and the lower body protective technique with different sub skills. The long cane technique includes positioning of the cane,

Touch and slide, Touch and drag cane, Three-point touch cane and Diagonal cane technique.

Orientation and Mobility Techniques:

The visually impaired person realizes the need for sighted guide to move around and establishing contact by griping the guides elbow.

Sighted Guide contact and griping



The trailing technique can help visually impaired person to locate the door, walk in a straight line or detect position of objects in front of him. The person is using the upper body protective technique to act as 'bumper' to protect the upper body parts of the body with trailing

When viewed from front, the cane appears to be diagonally across the person's body, extending two inches beyond the shoulder of the dominant side to two inches beyond the opposite shoulder.

Upper body protection with trailing technique



Position of the cane

The tip of the cane should move from left to right, lightly tapping the cane tip on each side of his body. The user should not slide the cane on the ground but lift it up swing it from side to side. This swing produces a protective arc.



Arc – swinging the cane while walking

Materials and learning resources are in e-content format will combine some or all of text, sound, graphics, animation, and video into integrated packages for the learner.

Prospects technological for orientation and mobility of visually impaired person.

An initiative in the form research is proposed with the use of a new auditory orientation training system for blind and visually impaired people using acoustic virtual reality (VR) based on a head-related transfer function (HRTF) simulation. The training system can reproduce a virtual training environment for orientation and mobility (O&M) instruction, and the trainee can walk through the virtual training

environment safely by listening to sounds such as vehicles, stores, ambient noise, etc., three-dimensionally through headphones. The system can reproduce not only sound sources but also sound reflection and insulation, so that the trainee can learn both sound location and obstacle perception skills. The author is in the process of availing the services for technical aspects involved with the international experts in the field of orientation and mobility and software developers.

CAPACITY BUILDING IN VIRTUAL EDUCATION FOR SOCIAL DEVELOPMENT

DARSHANA HOODA
SYSTEM ANALYST & HEAD COMPUTER CENTRE
DEENBANDU CHHOTU RAM UNIVERSITY OF SCIENCE & TECHNOLOGY,
MURTHAL

Virtual Education integrates heterogeneous technologies and multiple pedagogical approaches to deliver instructions in a learning environment where instructor and learners are separate by space or time or both. Virtual education is increasingly being used to deliver on promises of universal education.

Now, virtual education is evolving as new computer based education system which generally provides personalized learning without demographic barriers, in contrast to conventional classroom education system. There is ongoing debate on effectiveness of both systems. Virtual education may have potential of collaborative & conventional learning but evolution of such new education system needs collective efforts at various institutional levels.

It is universally accepted that education is a vital trigger in development of individual and help in improving quality of life of people.

Virtual education may be considered significant in upliftment of under privileged people and Govt. of India have taken initiatives to use virtual education system to increase accessibility to quality content without any barrier/boundaries with reduced costs. ICT-CST framework launched by UNESCO in 2008 reflects a three stage model of ICT integration in education based on the idea that education reform support national economic and social development by the technological literacy approach, knowledge deepening approach and the knowledge creation approach. Each approach redefines all the component of education system: curriculum and assessment, pedagogy, Inclusion of Technology, Organization & administration and teacher professional development, in its perspective. Initiative taken by the Indian govt. to adopt ICT for education change reflects the technology literacy approach in its policy goals and visions.

Virtual Education is very effective for open and distance learning that seek to provide mass education over geographical, economical and social barriers. So it is seen as platform for social & economical development of marginalized sections of the society, But to achieve this, what is required is comprehensive capacity building across key areas relating to:

Policy Framing, Institutional arrangements, Developing professional expertise as per institution and ICT receptive mind sets, Outcome monitoring and accountability. Learners alignment to utilize the technology is key factor in success of virtual education. So without adequate capacity building at learner's level, even well design the policies and the most sophisticated technologies would not be able to achieve the designated goals. Present policies of Govt. emphasizes on capacity building for technology literacy but to add value to social and economical development it is needed to framing the policies to create the capacities, who can apply knowledge to solving complex, real world problems. Further policies for creating capacities who can innovate and produce new knowledge are expected to sustain the development. In conclusion virtual education can become effective only if comprehensive capacity building is undertaken covering all the segments. Through virtual education India can secure growth and development for masses in equitable manner without demographic barriers.

Introduction

Virtual Education integrates heterogeneous technologies and multiple pedagogical approaches to deliver instructions in a learning

environment where instructor and learners are separate by space or time or both. Virtual

education increasingly being used to deliver on promises of universal education.

Objectives to achieve through virtual education are to provide opportunity of lifelong learning for individual's growth, generally developed country vision while at other side it is seen as an opportunity to provide mass education in developing countries. There is ongoing debate on effectiveness of conventional education system and virtual education when it is aimed for mass learning. In conclusion courseware effectiveness is bounded to the pedagogical context of use: functional requirement of courseware, the degree of teacher involvement and physical interaction, the time frame. And all these are components of conventional class room teaching. Virtual education may have potential of collaborative conventional learning but for this there is need of more research, collective efforts for framing of effective policies and there after necessary measure to ensure effective implementation.

It is universally accepted that education is a vital trigger in development of individual, hence development of societies and ultimately nation development. Educations help in improving quality of life of people.

India is a vast Geography as well as land of diversity. This diversity is prevalent in culture, traditions, languages, believes & economic condition of people. There are the people who are economically below the socio-economic bench mark and generally belong to historically disadvantages casts, rural and urban poor people, woman in rural area, and street children. Varying level of development of different parts of the country and its diversity are major challenges in success of ICT initiatives. The vulnerability of these sections of society has increased with globalization & digital growth and this section of India became more marginalized economically as well as socially. Virtual education may be considered significant in upliftment of under privileged people and Govt. of India have taken initiatives to use virtual education system to increase accessibility to quality content without any barrier/boundaries with reduced costs. ICT-CST

framework launched by UNESCO in 2008 reflects a three stage model of ICT integration in education based on the idea that education reform support national economic and social development by the technological literacy approach, knowledge deepening approach and the knowledge creation approach. Major components of the education system are curriculum and assessment, pedagogy, Inclusion of Technology, Organization & administration and teacher professional development. Each approach redefines each component in its perspective. Initiative taken by the Indian government to adopt ICT for education reflects the technology literacy approach in its policies and vision. Now it is time to harness the power of reputed Institutes like IITs, IIMs, NITs and Universities for the technology development for social development by education reform aimed to knowledge creation and innovation. With special R&D program and curriculum in these institutions, various innovations in thrust area can be done like developing low cost machines & tools for agriculture, effective technology based education tools for the rural schools and cheaper and effective means of transport for social development. The Government should device curriculum to meet said objectives and should accordingly fund these institutions to carry out research activities.

Gulati 2008 concludes that e-learning does have the potential to meet the education needs of masses of poor people in developing countries; however, this potential has yet to be recognized. The present IT provisions in developing countries is limited to the elite. After a careful review of the literature about role of ICT in education, we feel strongly that Virtual education definitely contribute in empowerment of the non-elite groups, if comprehensive capacity building across key areas is taken in to account from policy making to monitoring of implementation of policies. A number of schemes and programs have been made for providing educational opportunities based on virtual learning concept but due to poor implementation of the program and the absence of proper monitoring almost all the schemes have not shown expected results.

Major Initiatives in virtual education by Government of India

Sep. 1983 INSAT was developed and deployed and later on used for education broadcast with the objective to reach the education to underprivileged population. Country wide class room program(CWCR) from 15th august 1984 twice a day through Doordarshan national network. Right from 1992 , The National Policy on Education emphasized using educational technology to improve the quality of education.UGC started Vyas higher educational Channel in 1994 & CEC-UGC also created 17 EMMRC, centers responsible for production, dissemination and transmission of educational content. ISRO launched EDUSAT (the first Indian satellite built exclusively for serving the education sector) to provide distance education within the states to supplement school education. Many projects initiated to impart education through the satellite. Gyan Darshan, an educational television channel has been setup by the national telecaster Doordarshan and IGNOU with assistance from CEC-UGC. It has four round the clock channels offering interesting and informative programs for school going children, college students and youths seeking career opportunities. Gyan Vani an educational FM radio channel which addresses local educational, developmental and social requirements. NKC was set up in 2005 under to harness power of ICT for providing quality education to every learner in India. National Knowledge network has been established as the recommendation of NKC to connect all the education institutes for sharing knowledge & collaborate research. The Sakshat Portal launched by the MHRD in 2006 is a single window portal for all education related needs of students, teachers and lifelong learners. NMEICT, launched in 2009 aim to leverage ICT's to provide high quality personalized & interactive knowledge modules over the internet/ intranet (NKN) to all the learners in higher education with the theme anytime, anywhere.

EDUR program with the collaboration of State and Central Government Agencies, Ministry of IT and HRD and Govt. of other countries aimed to

provide implementation support for infrastructure creation, teacher training and content development.

One more step towards equal access without economical condition of people is access to free educational content repositories, so that poor people can access the quality content available on web without any geographical, social and economical barrier. For this very low cost access device named Aakash, a tablet PC with browsing capability, is recently launched by Sh. Kapil Sibble, Hon'ble Minister MHRD, on 5/10/11. Cost of this tablet PC is only Rs. 2276/- and to learner this will be provide with 50% subsidy by the Govt. i.e. Rs. 1138/- only. This will definitely improve accessibility for economically poor sections of the society and will provide access to quality education with equity to those for whom it was distant dream. And will help to unify the digital divide among peoples.

Effectiveness attributes for social development through Virtual Education

There is need to stress on the following objectives and principles, to utilize technology efficiently for social development:

Equitable access to every one: In India Launch of Aakash will provide this Response to the local needs: Lacking Integration of ICT in formal education from school level: Lacking Development of ICT receptive mind sets at all levels(Teacher, Learner, Supporting Human Resources) : Lacking Appropriate partnerships and collaborations: Present but more effective collaborations are needed Infrastructure Development as per Institute Level: Lacking Efficient Utilization of resources: Lacking Impact Assessment and Accountability: No measures Diversity and flexibility in response to changing demand: Lacking Education reforms based on UNSECO's ICT-CST Framework : Need

Virtual Education is very effective for open and distance learning that seek to provide mass education over geographical, economical and social barriers. But to achieve this, what is required is comprehensive capacity building across key areas relating to make informed

policy decisions, effective implementation, and concrete impact assessment.

Policy Making

There is little guidance for policy makers on what is already implemented or available and how informed decision while formulating the policies. Most important is the knowledge and awareness on the selection of the most appropriate technologies or mix of the appropriate technologies. Decision makers in the system needs to be made aware of the technology available for use, and it's appropriateness in local context (needs and conditions).

Lack of availability of data pertaining to wide ranging education indicators to the policy maker is critical factor behind not reaching to the targets as expected. There is urgent need to gather wide ranging attribute related to local needs, economical status of learners, infrastructural availability, technology feasibility in the local context duly taking care of education indicators attribute like enrollment, dropout and access and make available such data to the policy makers for making informed policy decision. This is only key to achieve the long term objective of social development. Further to strengthen the policy making procedure there is need of extensive research, digitization, structuring & storage of research data and means to make available it to the policy makers.

Institutional Arrangements

Implementing the policies for social development there is need of setting up of appropriate and empowered institutional arrangements to oversee, drive and manage implementation for providing basic infrastructure such as access devices, connectivity and physical infrastructure along with soft services like mass based learning network (National Knowledge Network), content management and user interfaces for learners. Meeting operational needs of Govt. policies, institutional structure is necessity and this structure helps in continuity of project as well as helps to address problems and measures in local context.

In virtual learning environment education content (soft services) plays vital role. Therefore

to make virtual learning effective there is need to strengthen and development of Institution for content creation, content structuring and storage and learner interface to access these resources taking care about local context.

Content creation and user interfaces to access learning resources need to be developed in the mind heterogeneous environment at learners end and capacity variations of the learners. Easy to use interfaces for learner are required. Flow of information should structure and to increase learner's faith Meta information with content clearly stating about the author's identity should available to learners.

Institutional capacity building also aims at developing adequate awareness on key developments and opportunity in virtual education within the local context. Capacity building of University in virtual education can address the local context issues.

Developing professional expertise as per institution & ICT receptive mindsets

For any institutional arrangements to be effective, there needs to be not only enough man power, the competencies put together should be suited to the role envisaged. This is an area, which probably requires the maximum attention. The focus of capacity building is to prepare the human capacities to make institution effective in terms of necessary knowledge and skills to conceptualize, initiate, implement and sustain govt. policies.

To maximize the effect of virtual education on knowledge and growth it is required to create maximum connectivity, adequate network capacity and conducive learning environment at low or free of cost for learners. Further the diffusion of this process depends on the capacity of the human element to absorb and exploit the benefits of the technology.

To leave, learn and work successfully in an increasingly complex, information rich and knowledge based society student and teachers must utilize technology effectively. Being prepared to use the technology and knowing how that technology can support the student learning has become the integral skill in every teacher's professional repertoire. But India is lacking this. For this it is also equally important to foster an attitude and mind set receptive to

Virtual Education & technology enhance learning. Learner's alignment to use the services is key factor in success of virtual education As virtual education focuses on personalized learning and needs very active participation from learners. For this there is need to provide computer to the students at school level to first develop computer skills and second to use computers to learn in virtual environment.

The conference representative during the 1998 Working Conference on Capacity Building for IT in Education in Developing countries identified the need to provide computers to enable students to first develop computer skills, and second to use computers to learn in virtual environment. To achieve this technology literate qualified teachers along with proper technical support to keep ICT infrastructure functional is required.

Outcome Monitoring and accountability

In implementation of national policy, there is acute fragmentation of responsibility, which requires creation of institutional structure to address different aspects of implementation. This arrangement often leads to dilution and lack of accountability.

There is need of auditing and monitoring system with appropriate matrices to quantize the outcome of implementation. Availability of quantized data and reports helps in strengthen the system as they are major drive to ensure effectiveness of implementation and helps in future policy making decisions.

ICT tools running on low bandwidth as well as offline mode may be developed for proper monitoring.

Conclusion

Virtual Education seen as platform for social & economical development of marginalized sections of the society, But to achieve this, comprehensive capacity building across key areas are needed, to make informed policy decisions, effective implementation and parameterized impact assessment. Without adequate capacity building even well design the policies and the most sophisticated technologies would not be able to achieve the designated goals.

There is need to reform the education system to become best education destination in the world by evolving a model based on creation of new knowledge, and lifelong learning -the ability to collaborate, communicate, create, innovate, and think critically.

References:

1. Julian M.Base(2010) "A new ICT Maturity Model for education Institutions in Developing Countries" published by centre for development informatics, Institute for development policy and management SED university of Manchester, U.K.
2. PricewaterhouseCoopers(2010) "Survey of ICT for Education in India and South Asia, Country Side"
3. Gulati (2008) Technology Entered learning in developing nations.
4. Policy Frame work, ICT competency standard for teachers published by United Nations Educational, Scientific and Cultural Organization.
5. Patricia M. Sobrero, Essential Components for Successful Virtual Learning Communities, Journal of Extension.
6. P. Dillenbourge(2000), Virtual Learning Environment, EUN Conference 2000
7. CEC Newsletter

VIRTUAL EDUCATION: ISSUES, CHALLENGES & PROSPECTS

G. SATYANARAYANA,
LECTURER IN ENGLISH,
DR. V.S.K. GOVT. JR. COLLEGE, MADDILAPALEM,
VISAKHAPATNAM.

Education is the manifestation of the perfection already in man' says Swami Vivekananda. That manifestation in the 21st century of Digital world technology without accessing the ICT and capacity building is highly impossible. Even in the scarce of human resources, to built up a strong nation with holistic approach and empowerment of people through Media and Information Literacy(MIL) is an important prerequisite for fostering equitable access to information and knowledge and promoting free, independent and pluralistic media and information system.

The UN Development Program (UNDP) has defined 'Capacity' as "the ability of individuals, institutions and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner." The terms 'Capacity building' or 'Capacity development' describe the task of establishing human and institutional capacity. ICTs are a means for meeting the challenges like 'Globalization' and 'Knowledge-based economy'. They can promote equity in education, the quality of teaching and learning and the management of education.

A nation's strength depends on the natural resources as well as on human resources. India deservedly languishes in 119th position in the Human Development Index. But India is distracted by the elixir of dioramic economic growth, seemingly unable to acknowledge that super power status will be denied until the country can bestow social justice on its own citizens. To overcome all these barriers for the development, the only source is ICTs and Capacity Building.

To accomplish these goals, the nations' education policies and policy makers need to decide on what ICT integration approach to adopt. Farrel and Wachholz (2003) found three different approaches being used in Asia Pacific countries:

- i) Teaching ICTs as a subject in its own right, starting at the Upper Secondary level.
- ii) Integrating ICTs across the curriculum to improve teaching and learning.
- iii) Using ICTs to foster learning anywhere and anytime to develop a knowledge society.

The UNESCO developed a Tool kit for the benefit of education planners, policy makers and practitioners, which include six toolboxes and step by step guidelines to map the national technological and educational situations, formulate and assess ICT- enhanced programs, plans for ICT content and physical and human requirements. Developed and developing nations observed four broad stages of ICT adoption like:

1. Emerging
2. Applying
3. Infusing
4. Transforming

This paper presents the adoption of ICT capacity development in the nations' education and empowerment and the broad strategies of technological aids implementation for the development of education plans, policies and practices. ICTs help to chart the national technological and educational system and quality and emerging trends in educational systems to defuse and disseminate.

Introduction:

“Education is the manifestation of the perfection already in man’ says Swami Vivekananda. That manifestation in the 21st century of Digital world technology without accessing the ICT and capacity building is highly impossible. Even in the scarce of human resources, to built up a strong nation with holistic approach and empowerment of people through Media and Information Literacy(MIL) is an important prerequisite for fostering equitable access to information and knowledge and promoting free, independent and pluralistic media and information system.

ICT Capacity Building: Community Empowerment:

A nation’s strength depends on the natural resources as well as on human resources. India deservedly languishes in 119th position in the Human Development Index. But India is distracted by the elixir of dioramic economic growth, seemingly unable to acknowledge that super power status will be denied until the country can bestow social justice on its own citizens. To overcome all these barriers for the development, the only source is ICTs and Capacity Building.

Sustainable solutions for capacity building:

Sustained educational capacity building through ICT means in today's advanced globalization process and communication infrastructure to integrate sustained 'local' capacity into a 'global' educational environment. Key components of 'sustainability' within this globalize framework are not only 'access' to global communication flows, but the creation of 'active nodes': communication hubs as integral elements of global educational networks. Everyone should have the necessary skills to benefit fully from the Information Society.

Therefore capacity building and ICT literacy are essential. ICTs can contribute to achieving universal education worldwide, through delivery of education and training of

teachers, and offering improved conditions for lifelong learning, encompassing people that are outside the formal education process, and improving professional skills”. Capacity building means making one nation’s internal resources vital, pivotal and optimizing to its maximum level. For this,

Life Long Learning to all sector people is necessary. In India, women, senior citizens, agricultural farmers and to some extent Industrial workers should be given orientation in the field of ICTs. Academic education with vocational training using ICTs should be made compulsory in curriculum. We have to identify the scope for sustainability and, employment. The fast developing industrial sectors like Textiles and Clothing, Building and Construction Industry, Auto and Auto Components, Organized Retail, Banking, Financial Services, and Insurance, Gems and Jewellery, IT and ITES, Leather and Leather Goods, Furniture and Furnishings, Electronics and IT Hardware, Tourism and Hospitality Services etc., should be connected to ICTs, to strengthen capacity building. Many of the above sectors need no formal education. Virtual education in the fields like Banking, Financial Services, and Insurance, IT and ITES, Electronics and IT Hardware, Tourism and Hospitality etc, is essential to learn Customer service, marketing, collecting data, maintaining records, (book keeping) with basic levels of secondary education.

ICTs: Capacity Building & Life Long Learning:

Education is an unending process in human life. It may be formal or informal or technical. The Social contexts needs drive the individual to acquire skills. In informal learning, **attitudes, values, skills and knowledge** are the forces in capacity building of the individual. **Motivation** in informal learning is very high comparatively to formal education. Because education and training may have economic benefits for individuals. This motivation may help the individual to upgrade job skill, or to start a business, or to develop self-confidence or to

participate in social net working etc. Here the individual will not depend on any for his acquisition of skills monetarily. **He funds himself.**

ICTs help improve the quality of education;

Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centered environment.

Motivating to learn:

ICTs such as videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become involved in the lessons being delivered. More so than any other type of ICT, networked computers with Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world vents.

Facilitating the acquisition of basic skills:

The transmission of basic skills and concepts that are the foundation of higher order thinking skills and **creativity** can be facilitated by ICTs through drill and practice. Educational television programs such as *Sesame Street* use repetition and reinforcement to teach the alphabet, numbers, colors, shapes and other basic concepts. Most of the early uses of computers were for computer-based learning (also called computer-assisted instruction) that focused on mastery of skills and content through repetition and reinforcement.

Enhancing teacher training:

ICTs have also been used to improve access to and the quality of teacher training. For example, institutions like the Cyber Teacher Training Center (CTTC) in South Korea are taking advantage of the Internet to provide better teacher professional development opportunities to in-service teachers.

The government-funded CTTC, established in 1997, offers self-directed, self-paced Web-based courses for primary and secondary school teachers. Courses include “Computers in the Information Society,” “Education Reform,” and “Future Society and Education.” Online tutorials are also offered, with some courses requiring occasional face-to-face meetings. In China, large-scale radio and television-based teacher education has for many years been conducted by the China Central Radio and TV University, the Shanghai Radio and TV University and many other RTVUs in the country. At Indira Gandhi National Open University, satellite-based one-way video- and two-way audio-conferencing was held in 1996, supplemented by print-materials and recorded video, to train 910 primary school teachers and facilitators from 20 district training institutes in Karnataka State.

The teachers interacted with remote lecturers by telephone and fax. South Korea has one of the most advanced ICT infrastructures in the world—computer penetration is extensive, and broadband Internet access is one of the best globally. The pervasiveness of ICT use in South Korean society has spilled over to the higher educational system. South Korea currently has 15 single-mode virtual universities that offer only ICT-based courses. Among these are the Korea Cyber University, the Korea Digital University, and the Open Cyber University. These universities specialize in lifelong learning and vocational education—a deliberate strategy to prevent unnecessary competition with more established campus-based universities—and have a combined projected enrolment of 17,200 in 2002.

Conclusion: In Indian context to improve capacity building through ICTs, the Centre, as well as State Governments should chalk out a uniform, equal distribution of funds, infrastructure, knowledge centers, and extension of all sorts of services like mass media for education, TV., satellite connectivity, telecommunications, etc., basing upon the demographic needs as Education is in concurrent list.. The media to Communicate should be the regional language. The ICTs should consider the area and scope of adoptability pertaining to the particular geographical condition and natural resource of the targeted state or district or village to empower capacity building.

The policies of Korea like countries which achieved development in capacity building should be followed. Lab (Research) to Land (learning) planning, sharing and transforming to infuse knowledge should be done. If possible one lap top per child may be provided, or at least micro finance system (without any interest) should be introduced. The policy makers should realize that the temporary relief methods to remove poverty will not yield the fruits but it is possible through ICTs & Capacity Building on a permanent basis to resurrect India at a global level.

ICT CAPACITY BUILDING

NEELAM KATARIA; SUNITA YADAV

AND

SUMAN LATA

LECTURER IN EDUCATION,
RAO MOHAR SINGH COLLEGE OF EDUCATION
BEHRAMPUR, SEC-74, GURGAON

As the use of Internet is increasing, a traditional classroom has shifted to E-Learning. The growing popularity of E-Learning has introduced new terms to education, as Virtual Classroom, where student will be present with his professor and fellow learners in a classroom. They will not be present physically in the classroom but connected to the class-room via Internet. Virtual classroom aims to simulate the experience of attending a class over the web. So everyone is able to see other participant virtually.

ICT's role in any developing country, more focally in India's schools, has got to be more than mere transmission of information. It has to be borne in mind as a guideline for any national policy that data (thus transmitted) divorced from a process of questioning, reflection, and teaching and learning in a given social context. ICT's role for all its 'enhancing' and 'enabling' capabilities may amount to a historic waste because (a) it is possible to improve accessibility, quality and reach of education, (b) generate society-wide demand for 'education anywhere anytime for every one' and (c) intervene substantially in the networked global economy with educational solutions. Major challenges before the school education which ICT can be made to responsibly confront and resolve are:

1. Accessing the hitherto un-accessed learners;
2. Addressing drop-out students, and
3. Vocationalization of the secondary education.

Introduction

Virtual education refers to instruction in a learning environment where teacher and student are separated by time or space, or both, and the teacher provides course content through the use of methods such as course management applications, multimedia resources, the internet, and videoconferencing.

Information and Communication Technologies (ICT) have great potential to develop access, quality and equity in education at all levels – early childhood, primary, secondary and tertiary. For example:

- Radio/audio can be used in place of a teacher to deliver highly structured lessons with pauses for learners to respond, or as a supplement with a teacher present;
- Television provides visual effects which can illustrate complex or abstract concepts; it can be supplemented by workbooks or other materials;
- Computers/ internet can be used as teaching tools (simulations, online learning communities, professional development of teachers), content delivery tools (online libraries, journals, books), and management tools (assessment, record keeping); can also be used to form community tele-centres and virtual schools.
- Multi-media integrate radio, television and or computers.

Initially, educators saw the use of ICTs in the classroom mainly as a way to teach computer literacy. Most now see a broader role: that of delivering many kinds of learning at lower cost and with higher quality than traditional methods of teaching allow. In addition, schools and universities increasingly use ICTs, as do other large organizations, to reduce the costs and improve the efficiency of administration.

Information and Communication Technology (ICT) has been one of the government mediums in developing rural areas. From the age of telegraph and telephone to the age of modern ICT such as e-mail and face book, ICT has indeed saved a lot of people's time and energy. ICTs are defined as tools that facilitate communication and the processing and transmission of information by electronic means. This definition encompasses the full range of ICTs, from radio and television to telephones (fixed and mobile), computers and the Internet.

ICT can be used as a tool to:

- Support teachers to improve lesson design, transform teaching and learning;
- Provide opportunities for pupils to learn in alternative and challenging ways using wide sources of techniques;

- Allow pupils access to sources of information relevant to a particular enquiry by searching websites on the Internet;
- Help pupil to refine and present their ideas more effectively and in different ways.

Potential of ICT in Education

- Improve a student's skills and techniques;
- Assist students in the review, evaluation and improvement of their own performance;
- Develop a student's knowledge and understanding of the subject and
- Life Long Learning and Community Linkages.

The use of ICTs to make administration more efficient may also raise the overall quality of education. For instance, if teachers spend less time on administrative tasks, they will have more time for teaching and for preparing materials. So using ICTs to improve administration may pay off rather well. This is a gain that evaluators rarely consider. However, it may well be the area on which schools should mainly concentrate, perhaps looking for inspiration to well-run corporations, rather than chasing the more elusive benefits of ICTs in teaching.

Why we need ICTs in Virtual education?

Conclusion

This paper has sought to explore the role and importance, application of ICT in the field of Education. The various strategies, potentials of ICT and the role of ICT for the teacher have been highlighted. The paper has also attempted to justify how the ICT can raise the standards in the field of Education. It can be concluded that, ICT like any other teaching strategy is a wonderful tool in the hands of a teacher which if incorporated successfully can make a good contribution to the students' learning.

References

1. Welle-Strand, A. Evaluation of the Norwegian Program of Action: the impact of computers in the classroom and how school learn. *Computers and Educational*, 16(1), 29-35, 2005.
2. <http://www.asksource.info/pdf/framework2.pdf>
3. <http://www.insipub.com/ajbas/2010/5214-5220.pdf>

ICT CAPACITY BUILDING - LEARNING AS SOCIAL ENTREPRENEURSHIP

NUTAN BHARATI,
ASSOCIATE PROFESSOR, NIIT UNIVERSITY, INDIA

Being human is the focus of social media. Internal disparities in education related to economics are challenging institutions engaged in development processes. Growth has very little meaning in evolution of empowerment of a society without engaging all its members. There is conscious effort from institutions in engaging local communities in sustainable format. ICT has engaged learning minds in generating livelihood options. Strategizing learning processes for charting quality frameworks of learning will require linkages across all partners.

Introduction:

Learning as Social Entrepreneurship

Shift of learning processes from face to face to distance mode was a meaningful success when the openness of distance mode offered a possibility of vertical social mobility to learners who otherwise did not have access to learning and certification.

Skill-based curriculum with job assurance has added a new level of respectability to degrees that allowed students to be anywhere, anytime for multiple employers. Steep demand from students is the momentum behind opening many internet-based centers of learning. Specially in India, the social class that has gained economic freedom solely due to educational endeavors is to benefit further from degrees that allow on-the-job learning. In this scenario, both the employers and academic institutions have adopted flexible operations to create space for education that was training for job-orientated requirements.

The changed environment has brought into academic situations, corporate like performance indicators to meet standards and measures. Academic institutions plan long term for lifelong benefits and non-tangible returns on efforts invested in the process of learning. On the other hand, corporate report returns in a time bound performance to justify their investments. Dynamic ICT situation has compelled academic institutions to accept norms of the day. Therefore, it is heard that learners are now equivalent to 'customers', processes of learning are 'transactions' and

evaluation of impact of learning is 'product'. Now teachers should better know how to sell their knowledge otherwise 'customers' may go elsewhere leaving sustainability as a question mark for the institution to survive. As was expected, setting standards and creating benchmarks for quality learning have become challenging as learners and teachers respond differently from the products of industry.

For employers, now the real challenge was to retain an employee who joined them with just the right skills to meet specific needs of the industry. Students too faced the challenge of being obsolete in their skills rather sooner than the shelf life of the 'product' of learning they purchased at a cost. Employability is the new key word for seekers of higher education. This turned out to be a useful 'model' for maintaining a steady stream of 'customers' of education thereby solving sustainability both for enrolment and for economic reasons. So, it helped the 'market' keep alive every time the outdated 'product' returned for another round of certification. The question is to discover or perhaps to reconnect with a type of learning process that equips learners fundamentally in solving dynamic situations and problems faced by selecting the most relevant skill at the right time.

Convergent Technologies and Learning scenario

Parallel growth of electronic media and IT industry offered improved channels to reach out to learners. Interdisciplinary boundaries have begun to interlink in a well coordinated

system of wheels that help each other function more effectively and efficiently. This systems machinery has been productive in attracting large numbers of willing learners who may not be able to enter institutions of repute.

Effective learning is supported by multiple modes of reaching out to learners' mind by influencing sensory receptors. Attractive print, radio, television, mobile media aided with advanced software applications to bring to life every single thought with a great speed have realized the dream of perfect programmed learning scenario. Social networking sites have realized group learning situations over scattered geographies and heterogeneous backgrounds of learners. Media has entered the classroom and students have left the classrooms to join social movement with a power to change. It is understandable that control mechanisms of a society are stressed out to authorize content of communication, standards of learning and situations of applications of that learning.

Entrepreneurs find this situation productive. Now the learner-customers can be accessed with optimum infrastructure, common standardized curriculum with networked teacher-mentor and assured placement. In this situation, complete responsibility and accountability of the learning process shifts from the learner to the teacher. All the components of the system are networked and available round the clock. This has been a great facility used to its best by young learners as learning comes home to them.

Benchmarks & Standards for ICT tools

Education as a discipline has clear standards and benchmarks to measure effectiveness. The measures have been rigorous to ensure high quality. Academic rigour of teaching-learning processes has not been mapped with rigours of technical education . Measures and standards of the two disciplines are yet to arrive at a meeting point to discover anomalies to be addressed. With entrepreneurship also venturing into the region of education, anomalies in quality concepts have gone more intricate.

IT sector growing at neck breaking speed has developed very unique domain. Standards for hardware, software and multimedia domains in context of IT are well developed. However, the linkages between Education, Technology, Communications, Business and IT for common quality standards are almost non-existent causing critical situations in authoritative social domain. The questions to ask are:

- Why the quality linkages are missing?
- What specifically are those linkages?
- How to prioritize significance of each such linkage in the context of subject matter discipline? and
- How to introduce social development measures to address dynamic processes in setting quality standards?

Learning for Livelihood

NIIT Ltd. has experimented with a model of certification offering upgradation in knowledge to allow vertical mobility while the learner is on the job. This model is implemented at NIIT University (NU) and at NIIT Foundation - Career Development Centers (CDC).

These two programmes in particular make interesting cases to be compared.

1. NU- M. Tech. ET for privileged high achievers business executives at a high cost of learning
2. CDC Skill development for entry level underprivileged youth at optimum cost of learning

Over the last 2-3 years NU-MTech ET has prepared 10 (ten) learner-customers and CDC has prepared more than 2320 students learners with a possibility of both returning for higher certification when required.

Cutting edge technology has been utilized to its best for transacting course content. Curriculum designed is in agreement with the sponsoring client assuring placement. Teacher- faculty- mentor oversee that learner-customers are successful in achieving their objectives in the 'minimum invasive' way.

Though both MTech (E T) at NIIT University and skill-training at CDCs of NIIT Foundation focused on sustained employee

growth in service conditions through internet and digital media, the learner profile each catered to were very different.

Business executive with high potential to grow were high achievers from privileged social classes as aspirants for MTech ET. On the other hand, were the youth of the urban poor who despite education and a will to earn could not summon élan to be selected through interviews. They both required skills to address their need to break free from the straight jacketed avenues to success. They both required methods to go beyond what they had already tried to be able to survive the job market. In both cases, knowledge and the process of learning observably was attuned to job, pay package and position label they acquired after completion of required numbers of hours of studies, attendance and grade marks.

Framework for learning in Social Entrepreneurship

Social digital networks have taken academic classroom discussions to broad-based social dialogues. Digital channels with its speed and reach tend to provoke activism. Procedural transparency in otherwise hidden transactions has been a significant landmark in virtual spaces all across the professions.

A conscious effort must be taken to ensure that multiple partners do not dilute the quality of process and the product of learning. Some points to reflect are as follows:

1. Goals and aims of fundamental educational processes should be listed and prioritized. This effort will help durability of learning process and will sustain economically.
2. Quality linkages across disciplines of Education, Communication, Technology, Business and IT should be established for standardized functionality and quality effectiveness of virtual and online institutions.
3. Virtual, online, open and face-to-face Institutions should share agenda and campuses to offer maximum flexibility and opportunity to the learner, within curriculum and to the teacher.

4. To focus more on quality of learning, entry level and final assessment should be free from funder's exclusive agenda.
5. Assessment and evaluation for both entry and exit for certifications should be based on strengths rather than a weakness of learners, that is, focus should be on what is available with the learners rather than what is not.
6. Faculty holding analytical and experiential knowledge should be certified in a phased manner for continuous professional growth while at the same time learner should be educated to draw methodologies to maximize learning through face-to-face interactions as well as through ICT channels.

Fundamental knowledge, values, details, in-depth exploration for critical dialogue, creative thinking, open-ness to constructive criticism or assessment measures for growth are considered too time consuming to be included in a job oriented curriculum. However, these are the very same elements that will help learners find their roots in the process of contributing to a productive society. Somewhere, to make sense of a frenzy of new interdisciplinary courses and skill based job oriented courses, an intelligent balance of the outward and inward growth is required. Real education should offer growth in a helical evolutionary format. The two strands of the helix being the learner and the learned teacher. The grounding of learning process and content is deep rooted to support the dynamism in outer environment for deciphering changing needs and for extrapolating future growth patterns.

References:

- Buckingham, David, (2003), Media Education: literacy, learning and Contemporary Culture, Cambridge: Polity Press
- Jensen, Klaus Bruhn (ed.), (2002), A handbook of media and communication research, London and New York: Routledge
- The millennium development goals report, (2011), New York: United Nations

Sub Theme:

**INNOVATION IN
CREATION AND USE OF
CONTENT**

SEMANTIC WEB ARCHITECTURE BASED ON AGENTS FOR CREATION AND USE OF CONTENT

AMIT KUMAR,

awadheshamit@gmail.com

&

PROF. (DR.) A K SINGH

READER, DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE,

BABASAHEB BHIMRAO AMBEDKAR BIHAR UNIVERSITY,

MUZAFFARPUR, BIHAR, INDIA

ajaypunamsingh@gmail.com

The proposed paper is an extension of our earlier work titled as ONTOLOGY BASED MULTI AGENT E-LEARNING MODEL presented in the ICNICT 2011 at Krishna Institute of Engineering and Technology, Ghaziabad, Uttar Pradesh.

In the present paper we have proposed a solution, which will use the concept of database in an innovative manner for the creation and use of e-content for educational purposes. As per the proposed solution all works will be done in an automated manner by using the concept of multi agent semantic web services. Thus it will allow exploiting the power of Internet for instant content delivery to its users.

(Key words: - E-Learning Model, Semantic WEB System or SWS, PPMAS, PA, Ontology, S-DB (Semantic Database), Q-DB (Quick Database))

1 Introduction

Internet is full of information. It can serve our day-to-day requirements in terms of providing information and thus it can also help in shaping our society against the upcoming challenges. These facts motivated us to have a fresh look on our previously suggested model and we came to the conclusion that many more inspections are required before practicing the earlier proposed model. In this paper we will let you understand that how the proposed suggestion will use the concept of database for creation and use of e-content for educational purposes.

2 RELATED WORKS

As per the description [2] semantic web is web of data. Generally data are described and controlled by the intended application, but semantic web suggests that the whole web can be treated as the source of data and needs to be shared and reused across application, enterprise, and community boundaries without

any discrimination.

Many researchers are working towards achieving the sighted goal of the semantic web. This concept can be further fine-tuned as per the specific domain.

Usman Wajid, et. al [3] describes the interaction among the agents in protocol based environment. It also investigates the possibility of protocol free interaction for agents to enable flexible operation of agents in changing environments.

Purvis, M., et. al [4] has suggested an approach for modeling protocols for agent interaction better suited for agents of e-business operations. This has been further clarified by the example of commodities trading in the literature.

Yong-Feng Lin, et. al [5] has described the agents are interacting based on the ontological techniques and has been confined to "Foundation of Intelligent and Physical Agents"

(FIPA) protocol. It can initiate the dynamic OWLS services and also improves the management of agent Program.

Peter Brusilovsky, et. al [6] has discussed an architecture that attempts to address both the component-based assembly of adaptive systems and teacher-level reusability.

Tseng, S.-S, et. al [7] has proposed a modular framework that can segment and transform teaching materials into modular learning objects based on the standard named as SCORM. It enables the formation of subject content dynamically as per the profile and portfolio of an individual student.

Ming Qu., et. al [11] has suggested the trusted ontology representation that can be used for semantic web service description, publication, discovery and composition in the distributed and computer-supported cooperative work environment.

Miklos Nagy, et. al [12] has addressed the issues related to mapping of ontology available on the web which requires to be mapped so that proper information can be generated or acquired. They have also proposed a framework to do so base on ontology.

Li Xueyong, et. al [13] have discussed ontology mapping model based experimental data to show its relevance for Semantic Web

Amit Kumar, et. al [14] have proposed a semantic web model which can use the existing web pages and can in treat it as the web resource in the world of Web 3.0

We have gone through the papers suggesting the e-learning model based on the semantic web. Those models are not specific about the knowledge acquisition system for specific domain.

In order to address issues related to knowledge acquisition system we came with the design of a model, which can serve the requirement of ontology based multi agent e-learning system based on Semantics.

Previously the architecture that we proposed is mainly based on the ontology described in section 3. Section 4 will let you understand the proposed model of our next paper of this series [14].

In section 5 we will discuss our proposed model for the current article

3 PPMAS WORKING ARCHITECTURE

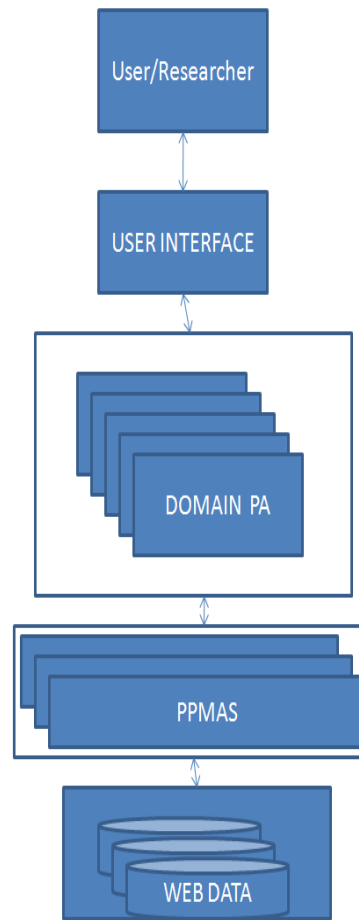


FIG 1: E-LEARNING SYSTEM BASED ON PPMAS

PPMAS is completely based on an innovative approach of agent organization and on a clever understanding of the SWS technology. The idea has been generated by studying the different articles focusing on the architecture of SWS by Usman Wajid, et. al [3], Peter Brusilovsky, et. al [6], Neiat, A.G. et. al [8], Yousefipour, A, et. al [9], Jyotishman, et. al [10]

In this model at interface level user will be allowed to specify the domain in which the user is having the interest. For being more specific while searching information the interface will provide a tree like structure for specifying required parameter by using the Programmed Agents or PA for specific domain in which the information or data required to be obtained.

Then these PAs will deliver it to PPMAS. PPMAS will analyze these data and will search the required information on the web based on

the ontological data associated with the available data/information on the web.

The acquired information will flow back to the user through same channel, as the request will get originated from.

As it can be understood from the fig1 that we have proposed PA because it can interact with the user as per the pre required manner as it will get programmed. PPMAS will work independently since it has to search data on the web from different data or information sources in parallel. Then obtained data/information will way back to requester through intended PA and will get served to user/researcher through the interface which has been used to generate the data/information request.

4 CHANGES SUGGESTED AT WEB DATA LEVEL AS PER THE EARLIER PROPOSED SOLUTION

After getting the knowledge of crawling we proposed the model as shown in fig 2. We have suggested GENERIC INFORMATION ACCESSING MODEL BASED ON SEMANTICS [14]. It will use the database at web data layer for storing the semantics of the URIs in ontological manner. Instead of accessing the web data directly through the specified URIs the PPMAS will first match the requirement through the available database at the server participating in the world of Web2.0 and then it will access the URI suggested through the matched record at the database level. Thus we can allow the data and information from the world of Web2.0 to participate in the world of Semantic Web.



FIG 2: GENERIC INFORMATION ACCESSING MODEL BASED ON SEMANTICS

5 PROPOSED CHANGES IN THE DOMAIN PA LEVEL

In earlier suggested we have introduced the S-DB for including the resources of Web 2.0 in the world of Web 3.0 or Semantic Web.

This has inspired us to do changes at the Domain PA Layer. In this Layer we have introduced Q-DB or Quick Database. This database will get used by the Domain-PA for having the faster access to frequently used web pages. Therefore Q-DB will store the data as history of semantics, which has been already used to serve the information seekers along with the respective web links. The proposed model has been shown in fig 3.

Domain PA will first check with the Q-DB for providing instant response. This will be instantaneous because of the assumption we are taking that most of time a user or information seeker will use the interface within a specific boundary. Thus even if the same user will approach for the same set of information then Domain PA will consult internally the Q-DB first and may be able come up with the instant response.

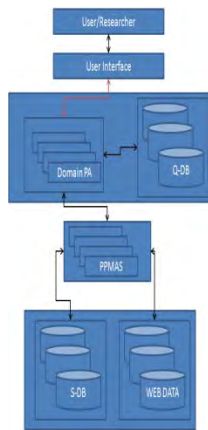


FIG 3: SEMANTIC WEB ARCHITECTURE BASED ON AGENTS FOR CREATION AND USE OF CONTENT

6 CONCLUSION AND FUTURE SCOPE

We are doing efforts to realize the goals of semantic web by using the concepts and power of Database Applications. The approach we are taking is generic in nature. Hence it can be used in any field, which is based on web. Since all the concepts are based on web, we need to do a great effort to get benefitted through these concepts. Still many modifications may be required at design level.

7 REFERENCES

[1] http://en.wikipedia.org/wiki/Semantic_Web
 [2] <http://www.w3.org/2001/sw/SW-FAQ#swgoals>
 [3] Usman Wajid; Nikolay Mehandjiev; Agent Interaction Protocols and Flexible Agent Interaction in Dynamic Environments Enabling Technologies: WETICE '06. 2006, Page(s): 23 – 28
 [4] Purvis, M.; Nowostawski, M.; Oliveira, M.; Cranefield, S; Multi-agent interaction protocols of e-business IAT 2003. 2003 , Page(s): 318 - 24
 [5] Yong-Feng Lin; Chen, J.J.-Y.; OWL-Based Description for Agent Interaction; COMPSAC 2007. 2007, Page(s): 147 - 152
 [6] Peter Brusilovsky; KnowledgeTree: A Distributed Architecture for Adaptive E-Learning; <http://www.ask4research.info/Uploads/Files/Citations/1086193811.pdf>
 [7] Tseng, S.-S., Su, J.-M., Hwang, G.-J., Hwang, G.-H., Tsai, C.-C., & Tsai, C.-J. (2008). An Object-Oriented Course Framework for Developing

Adaptive Learning Systems. Educational Technology & Society, 11 (2), Page(s): 171-191.

- [8] Neiat, A.G.; Mohsenzadeh, M.; Forsati, R.; Rahmani, A.M.; An Agent-based Semantic Web Service Discovery Framework; Computer Modeling and Simulation, 2009. ICCMS '09. International Conference on; 20-22 Feb. 2009; Page(s): 194 - 198
 [9] Yousefipour, A.; Mohsenzadeh, M.; Neiat, A.G.; Seyyedi, M.A.; A new broker-based semantic Web service discovery framework for selecting and ranking suggested Web services; Intelligent Computer Communication and Processing (ICCP), 2010 IEEE International Conference on; 26-28 Aug. 2010; Page(s): 337 - 343
 [10] Jyotishman; Pathak Neeraj; Koul Doina Caragea; Vasant G Honavar; A Framework for Semantic Web Services Discovery ; http://www.google.co.in/url?q=http://citeseerx.ist.psu.edu/viewdoc/download%3Fdoi%3D10.1.1.60.935%26rep%3Drep1%26type%3Dpdf&sa=U&ei=71whTu7UM4blrQebsoiGAg&ved=0CCcQFjAC&usg=AFQjCNHkOIVJ94XAVNP4xTkXR4_LU1YmMw
 [11] Ming Qu, Shufen Liu, Tie Bao: On the Trusted Ontology Model for Evaluating the Semantic Web Services; ISSN-978-1-4244-6763-1/10/ ©2010 IEEE; Page(s) : 367-372
 [12] Miklos Nagy and Maria Vargas-Vera; Multiagent Ontology Mapping Framework for the Semantic Web; IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS—PART A: SYSTEMS AND HUMANS, VOL. 41, NO. 4, JULY 2011, Page(s) : 693-704
 [13] Li Xueyong, Wang Quanrui, Wang Shunping, Lv Jinna; The Design and Analysis of Semantic Web-based Ontology Mapping Model ; 2010 International Conference on Educational and Network Technology (ICENT 2010); Page(s): 75-78
 [14] Amit Kumar, Prof. (Dr.) A K Singh; An Innovative Generic Information Accessing Technique Based on Semantics; ISSN-20439091; JOURNAL OF COMPUTER SCIENCE AND ENGINEERING, Volume 9, Issue 2, October 2011; Page(s): 44-47

THE ROLE OF E-CONTENT IN FOSTERING CHARACTER EDUCATION AMONG TEACHER TRAINEES.

PROF.R.CHARLES WILLIAMS
ASSOCIATE PROFESSOR OF EDUCATION
GOVT. COLLEGE OF EDUCATION
PUDUKKOTTAI, TAMIL NADU.

A minor research project was conducted to find out the effectiveness of an E-content to teach character education to improve the behavior of the teacher trainees, particularly as related to professional respect and responsibility and to reduce inappropriate behavior choice. The targeted population consisted of pre service teacher trainees of B.Ed course at Pudukkottai and Tanjore. E- Content was produced with the aim of 1) helping the trainees to identify the social values and morals, 2) teaching the responsibility through empathy and human concern, 3) encouraging parental involvement in the students' educational life, and 4) understanding the extracurricular activities that promote responsibilities and conflict resolution. The present study involved the two groups experimental design of having control group and experimental group. Each group consisted of 50 teacher trainees who underwent two different treatments of teaching character education by conventional method of teaching and teaching with E-Content in blended learning mode. The findings suggested that the teaching through E- Content is effective method than that of conventional method of teaching character education to teacher trainees. Moreover, there were no significant differences in the gain score and the mean score of achievement test among the comparable group of teacher trainees.

Introduction

Education is a methodical effort towards learning basic facts about humanity. The major objective of value education is to cultivate essential values among the students. So the civilization that teaches us to manage complexities can be sustained and further developed. It begins at home and it is continuing in schools.

The value education is always essential to shape one's character in life and to give him an opportunity of performing himself on the global stage. The need for character education among the parents, children, teachers etc is constantly increasing as we continue to witness increasing violent activities, behavioural disorder, lack of unity in the society etc...

Need for the study

Since, lot of technological changes have brought wide spread transformations in social and cultural conditions. Again these changes in social and cultural eroded some cherished values of the past and have brought about

conflicts and uncertainties in people. By realizing the need and importance of the character education to teacher trainees, the investigator selected a research problem with the following objectives.

- To produce a E- Content to use as an instructional material for enhancing the social values and morals.
- To study the effectiveness of E-content on social values in terms of achievement in the post test.
- To study if there is any significant difference between the comparable groups of teacher trainees in terms gender, level of graduation and branch of study.

Methodology

The present study followed (Pretest – treatment – post test) two group experimental design. The teacher trainees of experimental group were taught through E-content based on critical inquiry model approach and the control group was exposed to the conventional method

of Teaching which includes narration of the story orally and verbal discourse of subject content with the help of chalk board.

The study was conducted among 100 pre service teacher trainees of B. Ed course of two colleges at Tanjore. The trainees of Tamil University college of Education acted as control group having 50 trainees and the experimental group consisting of 50 trainees from John de Britto College of Education at Tanjore.

Earlier, a E-content was produced using ADOBE PRESENTER based on the syllabus prescribed by Tamil nadu Teacher Education University for the Elective subject of B. Ed course. The lesson was produced on Fostering Values by picturing a story of young boy in the family of a teacher. The E-content has inbuilt question session whenever an important twist happen in the knot of the story. The investigator could opt for another window in the desktop in the E-content and discuss the story with the viewers by using conference mode whenever the story turned into a new twist.

Earlier Pre and post achievement test were constructed by the investigator on the

syllabus-based lesson “Fostering Values” taken for the study. It was standardized by the investigator by following appropriate pilot study and item analysis and established its validity and reliability. The final version of post achievement test consisted of 50 items for 50 marks.

Hypotheses

1. There is no significant difference between the control group and the experiment group trainees in the pre test scores.
2. There is no significant difference between the control group and the experiment group trainees in the post test scores.
3. There is no significant difference in the achievement test between the comparable group of teacher trainees in terms of
 - Gender
 - Level of graduation
 - Branch of study.

Data Analysis and findings.

Student ‘t’ test was applied to verify the differential hypotheses of the present study.

Table 1. Mean, SD and ‘t’ values of pre test achievement scores.

| Group | N | Mean (Maximum.50) | SD | t | Sig |
|------------|----|-------------------|-------|------|---------------|
| Control | 50 | 22.87 | 3.732 | 0.87 | N.S P>0.05 |
| Experiment | 50 | 23.52 | 3.732 | | |

From the table 1 It is observed that the obtained ‘t’ value (0.87) is less than the critical value (1.96) at 0.05 level of significance and hence the null-hypothesis that there is no significant difference between the trainees achievement scores in the lesson “ fostering

values” of the control group and experimental group at pretest level was **not rejected**. And it has been interpreted that both control group and experimental group performed equally in the pre test.

Table.2. the Mean, SD and ‘t’ values of post achievement test.

| Group | N | Mean (Maximum.50) | SD | t | Sig |
|-------|---|-------------------|----|---|-----|
|-------|---|-------------------|----|---|-----|

| | | | | | |
|------------|----|-------|------|-------|---------------|
| Control | 50 | 28.19 | 2.28 | 26.18 | Sig P<0.05 |
| Experiment | 50 | 43.74 | 3.56 | | |

From the table.2. It is evident that the obtained 't' value (26.18) is greater than the critical value (1.96) at 0.05 level of significance. And hence the null hypothesis that there is no significant difference between the trainees achievement scores in the lesson 'fostering values' of the at the post test level **was rejected**. And it has been

interpreted that the experimental group who have exposed to E-content on 'fostering values' have performed better than the control group who had only verbal discourse of lesson with the help of chalk board in the conventional teaching method.

Table.3.The mean, Sd and 't' value of post test achievement scores in terms of gender

| Group | N | Mean | SD | t | Sig |
|--------|----|-------|------|------|--------------|
| Male | 25 | 42.17 | 4.92 | 0.37 | NS P>0.05 |
| Female | 25 | 41.67 | 4.56 | | |

From the table 3, It is evident that the obtained't' value (0.37) is less than the critical value (1.96) at 0.05 level, and hence the null hypothesis that there is no significant difference between male and female teacher trainees in the post achievement test scores, is **not rejected**. Further, it is interpreted that both the group performed equally in the post

achievement test and it also denotes that achievement in post test scores is independent of Gender with reference to this method of teaching.

Table.4.The mean, SD and 't' value of post test achievement test scores in terms of level of graduation.

| Group | N | Mean (Maximum.50) | SD | t | Sig |
|-------|----|-------------------|------|------|---------------|
| UG | 25 | 38.12 | 4.67 | 4.86 | Sig P<0.05 |
| PG | 25 | 44.17 | 4.12 | | |

From the table 4, It is observed that the obtained't' value (4.86) is greater the critical value (1.96) at 0.05 level and hence that the null hypothesis that there is no significant difference between the under graduate and post graduate teacher trainees in the post achievement test scores **is rejected**. Further it is infer here that

post graduate teacher trainees performed better than the under graduate teacher trainees in the post achievement test on the lesson of fostering values. Further it is infer here that level of graduation interfere the achievement in post scores.

Table.5. the mean, SD and 't' value of post test achievement test scores in terms of branch of shades.

| Group | N | Mean (Maximum.50) | SD | t | Sig |
|----------------|----|----------------------|------|------|---------------|
| Arts Branch | 25 | 40.17 | 4.27 | 1.84 | N.S P>0.05 |
| Science Branch | 25 | 42.35 | 4.05 | | |

From the table 5, that the obtained 't' value (1.84) is less than the critical value (1.96) at 0.05 level of significance. And hence, the null hypothesis, that there is no significant difference between trainees of Arts branch and the trainees of Science branch in the post achievement test scores is not rejected. Further it is infer here that both the group of trainees performed equally in the post test and the branch of study is not interfere in the post achievement scores with reference to this method of teaching.

Reference

1. Mangal.S.K. (2005) "Statistics in psychology and Education", II edition, PHI, New Delhi.
2. Muthuja. et.al (2009) "Peace and Value Education" centrum press publication, New Delhi.

Conclusion

The major finding of the present study is that E-contents play a vital role in enhancing the knowledge of teacher trainees regarding the lesson 'Fostering Values'. And teaching with E-content and following critical inquiry model to teach value education is one among the successful method of teaching at teacher trainees' level of education. It has given great opportunity to understand various social values critically among the teacher trainees.

- Proceedings of the seminar on "Innovative Learning Styles to Promote Values in Teacher Education. at on 6.3.2010 at Kaliammal College of Education, Karur.

EXTENDING E-LEARNING AWARENESS IN THE VIRTUAL EDUCATION ECOSYSTEM

DR. (MRS.) SANANTHALAKSHMI,
PROF., DEPT. OF SCIENCE & HUMANITIES,
ananthyy@gmail.com

&

DR. (MRS.) TKS LAKSHMI PRIYA,
PROF., DEPT. OF PRINTING TECHNOLOGY,
tkslp.dr@gmail.com

The education system in India has come a long way from the Gurukula system and is heading towards a Virtual Education (e-learning) system. Information and Communication Technology (ICT), the key enabler of this trend, is making it possible to take education to the nooks and corners of our country. Several initiatives have been taken by the Indian Government and the University Grants Commission (UGC) towards enhancing the Indian higher education sector and towards facilitating the educators.

At this juncture we observe that several private sector entities are entering the Education domain and contributing well. It is essential to impose strict policies and maintain appropriate standards to Education providers, at each level of the education system, so as to prevent the dilution of the quality of Indian Education.

One approach towards enhancing the Indian education sector is the adoption of Virtual Education. The primary stakeholders of Virtual Education are the teachers and the learners. Education in India is either formal (i.e., regular, part-time, distance, evening, vocational) or informal (i.e., adhoc courses, vocational certification, etc) and the learners fall into a wider spectrum irrespective of age and education/employment status.

With the introduction of the virtual classroom concept, and with the technological innovations in e-learning, several small to giant organizations are entering the virtual education market. Apart from the primary stakeholders mentioned above, the e-learning ecosystem consists of the education providers, the LMS platform providers, content developers, content hosting systems and content delivery platforms. The present challenge faced by these sub-systems of Virtual Education in our country, is 'provision of ubiquitous access to quality-oriented, low-cost, personalized learning' to every citizen, irrespective of the age and type of education.

To meet this challenge, curriculum/content design and development would require better learner-specific models; and e-content management/delivery must fully exploit iPads and mobile phones for virtual learning spaces. The inclusion of mobile phones is a definite cost-reduction since every street-vendor/daily-wages employer, even in remote villages, possesses a mobile. However, quality and personalization are sensitive parameters that require research-oriented support at stages of the system.

In this paper we introduce the concept 'e-learning-awareness in the network' and show its two fold benefit to virtual education ecosystem. E-learning awareness is an extension of the concept of application-aware networks, by which the network intermediaries, namely, the routers and content delivery nodes, are made 'application-aware', more specifically, 'e-learning-aware'. By this approach the network infrastructure that is involved in delivering the e-learning content, is also employed for providing quality and personalization. Firstly, with the additional knowledge of the application for which the content is being delivered, these nodes are well positioned (within the network), to dynamically transform (transcode or convert) the content as required for the enduser, the learner. Secondly, by implementing e-learning specific service-level-agreements (SLAs) at the intermediaries, quality guarantees can be achieved.

Keywords: Application-aware networks, mlearning, e-learning

I. Introduction

The **e-learning ecosystem** is a virtual complex consisting of the stakeholders, utilities and the environment that enables and promotes the teaching-learning process [Chang and Guetl]. These ecosystems are user-centric and has to be developed in a manner that enables learners to respond to new and uncertain conditions. Collaborative learning, adaptation to heterogeneous devices, such as laptops, notebooks and even smart phones; supporting learner’s lesson-grasping quotient, etc are key issues which distinguish classroom learning from e-learning. Hence strategies that have been traditionally adopted in a classroom may not be applicable in the virtual space.

Similarly, out-of-the-box strategies that would never have worked in a classroom, may become a success in the virtual class. Social networking sites such as facebook are good examples for ‘voice-your-thought’ activities. People who would have never spoken in a classroom, post several messages in the online forums.

Such challenges indicate that a holistic approach is required while developing e-learning ecosystems. Figure 1. shows the three major components of the e-learning ecosystem: the stakeholders, the learning utilities and the learning environment. The figure also shows examples of each of these components that are of relevance in to the theme of this paper.

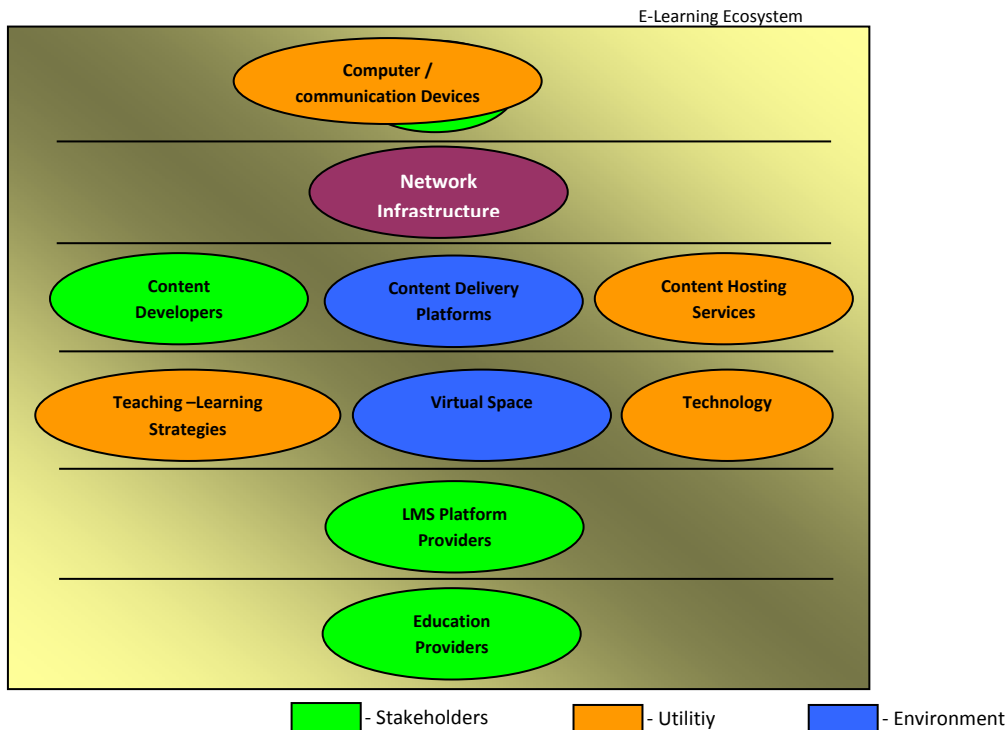


Figure 1. E-learning Ecosystem showing the network infrastructure

(i) **The stakeholders** indicated here are the

- *Education providers* consisting of administrators of educational

institutions, teachers, instruction designers and subject experts,

- *Content developers* consisting of content designers, content advisors

and the players in content-making process, *Learners* consisting of a broad

category as given in Table 1 along with the mode of education

Table 1. A Sample category of learners in India and their mode of education

| S.No. | Learner Category | Education Mode |
|-------|----------------------------------|---|
| 1 | Regular Student | Regular School/College |
| 2 | Children (Upto 4 Years) | Preschool |
| 3 | School Going Children | Specialized Skill (Sports, Tuition) |
| 4 | College Students | Value-Added Certifications |
| 5 | Educated Employees | Employment Based Training |
| 6 | Educated Unemployed Youths | Job-Oriented Training |
| 7 | Farmers / Machine Operators Etc. | Value-Added Skill Development |
| 8 | Tribal community | Skill Development For Income Generation |
| 9 | Illiterate Elders | Adult Education |
| 10 | House Wives (Unemployed) | Adhoc Courses (Hairstyling, Cookery) |

(ii) The e-learning utilities include

- *Teaching-learning strategies* required for the virtual environment
- *Information and Communications Technology*
- *Content hosting services* that include the content / lessons
- *Content* in various forms – images, text (document, pdf, ...), videos (movies, animation), voice, etc.

(iii) The Learning Environment spans across network known as the *virtual space* through *content delivery platforms*. This space also consists of the **Network Infrastructure**.

(iv) Network Infrastructure consists of the network equipments such as the switches and routers. Most often, research in e-learning does not include the network infrastructure and hence is not explicitly considered as a component of the e-learning ecosystem.

However, we feel that the need for a holistic approach in the development of e-learning ecosystem mandates the inclusion of

the network components as a part of the e-learning ecosystem. Given that the network infrastructure is also a component in the e-learning ecosystem, in this paper, we show the benefits that this ‘new’ component offers to the e-learning ecosystem.

In Section 2 we explore the literature that shows how the network can support and enhance the network-based applications. In Section 3 we show how e-learning, as an application, can obtain specific services from the network which possesses “e-learning awareness”.

II. Related Work

The function of the network elements such as network switches and routers in computational networks, is to transfer data packets and to process these data packets at high speeds. Normally, the network elements employ the data in the packet’s headers for processing. Presently, the application-level contents of the packets are being used for processing and this phenomenon is known as “Application-awareness” [F5 and Microsoft] and the node is called an “application-aware node”.

Other terms related to this, are Deep Packet Inspection (DPI) [Amir E], Deep Packet Processing, and Content Inspection (CI).

This ability of the network elements, to perform application-level processing has been feasible after the introduction of high-speed and intelligent processors in the manufacture of network elements [Comer]. Since then the application-aware nodes have been able to perform operations such as efficient computer network traffic management and secure network communication [F5 Networks], [Cisco], for specific applications.

Some of our earlier work in this area, involve the use of Network Processors as

application-aware networks [LakshmiPriya and RanjaniParthasarathi 2008], [LakshmiPriya et. al.], [LakshmiPriya and RanjaniParthasarathi 2010].

In this paper we introduce the idea of making the network nodes, aware of the e-learning application and perform operations that support the e-learning application, from within the network. We refer to this concept as *e-learning awareness in the network* and the nodes that perform these operations as *e-learning-aware network nodes*.

In the next section, the role of the e-learning node is described along with their benefits.

III. E-learning-awareness in the network:

In an e-learning environment, during any online transaction, information flows between the content storage areas and the content users (i.e., learners), as shown in Figure 2.

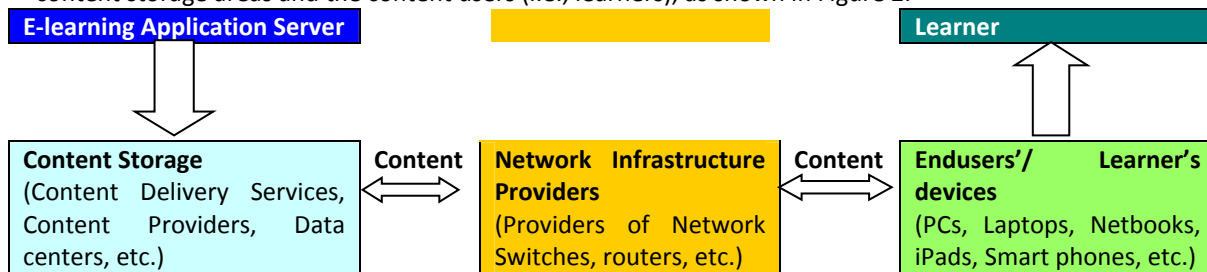


Figure 2. Content Flow in the Network

(i) The **content storage** may consist of huge Data Centers that hold volumes of lessons, tutorials, assignments and other e-learning resources. These are *not* necessarily the servers where the e-learning application runs. Typically these centers are owned by Content Providers who also offer Content Delivery Services which involves 'transfer' of digital content from the source to the destination subject to Quality of Service (QoS) conditions as per the Service-Level Agreement (SLA).

In an e-learning scenario, Content Delivery Services form an intelligent and distributed delivery architecture that typically offers services such as content caching, security, fault tolerance and reliability [Velocix].

The challenge in these services lies in the fact that the digital data is heterogeneous, consisting of small text files requiring low QoS guarantees on one hand, and on the other hand,

high QoS demanding, large video files requiring jitter-free online-transfer. Providing a wide range of QoS guarantees within the same SLA requires support from the network as well and it goes without saying that the Content Providers often also operate as Network Infrastructure Providers.

With the knowledge of the e-learning content, i.e. e-learning-awareness, it is possible to offer services that are tuned to specific user-profile or to specific lesson.

(ii) The **Network Infrastructure Providers** are the providers of the Network Switches and routers operating at the core and at the edge of the network. Typical services offered at these nodes are traffic management, network security, traffic redirection and load balancing. These nodes normally offer these services to the traffic, irrespective of the application-level contents of the data, however, by being application-aware, it is possible to tune the services for different traffic flows, thus

providing application-specific operations from within the network.

(iii) The **End-users** namely the learners possess devices that range from Personal Computers and laptops to smart phones, including iPhones, netbooks and iPads. The learners expect quality and value addition in digital data delivery in addition to the “anytime,

anywhere” requirement. Just as the availability of several value-added features (MMS, internet access, camera, etc) supported in mobile phones, which are primarily voice communication devices, value added services play a crucial role in attracting learners to an e-learning environment.

Table 2 gives a summary of the operations that can be performed with e-learning-awareness.

Table 2. E-learning-aware operations

| Security Checks | Automated response to learners | Service-level agreements (guarantees) | Tracking learner’s activities |
|--|--|---|---|
| <ul style="list-style-type: none"> • authorized user • Authorized website • User-website permit • User-website specific checks | <ul style="list-style-type: none"> • Providing Response to basic queries • User’s Device specific content provisioning • User’s learning-level based lesson identification • User’s profile-based “see also” lessons • User’s location-based “sample scenarios/examples” • User’s profile-based file choice (pdf or flash or mpeg etc) | <ul style="list-style-type: none"> • Content Delivery speed • Content resolution • Support for Heterogeneous devices at user end • Device-specific quality guarantees | <ul style="list-style-type: none"> • Frequency of lesson-wise utilization • Duration spent at specific lesson • Track of refernces made while at a specific lesson |

Model of an e-learning-aware operation: Any e-learning aware operation consists of three stages: (1) Regular packets receive operation: during which the network node receives packets for transfer. (2) Deep Packet Inspection (DPI): Contents of the packets are inspected to check if this is a candidate packet for the given operation and (3) e-learning aware operation: the application-level task to be done at the network node with a specific purpose.

It is in the 3rd stage that the operations indicated in Table 2 are incorporated. Security Checks and automated response to learners can be performed at the storage nodes, service-level agreements can be made part of the network infrastructure while the tracking activities can be deployed at the user edge. Thus e-learning-aware operation span across value-addition and Service-Level Agreements.

AutoResponse2BasicQueries()

// this module which is deployed at a Content Server, can respond to queries on the lessons, contained in this server.

{

//Step 1: Normal packet receive operation

Receive network packet

//Step 2: Deep packet Inspection

Check if sender is a known learner

then

Check if lesson of the known learner is available on this server

then

Check if the query on the lesson is a basic responsible query

Figure 3. Algorithm for AutoResponse2Basic Queries ()

Sample scenario: Let us consider “providing response to basic queries” as a sample e-learning aware. This means that whenever a learner send queries to the e-learning application server (i.e., App server), the response can be provided by a network node, and not the server. Such an arrangement will help to reduce the response time at the learner thus minimizing the *wait* times. Secondly the load on the App Server is reduced and the application can handle more users. In Figure 3, the algorithm for the sample operation, **AutoResponse2BasicQueries()**, is given.

Conclusion

In this paper we started off stating the need for enhancing the e-learning scenario in India and the need for a holistic approach in the development of e-learning applications. In this line, we suggested the inclusion of the *network infrastructure* in the holistic approach to the development of e-learning application and introduced the concept of *e-learning-awareness in the network*. With

sample e-learning aware operations, we showed, where in the network, these operation may be deployed. A step-wise procedure for a typical e-learning-aware operation was provided and the pseudocode for a sample operation was provided. With evidence from our survey on related work we emphasise that such operations span across value-addition and Service-Level Agreements, thus substantiating the two-fold benefits of e-learning-awareness.

References

1. [Chang and Guetl] Vanessa Chang and Christian Guetl (2007), “E-Learning Ecosystem (ELES) – A Holistic Approach for the Development of more Effective Learning Environment for Small-to-Medium Sized Enterprises (SMEs)”, Proceeding of the Inaugural IEEE International Digital Ecosystems Technologies Conference (IEEE-DEST 2007).
2. [Amir E.] Amir.E.(2007), ‘The Case for Deep Packet Inspection’, IT Business Edge, 29 Oct, (Online) Available at:

-
- <http://www.itbusinessedge.com>, Accessed latest on 20-Dec-08.
3. [F5 and Microsoft] (2005) 'Creating an Application-Aware Network with Microsoft Application Center and iControl' (Online) Available at: www.f5.com/solutions/success/pdfs/microsoft_success.pdf
 4. [Comer] Comer D.E. (2003), 'Network Systems Design using Network Processors', Prentice Hall.
 5. [F5 Networks] F5 Networks (2005), 'Benefits of BIG-IP Application Optimization over the WAN', White Paper, F5 Networks Inc. (Online) Available: www.f5.com/pdf/white-papers/app-optimization-wp.pdf
 6. Cisco (2005), 'Cisco Unveils Application-Oriented Networking', available at: http://newsroom.cisco.com/dlls/2005/prod_062105.html
 7. [LakshmiPriya and RanjaniParthasarathi 2008] Lakshmi Priya T.K.S. and Ranjani Parthasarathi, (2008) 'Coordinated Support for Application-Aware Networks', Special issue on New Technologies, Mobility and Security, Ubiquitous computing and communication Journal, Volume: NTMS - Special Issue, Publishing Date: 10/15/2008, ISSN Online 1992-8424, ISSN Print 1994-4608.
 8. [LakshmiPriya et. al.] Lakshmi Priya T.K.S., Hari Prasad V., Kannan D., Karthik Singaram L., Madhan G., Meenakshi Sundaram R., Prasad R.M. and Ranjani Parthasarathi (2007), 'Evaluating the Network Processor Architecture for Application-Awareness', Second International Conf. On Communication System Software and Middleware – COMSWARE 2007, Bangalore, Jan 7–12.
 9. [LakshmiPriya and RanjaniParthasarathi 2010] Lakshmi Priya T.K.S. and Ranjani Parthasarathi, 'Modeling Application-awareness in a Network-Layer Grid using Abstract State Machines', National Conference on Theoretical Computer Science and Applications (NCTCA 2010), Chennai, Nov 2010.
 10. [Velocix] <http://velocix.com>
-

NETWORK SECURITY WITH OR WITHOUT WIRELESS NETWORK IN VIRTUAL CLASSES

PANKAJ KUMAR
RESEARCH SCHOLAR & SYSTEM ADMINISTRATOR,
AND
DR. A. K. SINGH
EX-DIRECTOR, MCA COURSE, UNIVERSITY DEPARTMENT OF MATHEMATICS
B. R. AMBEDKAR BIHAR UNIVERSITY, MUZAFFARPUR, BIHAR

In the current scenario of globalization technological advancement has increased year to year including virtual education. These advances have introduced new educational teaching ideas which is known as virtual education in the form of “virtual classroom”, “virtual Universities”, “on line Courses” etc. This paper discusses the implementation of security mechanism with or without wireless network in virtual classes. It also discusses the evolution of the information security requirements and the need of an active network security administration. The full virtual development process will be described in detail together with the software & hardware tools used to produce the course material with secure and reliable data.

The contents in each topic of the virtual class will be discussed in detail. All animations and exercises will be described in their context. The task sets, consisting of exercises and study directives, that the course teacher assigns each week to the students will be introduced and explained. The concept of step-by-step skill, which lies behind the student guidance process, will be outlined together with descriptions of the different user skill levels.

The requirements of information security have undergone three major changes in the last decades.

a) *computer security* b) *Network security* c) *Wireless security*

1. Introduction

The requirements of information security have undergone three major changes in the last decades.

The first major change was the introduction of the computer. The need for protecting files and information became evident. Collection of tools and procedures designed to protect data and to control access to computing resources has the generic name *computer security*.

The second major change was the introduction of distributed systems, networks, and facilities for data communication. *Network security* measures are needed

- to protect data during transmission and storage
- to control access to networks and network nodes.

The third change is the current, rapid development of wireless networks and mobile communications. *Wireless security* is therefore of high priority today. Network security implies

restrictions such as network traffic filtering with firewall technology defense against distribution of malicious programs like viruses prevention, detection and management of intrusion prevention of unwanted data communication like email spamming.

Integrity of information content requires reliable methods to check that transmitted and stored information remains unchanged. *Confidentiality* means that the originator of information can determine who has (have) the right to read the information content.

2. Characteristics of virtual education

Virtual education refers to instruction in a learning environment where teacher and student are separated by time or space, or both, and the teacher provides course content through the use of methods such as course management applications, multimedia resources, the internet, and videoconferencing.

Students receive the content and communicate with the teacher via the same technologies.

In the recent era of globalization, technological advancement has increased dramatically in every sphere including mainstream education. These advances have introduced new educational nomenclature i.e. “virtual education”, “virtual classroom”, “virtual Universities”, “on line Courses”, “electronic” and “cyberspace institution” etc. Profound investments in technology in this decade have given rise to a worldwide explosion of information. In the fast growing competition in the job market, there have been increasing demands for specialists, professionals over population, increasing awareness as well as demand for higher education, shortage of qualified teachers and infrastructure facility. Virtual classroom has taken a lead role in the teaching-learning process.

Virtual teachers are encouraged to use technology more in the classroom. they are also motivated to share their ideas and lesson plans with other teachers through wikis, blogs, facebook, etc.

3. Wireless Network Use in Education

Wireless local area networks (WLANs) are increasingly being used in education, with nearly two-thirds of institutions currently using WLANs in school districts. Its market share was about \$1500 million in the 2009-2010 school years and will be about \$1800 million for the 2010-2011 school years. A WLAN is defined as a local area network, not connected by cables or wires, which uses a wireless technology to carry information between the nodes of the network. WLANs depend on the number and configuration of access points for their functionality. Wireless access points are positioned so students can move desks around during classroom projects and so teachers can move from room to room. Also, learners can connect their computers anywhere on campus where there is proximity to an access point. The benefits of installing a WLAN in a school include:

- **Flexibility.** In older buildings, re-wiring is not always an option due to the physical restraints of the building. Also, existing space may not allow for additional cabling.

- **Ease of use.** Installing a WLAN requires less physical work than installing or adding to a LAN. WLANs have also increased communication and encouraged spontaneity.

- **Growth capability.** WLANs can expand in size and functionality; access points can be added to and upgraded. WLANs can start off small and grow in size and complexity as needed.

- **Mobility.** WLANs allow users to move freely around the room, to wherever access points are in operation.

- **Cost.** For general use, a WLAN does not save much money.

4. Wireless Security

Since wireless signals use radio waves, there is always the danger that unauthorized users can tap into a wireless system more easily than a wired one. But reports of security problems from schools using WLAN technology are not widespread, and today’s wireless standards offer greater security than earlier versions. Present wireless security technology, also called Wired Equivalent Privacy (WEP), offers two levels of encryption: 40 bit and 128 bit, with 128-bit encryption recommended for applications where greater security is needed. The trade-off is that higher encryption levels slow down the system, though not to the point where today’s high-speed systems lose significant functionality. The objective of WEP is to provide security similar to wired networks. Of course, wired networks have their own security vulnerabilities. For example, in many schools, it is easy to walk into a public space and connect a laptop to a jack with no questions asked. Encrypting signals that traverse the wireless link itself is just one of several layers of security that a school may provide for its computer networks. Other appropriate security methods, such as password authentication, firewalls, and virtual private network solutions, can greatly reduce security risks for users and for WLAN-based resources.

5. Future Challenges & Opportunities

Researchers have found out some new trends for future which may have a beneficial impact on Web based learning, such as “Haptic Interfaces” “New Networks” and “PDA/Wireless Connections”. Haptic interfaces are not widely used in current Web based learning environments but are found in some commercial games (Bussell 2001). The haptic technology can benefit the children with special needs especially visually impaired and also be used to successfully teach concepts in physics and math. It allows for a more interactive learning experience which could be potentially implemented across a wide range of subjects. The other future prospects in Web based learning is new network which can offer opportunities to virtual learning environments. For example, “Tele-immersion” is the technology that will allow people in different parts of the world to feel as if they are sharing the same physical space connecting the real places in real time through the development of “tele-cubicles.” With such practices virtual learning environments would be able to make the real time tutorials and teacher-pupils meetings/interactions/discussions. The above techniques can also be used in new curriculum areas less suited to a virtual learning environment and with the objects even though these are miles away. Thus, it accelerates the interactive learning in virtual classrooms. Of course, these developments require much more organization and imaginations than simply placing text on the Web. Future developments in virtual learning environments may also embrace wireless and portable devices. The benefit of portable devices would mean that students would be able to collaborate and share solutions, thus fully acting out the learner’s roles of apprentice and peer-tutor as described by (Hung 2001). Students can also fully utilize a PDA by taking it with them for reference . The future of virtual learning environments has many possibilities. If issues of cost and programming would be resolved one can undertake self-directed learning using a range of senses. New networks can allow students new opportunities way beyond those offered by the Web in its current state, but careful planning

and innovations will be required to ensure that the potential for the scope of delivery is reached.

7. Conclusion

The future of virtual learning environments has many innovative and exciting possibilities. At the same time adventures in learning call for creative and potent environments where individuals share meaningful knowledge and experiences in constructing new information and ideas. These adventures foster mutual collaboration that allows learners to apply newly acquired learning in the design of insightful, cognitive processing without detachment/ obscurity from real-life situations. A judicious blend of both traditional and virtual learning environment with special attention to student needs and satisfaction can create constructive and creative learners, teaching community and learned society.

Use of security code, such as 128- or 40-bit encryption, refer to the size of the key used to encrypt the message. Encryption with a 128-bit key requires more computer power to decipher than encryption with a 40-bit key. Thus Encryption with 128 bit key is more useful and safer option for the security of wireless networking in comparison to 40 bit encryption in the coming days.

8. References

- Russell, G. (2001) Virtual schools and educational futures. *Educational Technology* November-December.
- Turoff, M. (1995) Designing a virtual classroom. *Proceedings, ICCAI 95*, Taiwan.
- Whipple, W. R. (1987) Collaborative learning : recognizing it when we see it. *Bulletin of the American Association for Higher Education* 40, 2, 3–7.
- Wright, V. H. et. al. (2000) A critical comparison of graduate student satisfaction in asynchronous and synchronous course instruction. *Plan and Changing* 31, 107–118.
- Bowman, Darcia Harris. 2002. Vandals target school technology items. *Education Week* 21 (February 20), no. 23: 1, 11

INTERACTIVE DESIGN A SOLUTION TO EFFECTIVE CONTENT DELIVERY

PIU SUR
INSTRUCTIONAL DESIGNER
WEB DEVELOPMENT CORPORATION
KOLKATA
PH(O)9830303006, E-MAIL: piusur9@gmail.com

Design is the key element of delivering content and communicating effectively. A well planned design of information carved out on the basis of communication theory can make learners grasp content quickly. Learning made easy and interesting is the prime challenge of Instructional Design.

There are several challenges to Instructional Design. The key point is to make it interesting, exciting as well as informative. Coupled with it are other major issues, which involve holding the attention of the learner for a longer duration keeping in mind the importance of content. The selection of the right tool with the right delivery medium with the best appeal is a challenging task at hand.

In order to make learning more effective, an Instructional Designer has to organize thinking skills into levels, from the basic to the higher order levels of thinking: The basic learning principles have to be organized. They are mainly Knowledge, Comprehension, Application, Analysis, Synthesis and evaluation.

Technology is moving very fast and there are too many tools and gadgets easily available. However research has to be done in the ways of learning or patterns of learning. It is important to appeal to the new age learners by being aware of their needs and to be updated with the gadgets they are using in their daily lives. It is time to use social media effectively to involve the learners and make it interactive. A good creative and easy to use interactive design can help here. In such a case the design has to be more innovative and trendy.

While designing content one has to also keep in mind the strategy used and the content to be developed. For each kind of learning the strategy used would be different. The more learners centric the design, the better is the success of the learning offered. It also means that designing a face to face learning session is different from learning imparted through Television, Radio, Mobile or the Web technology. In each case, the key element of design is to keep the learner engaged and involved.

There is an immense change in the Instructional Design methodologies. One has to be aware of the upcoming technologies and the advantages of their implementation to the learning cycle. The growing need for e-learning can be attributed to the fact that people find it easy to learn at their convenient time and from a convenient location replacing the need for traditional training methodology which is dependent on classroom teaching.

A virtual classroom has made learning create a strong foundation of the concepts and has encouraged the learners to apply logical problem solving techniques. With the changing demands of E-Learning and its evolution, Instructional Design is now Instructional Technology. The technological developments have been rightly used by institutions who have ventured into the field of e-learning making learning a success and knowledge easily within quick reach. The content is wrapped in the most attractive way and made ready for access and use to achieve higher and progressive learning environment.

Introduction

Design is the key element of delivering content and communicating effectively. A well planned design of information carved out on the basis of communication theory can make learners grasp content quickly. Learning made easy and interesting is the prime challenge of Instructional Design.

Key challenges:

- Design it carefully to offer a blend of information, interest and excitement.
- Market it effectively, mentioning the benefits provided.
- Select training or presentation topics that are important, fun, or both
- Highlight the benefits of learning.
- Invite key, popular people to participate to show leadership commitment and indicate value.
- Get maximum mileage out of it by promoting its role as a culture builder and morale booster.
- Keep the learning simple. Moderation is best.
- Involve SME speakers from within the organization but make sure they are effective speakers or the content will lose its target.
- The learning should offer short, fast, and fun Mini-workshops to support their training efforts

To begin with efficient and effective design plans, an Instructional Designer has to organize thinking skills into six levels, from the basic to the higher order levels of thinking: The basic learning principles have to be organized. They are mainly Knowledge, Comprehension, Application, Analysis, Synthesis and evaluation. Knowledge involves recall of data or information. Comprehension means understand the meaning and interpretation of instructions and problems. That is to state a problem in one's own words. Application uses a concept in

a new situation or unprompted use of an abstraction. It applies to what was learned in the classroom into novel situations in the work place. Analysis separates concepts into its parts, internal relationships. It distinguishes between facts and inferences. Synthesis builds a structure or pattern from diverse elements. It puts parts together to form a whole, with emphasis on creating a new meaning or structure. Finally it is evaluation that makes judgments about the value of ideas or materials.

With technology moving very fast and tools and gadgets being plenty the key points to keep in mind are:

- Prototypes of new devices that will change the ways we learn and communicate
- The web services dream and future of e-commerce.
- The critical need for research--what we've learned, and what's on the horizon.
- Design is critical and has to evolve to give the best learning
- Interactive designs should ask, Invite, and involve participants.
- The new value-creators: knowledge, networks, and compassion.
- The critical need for setting clear expectations, and acting accordingly.

While designing content one has to keep in mind the strategy used and the content to be developed. For each kind of learning the strategy used would be different. For collaborative learning the design need is experience-based learning. It is important to have learning labs, classroom, role playing, coaching, and case studies. In such a type of learning, collaborative sessions, real-time awareness, conferences are important. In the case of interactive learning, simulations and gaming can be put to use in the most effective way suited to learning today. Learning from

information is also important like performance support and reference materials being made out in the way it is more appealing and involves learning at an easy pace.

With every passing day the designing challenges change. The more learners centric the design, the better is the success of the learning offered. The delivery platform may range over the different types of technology available. Designing over each of these medium then takes into account the nature of the medium through which the learning is being imparted. This means that designing a face to face learning session is different from learning imparted through Television, Radio, Mobile or the Web technology. In each case, the key element of design is to keep the learner engaged and involved.

In my working experience of designing Instructional material the two major areas has been the Television and the Web. In case of video based learning imparted over television, the scope of design is limited to the form of delivery keeping in mind the visual intelligence of the viewer. The content and resource person have to be woven together in such a way that the learner does not switch channels while watching. The moving visuals are edited like a document that makes learners able to grasp the content.

The web technology on the other hand has a far reaching impact on the youth today as they move around the internet community. It has changed learning in several ways and so has the design changed. Being more accessible and flexible, interactivity has increased. It is able to enfold the use of video based learning also. This emerging trend has led to instructional design advocating the integration of instruction design processes with computer technology. This has brought about blended learning solutions and

innovative designs. The focus is on making a making the learning package easy to use, with learners being able to key in according to their requirement. The use of social media has made it easy to share knowledge which has to be packaged well. Knowledge about the trends and learning patters of the learners blended with good design elements can be very effective for E-Learning.

The next step in designing is the use of mobile phones. The digital medium is so widespread and with a large number of people having access to the internet at home or while on the move it has become very challenging for instructional designers to grab the attention of the learners for a considerable length of time. Hence packets of information are given combined with innovative designs in visual, text and moving images. A variety of ways of imparting knowledge is delivered keeping in mind the interactivity element. Quizzes, questions and spot answers are sent over the medium for tablets and mobiles. Designing for mobile learning makes the scope of E-learning more vast. The basic principles of instructional design remain the same but the nature it is imparted has changed.

There is an immense change in the Instructional Design methodologies. One has to be aware of the upcoming technologies and the advantages of their implementation to the learning cycle. The growing need for e-learning can be attributed to the fact that people find it easy to learn at their convenient time and from a convenient location replacing the need for traditional training methodology which is dependent on classroom teaching.

A virtual classroom has made learning create a strong foundation of the concepts and has

encouraged the learners to apply logical problem solving techniques. With the changing demands of E-Learning and its evolution, Instructional Design is now Instructional Technology. The technological developments have been rightly used by institutions who have

ventured into the field of e-learning making learning a success and knowledge easily within quick reach. The content is wrapped in the most attractive way and made ready for access and use to achieve higher and progressive learning environment.

TABLET - A PILL FOR VIRTUAL EDUCATION?

PREMANAND M E
RESEARCH SCHOLAR
UNIVERSITY OF CALICUT
CALICUT, KERALA
premclt@gmail.com
www.premclt.com

Writing has undergone a drastic transitional change during the course of the last century. It has changed from the traditional chalk, duster and blackboard method to mouse, monitor and keyboard technology. In this ever changing world, laptops and tablets are beginning to take an important role in motivating and encouraging students to write.

With tablets promoted by MHRD reaching affordable levels, it is imperative that the teacher begins the process to jump-start on this technological innovation and imbue students to adopt this new method of learning.

The paper attempts to showcase a cyber-writing project being developed and intended for use as an e-learning resource in virtual learning environments on tablets, presently being tested on desktops.

Another e-learning resource, an e-book on Informatics (ISBN – 978-81-920171-0-5) will also be described. Methods adopted to encourage students to search, organize and write shall be described.

It has been found that there is an increased interest in writing and thereby oral communication skills.

Introduction

Tablet – A pill for virtual education?

Writing has undergone a drastic transitional change during the course of the last century. It has changed from the traditional chalk, duster and blackboard method to mouse, monitor and keyboard technology. In this ever changing world, laptops and tablets are beginning to take an important role in motivating and encouraging students to write.

With tablets promoted by MHRD reaching affordable levels, it is imperative that the teacher begins the process to jump-start on this technological innovation and imbue students to adopt this new method of learning.

The paper attempts to showcase a cyber-writing project being developed and intended for use as an e-learning resource in virtual learning environments on tablets, presently being tested on desktops. Another e-learning resource, an e-book on Informatics (ISBN – 978-81-920171-0-5) will also be described. Methods adopted to encourage students to search, organize and write shall be described. It has been found that

there is an increased interest in writing and thereby oral communication skills.

Tablet – A pill for virtual education?

Rationale

Writing has undergone drastic transitional changes during the course of the last century from the traditional chalk, duster and blackboard method to mouse, monitor and keyboard technology. In this ever changing world, laptops and tablets are beginning to take an important role in motivating and encouraging students to write. This paper attempts to showcase a cyber-writing project being developed and intended for use as an e-learning resource in virtual learning environments such as low-cost tablets, presently being tested on desktops. In order to make this dream a reality, students comprising of tertiary learners (Age group 17 – 20) of Malabar Christian College, Calicut (MCC) were encouraged to make an e-learning resource, an e-book on Informatics (ISBN – 978-81-920171-0-5). This resource was selected since it forms part of the curriculum for

BA English students of the Calicut University. Any lapses and errors could be corrected within a few hours since all material were in electronic form and, being part of the Semester system, would be completed in 6 months. It was found, on implementation, that there was an increased interest in keystroking (writing) and thereby oral communication skills.

Writing by hand is laborious, and that is why typewriters were invented...

...I don't know what people who work on computers do to get themselves started. I hope never to learn firsthand. (Gordon, 1999)

An exciting world of knowledge and information at the fingertips were opened to the youngsters when Informatics was introduced as a subject for the II Semester in the CCSS (Course Credit Semester System) BA English & BA Functional English of Calicut University. Lanham (1995) has argued that the term 'literacy' has extended its meaning in the digital age to encompass the understanding of information presented in many different ways. The greatest challenge lay in finding a single text to cover the entire gamut of the syllabus and easy on the pocket. Being a new introduction, the syllabus itself was deliberated by the Board of Studies for months before being brought. Although a text book was prescribed, proper time and instructions were not given to the publishers to develop and bring out an affordable edition.

The topics for Informatics were also quite new to a majority of teachers teaching English who, usually, were used to teaching prose, poetry and literature. For many, using the computer meant browsing, email and chat. The students of Malabar Christian College, Calicut, Kerala, India (MCC) also faced other challenges such as affordability, availability, compatibility... It was decided to bring out an e-book that could be re-distributable with minimum expenditure.

A recent issue of *Discourse* (Carrington and Marsh, 2005) discusses youth engagement with new literacies and use of digital texts to changing perceptions. The editors speak of a 'paradigm shift' in communicative practices with implications for literacy education, summarized in terms of the conjunction between

technology, globalisation and social and cultural instabilities.

A Handbook of Literacy and Technology (Reinking, McKenna, Labbo and Kiefer, 1998) explores key differences between printed and electronic texts, and the implications of these new textual forms for re-defining what it means to read and write, inside and outside classrooms. The effects of introducing new writing technologies into a range of schools and classrooms are examined. Case study examples show the importance of the social conditions which permit or encourage transformations of literacy learning. All the chapters address the educational implications of a shift from a primarily print-based typographic mode to a more multimedia screen-based digital literacy world.

Getting into the act

Students of II Semester comprising of 30 were split into 5 groups and were assigned Modules as per syllabus. Being *Digital natives*, it was observed that they were quite aware of the topics since most of them had completed a basic awareness in operation of computers and computer technology as part of school curriculum. Getting the e-book ready in the shortest possible time was a tall order since the Semester had already started and many teachers were referring multiple books in order to gain mastery over the subject.

Day 1 began with a brain-storming session as to how the project should be undertaken. It was decided to set up an exclusive email address for this project. With web 2.0 capabilities, synchronous communication has become a breeze. Students could log on and chat at any point of time. This sort of learning was found to have dramatic effect. Each group got into action. The Internet was scoured for different materials that were freely distributable and by the end of the day each group had collected enough material to publish a volume. However, it was decided to condense each topic to a digestible form. Miraculously, a seemingly comprehensible form was ready within a week. By then, hundreds of e-mails had criss-crossed between students, including some emails from their counterparts encouraging them in their

pursuit. An interesting observation was that these students who otherwise displayed a passive interest in studying English woke up to the sense of responsibility to create something which in turn would benefit a wider community. Volunteers emerged for collating the material. Being more proficient on the topics being undertaken, it was decided to send the compiled material to the Computer Science department for further revision and editing. This actually helped in organizing facts hitherto unknown to students of Arts faculty since they were more engaged in the subject and had a deeper knowledge and understanding of each topic. Next on the agenda was designing a readable format. Many themes were suggested and finally selected based on popularity ranking. Another important issue that came up was the choice of font, word processor. It was understood that there would be different operating systems and different versions of word processors which would pose a problem in display and readability. The popular .pdf format was preferred. This allowed for seamless reading of texts across several operating systems except for iOS systems wherein we adopted an iPad/iPhone optimized button for viewing.

The project was ready in 10 days and it was decided to test it. Two Colleges in the nearby area was selected and the material sent to them on a CD. They were to study the topics and look out for errors. Two English teachers, who dealt with the subject took on the role of supervisors. Corrections, additions, deletions were made and a full working model was ready for distribution. One of the major points raised during the making of the e-book was that it was targeted only to those who possessed computers at home. After spending many hours burning the midnight oil it was decided to add a print module so that the pages could be printed out from the CD.

Prior to launch, getting an ISBN was the next challenge which was rather effortlessly managed thanks to some dedicated teachers.

What next?

The speed of development in miniaturization has brought out many hand-held gadgets and with the launch of Aakash, promoted by MHRD, the hand-held tablet that promises to be a

revolution among the educational sector, it is only fair to introduce e-learning modules and it is imperative that the teacher begins the process to jump-start on this technological innovation and imbue students to adopt this new method of learning.

The role of a virtual teacher can be assumed with virtual technology. Lesson modules and a variety of writing tasks can be prepared by experts of the language based on their expertise for different levels of the student community. Once these skills are organised as Modules, they can be posted on a website. With Internet accessibility becoming easily accessible, it is only fair to say that the common man will be able to derive maximum benefit from the latest technology. Moreover, with the rapid thrust of English developing as a Global language, it is imperative that students in far remote corners of the country gain access to lesson modules that teach Listening, Reading, Writing and Grammar skills. The exponential growth of tablets and phablets (phone + tablets) will be a stepping stone to enable this technology to reach into the hands of any person anywhere willing to learn.

English lessons in Module form on tablets are in effect part of a grand scheme where education and the teacher become virtual entities. The Module can be thought of as a pill that has to be compulsorily administered if one is desirous of being one step ahead in the search for excellence. Once the pill is swallowed, it becomes an elixir – a wanting and a desire to learn more. It is hoped that tablets will form an integral part of disseminating knowledge to the masses not only in India but anywhere on the globe.

Reference

Carrington, V. and Marsh, J.: 2005, 'Digital childhood and youth: New texts, new literacies', *Discourse: Studies in the Cultural Politics of Education* 26(3), 279–285.

Gordon, Mary: 1999, **WRITERS ON WRITING - Putting Pen to Paper, but Not Just Any Pen or Just Any Paper.**

<http://www.nytimes.com/library/books/070599gordon-writing.html> DOA - 4/01/2012.
Copyright 1999 The New York Times Company

Kaplan, N.: 1995, 'E-literacies: Politics, hypertext, and other cultural formations in the age of print', *Computer-Mediated Communication Magazine* March 1, 1995 2(3), 3.

Lanham, R.: 1995, 'Digital literacy', *Scientific American* 273(3), 253–255.

Reinking, D., McKenna, M.C., Labbo, L.D., and Kiefer, R.D. (eds.): 1998, *Handbook of Literacy and Technology: Transformations in a Post-Typographic World*, Lawrence Erlbaum Associates, Mahwah, NJ and London.

DISTRIBUTED EDUCATIONAL INFRASTRUCTURE FOR VIRTUAL CLASSES

RAJESH KUMAR
RESEARCH SCHOLAR, FACULTY, MCA COURSE, UNIVERSITY DEPARTMENT OF
MATHEMATICS

rajeshk_muz@yahoo.in

&

NAVIN KUMAR
RESEARCH SCHOLAR, RESOURCE PERSON, DEPARTMENT OF B.C.A, M.D.D.M
COLLEGE,

gautam_navin@rediffmail.com

&

DR. A. K. SINGH
EX-DIRECTOR, MCA COURSE, UNIVERSITY DEPARTMENT OF MATHEMATICS
B. R. AMBEDKAR BIHAR UNIVERSITY, MUZAFFARPUR, BIHAR

ajaypunamsingh@gmail.com

The present paper will discuss the role of distributed computing to reduce the cost of e-learning infrastructure. Despite current increasing trends of interest in e-learning, it has many constraints. The fundamental obstacle to the growth of e-learning is lack of access to the necessary technological infrastructure. While the costs of the hardware and software are falling rapidly, there are other inherent costs that have often not been considered into the deployment of e-learning ventures. The most important of these include the costs of infrastructure support and its maintenance, appropriate training of staff to enable them to make use of technology with the help of distributed educational infrastructure. Distributed educational settings can be implemented to enhance the technology infrastructure at lower cost for e-learning. This can be done with the help of cloud and N-computing as software and hardware respectively.

The distributed educational settings for virtual classes can be set with the help of technology like N-computing and Distributed system like cloud computing.

1. Introduction

Cloud computing is a promising infrastructure which provides computation and storage resources as services. Hence, this paper introduces Cloud computing into an e-learning system as its infrastructure. Cloud computing is a technology that uses the internet and central remote servers to maintain data and applications. Cloud computing can allow students, consumers and businesses to use applications without installation and access their personal files at any computer with internet access. This technology allows for much more efficient computing by centralizing storage, memory, processing and bandwidth. In a cloud computing system, there is a significant

workload shift. Local computers no longer have to do all the heavy lifting when it comes to running applications. The network of computers that make up the cloud handles them instead. Hardware and software demands on the student's side decrease. The only thing the student or administrator need to be able to run is the cloud computing system's interface software, which can be as simple as a Web browser, and the cloud's network takes care of the rest.

The term "infrastructure" is highly contextual in its meaning. In e-learning contexts "e-learning infrastructure", "technical infrastructure", and "ICT infrastructure" all convey a range of

meanings. However, for others, it can also serve as labels that include the “applications layers” or even more broadly, the entire platform required to deliver services. Cloud computing, defining in one word is economics. It is faster, simpler, cheaper to use cloud applications. The ongoing operational expense for running data centre is low and the applications can be accessed from anywhere, anytime. The word cloud is a metaphor for Internet. It is a new way for the delivery of IT services on the internet. Companies who provide such a service usually have many servers to do this task. Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers. “Cloud Computing”, also known as “Software as a Service” or “SaaS”, refers to a movement to turn computer terminals and notebooks into “client” machines that primarily (or only) execute applications running on servers somewhere out there on the Web. For example, instead of running Word from a notebook’s hard drive, you’d run a copy of the program that lives on a remote server...and perhaps even save your documents there.

2. E-learning using cloud Architecture

E-learning can be used on cloud computing with the help of the two sections:

- i) The front end
- ii) The back end

2.1 The front end: The front end is the computer user or student or client. The back end is the "cloud" section of the system. The front end includes the students or client's computer (or computer network) and the application required to access the cloud computing system. Not all cloud computing systems have the same user interface. Services like Web-based e-mail programs are used on existing Web browsers like Internet Explorer or Firefox. E-learning systems can have unique applications that provide network access to students or clients.

2.2 The back end: The back end of the system is the various computers, servers and data storage

systems that create the "cloud" of computing services. In theory, a cloud computing system could include practically any computer program we can imagine. Usually, each application will have its own dedicated server. A central server administers the system, monitoring traffic and client demands to ensure everything runs smoothly. It follows a set of rules called **protocols** and uses a special kind of software called **middleware**. Middleware allows networked computers to communicate with each other. Most of the time, servers don't run at full capacity. That means there's unused processing power going to waste. It's possible to fool a physical server into thinking it's actually multiple servers, each running with its own independent operating system. The technique is called server virtualization. By maximizing the output of individual servers, server virtualization reduces the need for more physical machines. The e-learning server will use cloud computing, so all the required resources will be adjusted as needed.

E-learning systems can use benefit from cloud computing using:

- Infrastructure: use an e-learning solution on the provider's infrastructure
- Platform: use and develop an e-learning solution based on the provider's development interface
- Services: use the e-learning solution given by the provider.

3. E-learning Benefits

E-learning is widely used today on different educational levels: continuous education, company trainings, academic courses, etc. There are various e-learning solutions from open source to commercial. There are at least two entities involved in an e-learning system: the students and the trainers.

3.1 The students:

- i) Take online course
- ii) Send worked homework, projects
- iii) Take exams

3.2 The trainers:

- i) Send feedback
- ii) Send homework, projects
- iii) Deal with content management
- iv) Prepare tests

v) Send feedback vi) Assess tests, homework, projects vii) Communicate with students
Usually, e-learning systems are developed as distributed applications. The architecture of an e-learning system, developed as a distributed application, includes a client application, an application server and a database server beside the hardware to support it.

4. N-Computing

N-Computing is a desktop virtualization that creates virtual desktops which enable multiple users to simultaneously share one computer. The approach of N-Computing is to provide better media streaming and audio performance at lower costs. The N-Computing supports both Windows and Linux operating systems. N-Computing is a terminal unit that does not require CPU, hard-drive, or CD-Rom. User can expand PC up to 10 computer terminals costs less than a traditional PC.

5. Benefits of Cloud computing for E-learning solution

Software use is monitored, controlled, version control is simplified, dangers of viruses are minimized and Source data and resulting files may be stored, managed, and protected centrally, behind server firewalls. Less advanced (and expensive) computers can be issued to students.

5.1 Devices: The client hardware could be a mobile device or a desktop computer. The client application can be a simple web browser or a dedicated application.

Even with the current hardware and software limitations, mobile devices are supporting multimedia based applications. Currently, compared with desktop applications, mobile applications, especially multimedia-based applications, have serious limitations due the processing power and memory constraints. Due to the fact that the data processing is on the server side, the use of mobile devices for learning is growing fast. Still, the mobile applications need to be optimized for the use of e-learning. The cloud computing provides some major security benefits for individuals and companies that are using/developing e-learning solutions.

5.2 Improved improbability: It is almost impossible for any interested person (thief) to determine where the machine is located that stores some wanted data (tests, exam questions, results) or to find out which is the physical component he needs to steal in order to get a digital asset.

5.3 Virtualization: It makes possible the rapid replacement of a compromised cloud located server without major costs or damages. It is very easy to create a clone of a virtual machine so the cloud downtime is expected to be reduced substantially.

5.4 Centralized data storage: Losing a cloud client is no longer a major incident while the main part of the applications and data is stored into the cloud so a new client can be connected very fast. Imagine what is happening today if a laptop that stores the examination questions is stolen.

5.5 Monitoring of data access: It becomes easier in view of the fact that only one place should be supervised, not thousands of computers belonging to an institution. Also, the security changes can be easily tested and implemented since the cloud represents a unique entry point for all the clients.

5.6 Cost efficiency: Another important benefit is related to costs. If the e-learning services are used for a relative short time (several weeks, a quarter, a semester), the savings are very important.

6. Weaknesses

Internet connections are required, and stable ones are often essential. If a Cloud connection drops during a session, users may lose time, work, or even data.

Students data isn't necessarily their own in the Cloud. It might live on someone else's servers. Students don't have to worry about keeping their software current, maintaining sufficient disk space, or managing access security. Cloud suppliers would be doing that. But this also gives suppliers a lot of control over their student's data.

7. Conclusions

The development of e-learning solution cannot ignore the cloud computing trends.

There are many benefits from using the cloud computing for e-learning systems. Also, there are some disadvantages that have to be taken into account. Using cloud computing for e-learning solutions influences the way the e-learning software projects are managed. There are specific tasks that deal with finding providers for cloud computing, depending on the requirements (infrastructure, platform or services).

- Cloud Computing is the fastest growing part of IT
- Tremendous benefits to students of all courses
- Key opportunity for application and infrastructure vendors

- Economic environment is accelerating adoption of cloud solutions

8. References

1. DeCoufle B. -- The impact of cloud computing in schools, The Datacenter Journal,
2. <http://datacenterjournal.com/content/view/3032/40/>, July 2009
3. Cloud Computing Incidents Database - wiki.cloudcommunity.org/wiki
4. Foster, I. and Kesselman, C. "The grid: blueprint for a new computing infrastructure," Morgan Kaufmann Publishers Inc., San Francisco, CA, 1998
5. Journal of Computer Science (Monthly Publication)
6. Andrew S. Tanenbaum, "Distributed Systems: Principles and Paradigms " Maarten van Steen. Publisher : Prentice Hall.

ENRICHING LEARNERS' LEARNING EXPERIENCES THROUGH VIRTUAL LEARNING ENVIRONMENTS IN OPEN UNIVERSITY MALAYSIA

ARIFF SYAH JUHARI
&
SITI FARINA SHEIKH MOHAMED
&
ROSMAH MOHAMED
OPEN UNIVERSITY MALAYSIA
JALAN TUN ISMAIL, 50480 KUALA LUMPUR
PHONE NUMBER: +60327732431, FAX: +60326978767
Email: ariffsyah@oum.edu.my

Open University Malaysia (OUM), the country's premier open and distance learning institution has undergone continuous improvements since its establishment in 2000. The changes are considered a necessity to ensure OUM produces graduates equipped with the necessary skills and knowledge as well as professional competencies. Since OUM's group of learners are mainly working adult learners who come from different professional backgrounds, three blended modes of delivery are offered to overcome the learner diversity and to minimise the challenges. This mode comprises of self-managed learning, face-to-face tutorials (F2F) and online/ e-learning. In recent years, however, OUM has focused on improving its virtual learning environments by looking at various innovative ways to encourage and enrich the learners' online learning experiences. This paper is a conceptual paper which describes several initiatives designed by OUM that include the new e-learning model, development of web-based modules, e-schedules, i-lectures, online learning resources, online submission of assignments as well as online grading of assignments.

OUM has migrated to the new e-learning model since May 2010. Only tutors who are better qualified, with extensive experience and good track records are selected and appointed as online tutors or e-tutors. This e-tutor facilitates all learners in one course, thus, allows greater opportunity for knowledge sharing among learners in a particular course regardless of the learning centres they are attached to as well as benefit learners in remote areas as they are able to experience collaborative learning. Moreover, in this model, marks are not provided for participation in the online discussion forum, thus, only those learners who are genuinely interested will participate in the online discussion forum. As a result, discussions are more substantial, engaging, thought provoking and of higher quality. As for web-based modules, learners are encouraged to explore the available HTML web-based content that is more lively, interesting and engaging compared to the static print modules as it presents interactive features, for instance, Self-Checks, Practice Exercises, Hyperlinks and Tips.

OUM has also incorporated e-schedules and i-lectures to assist learners to better understand certain topics in a particular subject. Although not completely completed, OUM is actively developing e-schedules and i-lectures for all courses at present. In addition, online learning resources are also made available for learners to enrich their learning experiences, such as, Math Resource Centre (MRC), Gateway for Learning English (e-Gate) and Open Education Resources (OER). Where assessment is concerned, since OUM has high number of assignment submission every semester, the university has embarked on online submission of assignments and online grading of assignments. Learners are currently required to submit their assignments via the upgraded myVLE or my Virtual Learning Environment and these assignments are subjected to centralised grading. With this system in place, learners are now able to obtain feedback on their assignments before their final examinations. With all these initiatives in implementation, nevertheless, OUM experiences challenges. One of the issues explored is the online facilitation quality in

the new e-learning model. This paper also discusses how OUM's attempts to overcome these issues and to address the problems that arised.

Introduction

Open University Malaysia (OUM), the country's premier open and distance learning institution has undergone continuous improvements since its establishment in 2000. The changes are considered a necessity to ensure OUM produces graduates equipped with the necessary skills and knowledge as well as professional competencies. Since OUM's group of learners is mainly working adult learners who come from different professional backgrounds, three blended modes of delivery are offered to overcome the learner diversity and to minimize challenges. This mode comprises of self-managed learning, face-to-face tutorials (F2F) and online/ e-learning. In recent years, however, OUM has focused on improving its virtual learning environments by looking at various innovative ways to encourage and enrich the learners' online learning experiences. This paper is a conceptual paper which describes several initiatives designed by OUM to enrich learners' learning experiences which include the new e-learning model, development of web-based modules, e-schedules, i-lectures, online learning resources, online submission as well as online grading of assignments.

Initiatives to Enrich Learners' Learning Experiences

OUM has migrated to the **new e-learning model** since May 2010. In this new model, only tutors who are better qualified and with extensive experience and good track records are selected and appointed as online tutors or e-tutors. This e-tutor facilitates all learners in one course, thus, allows greater opportunity for knowledge sharing among learners in a particular course regardless of the learning centres they are attached to as well as benefit learners in remote areas as they can experience collaborative learning. Contrary to the previous practice, participation marks are now not provided for online discussion forum, thus, only those learners who are genuinely interested will participate. As a result, discussions are more substantive, engaging, thought provoking and definitely of higher quality.

As for **web-based modules**, learners are encouraged to explore the available HTML web-based content that is more lively, interesting and engaging compared to the static print modules and it presents interactive features such as Self-Checks, Practice Exercises, Animated Diagrams, Audio, Hyperlinks and Tool Tips.

Another effort introduced by the University is the **e-schedules**. In OUM, several courses are already offered fully online. Learners are not required to attend face-to-face tutorials for these particular courses and as such, e-schedules are provided to support learners in this completely online environment. E-schedules present weekly course activities which suggest topics for discussions in the Online Forums, Reading Activities as well as Online Activities. Additionally, OUM has developed **i-lectures** for the purpose of assisting learners to better understand important and difficult topics of a particular subject. Each course has eight i-lecture videos, with the duration of 10 to 15 minutes for each video. With these i-lectures, learners can view the video anytime, anywhere and as many times they need. At present, OUM is actively developing i-lectures for all courses.

Online learning resources such as Math Resource Centre (MRC), Gateway for Learning English (e-Gate) and Open Education Resources (OER) are being created for learners to support as well as enrich them in their learning experiences. The MRC which was introduced by OUM in 2009, is a learning resource centre designed for learners who need help in Mathematics. This centre offers learning resources for reviewing math topics and provides online tutoring services to learners. Supplemental Notes, Practice Problems, Interactive Tutorials and Links to useful math sites (such as [Math Expression](#), [Purple Math](#) and [Math World Wolfram](#)) are several resources available in the MRC. The Gateway for Learning English which is also known as e-Gate is a website that provides learners with a quick link to various English resources found on the Internet. E-Gate was introduced in 2010 and the contents include topics such as Grammar, Reading, Listening, Speaking, Creative Writing, Soft Skills, and Networking.

As the concept of lifelong learning now becomes a reality, more people are searching for information particularly from the Internet. As such, Open Educational Resources or OER were introduced. OER, according to the Organization for Economic Co-operation and Development or OECD (2007) are “digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research”. In OUM, the OER was introduced to offer variety of learning materials available to all distance learners as well as non-distance learners for free. Examples of OUM’s OER include Course Modules, Lectures, Activities, Quizzes, Slides and Additional Materials.

OUM has high number of assignment submission every semester, in average about 50,000 assignments that needed to be graded. Beginning from September 2010, OUM requires learners to submit their assignments online and these assignments are subjected to centralised grading. E-graders are appointed and trained by the Institute for Teaching and Learning Advancement (ITLA) at OUM. To ensure the reliability and consistency of grading, assessment criteria or rubrics is introduced. With this system in place, learners are now able to obtain feedback on their assignments before their examinations to better prepare them for their final examinations.

Challenges

As an institution that provides open and distance learning (ODL) through online facilities detailed above, OUM has the advantage to provide learners with innovative implementations of flexible learning, which helps put in perspective a time in an adult learner’s schedule to effectively learn, alongside other responsibilities and commitments. This freedom and flexibility in learning is directly associated to OUM’s Open Entry policy, which makes possible for a large number in enrollments. The practice of open education also allows for learners to take time off in the midst of study to temporarily re-prioritize their activities, without expectations and judgments by the institution in the learners’ choices to achieve successful completion of their course. With this allocation in place, naturally, the time given for learners to complete the degree is only just as flexible. To facilitate this flexibility, learners are provided state-of-the-art online support and facilitation by highly qualified staff. However, it is observed that providing freedom and flexibility to learners and prospective learners (for entry) comes greater responsibilities and constraining challenges.

Just like many open-type academic institutions, OUM places less importance to the prospective learner’s previous academic qualifications, experience, and background to allow entry. This belief allows focus to be placed on the prospective learners’ interest to learn, as well as to change their career path into whatever industry, field or area of study they choose. It is one of OUM’s main priorities is for prospective learners to be given a chance to enhance and change professionally as well as personally. However, it has been observed that the challenge to implement such an ideal is apparent in the rate of completion and attrition, and as mentioned above, academic performance.

Although highly qualified staff in the thousands is given teaching loads every semester to facilitate the large number of learners, the challenge is to provide effective learning and experience to learners who are extremely diverse in qualification and background. The academic staff is also placed with challenges that are largely different from the traditional approach they are used to. This is particularly clear in the practice of online tutoring and facilitation, where the teaching processes are continuous and are not bounded by a set of weekly schedules or class-time hours that are reflected by the credit hours one is usually assigned. In addition to online tutors and facilitators, e-tutor mentors are also appointed to train and monitor tutors’ activities online.

With registered learners easily in the tens of thousands in any one semester, OUM provides each learner comprehensive modules and learning materials covering everything the learner needs to successfully complete the subjects they are registered for. According to Safiah et al. (2011), there must be support to

guide the learners with their learning, provide help during their learning, and provide necessary feedback for learners to improve in their learning. With that, many more subject matter experts are recruited to author all the modules, followed by its moderation process, production, printing, and the distribution of these modules to learners. For further accessibility, the learning materials are also being made available and updated online via OUM's myVLE closed portal.

It is a constant challenge in itself to ascertain that these elements (mentioned above) are taken into consideration when developing resources and learning materials and when designing online learning activities to be included in the web-based modules (Safiah et al. 2011).

Conclusion: Next Step

It is very fortunate that the contributions in the area of ODL are advancing in both theory and practice, and that ODL, increasingly, is considered by many to be the platform for future education. In fact, many of the concerns and challenges pronounced here have surfaced and have been deliberated in the ODL and academic community, along with findings providing for various contentions for resolutions. OUM's way forward is to address the challenges stated in the above paragraphs.

OUM's provisions to provide optimal learning are to be supported by an online infrastructure that is efficient, with reduced downtime and error free, at the same time, addressing the learners' constant need to access learning materials, share thoughts with other learners and tutors, assignment submission, and online assessments. The increase efficiency in these facilities would naturally inspire better communication between the learner and the tutor, hence bringing the teaching experience closer to optimal. With learners are of various backgrounds and experience, better communications would further result in improved academic performance, in turn improve learner retention and increased rate of completion. Lastly, a more efficient infrastructure would also allow for more efficient training and monitoring of online activities; and this too, would contribute to the quality of learning.

Other than addressing the challenges discussed above, other possible areas to be adopted by OUM may be in the vicinity of mobile learning. Additionally, the current infrastructure and myVLE system may be further supported by more interactive 3-dimensional learning environment.

All in all, OUM has thus far implemented continuous improvements to the current approaches and system, with the aim to ever increase the efficiencies of its teaching processes, while maintaining its quality of learning. With the support of current advancements in ODL enhancement, OUM will continue to strive to enhance the online learning experience to the highest standards.

References

Collis, B., & Moonen, J. (2001). *Flexible Learning in a Digital World: Experiences and Expectations*. London: Kogan Page.

Monahan, T., McArdle, G. & Bertolotto, M. (2008). Virtual Reality for Collaborative E-Learning. *Computers & Education* 50, 1339–135. Available online at <http://virtuallenvironments.pbworks.com/f/monahan.pdf>

OECD (2007). *Giving Knowledge for Free: The Emergence of Open Educational Resources*. Available online at <http://www.oecd.org/dataoecd/63/25/38851849.pdf>

Safiah M.Y., Mansor F. and Siti Farina S.M. (2011). *Enhancing e-Learning Practices in ODL: the OUM Experience*. Conference Proceedings, UCTI 2011.

IMPORTANCE OF LEARNING THEORIES IN KNOWLEDGE PACKAGING, FOR E-CONTENT DEVELOPMENT IN HIGHER EDUCATION.

DR. PRAKASH GAMBHIR
PROF & DIRECTOR, ACADEMIC STAFF COLLEGE,
UNIVERSITY OF PUNE, PUNE -411 007
e-mail- prakashbgambhir@unipune.ernet.in, pbgasc@yahoo.com

The system of passing on the accumulated knowledge through teacher continued for millenniums. The reminiscence of this can be viewed in all branches of science, social sciences, humanities, languages and so on. This knowledge is passing through schools, colleges and universities to the students. The mode is face to face education and self learning through knowledge repositories. This face to face learning restrict the expansion of education to the masses. The barrier to mass education was broken when accessibility of knowledge through print media, radio, and TV was developed. However, these media also moved towards information spread, entertainment, education and social messages. India developed a well established system of TV based education, by creating a system of packaging the knowledge in video form and telecasting it through Doordarshan for 24 hours. UGC has taken a initiative to develop a courseware. Now there are various channels who are engaged in telecasting full courseware to the students. Blending of three technologies namely TV, live interaction, EDUSAT and using internet offer a new system of technology enabled mass higher education.

Taking into consideration of development in technology it became imperative to develop the programmes which would directly meet the needs of the students through e-content development. It is essential to follow the instructional design of behaviorism, cognitivism, constructivism and eclecticism.

There are various theories of instructional design for learning like Blooms taxonomy of cognitive learning, (1950), Robert F. Mager- Criterion Reference instruction (1984); M. David Merrill- Component display theory (1983); Robert Gagne-condition of learning.(1965,1985). With the help of Consortium for Educational Communication (CEC-New Delhi), the UGC-Academic Staff College, University of Pune has conducted two orientation programmes for college and university teachers for e-content development. It was found that during this course out of all these theories the nine events instruction suggested by Gagne was very useful and participants suggested that this instructional method will definitely helpful while developing the e-content in their respective discipline.

Key word: learning theories, e-content, higher education

Introduction:

The system of passing on the accumulated knowledge through teacher continued for millenniums. The reminiscence of this can be viewed in all branches of science, social sciences, humanities, languages and so on. This knowledge is passing through schools, colleges and universities to the students. The mode is face to face education and self learning through knowledge repositories. This face to face learning restricts the expansion of education to the masses. The barrier to mass education was broken when accessibility of knowledge through print media, radio, and TV was developed.

However, these media also moved towards information spread, entertainment, education and social messages. India developed a well established system of TV based education, by creating a system of packaging the knowledge in video form and telecasting it through Doordarshan for 24 hours. UGC has taken an initiative to develop a courseware. Now, there are various channels who are engaged in telecasting full courseware to the students. Blending of three technologies namely TV, live interaction, EDUSAT and using internet offer a new system of technology enabled mass higher education.

The instructional framework has been used effectively in self-paced multimedia courses and numerous other professional and technical training programmes. It is aimed at mature students who can pace themselves and evaluate themselves with assessment tools incorporated into the courses. Mager R.F. (1984) mainly focused on three characteristics, performance, conditions and criterion i.e. criterion referenced instruction (CRI). He was influenced by Gagne's (1965) conditions of learning, Knowles (1975), Rogers (1994). The component display theory by M. David Merrill (1983) outlines how to design instruction for the cognitive domain, based on pre-determined objectives of instruction. All these theories concentrated on the instructional design framework and how to apply in classroom situation.

Some researchers viz. Sharma G. D (2004), Arulsamy et al (2004), Dhanrajan G (2004), Dahia S.S. (2004), Srivastava et al. (2005), Vatnal R.M. et al. (2004), Vasu Deva (2003) have discussed issues related to e-learning in terms of the technology, media, protocols etc. E-content developer must be aware of these issues in order to create effective and useful e-content.

The Consortium for Educational Communication (CEC-New Delhi), an inter-university centre of UGC, is putting a lot of effort in this line. They have organized so many training programmes in capacity building among teachers, media persons and teachers/trainers of Academic Staff Colleges in India. The main objectives are to acquaint the teachers on interface between theories of learning and technology (Multimedia) with a focus on instructional design for E-content development.

There are various theories of instructional design for learning like Bloom's taxonomy of cognitive learning, (1950), Robert F. Mager-Criterion Reference instruction (1984); M. David Merrill- Component display theory (1983); Robert Gagne-condition of learning.(1965,1985). With the help of Consortium for Educational Communication (CEC-New Delhi), the UGC-Academic Staff College, University of Pune has conducted two orientation programmes for college and university teachers for e-content development. The lectures were arranged on theories of various instructional design and

invited eminent scholars from the education faculty. These resource persons were briefed about the plan and accordingly they delivered their lectures. In nutshell, the researcher has given the brief account of the taxonomic analysis of learning behaviours,

Taxonomic Analysis of Learning Behaviours

1. Bloom's Taxonomy of Learning - In 1956 Bloom and his colleagues began development of a taxonomy in the cognitive, attitudinal (affective) and psychomotor domains. Many people are familiar with **Bloom's Cognitive taxonomy** which consists of knowledge, comprehension, application, analysis, synthesis, evaluation

2. Criterion Referenced Instruction (Robert F. Mager 1984)

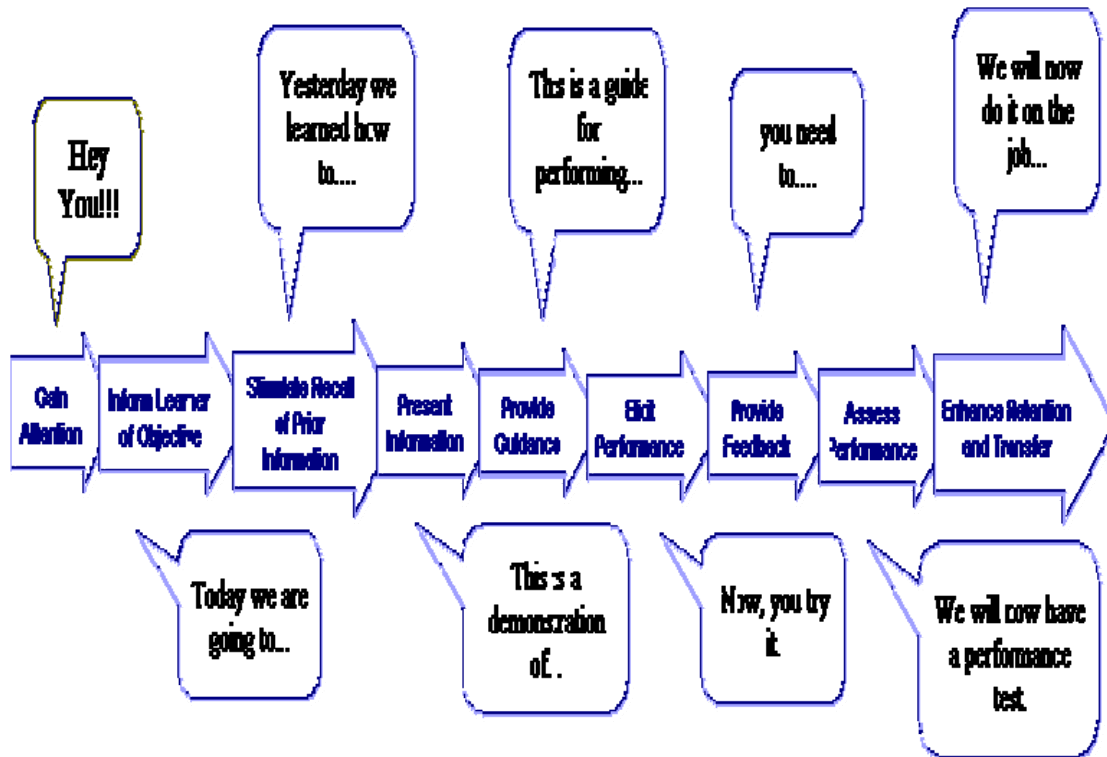
The Criterion Referenced Instruction (CRI) framework developed by Robert Mager is a comprehensive set of methods for the design and delivery of training programs. Some of the critical aspects include: (1) goal/task analysis -- to identify what needs to be learned, (2) performance objectives -- exact specification of the outcomes to be accomplished and how they are to be evaluated (the criterion), (3) criterion referenced testing -- evaluation of learning in terms of the knowledge/skills specified in the objectives, (4) development of learning modules tied to specific objectives.

3. Component display theory (M. David Merrill 1983);

Component Display Theory (CDT) classifies learning along two dimensions: content (facts, concepts, procedures, and principles) and performance (remembering, using, and generalities). The theory specifies four primary presentation forms: rules (expository presentation of a generality), examples (expository presentation of instances), recall (inquisitory generality) and practice (inquisitory instance). Secondary presentation forms include: prerequisites, objectives, helps, mnemonics, and feedback.

4. Condition of learning.(Robert Gagne 1965, 1985).

- Robert Gagné's *Nine Steps of Instruction*



Aims and Objectives:

This study is mainly focused on the strength of the various theories in instructional design in the development of e-content. The main objectives of this research are:

1. To find out that how instructional design in teaching and learning process is important and why they are using new technology (multimedia)
2. To trace out what are the theories of learning in higher education.
3. To find out which is the most important and useful theory while developing for e-content development.

Research Methodology:

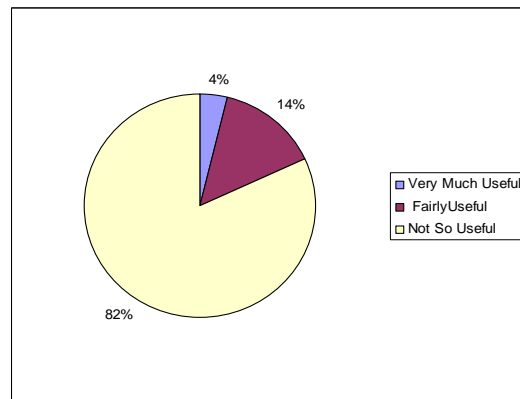
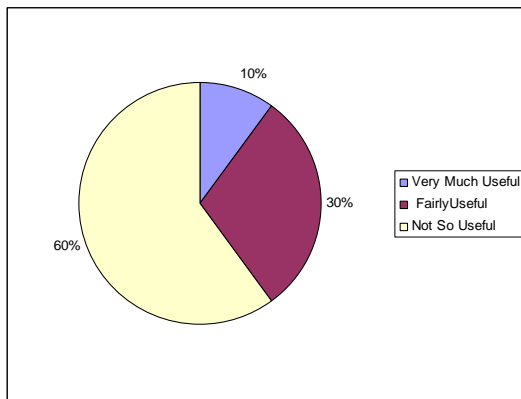
A study was undertaken on a small volunteering sample of 50 teachers of higher education from different faculties who came to attend e-content development programmes. There were 2 programmes conducted through CEC (New Delhi) and EMMRC, Pune and organized at Academic Staff College, University of Pune. All these teachers were from the various universities and colleges from Maharashtra State, India. There were 32 males and 18 females participants.

Table: Participants response on each theory, Percentage for each theory: out of 50 participants

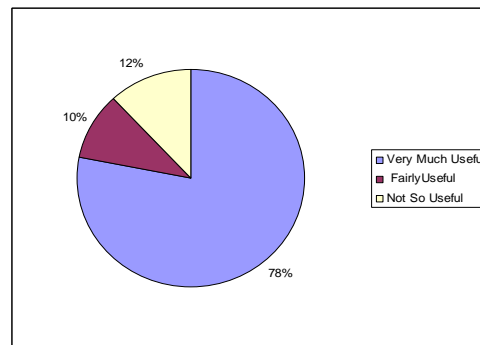
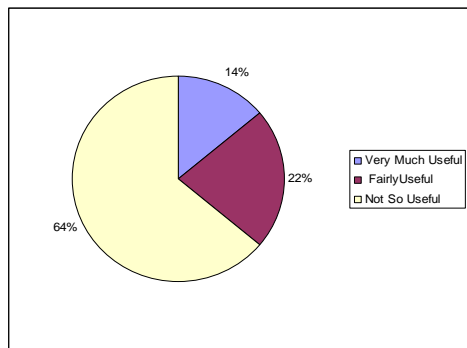
| | Very much useful | Useful | Not so useful |
|---|------------------|--------|---------------|
| Blooms taxonomy of cognitive learning, (1950) | 5 | 15 | 30 |
| Robert F. Mager- Criterion Reference instruction (1984) | 2 | 7 | 41 |
| M. David Merrill- Component display theory (1983) | 7 | 11 | 32 |
| Robert Gagne-condition of learning.(1965,1985) | 39 | 5 | 6 |

Participants Response for Bloom taxonomy of cognitive learning (1950)

Participants Response for Robert F. Mager- criterion Reference instruction (1984)



Participants Response for Robert F. Mager-criterion Reference instruction (1984)
 Participants Response for Robert Gagne condition of learning (1965, 1985)



Interpretation: The participant's response leads to following conclusions.

- Bloom taxonomy of cognitive learning (1950) is not as useful as 60% of the participants feel it to be not so useful.
- Robert F. Mager- criterion Reference instruction (1984) is also not so useful as 82% of the participants feel it to be not so useful.
- Robert F. Mager- criterion Reference instruction (1984) is also not so useful as 64% of the participants feel it to be not so useful.
- But, Robert Gagne-condition of learning (1965, 1985) is very much useful as 78% of the participants feel it to be very much useful.

- Gagné's ID is based on different types of learning outcome needing different learning activities and therefore different instructional conditions.
- Nine basic instructional events have variations for the type leaning outcome.
- Developing instruction involves analyzing requirements, selecting media and designing the instructional events.

Conclusion

Gagné's idea is based on different types of learning outcome needing different learning activities and therefore different instructional conditions. Nine basic instructional events have variations for the type leaning outcome. Developing instruction involves analyzing requirements, selecting media and designing the instructional events.

It was found that during this orientation course conducted by Academic Staff College, out of all these theories the nine events instruction suggested by Gagne was very useful and participants suggested that this instructional method will definitely helpful while developing the e-content in their respective discipline. With intelligent application of learning theory strategies and technology like e-content development, the modern web designer will find solutions to the learning requirements in higher education in India.

Advantage of Gagne's theory: On the basis of statistical analysis and further interpretation it can be concluded that the Gagne's theory is very much important and useful from the following points of view.

- Flexible,
- in the accessible information,
- form and pattern of interaction with the students,
- the goals or outcomes of the educating process
- immediate and comprehensive feed back to students
- engaged process,
- easy to learn and grasps, and quick understanding
- Accelerate the learning curve of the students.

References

Vasu Deva (2003) E-learning: Search for learning, Commonwealth Publishers, New Delhi

Vatnal R.M. and K Prakash (2004) Introducing electronic information resources through e-learning mechanism: A study with reference to distance Education in its environment. University News, 42, (14), April 5-11.

Mager, R. & Pipe, P. (1984). Analyzing Performance Problems, or You Really Oughta Wanna (2nd Edition). Belmont, CA: Lake Publishing Co.

Conditions of learning (R. Gagne). [On-line]. Available: <http://www.gwu.edu/~tip/gagne.html>

Sharma G.D. (2004) Knowledge packaging for face to face and self paced learning, Reading material and CD resources, Capacity Building Programme on multimedia and e-content development, Consortium for Educational Communication, NSC campus, New Delhi.

Arulsamy S and P. Shivkumar 2004 Interactive multimedia in teaching and learning, University News, 42 (30), July 26-August 01.

Merrill, M. David. Component Display Theory.(1983) <http://tecfa.unige.ch/themes/sa2/act-app-dos2-fic-component.htm>

Srivastava Deepak K and Naval Bajpai (2005) E-learning: A new way of Education University News, 43(26), June 27-july 03 pp. 12-15

Vatnal R.M. and K Prakash (2004) Introducing electronic information resources through e-learning mechanism: A study with reference to distance Education in its environment. University News, 42, (14), April 5-11.

Dahiya S.S. (2004) ICT: Its integration in teacher Education. University News, 42(22), May 31-June 06 pp. 7-11

Rogers, C.R. & Freiberg, H.J. (1994). Freedom to Learn (3rd Ed). Columbus, OH: Merrill/Macmillan.

Knowles, M. (1975). Self-Directed Learning. Chicago: Follet.

RESUSCITATE BRIDGE COURSE THROUGH ICT

DR. CHRISTINA REBECCA,
ASSOCIATE PROFESSOR, DEPT OF ENGLISH, FACULTY OF HUMANITIES,
christinarebecca@gmail.com

&

MRS. E. INDIRA,
ASST. PROFESSOR, DEPT. OF VISUAL COMMUNICATION,
AVINASHILINGAM INSTT FOR HOME SC. & HIGHER EDUCATION FOR WOMEN,
COIMBATORE - 641108, TN
sudharsanindira@yahoo.com

Language reforms and potential use of ICT has been focal area of higher education in recent times. Information and Communication Technology (ICT) can expand access to language programmes and improve the quality of teaching and learning in general. Incorporating ICT in “Bridge Course” offers learners and teachers plethora of material in different modes, bringing the foreign culture and language to life in the classroom.

Bridge Course intends the participants to get acquainted with the basic language functions in English which would be of use to them in learning regular classes. In addition, the idea is to develop the basic skills in Communication in English which would enhance the participant’s confidence. True, the market is flooded with plethora of materials to hone the communication skills but effective and practical content for the bridge course is sparse and it often involves expensive or complex software packages and technologies.

Therefore, the goal of this content creation for the Bridge Course would be:

- To encourage the real life learning through participatory approach
- Language Appropriacy
- To tailor make need base material in accord with the competence level of the students
- To adapt reliable technology and teacher/student friendly software
- To evolve interesting games and activities to reinforce learning
- To foster learner autonomy
- To evolve a method for easy review for the teachers, redraft for frequent improvement of the text, to meet the needs of the students.
- Through ICT, integrate the four skills of the language(learning, speaking, reading and writing) effectively in the class room
- To focus on the practical constraints of the class room and disable those

Apart from meeting these goals, this paper would strive to focus on effective integration of ICT and bridge course thereby, they not only promote students’ cognitive development and linguistic performance but also emphasize on how technologies are embedded in larger social and cultural practices for them to be truly effective.

Introduction

When designing ICT – Integrated Bridge Course experiences for all students, teachers must consider their learning needs, preferences and strengths as well as their experiences, interests and the values they bring to the classroom. Global classrooms compel teachers to promote social cultural, racial and gender equity when they encourage students to

critically examine the texts, contexts and environments they encounter in the classroom in the community and in the media. The integration of Bridge Course with ICT within the learning program has the potential to increase such opportunities exponentially.

Appropriate integration of ICT and Bridge Course allow students to access and analyze effectively a wider range and a greater quantity of information in more media than ever before. Incorporating ICT and Bridge Course encourages students to think creatively and visually for better. The interaction goes beyond the classroom thereby improving their learning a sustaining their achievement. When ICT is integrated into the curriculum, the talents and interests of students and teachers will be nurtured not only by those with who they are in direct daily contact but also by a broader community of fellow learner's world-wide. This transformation takes place in bridge classrooms that effectively harness ICT for learning.

ICT means diverse set of technological tools and resources used to communicate, and to create, disseminate store and manage information. These technologies include computers, internet, broadcasting technologies and telephony. Introducing computers and Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non formal settings. The youth community takes to technology like house on fire. Therefore introducing ICT to learn and unlearn second language will be effective.

It is essential to discuss the advantages ICT has to offer in language classroom. In language classrooms ICT increases the access to and improves the relevance and quality of education. ICT are a potential tool for extending educational opportunities, ironing out the differences between formal and informal settings.

ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. For example, students can access online course material 24*7. ICT-based education programme does not require/need learners and the instructor to be in physical location. Additionally, certain types of ICTs such as teleconferencing technologies enable instruction to be received simultaneously by multiple, geographically dispersed people.

Employability and Relevance of ICT

One of the most important reasons for using ICTs in the classroom has been to prepare the present

generation of students for a workplace. For a globalised job market, technological literacy and ability to use ICTs give that essential edge for the student community.

With ICT we can improve the quality of education and training. ICT can enhance the quality of education in several ways: it increases learner motivation and engagement; it facilitates the acquisition of strong foundation of basic skills.

Bridge Course and ICT

Bridge course has to be a compact, power packed course for the students. It is for a short time span therefore the activities have to be precise and effective. English language acquisition in India has been abyssal, especially at primary and secondary level. When students come to tertiary level, the onus becomes very heavy and falls on the teacher. Language plays a crucial role in their higher education. Therefore Bridge Course can become an interesting departure point for better language learning.

Bridge Course intends the participants to get acquainted with the basic language functions in English which would be of use to them in learning regular classes. In addition, the idea is to develop the basic skills in communication in English which would enhance the students' confidence. True, market is flooded with plethora of materials to have the communication skills but content for the bridge course is sparse and it often involves expensive or complex software packages and technologies.

To Search Internet: To browse the internet for all possible exercises. Facilitator should investigate useful websites by topic, skill area. Many free accesses for Language learning are available such as:

Hot Potatoes

For the language classroom certain software like Hot Potatoes is an essential one. Hot Potatoes is suite a programme published by Victoria University and Half-Baked software. Teachers use the Hot Potatoes programme to create educational materials, especially exercises and tests. All these materials can be produced in the form of web pages and the web pages can be uploaded by hot potatoes.net very simply, from within the hot potatoes programmes. This has grown into a fully fledged virtual learning

environment with password-protected teacher and student accounts, and automatic uploading of documents and other files from with Hot Potatoes.

Teacher Sharing: A must for Language teachers.

For Language teachers or teacher developers sharing of knowledge is a must. They need to share their use of computer-base and/or internet resources. Their resources can be software (PowerPoint, Microsoft Word, Excel, Focus on Grammar, Word attack, Skype, etc.) or websites (Presenters – made or public like CNN.com, Yahoo! Groups, an online concordance, etc.). Demonstrations may highlight student projects, activities or curriculum created for students or educators.

The following innovative methods can be evolved to teach effective Bridge course through ICT

1. Enhancing Writing Skills: E-mail Projects

After forming Yahoo groups, students can be encouraged to chat in complete sentences in their groups. Their emails will be read out and simultaneously corrected by the class, thereby it improves their confidence, skills and reading skills as well.

2. Researching /Writing exercises for investigating Internet hoaxes:

There is a lot of information on the internet, but we will also find it is full of opinions, misconceptions and inaccurate information. It is here we should ask the students to investigate and evaluate the sources. By doing this exercise their language ability and their cognitive skills double. They should look for Authority, Objectivity, Authenticity, Reliability, Timeliness, Relevance, and Efficiency in the Internet before evaluating whether they are original or hoax.

3. A descriptive Writing activity by using Hyper Studio:

Hyper Studio is an effective literary tools for the early childhood classroom and have found it to be helpful for developing emergent literacy skills such as language, emergent reading and early writing development. Stacks should be created by our staff and classroom teachers, with input from children and families in the form of ideas, photos, drawings and sounds. Hyper Studio is used to relive family and classroom experiences to retell familiar stories, to author new stories, and to reinforce and facilitate

learning activities and experiences at home and in/classrooms.

II. Enhancing Vocabulary through ICT:

1. Vocabulary Worksheets using an online thesaurus: Students will learn to use and navigate a thesaurus and in the process learn English through effective worksheets online.
2. Vocabulary flashcards using ‘flash and ipod’: Vocabulary activity can be made fun by using flashcards using ‘flash and ipod’ . This activity can also be used as a ice breaking session.

III. Web 2.0 activities using social networking:

Web 2.0 tries to tap the power of humans connected electronically through its new ways at looking at social collaboration. This is one of the commonalities between social network and Web 2.0. Students can form study circles and they can dedicate study for special topics. They can also have components like blogging and file sharing. Examples of these are Fledge Wing and College Tonight.

IV. Enhance Listening Skills:

Audio files can be shared along with the video files. Listening to local news channels online and taking cues from it simultaneously would enhance the listening activity in class.

Fillers in ICT for Bridge Courses: For Teachers:

Materials for the teachers are aplenty . For example BBC’s pioneering “ Learning English” website offers a wealth of materials including interactive quizzes, games, audio based around news articles and even mini interactive soap opera with animated characters.

The British Council’s Learn English websites provide a wide range of content for learners from kids through to adults and even caters for students with a keen interest in games through its “Premier Skills” website

With platforms like ITAIKI and Palabea which offer teachers the opportunity to set themselves up as independent providers teaching one to one or small groups online. These sites use video conferencing applications similar to Skype

Conclusion

The effectiveness of introducing different ICTs in the classroom for Bridge Course suggests that the full realization of the potential educational benefits of ICTs is not automatic. The effective integration of ICTs into the educational system is a complex, multifaceted process that involves not just technology – indeed, given enough initial capital, getting the technology is the easiest part.

Though no tangible evidence is seen initially there is a lot of enthusiasm in the class. Teaching and learning becomes fun. Using ICT for Bridge Course creates real communication in the class. There may be downside of using ICT like falling short of technical support, web based content may create some distraction, therefore continuous monitoring may be expected. Besides high cost becomes a must in the case of ICT. But these are the hurdles we can pass when the result is greater and phenomenal especially in the language classroom.

References

1. <http://www.ict4lt.org/en/ICT.Effectiveness.doc>
2. Huyen, Nguyen Thi Thanh and Khuat Thi Thu Nga “ The Effectiveness of Learning Vocabulary through Games”, Asian IFL Journal 5.4(2003)
3. Uckun, Berrin. “How does context contribute to EFL Learners’ Assessment of Vocabulary Gain”. Asian EFL Journal 10.2 (2008)Available: <http://www.Asianefl-journal.com/June-08-bu.php>
4. Sunanda Rao, P.Manusha, M.Kalyani R.K., Vasandhara Prasad, Personality Development and Communication Skills. Hyderabad: Telugu Academy
5. Allen.J (1999). Words, Words, Words: teaching Vocabulary in grades 4-12. York.ME: Stenhouse
6. Zwier, L.J.(2002). Building Academic Vocabulary. University of Michigan Press
7. Nunan, D. 1991. Language Teaching Methodology A Text
8. Woodward, T. 1996. Paradigm shift and the Language Teaching Professors. In Challenge and change in Language teaching. Eds. J. Willis and D. Willis Oxford: Heinemann English Language Teaching
9. Nagaraj, Geetha (2004) English Language Teaching: Approaches Methods Techniques. New Delhi: Orient Longman
10. Saraswathi, V. (2004) English Language Teaching, New Delhi; Orient Longman

Sub Theme:

**MULTIMEDIA QUALITY
STANDARDS & BENCHMARKS**

**EDUCATIONAL EFFECTIVENESS STANDARDS: A STEP TOWARDS QUALITY
ASSURANCE OF E-CONTENT :-
INSTRUMENT FOR ASSESSING EDUCATIONAL EFFECTIVENESS OF E-CONTENT
MULTIMEDIA MATERIAL (VERSION 1.2)**

DR. RAJENDRA MISHRA
RESEARCH SCIENTIST
CONSORTIUM FOR EDUCATIONAL COMMUNICATION
ARUNA ASAF ALI MARG, NEW DELHI-110 067
rst.cec@nic.in
rajnemis@gmail.com

This paper presents an instrument that highlights all background information, application methods and the potentiality of using this tool to obtain feedback on Multimedia Learning Material (MLM) developed for Higher Education Systems. The instrument enables the experts to review the quality inputs namely:

1. Input parameters category

- (a) Subject matter and instructional design
- (b) Communication strategy
- (c) Innovation

2. Learning outcome category

(d) Under this category the **educational effectiveness** of E-content multimedia material will be judged on the basis of the rating on 9 items used as per the points made by Gagne for judging the subject matter for multimedia material.

The instrument has been used for evaluating the educational effectiveness of multimedia material namely e-content developed by Consortium for Educational Communication (CEC) and its media centres.

Introduction:

In the present day world, knowledge has assumed much greater significance as it is easily accessible in various modes and especially through internet, broadband and 3G. One is able to access the website hosted by the information / knowledge providers. However, it is very difficult to ascertain the authenticity and correctness of the information on website. In case of print medium there is system of review by the peer group before publication in Journals and books. But, in case of website no system seems to have been evolved. Though, the issue assumes greater significance in case of webcasting of the educational material. The correctness, authenticity and quality of the material have to be necessarily assured before the knowledge / information to be provided to students, teachers and general readers.

At present, there is a system of quality assurance for institutions and programme of studies and to some extent curriculum and curriculum transaction under the programme of studies. But there is no system of quality assurance of content which is being made available / hosted via the internet from the point of view of Educational Effectiveness Standards.

The use of technology and application of instructional design in the development of e-content some standards have been evolved. These are popularly known as Institute of Electricals & Electronics Engineers (IEEE) and Sharable Content Object Reference Model (SCORM). Those working in e-content development multimedia material often state that their product is SCORM compliant or IEEE standards compliant. These standards refer to technical specifications as well instructional design

specifications. For example SCORM or Sharable Content Object Reference Model spells out how to build and tag your e-content consistently and appropriately for inclusion in a digital library. Similarly, it is sometimes stated that the content is IEEE Standard based. This IEEE pertains to combination of instructional design standards and technology standards including SCORM Standards. This takes into account, five areas namely, need assessment, analysis of learners, specifying learning objectives, selecting instructional strategies and development of material. Keeping Gagnes' nine events approach and evaluation of material, both SCORM and IEEE are useful tools for developing of e-contents / multimedia material adhering to internationally agreed standards. However, both stop short of measuring the educational effectiveness of the e-contents in terms of learning outcome. Also these do not stress on the measurement of quality in terms of measurement and evaluation. There is also no system of assessment of content, but for following a well defined structure under the given parameters of these standards. Therefore, for the purpose of quality assurance of e-content and their educational effectiveness, these tools fall short of expectations.

Proposed Model

The proposed Educational Effectiveness Standards model(EESM) takes care of principles of instructional design, digital library data tagging, focusing on the quality of content through the system authenticity, correctness of information and the expected learning outcome. It also attempts to measure quality by assigning certain weightage to well defined input and outcome oriented parameters.

EDUCATIONAL EFFECTIVENESS STANDARDS MODEL

The detailed instructions on operational aspects of the model given after the sub categories tables for the use of the model.

The Input parameters take cognizance of standards of instructional design, standards of digital tagging and the output parameters deal with well defined outcome of learning, often used in national qualifications framework.

These include:

1. Ability to process the information and report
2. Ability to critically evaluate the information and make comments
3. Ability to solve the problem
4. Ability to apply the knowledge to real life situation
5. Ability to relate the subject / problem in larger and global context so as to see full implications of the issues
6. Ability to develop a world view which helps the development of mankind
7. Ability to transfer the knowledge effectively to others

The proposed model will have 100 points grading divided into various categories mentioned below---

The educational Effectiveness Proposed model will have 2 broad categories of (1) Input Parameters (2) Learning Outcome Parameters

1. In Input Parameters the following three sub-categories will be there:
 - (A) Subject matter and instructional design - 30 points
 - (B) Communication strategies – 30 points
 - (C) Innovation – 10 points
2. While Learning Outcome Parameters will have one sub-category which is:
 - (A) Educational Effectiveness – 30 points

I. INPUT PARAMETERS:

A: The subject matter and instructional Design

(30 points)

| | | |
|----|--|--|
| A1 | <p>Take off and signing off: Do opening and closing remarks invite/grab attention or are simple routine expressions with no retentivity (Gagne, item 1)</p> <hr/> <p>Adequate Inadequate</p> | <p>3 points</p> <hr/> <p>Points</p> |
| A2 | <p>Clear expectations: Are learner objectives clearly articulated, following Bloom's taxonomy for example (Gagne, item 2)</p> <hr/> <p>Adequate Inadequate</p> | <p>3 points</p> <hr/> <p>Points</p> |
| A3 | <p>Relationship to prior learning: Are linkages to earlier knowledge clearly established or assumed or legitimately ignored (Gagne, item 3)</p> <hr/> <p>Adequate Inadequate</p> | <p>3 points</p> <hr/> <p>Points</p> |
| A4 | <p>Presence of distinctive stimuli: How well is media used to support learning? Accuracy and authenticity of the resources. Precision should not be lost in analogies, examples or simulation (Gagne, item 4)</p> <hr/> <p>Adequate Inadequate</p> | <p>4 points</p> <hr/> <p>Points</p> |
| A5 | <p>Sequencing and structuring of learning content (Gagne item 5)How well arranged?</p> <hr/> <p>Adequate Inadequate</p> | <p>4 points</p> <hr/> <p>Points</p> |
| A6 | <p>Quality of questions, exercises and other activities with respect to achieving learning objectives (Gagne, item 6) How are they?</p> <hr/> <p>Adequate Inadequate</p> | <p>3 points</p> <hr/> <p>Points</p> |
| A7 | <p>Quality of re-enforcement, remedial or additional information (Gagne, Item 7) Has it been taken care?</p> <hr/> <p>Adequate Inadequate</p> | <p>2 points</p> <hr/> <p>Points</p> |
| A8 | <p>Mastery learning : Distribution of formative assessment activities to foster mastery learning (Gagne, item 8) Does it helps in mastery learning?</p> <hr/> <p>Adequate Inadequate</p> | <p>3 points</p> <hr/> <p>Points</p> |
| A9 | <p>Language, vocabulary, spelling, comprehensibilityAre they properly used?</p> <hr/> <p>Adequate Inadequate</p> | <p>2 points</p> <hr/> <p>Points</p> |

| | | |
|-----|--|----------|
| A10 | Overall perception (from factors other than covered above) How do you find it? | 3 points |
| | Adequate Inadequate | Points |

B: Communication Strategy

(30 points)

| | | |
|----|---|-----------|
| B1 | Use of graphics, charts, photographs, cartoons: Effectiveness .How effective are they? | 5 points |
| | Adequate Inadequate | Points |
| B2 | Quality of visual communication choice of colors foreground, background, resolution, choice of format, etc. How well they have been used? | 5 points. |
| | Adequate Inadequate | Points |
| B3 | Quality of audio deployed. Similar parameters. How is the pace in the programme? | 5 points |
| | Adequate Inadequate | Points |
| B4 | Extent of animation used. How well it is used? | 5 points |
| | Adequate Inadequate | Points |
| B5 | Speeds of downloads..... text, audio, video. Ease of it? | 5 points |
| | Adequate Inadequate | Points |
| B6 | Ease of navigation, intuitiveness, dead ends, missing information . How well it is taken care off? | 5 points |
| | Adequate Inadequate | Points |

C. Innovation**(10 points)**

| | | |
|----|---|---------------------------|
| C1 | New ways of presentations. Is it attempted? Adequate Inadequate | 2 points Points |
| C2 | Use of technology – Integrating various technology/ies. How well these have been used? Adequate Inadequate | 2 points Points |
| C3 | Rare information presented effectively. Do you find any new/rear information? Adequate Inadequate | 2 points Points |
| C4 | Any thing which distinguishes from the rest. Is new method used? Adequate Inadequate | 2 points Points |
| C5 | New interpretation of facts. Weather attempted? Adequate Inadequate | 2 points Points |

II. LEARNING OUTCOME PARAMETERS:**A. Educational Effectiveness****(30 Points)**

| | | |
|----|--|---------------------------|
| A1 | Fulfillment of learner Objective (Gagne, item 9)Are they explained? Adequate Inadequate | 5 points Points |
| A2 | Level and degree of engagement of the learner. How do you find it? Adequate Inadequate | 4 points Points |
| A3 | Ability to process the information and report. How well it is attempted? Adequate Inadequate | 3 points Points |
| A4 | Ability to critically evaluate the information and make comments. Does it gives this ability? Adequate Inadequate | 3 points Points |

| | | |
|----|--|---------------------------|
| | | |
| A5 | Ability to solve the problem. How well it is articulated? Adequate Inadequate | 3 points Points |
| A6 | Ability to apply the knowledge to real life situation. How well new examples used? Adequate Inadequate | 3 points Points |
| A7 | Ability to relate the subject / problem in larger and global context so as to see full implications of the issues. Do you get that perspective? Adequate Inadequate | 3 points Points |
| A8 | Ability to develop a world view which helps the development of mankind. How well these are attempted? Adequate Inadequate | 3 points Points |
| A9 | Ability to transfer the knowledge effectively to others. Do you found such parameters? Adequate Inadequate | 3 points Points |

The above model is explained as under:

1. INPUT PARAMETERS:

Keeping in view Instructional Design and Gagne's nine events, the input parameters of assessment focus on :

1.1. Subject matter content

It is essential that the programme developed or e-content development should have proper entry level as per the requirement of the target group with simple logical attention.

- which will include internal logic, consistency and logical coherence.
- authenticity of source/definition used, correctness and precision of the content.

- It should have the consistency of the thought process with logical coherence. It is also expected that it should clearly explain the objectives of the topic.
- It will be essential to know how the programme has stimulated the learner with the support of media in learning with the accuracy and authenticity of resource uses.
- It is also essential that the learning content should have proper structuring as well as sequences so that the learner gets a clear picture of the thought process on the subject.
- To know the achievement of learner, it is essential that quality of questions with other activities should be of high standard.

- It will be essential to know the remedial measures taken for the reinforcement of information in addition to what already is available. To understand the learner affectivity, activities introduced in the programmes are distributed properly.
- It will also be essential that the language used along with its fluency and correctness of the sentence have been given weightage not only as aesthetic but also as a part of instructional design to understand the subject matter.

1.2. Resource and Material used

The module should give the necessary learning and reference material used and further readings. A comprehensive study guide as a reference and content downloads would be appropriate. An approach should be that:

- It makes up-to-date reading resources available to students.
- It helps one to get, organized and assist in preparing teaching resources in ways that help students to learn.
- It suggests audio/video technology as teaching aid to enhance learning.

1.3. Communication media and their relevance

It is essential that the media should be used in such a manner so that it helps the learner in understanding the content in more effective manner.

- To make it more meaningful or to help the learner to understand the subject matter, the illustration by way of graphics, charts, photographs and other such forms should be used in a manner that it helps the learner and also keeps him/her engaged to understand the programme.

- The use of good audio quality will help the learner in understanding the subject matter.
- It will also be important that the format used for various components of e-content development is such that speed of download of the text, audio/video is commensurate with the bandwidth available to the learner.
- The aesthetic use of medium in the presentation will attract the learner and also help in understanding the subject matter.
- In this, one would like to see the use of media to help in understanding the content by way of using graphics, charts, animations, visuals and other such material used with proper proportion and subject matter consideration.
- It will be ascertained that the above medium has been used with their relevance to help the students and teachers to understand the content better.

1.4. Innovation

It is essential that the learning object has provided an opportunity in a manner so that the new methods of presentation was used which distinguishes from the rest as well as the use of rare examples will show novelty/innovation in the programme development which will inspire the learner.

- Rare things
- Challenging aspects
- Value addition by presenters and through innovative formats

2. LEARNING OUTCOME PARAMETERS:

The learning outcome parameters focus on:

2.1 Educational Effectiveness

- Any material used for education purposes should have the following aspects from the point of view of its effective use for learning the subject matter and also which fulfill the learner's objective.
- It will be essential that the programme should throw intellectual challenges, abilities to understand the application of knowledge provided in the programme.
- For knowing the educational effectiveness, it will be essential that the learning object should reflect critically on attitude and value in the programme.
- It will be very essential to engage the learner by way of enhancing his/her creativity.
- To know the effectiveness, it is also essential that formative evaluation should be done timely and constructive feedback should be given to learner in such a manner that it helps the effectiveness of the programme.
- Finally it will be essential to know the impact of the programme on the learner by way of learning outcome through the evaluation of seven abilities.
- For any material used for educational purposes, it is essential to know its educational effectiveness with the following aspects in mind :
 - Fulfillment of learning objectiveness;
 - Engagement of learners by way of their interest as well as enhancing the Creativity;
 - Formative evolution - It should provide timely and constructive

feedback to the learner by way of various format of assignments QUIZ and FAQs.

- Impact on the learner – in terms of learning outcome.

To know the learning outcomes on the basis of above criterion, it will be essential to have a proper questionnaire developed on the above mentioned points for the use as evaluation sheet for this purpose. These questions should elicit information on the nine parameters in the model such as:

- The content should be able to provide encouragement of critical thinking, challenges to think;
- It should encourage independent critical thinking and develop abilities for logical questioning;
- It should also helps the students to apply their knowledge and skills;
- The material should offer a range of intellectual challenges in the area;
- It may help a learner to develop oral and written communication skills.

2.2. Motivation

It should help students to develop an inquiring mind and to overcome difficulties and understand nature of the problems confronting them. Assessment should focus on:

- has it motivated by way of stimulating one's curiosity and also encourage the individual to discuss related topics and issues.

Key Steps to Operationalisation of the Proposed Model

Criteria for evaluation

The criterion for evaluation and measurement gives equal important to each of the aspects of inputs and outcome parameters. It also gives 10% weightage to innovations. The method of

assessment of each parameter would be based on three points scale and zero for not satisfactory.

- **Excellent**
- **Very Good**
- **Good**
- **Not Satisfactory**

Grading

Any content expected to be certified under Educational Effectiveness Standards Model should score:

| | |
|--------------|----|
| 60 | B+ |
| 61-70 | A |
| 71-80 | A+ |
| 81 and above | O |

Instruments of Assessment

Detailed instruments of assessment pertaining to all the four aspects have been developed for the use of assessors in which they have to clearly specify their grading explaining Adequacy and Inadequacy of the knowledge ware.

Methodology of Assessment

Subject experts will be trained as assessor for assessing the content along with the media experts. For these we require minimum one subject expert and one media expert. These experts will award grade to each e-content and certify the same for web hosting and authors would be informed accordingly. All the assessment will be communicated to the content developers without any addition and deletion of the comments given by the assessors.

Re-submissions, if any

All contents can be re-submitted for assessment in the light of report, revised submission to another group, if desired.

Certification

Based on the recommendations of the experts the content would be certified with grades for web hosting and for other modes of distribution.

Validity

The content with stable knowledge will have validity of 10 years and content with dynamic knowledge will have validity of 3 years.

Conclusion

Based on the above parameters Educational Effectiveness Standards of each E-content, module/course/e-books is intended to be assessed and certified before the same is put on the website for the use of students, teachers and general readers. The above model helps in giving authenticity to the knowledgeware gone through the certification of Educational Effectiveness Standards methods.

Acknowledgement

The author acknowledges the contributions made by Dr. G.D. Sharma and Dr. M.M. Pant as co-authors, in the previous version of the same paper after which this paper has been further developed and an instrument of assessing the educational effectiveness of e-content material of this version 1.2 has been developed by the author. I would also like to clarify here that this paper is in continuation of the previous paper developed by the three authors Dr. G.D. Sharma, Dr. M.M. Pant and myself.

Reference

- Quality Assurance agencies throughout the world, has developed system of quality assurance for institutions of Higher Education. In U.K., attempt has been made for assessing curriculum and curriculum delivery. In Canada some attempts seem to have been made for Peer group of review of content. But there does not seem to be a well defined system of quality assurance of e-content from the point of view of educational effectiveness standards.
- Gagne, Roberton – Nine events of Instruction (Gagne & Merrill Video Seminar)
- G.D. Sharma, M.M. Pant, Rajendra Mishra 2006. Educational Effectiveness Standards: **A step towards Quality Assurance and E-content.**

Dr. Tilak R. Kem
Director

Consortium for Educational Communication
I.U.A.C. Campus, Aruna Asaf Ali Marg
New Delhi - 110067.

Mob - 9810709334,
Ph. - 011 - 26897417, 18, 19
Fax - 011-26897416
Email - rst.cec@nic.in