National Conference

on

HIGHER EDUCATION IN THE KNOWLEDGE AGE:

Techno-Pedagogical Perspectives and Innovations

24th & 25th FEBRUARY 2016

organized by

INTERNAL QUALITY ASSURANCE CELL (IQAC)
St. JOSEPH'S COLLEGE (Autonomous)
Special Heritage Status Awarded by UGC,
Accredited at 'A' Grade (3rd Cycle) by NAAC,
College with Potential for Excellence by UGC,
DBT-STAR & DST-FIST Sponsored College
TIRUCHIRAPPALLI - 620 002

in collaboration with

DEPARTMENT OF EDUCATIONAL TECHNOLOGY
BHARATHIDASAN UNIVERSITY
TIRUCHIRAPPALLI - 620 023

Editors' Note

The 21st Century is interpreted in multiple ways as the Information Era, Digital Era and more importantly as Knowledge Age. The late 20th century was a period of major social, economic and political changes. It was also a time in which there were big changes in knowledge – in how people *see* knowledge and how they *use* it. The Knowledge Age is a new, advanced form of capitalism in which knowledge and ideas are the main source of economic growth (more important than land, labour, money, or other 'tangible resources). New patterns of work and new business practices have developed, and, as a result, new kinds of workers, with new and different skills, are required. The very meaning of knowledge is changing.

Knowledge is no longer being thought of as 'stuff' that is developed (and stored) in the minds of experts, represented in books, and classified into disciplines. Instead, it is now thought of as being like a form of *energy*, as a system of networks and flows - something that *does* things, or makes things happen. Knowledge Age: Knowledge is defined - and valued - not for what it *is*, but for what it can *do*. It is produced, not by individual experts, but by 'collectivizing intelligence' - that is, groups of people with complementary expertise who collaborate for specific purposes. These changes have major implications for our education system.

The new millennium was ushered in by a dramatic technological revolution. We now live in an increasingly diverse, globalized, and complex, media-saturated society. According to Douglas Kellner (2008), this technological revolution will have a greater impact on society than the transition from an oral to a print culture. George Siemens (2009) observed, "Technology is altering (rewiring) our brains. The tools we use define and shape our thinking". Education is moving into the digital age. Pedagogies have changed to engage the latest digital technologies. The methods of distribution are now a blend between face-to-face and some other combination of virtual interfaces. The content is moving from traditional text-based learning to text-plus-multimedia. The media deployed for teaching and learning are the electronic media, including the new media, multimedia and virtual tools.

Again this background, the **National Conference** on **"Higher Education in the Knowledge Age: Techno-Pedagogical Perspectives and Innovations"** assumes greater significance on account of its theme, which is vital and timely. The papers, selected for presentation and discussion in the two-day event represent a wide spectrum of topics, ranging from Flipped Classroom to Mobile Learning, Educational Multimedia to MOOCs, Blended Learning to Web 2.0 in Education. There is a mix up of papers in their nature too – some conceptual, some empirical and some exploratory. When all the papers deal with two major perspectives viz. techno-pedagogical and innovations, over-lap of ideas is unavoidable. However, we are sure these papers make up an essential reading for any teacher of the 21st century with a flair and favorable attitude towards integrating Information and Communication Technologies into Higher Education practices.

Dr. E. Ramganesh, Dr. I. Muthuchamy, Dr. S. Senthilnathan, Dr. S. Amutha,
(Department of Educational Technology, Bharathidasan University)
and ***Dr. S. Alfred Cecil Raj***
(St. Joseph's College (Autonomous), Tiruchirappalli)

MESSAGES

Rev. Dr. S. John Britto, S.J.
Rector
St. Joseph's College (Autonomous)
Tiruchirappalli - 620 002
Tamil Nadu

I wish to congratulate the Internal Quality Assurance Cell of St. Joseph's College, Trichy on holding a National Conference on Higher Education in the knowledge Age with a focus on Techno-Pedagogical perspectives. This Conference is very meaningful in today's world, when educators need to keep on updating both their skills and knowledge to meet the challenges of everyday life. This has spurred new learning needs which exceed by far the formal courses, provided commonly by institutions, which allow targeting a general public. Instead, the needed trainings must be more informal in order to better address individual needs.

In recent years, driven by numerous mutations (e.g., lifelong learning) and reforms universities across the world further moved away from a teacher centric approach by adding a new paradigm where the learner becomes the main actor in the process of building his skills and his knowledge.

This trend has given birth to a range of new e-learning tools focusing primary on the learner. All of these tools, both formal and informal, can be aggregated in what is commonly called a Personal Learning Environment. Such an approach is not a purely technological issue. It encourages other ways to carry out the production and dissemination of the knowledge-resources complementary for the approach traditionally adopted in Educational Institutions. To face the challenge of ICT, skill development centered on Techno-pedagogical Perspective is essential more and more important in Higher Education. As a result a new form of teaching emerges which is more centered around the learner, and encourages the learner and the teacher.

The sub themes of the Conference include a variety of technologies and also the identification innovative techno-pedagogical perspectives. I am sure the outcome of this Conference will bring about a quality teaching benefiting the student community. Once again I deeply appreciate the IQAC of St. Joseph's for the creative effort.

Fr. S. John Britto, S.J.

Rev. Dr. S. Sebastian, S.J.
Secretary
St. Joseph's College (Autonomous)
Tiruchirappalli - 620 002
Tamil Nadu

Knowing that we are living in a knowledge era - an increasingly diverse, globalised and complex media-saturated society - and knowledge is power, the director of our Internal Quality Assurance Cell in collaboration with the Department of Education Technology, Bharathidasan University has thoughtfully planned a two-day National Conference on **Higher Education in the Knowledge Age: Techno-pedagogical Perspectives and Innovations.** It is high time that the teachers of higher education become aware of the vital role of integration of ICTs in teaching-learning process. The introduction of Information and Communication Technologies has drastically changed the way people learn, communicate and do business. This has drastically transformed the nature of education – where and how learning takes place and the roles of students and teachers in the teaching-learning process. Therefore, the urgent need for initiating digital technologies integrated pedagogy in higher education is a must. Now the question is how do we prepare teachers, who become relevant and competent for imparting quality education to our digital generation?

The Director of IQAC and his team have to some extent answered the above mentioned question by organising the two-day national conference which will provide opportunity for the participants to deliberate, discuss, interact and share their knowledge and skills in field of higher education. Our students deserve quality education. The quality education can be imparted only by quality teachers who are capable of adapting techno-pedagogy to meet the challenges of today in learning process. So I would like congratulate the Director of IQAC of St. Joseph's College and his team for meticulously organising the timely conference to enrich the teachers of higher education to efficient and effective in teaching and forming the digital generation of today. I wish him and his team all success in the conference.

May God bless them all!

Fr. S. Sebastian, S.J.

Rev. Dr. Andrew Francis, S.J.
Principal
St. Joseph's College (Autonomous)
Tiruchirappalli - 620 002
Tamil Nadu

At the outset I wish to thank and congratulate the Dean - IQAC Dr.S. Alfred Cecil Raj for the efforts he has taken to organize this conference. "Higher Education in the Knowledge Age: Techno-Pedagogical Perspectives and Innovations" is a relevant topic for discussion and learning. The conference has both theoretical input as well as space for hands on experience.

Innovation is the buzz word. In every field innovation is required, and education is no exception to it. If there is no innovation, things become monotonous, life becomes boring and everything becomes dull and stale.

The recent initiative of the MHRD to rank the colleges is an indirect invitation to be creative and innovative. The Ignatian "*magis*" demands innovation and creativity. To aspire for more, to reach a level a little higher, to perform better... we need to be innovative. In education we need to be innovative. If we look back to see how teaching has grown, we will understand how innovation has played a role in that. Starting from rote memory, to the Gurukula system, to chalk and talk method, to the ICT enabled teaching...we have travelled a long way. But this is not the end of the road. We need to travel a long distance.

I am sure this conference will be of immense help to make our pedagogy more innovative.

I wish the conference all successes, and I offer my sincere appreciation to all the people who are involved in the organization of the conference under the dedicated leadership of Dr.S. Alfred Cecil Raj.

Fr. Andrew Francis, S.J.

Rev. Dr. S. Xavier Alphonse, S. J.
Province Coordinator
Jesuit Higher Education
Jesuit Madurai Province
St. Joseph's College
Tiruchirappalli - 620002

Relevant and Useful National Conference

Dear IQAC Co-coordinator, Dr. S. Alfred Cecil Raj,

Greetings. Thank you for inviting me to the National Conference on Higher Education in the knowledge age. Higher Education in India is undergoing a sea change With the help of ICT and Technology, ICT based learning and pedagogy are becoming extremely popular in the Institutions of higher learning. The staff and students are becoming familiar with new innovations in teaching and learning. In this context I would like to congratulate the Management, the Organizing team and yourself for organizing this useful and far – sighted conference. A glance at the topics to be delt with at the conference will help the host institution to think in innovative ways to improve the teaching and learning process. The emphasis given on personalized E- Learning, Live Demo of E - learning Technologies and Web Applications for Education will enrich and enhance the teaching learning process. When we talk about ICT based learning, we have to emphasize both content and methodology. The content must help towards the growth of knowledge society. The methodology should be easy and simple so that the students do not find technology to be a hurdle for assimilating the Content. Once again I congratulate the organizers and wish the national conference all success.

Fr. S. Xavier Alphonse, S. J.

Dr. E. Ramganesh
MSc (Mat), MA(Psy), MA(Phil), MEd, MPhil, PGDCA, PhD
Professor and Head
Department of Educational Technology and Director (i/c),
UGC-Human Resource Development Centre
Bharathidasan University
Tiruchirappalli

Foreword

No doubt, Higher Education in India has attained a key position in the knowledge society under globalised economy. However, the challenges faced are immense and far-reaching. If India has to emerge as preferred location for higher education in the globalizing world, then technology integration is one of the prime initiatives of the country. In deed Technology has made an unprecedented change in the world economy and Education. Information and Communication Technologies (ICT) have brought new possibilities in to the classroom, at the same time they have placed more demands on teachers. Knowledge widens and deepens as students continue to build links between new information and experiences and their existing knowledge base. The nature of these links can take a variety of forms, such as adding to, modifying, or reorganizing existing knowledge or skills. The quest for excellence in teaching and learning is a world- wide concern.

Higher Educational Institutions have responded to the challenge for higher quality in instruction by looking closely at the nature of the typical teaching and learning environment. It is concurred that the quality of education largely depends on the quality of teaching provided by faculty. The teachers at any status of higher education should thrive for effective and innovative educational practice to make difference in their professional preparation. As teaching with technology is complicated considering the challenges of newer technologies present to teachers, it is imperative that a range of technological tools must relate to disciplinarily and developmentally appropriate pedagogical designs and strategies.

At this juncture, I am happy to note that St. Joseph College (Autonomous) Tiruchirappalli in collaboration with Department of Educational Technology, Bharathidasan University, Tiruchirappalli is organising a National Seminar on "**Higher Education in the Knowledge Age : Techno-pedagogical perspectives and Innovations"** which is set to address the challenges of Educational Practices so as to make the stakeholders to deliver goods to the system. I am certain that the seminar would serve its purpose and benefit the participants. I wish the seminar a grand success.

With best regards,

Dr. E. Ramganesh

Dr. S. Alfred Cecil Raj
Dean - IQAC
Organising Secretary of the Conference
Associate Professor
Department of Physics
St. Joseph's College (Autonomous)
Tiruchirappalli

Information and **C**ommunication **T**echnology has played a critical role in shaping the current trends of business as well as personal means of communication over the past few decades. This transformation that has happened over the past few years brought diversified changes in the global economy. In order to create a greater awareness about the usage of this digital revolution in the current Indian Education System; its pros and cons, the Internal Quality Assurance Cell of St. Joseph's College, Trichy has been taking lots of efforts to infuse ICT in the curriculum, deliverance and governance since 2012. These continuous efforts resulted in organizing this National Conference on Higher Education in the Knowledge Age: *Techno-Pedagogical Perspectives and Innovations*, in collaboration with the Department of Education Technology of Bharathidasan University.

The conference will be exclusively featuring presentations and discussions by the exports working in this domain, as well as the knowledge sharing of scholars and faculty addressing themes like digital learning, educational multimedia, virtual learning, M-learning, *etc*. The outcome of this conference will definitely be an empowering event to educate and engage the students and teachers of today's era to utilize the digital trends for spreading knowledge.

Get ready to be "Enabled, Engaged and Empowered".

Dr. S. Alfred Cecil Raj

ST. JOSEPH'S COLLEGE (Autonomous)
Internal Quality Assurance Cell
Tiruchirappalli
&
Department of Educational Technology
Bharathidasan University
Tiruchirappalli

cordially invite you to the
Inauguration of the National Conference
on
Higher Education in the Knowledge Age :
Techno-Pedagogical Perspectives and Innovations
on 24th February 2016 at 10.00 a.m. at the Community Centre

Welcome Address	:	**Dr. S. SENTHILNATHAN** Assistant Professor, Dept. of Educational Technology, Bharathidasan University
Presidential Address	:	**Rev. Dr. S. SEBASTIAN, SJ,** Secretary, St. Joseph's College
Theme, Objectives & Scope of the Conference	:	**Dr. E. RAMGANESH** Professor & Head, Dept. of Educational Technology & Director i/c, UGC-Human Resource Development Centre Bharathidasan University
Inaugural Address	:	**Dr. V. SOBHANA BAI** Director, Educational Multimedia Research Centre (EMMRC), Madurai Kamaraj University
Felicitations	:	**Rev. Dr. S. JOHN BRITTO, SJ,** Rector, St. Joseph's Institutions **Rev. Dr. F. ANDREW, SJ,** Principal, St. Joseph's College
Vote of Thanks	:	**Dr. S. ALFRED CECIL RAJ** Dean-IQAC, St. Joseph's College

All are Welcome

PROGRAMME

24.02.2016 Wednesday

Time		Topic & Activity
09.30 - 10.00 am	Registration	
10.00 - 11.00 am	Inauguration	**Dr. V. SOBHANA BAI,** M.A., Ph.D., Director, Educational Multimedia Research Centre, Madurai Kamaraj University
11.15 - 12.30 pm	Plenary Session - I	**Personalized E-Learning** **Dr. S.R. BALASUNDARAM,** MCA., M.E., Ph.D. Associate Professor, Dept. of Computer Applications, National Institute of Technology, Tiruchirappalli
01.30 - 03.00 pm		**Paper Presentation in Parallel Sessions**
03.15 - 04.45 pm	Plenary Session - II	**Blended Learning for Inclusive Classrooms : Use of LMS as Interface** **Dr. E. SREEKALA,** M.A., M.Ed., Ph.D. Assistant Professor, School of Education, Pondicherry University

25.02.2016 Thursday

09.30 - 11.00 am		**Paper Presentation in Parallel Sessions**
11.15 - 12.45 pm	Plenary Session - III	**Integrating OER into Higher Education** **Dr. G. SANTHOSH KUMAR,** M.Tech., Ph.D. Assitant Professor of Computer Science & Director, Centre for Information Resource Management, Cochin University of Science & Technology
02.00 - 02.45 pm		**Live Demos of E-Learning Technologies / Web Applications for Education**
02.45 - 03.30 pm		**Open House**
03.45 - 04.45 pm		**Valedictory Address** **Rev. Dr. S. XAVIER ALPHONSE, SJ** Former Principal, Loyola College, Province Coordinator Jesuit Higher Education, Madurai Province

CONTENTS

AWARENESS OF B.Ed. STUDENTS TOWARDS INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

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Abstract

Information and Communication Technologyhas involved any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form. This paper highlights the various awareness B.Ed. students towards ICT. The present study is undertaken to study the level of B.Ed. students towards the awareness of ICT. The major objective of the study is to find out the difference between (i) male and female and (ii) Government and Unaided Colleges B.Ed. students towards the awareness of ICT and to find out the difference among undergraduate, postgraduate and M.Phil. Students. 236 samples were taken from B.Ed. students from ten colleges of education (B.Ed. College) in Thanjavur and Pudukottai Districts affiliated to Tamil Nadu Teacher Education University, Chennai, Tamil Nadu.The data were collected by self made questionnaire. Special attention was given to factors like gender, type of college and degree of B.Ed. Students. The data were analysed by using percentage analysis,'t' test and ANOVA. Results revealed that the level of awareness of ICT was moderate, there is no significant difference between (i) male and female and (ii) Government and Unaided colleges B.Ed. students towards ICT and there is no significant difference among undergraduate, postgraduate, M.Phil. degree B.Ed. students towards ICT.

Key words*:* Information, Communication, Technology, ICT, Awareness

Introduction

Information and Communication Technology is the fusion of computers and telecommunications. It describes exiting and innovative ways to provide life long learners with global access to information, leaving and support. Computers enable people to work creatively. It can be used discussing, questioning, supporting a partner, debating, sharing data, analyzing, seeking, collecting, organizing, and on-line information and exploring real world.According to UNESCO (1998): Information and Communication Technology can be considered as the "Scientific, technological and engineering disciplines and the management techniques used in information handling and processing, their application. Computers and their interaction with men and machines and associated social, economical and cultural matters". Information and communications technology (ICT) is the hardware and software that enables data to be digitally process, store and communicated. ICT can be used to access, process, manage and present information; model and control events; construct new understanding; and communicate with others.

Significance of the study

Awareness of Information and Communication Technology (ICT) refers to one's knowledge about educational radio like Gyan Vani, educational televisions like Gyan Darshan, internet, and computer based programme, CD-ROM, computer aided/ assisted instruction, web-based learning, multi media, teleconferencing, video-conferencing, virtual reality, internal tutoring system, e-learning and e-content. Awareness of ICT is very important in helping B.Ed. students to learn and achieve good in their teaching pedagogical subjects.It knows to about the computer and internet components like how they work; how they help to solve problems while teaching. This can be learnt by seeing pictures, visiting internet through smart board, listening to talks or written reports and assignments. It makes an understanding of what anICT are how it works and the role and impact of ICT in teaching-learning

process in the classroom. The investigator attempts to gain valuable insight into the awareness of B.Ed. students towards ICT.

The present study differs from the studies in terms of population, area and sample; hence the present investigation gains its relevance and significance.

Objectives

1. To find out the level of B.Ed. students towards the awareness of information and communication technology (ICT).
2. To find out whether there is any significant difference between male and female B.Ed. students towards the awareness of information and communication technology.
3. To find out the significant difference if any between Government and Unaided(self-finance)colleges B.Ed. students towards the awareness of information and communication technology.
4. To find out whether there is any significant difference among undergraduate, postgraduate and M.Phil. degree B.Ed. students towards the awareness of information and communication technology.

Null Hypotheses

1. There is no significant difference between male and female B.Ed. students towards the awareness of information and communication technology.
2. There is no significant difference between Government and Unaided (self-finance) colleges B.Ed. students towards the awareness of information and communication technology.
3. There is no significant difference among undergraduate, postgraduate and M.Phil. degree B.Ed. students towards the awareness of information and communication technology.

Methodology

The investigator has adopted the survey method of research to study the awareness of B.Ed. students towards information and communication technology (ICT).

Stratified random sampling techniques of 236 B.Ed. students were taken for this investigation. The above samples were taken from the B.Ed. students who are studying in ten colleges of education (B.Ed. Colleges) in Thanjavur and Pudukottai Districts affiliated to Tamil Nadu Teacher Education University, Chennai, Tamil Nadu, India, of whom 102 are male and 134 are female.

Special attention was given to factors like gender, type of college and degree of B.Ed. Students. Awareness of ICT Scale is developed and validated by the investigator was used to collect the data.

The data were analysed using percentage analysis, ‘t’ test and ANOVA. The results of the study were presented in the following tables.

Analysis and inferences

The level of B.Ed. students towards the awareness of information and communication technology (ICT) is as follows. It is inferred from the table that 0.4% of B.Ed. students have low, 94.1% of them have moderate and 5.5% of them have high level of awareness of radio.

It is understood from the table that 9.3% of B.Ed. students have low, 84.7% of them have moderate and 5.9% of them have high level of awareness of educational television.

It is clear from the table that 6.8% of B.Ed. students have low, 92.8% of them have moderate and 0.4% of them have high level of awareness of computer.

It is elegant from the table that 32.2% of B.Ed. students have low, 67.8% of them have moderate and zero percent of them have high level of awareness of CD ROM.

Table-1: Level of B.Ed. students' awareness towards ICT

Awareness of ICT	Low		Moderate		High	
	No	%	No	%	No	%
Educational Radio Awareness	1	0.4	222	94.1	13	5.5
Educational Television Awareness	22	9.3	200	84.7	14	5.9
Computer Awareness	16	6.8	219	92.8	1	0.4
CD-ROM Awareness	76	32.2	160	67.8	0	0
Comp. Assisted Instr./Learning Awar.	199	84.3	36	15.3	1	0.4
Internet Awareness	34	14.4	202	85.6	0	0
Teleconferencing Awareness	40	16.9	171	72.5	25	10.6
Videoconferencing Awareness	32	13.6	148	62.7	56	23.7
E-Learning Awareness	36	15.3	121	51.3	79	33.5
ICT Awareness	5	2.1	130	55.1	101	42.8

It is found from the table that 84.3% of B.Ed. students have low, 15.3% of them have moderate and 0.4% of them have high level of awareness of Computer assisted/learning. It is elaborate from the table that 14.4% of B.Ed. students have low, 85.6% of them have moderate and zero percent of them have high level of awareness of internet. It is inferred from the table that 16.9% of B.Ed. students have low, 72.5% of them have moderate and 10.6% of them have high level of awareness of teleconferencing. The table reveals that 13.6% of B.Ed. students have low, 62.7% of them have moderate and 23.7% of them have high level of awareness of videoconferencing. It is found from the table that 15.3% of B.Ed. students have low, 51.3% of them have moderate and 33.5% of them have high level of awareness of e-learning. It is clear from the table that 2.1% of B.Ed. students have low, 55.1% of them have moderate and 42.8% of them have high level of awareness of ICT.

Null Hypothesis 1

There is no significant difference between male and female B.Ed. students towards the awareness of information and communication technology.

Table-2: difference between Male and Female B.Ed. students towards awareness of ICT

Variables	Male (n=102)		Female (n=134)		Calculated 't' value	Remarks at 5% level
	Mean	SD	Mean	SD		
Radio Awareness	7.47	1.63	7.65	1.67	0.853	NS
Educational Television Awar.	10.98	2.45	10.85	2.65	0.384	NS
Computer Awareness	8.16	1.71	8.41	1.69	1.124	NS
CD-ROM Awareness	7.24	1.98	7.26	1.94	0.091	NS
Computer Assisted Instruction/ Learning Awareness	7.39	2.23	7.64	2.26	0.869	NS
Internet Awareness	7.44	2.10	8.00	2.10	2.046	S
Teleconferencing Awareness	7.18	1.71	7.39	1.71	0.930	NS
Videoconferencing Awareness	8.99	2.40	9.53	2.25	1.796	NS
E-Learning Awareness	7.47	1.68	7.61	1.86	0.634	NS
ICT Awareness	72.34	10.04	74.40	12.02	1.398	NS

(At 5% level of significance, the table value of 't' is 1.96)

It is inferred from the table that there is no significant difference between male and female B.Ed. students towards the awareness of radio, educational television, computer, CD-ROM, computer assisted/learning, teleconferencing, video-conferencing and e-learning, as the calculated 't' values 0.853, 0.384, 1.124, 0.091, 0.869, 0.930, 1.796 and 0.634 are lower than the table value 1.96 at 5% level of significance. But there is significant difference between male and female B.Ed. students towards the awareness of internet, as the calculated 't' value 2.046 is greater than the table value 1.96 at 5% level of significance. While comparing the mean scores, the female students are higher in their awareness of internet than the male B.Ed. students.In general, there is no significant difference between male and female B.Ed. students towards the awareness of ICT, as the calculated 't' value 1.398 is lower than the table value 1.96 at 5% level of significance. Hence the null hypothesis is accepted.

Null Hypothesis 2

There is no significant difference between Government and Unaided (self-finance) colleges B.Ed. students towards the awareness of information and communication technology.

Table-3: Difference between Governement and Unaided (Self-finance) colleges B.Ed. Students towards awareness of ICT

Variables	Government (n=56)		Unaided (n=180)		Calculated 't' value	Remarks at 5% level
	Mean	SD	Mean	SD		
Radio Awareness	7.67	1.63	7.54	1.67	0.527	NS
Educational Television Awar.	10.75	2.57	10.95	2.56	0.523	NS
Computer Awareness	8.19	1.92	8.34	1.62	0.568	NS
CD-ROM Awareness	7.01	2.11	7.33	1.90	1.053	NS
Computer Assisted Instruction/ Learning Awareness	7.12	1.68	7.66	2.38	1.578	NS
Internet Awareness	7.41	1.89	7.87	2.17	1.425	NS
Teleconferencing Awareness	7.08	1.50	7.37	1.76	1.081	NS
Videoconferencing Awareness	8.82	2.16	9.48	2.36	1.771	NS
E-Learning Awareness	7.41	1.60	7.60	1.83	0.692	NS
ICT Awareness	71.50	10.17	74.13	11.50	1.539	NS

(At 5% level of significance, the table value of 't' is 1.96)

It is inferred from the table that there is no significant difference between Government and Unaided colleges B.Ed. students towards the awareness of radio, educational television, computer, CD-ROM, computer assisted/ learning, internet, teleconferencing, videoconferencing and e-learning, as the calculated 't' values 0.527, 0.523, 0.568, 1.053, 1.578, 1.425, 1.081, 1.771, and 0.692 are lower than the table value 1.96 at 5% level of significance. In general there is no significant difference between Government and Unaided colleges B.Ed. students towards the awareness of ICT, as the calculated 't' value 1.539 is lower than the table value 1.96 at 5% level of significance. Hence the null hypothesis is accepted.

Null Hypothesis 3

There is no significant difference among undergraduate, postgraduate and M.Phil. B.Ed. students towards the awareness of information and communication technology.

Table-4: The 'f' value among Undergraduate, Postgraduate, and M.Phil. B.Ed. Students Towards Awareness of ICT

Variables	Sum of Variations	Sum of Squares	MSV	'F' Value	Remarks at 5% level
Radio Awareness	Between	4.583	2.291	0.830	NS
	Within	643.04	2.760		
Educational Television Awareness	Between	1.801	0.900	0.136	NS
	Within	1546.14	6.636		
Computer Awareness	Between	0.606	0.303	0.104	NS
	Within	679.81	2.918		
CD-ROM Awareness	Between	1.618	0.809	0.210	NS
	Within	899.65	3.861		
Computer Assisted Instruction/ Learning Awareness	Between	3.211	1.606	0.315	NS
	Within	1187.445	5.096		
Internet Awareness	Between	7.920	3.960	0.880	NS
	Within	1048.79	4.501		
Teleconferencing Awareness	Between	2.554	1.277	0.434	NS
	Within	685.479	2.942		
Videoconferencing Awareness	Between	9.484	4.742	0.873	NS
	Within	1266.156	5.434		
E-Learning Awareness	Between	4.675	2.337	0.732	NS
	Within	73.609	3.191		
ICT Awareness	Between	25.681	12.840	0.101	NS
	Within	29647.281	127.24		

(At 5% level of significance for 2, 233 df the table value of 'F' is 3.04)

From the above table it is understood that there is no significant difference among the undergraduate, postgraduate and M.Phil. degree of B.Ed. students towards the awareness of the awareness of radio, educational television, computer, CD-ROM, computer assisted/learning, internet, teleconferencing, videoconferencing and e-learning, as the respective calculated 'F' values 0.830, 0.136, 0.104, 0.210, 0.315, 0.880, 0.434, 0.873 and 0.732 are lower than the table value 3.04 at 5% level of significance.

In general, there is no significant difference among the undergraduate, postgraduate and M.Phil. degree of B.Ed. students towards the awareness of the awareness of ICT, as the calculated 'F' value 0.101 is lower than the table value 3.04 at 5% level of significance. Hence the null hypothesis is accepted.

Findings

1. The 55.1 percent of B.Ed. students have moderate level of awareness on ICT.
2. There is no significant difference between male and female B.Ed. students towards the awareness of information and communication technology.
3. There is no significant difference between Government and Unaided (self-finance) colleges B.Ed. students

towards the awareness of information and communication technology.

4. There is no significant difference among undergraduate, postgraduate and M.Phil. degree B.Ed. students towards the awareness of information and communication technology.

Discussions

Information and Communication Technology describes exiting and innovative ways to provide life long learning with global access to information, leaving and support. Likewise, the findings of the present study reveal that majority of the B.Ed. students employ their teaching pedagogical subjectsthrough the utilization of ICT components at moderate level. The't' test results reveal that there is no significant difference between male and female B.Ed. students towards the awareness of ICT. The above finding of the present study is supported by the results of the investigation made by Philomina and Amutha (2016) that there no significant difference between the awareness of male and female teacher educators towards ICT. Khedekar and Magre (2012) found that there was no significant difference in awareness about Information and Communication Technology of Secondary students with respect to Gender. Similarly, there is no significant difference between Government and Unaided (self-finance) colleges B.Ed. students towards the awareness of information and communication technology and there is no significant difference among undergraduate, postgraduate and M.Phil. degree B.Ed. students towards the awareness of information and communication technology.

Conclusion

The present study clearly indicated that the awareness of B.Ed. students towards ICT could benefit them with effective use of ICT tools. In this, awareness of B.Ed. students towards ICT, has more beneficiaries because ICT based teaching pedagogical subjects and core process may lead to effective, individual differences and efficacy in teaching. Moreover, the B.Ed. students may mastery over the teaching learning through ICT. It may increase their ability to expose them in the classroom environment with the ICT components. It is expected that the B.Ed. students are fully aware of ICT and has bright future for teaching learning.

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AWARENESS AND PERCEPTION ON BLENDED LEARNING AMONG B.ED. TRAINEES AT TIRUCHIRAPPALLI DISTRICT

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Abstract

The rapid evolution of Information and Communication Technology (ICT) and the emergence of the Information Society create numerous new opportunities for the improvement of the quality of education. Technology changes rapidly and that in the next few years this could look very different. Education in the twenty-first century has had remarkable changes in terms of the methods of imparting and receiving. Technology based learning can be viewed as an innovative approach for delivering well-designed, learner-centered, interactive and facilitated learning environment to anyone at any place, any time by utilizing the attributes and resources of various digital technologies along with other forms of learning materials suited for open and distributed learning environment. Blended Learning is the way of learning that combines traditional classroom lessons with lessons that use computer technology and may be given over the internet. Awareness and perception are the psychological factors which cause behind the innovation in terms of teaching and learning. In the lines of the above, the researcher made an attempt to find out whether there is any significance among B.Ed., trainees on their awareness and perception on Blended learning in terms of their Gender, Residence and Discipline studied, for which two standardized tools were used with 220 sample selected from Trichirapplli district using stratified random sampling technique adapting survey method of research and found Gender differ in both awareness and perception and Residence and discipline of trainees differ in awareness and do not differ in perception on Blended learning.

Key words: Blended Learning, Awareness, Perception, Gender, Residence and Discipline studied.

Introduction

This is an era of everyday changes in every field including education due to rapid advancements in science and technology. Simultaneously knowledge is expanding at lightning speed. To keep track with the advancement, the learners need to learn more, better and faster. This can be made possible today with the help of Information and Communication Technology. The rapid evolution of Information and Communication Technology (ICT) and the emergence of the Information Society create numerous new opportunities for the improvement of the quality of education. Technology changes rapidly and that in the next few years this could look very different. Education in the twenty first century has had remarkable changes in terms of the methods of imparting and receiving. India has the capacity to become the hub of technology enabled teaching and learning with its IT prowess and strong education system.

Technology based learning can be viewed as an innovative approach for delivering well-designed, learner-centered, interactive and facilitated learning environment to anyone at any place, any time by utilizing the attributes and resources of various digital technologies along with other forms of learning materials suited for open and distributed learning environment.

Blended Learning

Cambridge Dictionary on education says that the Blended Learning is the way of learning that combines traditional classroom lessons with lessons that use computer technology and may be given over the internet.

According to Picciano (2006), "Blended learning in the broadest sense can be defined

or conceptualized as a wide variety of technology / media integrated with conventional, face-to-face classroom activities. But to be specific blended learning is a blend of fully online and face-to-face instruction."

Blended learning model comprises of the following elements which are mixed in varied proportions to meet different organization's requirements.

- Learning through information
- Learning through interaction
- Learning through collaboration
- Learning through classroom

This means that blended learning involves the appropriate blend of different components which includes courses, contents, feedback, and many other things. This means that the blended learning can solve the ubiquitous problems associated with most E-learning models such as speed, scale and impact.

- Blended Learning as face-to-face classroom teaching combined with some form of technology based distance learning.
- Blended Learning as new pedagogical model, which combines the best parts of face-to-face and online learning.
- Blended Learning as a combination of different learning environments (classroom, work placement, project work).
- Blended Learning as a means to introduce modern learning theories into Higher Education.

Awareness

Awareness is the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions or sensory patters.

Perception

Perception is the organization, identification and interpretation of sensory information in order to represent and understand the environment. It is more than that of awareness.

Significance of awareness and perception on blended learning

Online learning has become popular because of its potential for providing more flexible access to content and instruction at any time, from any place. Frequently, the motivation for online learning programs entails

1. Increasing the availability of learning experiences for learners who cannot or choose not to attend traditional face-to-face offerings,
2. Assembling and dissemination instructional content more cost-efficiently, and/or
3. Providing access to qualified instructors to learners in places where such instructors are not available.

An issue emerging from both our research and other studies is the perception of developing blended learning materials as time-consuming. As the perception is not contested, and in fact has been acknowledged to reflect reality, it would seem sensible to adopt a strategy that attempts to realize the long-term benefits of investment in developing a blended approach. The following distinct approaches have emerged from our analysis: "Technology to all", "The bolt-ones", and "Purely pedagogic".

Objectives of the study

1. To find out the level of Awareness on Blended Learning among the B.Ed., trainees at Tiruchirappalli District.
2. To find out the stage of Perception on Blended Learning among B.Ed., trainees at Trichirappalli District.
3. To find out the significant difference of the mean score of the Awareness on Blended Learning among B.Ed., trainees in respect to their Gender, Residence and Discipline of Study.
4. To find out the significant difference of the mean score of the Perception on Blended Learning among B.Ed., trainees in respect to their Gender, Residence and Discipline of Study.

Hypotheses of the study

1. The level of Awareness on Blended Learning among the B.Ed., trainees at Tiruchirappalli District is Low.
2. The Perception on Blended Learning among the B.Ed., trainees at Tiruchirappalli District is Negative.
3. There is no significant difference the Mean Scores of Awareness on Blended Learning among B.Ed., trainees in respect to their Gender, Residence and Discipline of Study.
4. There is no significant difference the Mean Scores of Perceptionon Blended Learning among B.Ed., trainees in respect to their Gender, Residence and Discipline of Study.

Methodology of the present study

Cane (1972) observes "The survey will involve questionnaire, interview as well as consultations. They will establish what is happening and what people think". In the present study the investigator adopted survey method of research with 220 samples selected from fifteen different colleges of education from Trichirappalli district using stratified random sampling technique.

Description of Research Tools

The purpose of data collection for the present study, the following tools was used.

- Blended Learning Awareness Tool (BL-AT)
- Blended Learning Perception Scale of B.Ed., trainees (BLEPERS)

Besides, this General Information Sheet was also administered for collecting the data pertaining to the respondents' demographic variables.

a) Blended Learning Awareness Tool (BL-AT)
   For assessing the Blended Learning Awareness of the B.Ed., trainees the investigator used the standardized tool Blended Learning Awareness Tool (BL-AT) with 20 True or False type items.
   The reliability of the tool is 0.859 (Correlation between forms)

b) Blended Learning Perception Scale (BLEPERS)
   To measure the Perception of the B.Ed., trainees, the Perception Scale was developed by the researcher on the basis of Likert Scale. The B.Ed., trainees' views about the items were assessed through the 5-point scale in the form of a "strongly agree, agree, undecided, disagree and strongly disagree", containing 34 items.

Statistical Technique used

Both descriptive and inferential statistics were employed for analysis of collected data. The Mean, Standard Deviation and 't' test were used.

Testing of Hypotheses

Hypotheses-1

The Level of Awareness on Blended Learning among the B.Ed., trainees at Tiruchirappalli District is Low.

Table 1. Number and Percentage of sample of Awareness on Blended Learning of B.Ed. trainees.

Variable	Awareness on Blended Learning					
	Low		Average		High	
N	N	%	N	%	N	%
220	50	22.7	141	64.1	29	13.1

In the above table No.1 shows that the Level of Awareness on Blended Learning among the B.Ed., trainees at Tiruchirappalli District is found to be Average, since a huge percentage of the sample (64.1%) falls under the average category (9-14/out of 20).

Hypothesis-2

The Perception on Blended Learning among the B.Ed., trainees at Tiruchirappalli District is Negative.

Table 2. Number and Percentage of sample of Perception on Blended Learning of B.Ed. trainees

Variable	Perception on Blended Learning					
	Negative		Neutral		Positive	
N	N	%	N	%	N	%
220	35	15.91	142	64.55	43	19.55

Table No.2 shows that the stage of Perception on Blended Learning among B.Ed., trainees of Tiruchirappalli District is found to be is Neutral, since a huge percentage of the sample (64.55%) falls under the neutral category.

Hypotheses-3

- There is no significant difference the Mean Scores of Awareness on Blended Learning among B.Ed., trainees in respect to their Gender, Residence and Discipline of Study.
- There is no significant difference the Mean Scores of Perceptionon Blended Learning among B.Ed., trainees in respect to their Gender, Residence and Discipline of Study.

Table 3. Number (N), Mean (M), Standard Deviation (SD) and 't' Value of B.Ed. Trainees Gender, Residence and Discipline studied of Awareness and Perception on Blended Learning

Blended Learning	Sub-Variables	Category	N	Mean	SD	"t" Value	Remarks
Awareness	Gender	Male	73	12.34	1.89	3.762	S
		Female	147	13.50	2.47		
	Residence	Rural	102	13.03	2.27	0.482	NS
		Urban	118	13.19	2.26		
	Discipline studied	Arts	122	13.20	1.96	0.633	NS
		Science	98	13.00	2.22		
Perception	Gender	Male	73	108.16	11.56	2.004	S
		Female	147	111.30	9.53		
	Residence	Rural	102	107.91	9.39	3.230	S
		Urban	118	112.29	10.71		
	Displine studied	Arts	122	108.40	10.33	3.045	S
		Science	98	112.57	9.90		

Testing the Hypothesis 3 & 4 the Awareness and Perception on Blended Learning of B.Ed. Trainees in respect their Gender,there is a significance difference between the male and female.The calculated "t" values (A-3.762 and P-2.004) are more than that of the table value (1.96) thenull Hypothesis is rejected. The table also shows that the Mean scores of Female trainees are more than the male's Mean scores in terms of their Awareness and Perception on Blended Learning.

There is no significance in the Awareness on Blended learning of B.Ed., Trainees in terms of Residence and Discipline studied,hence, the framed null hypothesis is accpted as the calculated table values (Res- 0.482 and D.S-0.633) are less than the table value (1.96). There is no significant difference between the Rural and Urban, and Arts and Science students on their awareness in Blended Learning.

There is no significance in the Perception on Blended learning of B.Ed., Trainees in terms of Residence and Discipline studied, hence, the framed null hypothesis is rejected as the calculated table values (Res- 3.230 and D.S-3.045) are less than the table value (1.96). There is significance difference between the Rural and Urban, and Arts and Science students on their Perception in Blended Learning. The table also shows that the mean scores of the Urban and rural urban students (107.91 and 112.59, 108.40, 112.57) Arts and Science students.

Major findings

- The Level of Awareness on Blended Learning among the B.Ed,.trainees of Tiruchirappalli District is found to be Average.
- The stage of perception of on Blended Learning among B.Ed,.trainees found to be Neutral.
- The Male and Female B.Ed., trainees differ in their Awareness and Perception of Blended Learning.
- Female trainees are significantly higher than the Male students on their Awareness and Perception in Blended Learning.
- The Rural and Urban B.Ed., trainees do not differ significantly in their Awareness and differ significantly in their Perception on Blended Learning.
- The Arts and Science B.Ed., trainees do not differ significantly in their Awareness and differsignificantly in their Perception on Blended Learning.

Conclusion

The study has shown that there is wide scope for improving the B.Ed trainees Awareness and Perception of Blended Learning. Against this backdrop, it becomes essential that the National Council for Teacher Education, Ministry of Human Resource Development and other National Level Agencies take stock of the situation and evolve strategies to create Awareness of Blended Learning among the B.Ed trainees. Steps must also be taken to create a positive attitude in the minds of the B.Ed trainees towards Blended Learning. Otherwise, the teaching and the student communities of the nation would miss the rich potentials of the ICT revolution which is reshaping every aspect of human life.

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INFORMATION LITERACY OF THE POST GRADUATE STUDENTS OF BHARATHIDASAN UNIVERSITY AND ITS AFFILIATED COLLEGES

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Abstract

In the academic community, there are unprecedented changes taking place not only on the knowledge level but also the accessibility and availability of information due to upcoming new technological and user friendly gadgets. Knowledge is transformed by the adoption of technological equipments and the contents being digitalized. In this Information Age, the students surround with flooded information and they can be able to get a lot of information within a single click of mouse. This paradigm changes require the students to be able to locate, manage, evaluate and use information from both print and/or electronic source and to categorize which is valuable or not. Further, it necessitates they should possess the so-called skill namely 'information literacy'. Information literates can only be able to analyze their need, sources, evaluate and use of information effectively and efficiently. At the higher education level, the post graduate students should acquire such skills to promote their progression in every phase of life. In this backdrop, the paper presents a survey, conducted foe finding out the Information Literacy of the Post Graduate Students.

Key words: Information Literacy, Information Literate, Post graduate students.

Introduction

The 21st Century Education cannot be separated from the need for information. In this Information Age, where the world is flooded with information and the growth of its availability happening at an unprecedented speed, there is a need for understanding the concepts of how to access and evaluate the information. Due to the proliferation of information technologies and resources in different types and formats, information-seeking and use have become complex processes for college and university students. Students should exploit the abilities to use the information based on their needs. In this context, information literacy plays a pivotal role in learning process.

In today's information society, the most important learning outcome for all students is their ability to function as independent lifelong learners. Sasikala and Dhanraju (2011) emphasized, "Within the college or university environment it is important for students to be able to build upon the foundation of information literacy knowledge by successfully transferring this learning from course to course, understanding the critical and empowering role of information in a free and democratic society, and demonstrating ethical behavior and academic integrity as consumers, as well as producers, of information".

Information Literacy

The concept of Information Literacy was first introduced in 1974 by Paul Zurkowski, President of the United State Information Industry Association, in a proposal submitted to the National Commission on Libraries and Information Science (NCLIS). He defined Information Literates as "people trained in the application of information resources to their work" and observed that they have learned techniques and skills for using the wide range of information tools as well as primary sources in molding information solutions to their problems."

Information Literacy refers to the set of skills needed to know, to find, to evaluate and use of information. It involves understanding, accessing, evaluating,

incorporating information into knowledge base, and using information effectively and correctly. Information Literacy is an umbrella term, it covers a set of abilities requiring individuals to, "recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information".

It is common to all disciplines, to all learning environments, and to all levels of education. As stated by the American Library Association (ALA) "Information literacy is a survival skill in the Information Age". In different countries that may also be known as "Information Competency" or "Information Fluency" or even other terms, cultures or languages, in preference to the term Information Literacy. Hence, Information Literacy is the ability to find, evaluate, use, and communicate information in all its various formats.

Problem

In this digital age, the education is moving into the adoption of digital gadgets and the contents are transforming in the digitalized format. E-learning can empower the students to come out with multi-faceted knowledge to face the challenges before them. Academic institutions, libraries etc., provide a lot of electronic contents as per the need of the students within a single click of mouse. Introduction of new technologies and the rapidly increasing amount of information available from a variety of sources make it clear that information literacy and skills are important for everyone. In this information society, the students will be expected to be even more information-oriented, where information is essential for personal, organization, national and societal success.

Information Literacy skill is an essential key to students' success, both today in the information society and in future. Information Literates can manage the position to be informed and take judgmental decisions and solve information problems with the use of information and resources intelligently and tactfully and to attain apt skills that suits 21st century. At the higher education level, the post graduate students are in the ladder of seeking their job opportunities or continuing academic programmes. Information Literacy skills facilitate to choose their right job positions as well as empowers their lifelong learning. Against this backdrop, the study was conducted to assess the level of Information Literacy of the post graduate students of Bharathidasan University and its Affiliated Colleges.

Objectives and Hypotheses of the Study

The Objectives of the study are

1. To ascertain the Information Literacy Level of the post graduate students of Bharathidasan University and its Affiliated Colleges
2. To determine the Information Literacy of the post graduate students of Bharathidasan University and its Affiliated Colleges in terms of their gender and locality.
3. To determine the Information Literacy of the post graduate students of Bharathidasan University and its Affiliated Colleges in terms of their discipline.
4. To measure the significant difference between the post graduate students from different categories of their institution.

In line with the above objectives, the following hypotheses are formulated:

1. The level of Information Literacy of the post graduate students of Bharathidasan University and its Affiliated Colleges is low.
2. The Information Literacy levels of the post graduate students of Bharathidasan University and its Affiliated Colleges do not differ in terms of their gender and locality.
3. The Information Literacy levels of the post graduate students of Bharathidasan University and its Affiliated Colleges do not differ in terms of their discipline.
4. There is no significant difference between the mean information literacy

scores of the post graduate students from different categories of institution.

Methodology

The present study was conducted among 627 post graduate students of Bharathidasan University and its Affiliated Colleges. It is descriptive by nature, normative survey technique was adopted and "Information Literacy Assessment Tool" developed by the investigator was used for data collection. Collected data were subjected to descriptive and inferential analysis.

Analysis of Data and Findings

i) Descriptive Analysis

Analysis of the Mean and Standard Deviation of the whole sample's Information Literacy Level

No. of Students	Mean	Standard Deviation
627	19.50	3.10

The mean value of the whole sample's Information Literacy Score is 19.50. It indicates that the information literacy level of post graduate students of Bharathidasan University and its affiliated colleges is neither high nor low, as the mean score is average. Hence the hypothesis is not accepted.

ii) Inferential Analysis

Means, Standard Deviations and't' value of Information Literacy Scores of the Sample, sub-grouped on the basis of their Gender and Locality

Variable	Categories	n	Mean	SD	't' value
Gender	Male	309	19.59	2.93	0.66
	Female	318	19.42	3.20	
Locality	Rural	315	19.52	3.12	0.16
	Urban	312	19.48	3.03	

The above table indicates that, the male students are better than the Female students in their Information Literacy; it indicates that the Information Literacy mean scores of the Male and Female Post Graduate students do not differ significantly. Similarly, the rural and urban post graduate students do not differ significantly in their Information Literacy.

Means, Standard Deviations and 't' value of Information Literacy scores of the sample, sub-grouped on the basis of their Discipline

Variable	Discipline	n	Mean	SD	't' value
Information Literacy	Arts	266	18.94	3.17	3.98*
	Science	361	19.92	2.94	

The post graduate students of Science (266) discipline are better than their Arts counterparts in their Information Literacy. It is inferred that, the Information Literacy of Arts and Science students differ significantly

ANOVA showing Difference among the Mean Information Literacy Scores of the Sample, sub-grouped on the basis of their Management of Institution

Source of Variance	Sum of Squares	df	Mean squares (Variances)	F- Value
Between groups	215.345	3	71.782	7.83*
Within groups	5711.395	623	9.168	

The post graduate students were classified into Bharathidasan University, Government, Aided and Self-financing colleges for the purpose of analysis based on their management of institution. In order to find out whether there is any significant difference between the mean Information Literacy scores of the Post Graduate students of Bharathidasan University and its affiliated colleges, sub-grouped on the basis of their Management of Institution, ANOVA was attempted. The table indicates that, the F-value (7.83) is significant at 0.05 level. Hence, the framed null hypothesis is not accepted. It is clearly stated that, the post graduate students of Bharathidasan University and its affiliated colleges differ in their information literacy.

Conclusions of the Study

- The Post Graduate students of Bharathidasan University and its Affiliated Colleges have an Average Level of Information Literacy.
- The Male and Female post graduate students of Bharathidasan University and its affiliated Colleges do not differ significantly in their Information Literacy. And the Rural and Urban Post Graduate students of Bharathidasan University and its Affiliated Colleges do not differ significantly in their Information Literacy.
- The Arts and Science post graduate students of Bharathidasan University and its affiliated colleges differ significantly in their Information Literacy.
- The Post Graduate students of Bharathidasan University and its Affiliated Colleges, sub-grouped on the basis of their management of institution (Government, Aided and Self-Financing) differ significantly in their Information Literacy.

Conclusion

The present study has explored the information literacy level of the post graduate students of Bharathidasan University and its affiliated colleges are at average. The study has shown that, there is a need to improve the post graduate students' level of Information Literacy. In India, The University of Delhi, University of Madras, etc. have started Information Literacy programmes, but the programmes are limited to their institutions; further standards and models of these programmes are not equally applicable. Developed countries like USA, UK, Australia, and Canada are encouraging their citizens to become information literates through Information Literacy Education in the form of standalone courses, integrated with school as well as college curriculum. Hence, today's students, are to be properly trained through well structure Information Literacy programs, to improve their level of information literacy and to help them make use of available electronic resources for enhancing their learning. Information Literacy education is an important to them at their undergraduate level.

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USAGE AND LEARNING OF MOOC AMONG YOUTH

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Abstract

Learning through MOOC is a wide range opportunity for the entire world. It gives opportunity not only to improve education but also to know more within a short period. The length of the course is short, but more standard. This survey consists of usage and learning from MOOC among youth foke. The objective of this study is to know the usage of massive open online course among youth in respective to gender. This study concludes male are more interested in this study than female. Female has no awareness on such courses. By the same time they use the traditional method to study by using text books. This is a successive mode of delivering knowledge to the society.

Keywords: MOOC, youth, massive course, jerk technology

Introduction

Learning is the acquisition of knowledge or skill through study, experience or being taught. Pupil acquires knowledge through study. Studying through online is a part of learning to improve our knowledge. MOOC is one of the gate ways for knowledge. A massive open online course (MOOC) is a free Web-based distance learning program that is designed for the participation of large numbers of geographically dispersed students. A massive open online course is an online course aimed at unlimited participation and open access via the web. Before the Digital Age, distance learning appeared in the form of correspondence courses in the 1890s-1920s, and later radio and television broadcast of courses and early forms of e-learning.

Significance of the study

Massive Open Online Courses (MOOCs) have gained a lot of attention in the last years as a new technology enhanced learning (TEL) approach in higher education. MOOCs provide more educational opportunities to a massive number of learners to attend free online courses around the world. This opportunity is open for all age group of peoples without any limitations. It is helpful to gain new knowledge from known to unknown. The objective of MOOC is to educate, i.e., to supply knowledge through online. Online is a benchmark quality, but here the language is user friendly to all the people. So the investigator has chosen this topic to know more about MOOC.

Objectives

- To find out the usage of MOOC among youth with respective to the background variables gender.
- To find out the common process in MOOC regarding learning dimension.

Limitations of the study

Limitations are those conditions beyond the control of the researcher that may place restrictions on the conclusion of the study and their application to other situation. The investigator marked her boundary as Ramanathapuram district and data collection was done among syed ammal arts and science college students.

Method used for the study

The investigator has adopted the survey method to find out the usage of massive online open course of students in syed ammal arts and science college, Ramanathapuram. Survey is the fact finding study. So the investigator has chosen survey method to find the result.

Population and sample for the study

Population for this survey is under arts and science college students.

The investigator has chosen 72% of male and 28% of female students for this study.

Tool used

Tools are the instruments employed by the investigator to gather new facts or to explore new felids. By keeping various objectives and purpose of the study in mind, the investigator developed a tool by adopting jerk technology.

Findings and results

Table 1: Gender wise distribution of a sample

Gender	Percentage
Male	72%
Female	28%

Table 1 shows the distribution of the sample. The sample consists of 72% of male and 28% of female students in arts and Science College from Ramanathapuram district. Among this student the investigator is interested to know about their usage of MOOC.

Table 2: Difference between Male and Female Students Interest in MOOC

Intrest in MOOC	Percentage
Male	73%
Female	25%

Table 2 shows that the ratio of the male is higher than female who are willing to study through online. Males are willing to study through easy way to gain knowledge than reading text books or journals. This shows that the boys are more attentive than girls to know more about the upcoming events through online. This may be the reason than the boys are not strictly have a scheduled time to study. So while using their smart phones they can study anytime. Female foke has no awareness about the online courses.

Table 3: Difference between male and female students in clarifying doubts through MOOC

Doubts Clarified	Percentage
Male	77%
Female	94%

Table 3 shows that it may be the reason that, the female students are always very eager to ask questions like why, what, which and so on. And the same time they have the problem solving mentality. This nature makes the female students to think and find out the answer. And to clarify the doubts immediately with someone or with somebody. But those male students are supposed to be rote memory in their nature. So they are not worried about their doubts.

Table 4: Difference between Male and Female students Language on MOOC

User Friendly language	Percentage
Male	55%
Female	85%

Table 4 shows that it may be a reason that the female students spend more time in reading online materials. So that the language is very familiar to them to understand. So female found that the MOOC was user friendly and adoptable. Males probably read the text without his whole effort. But the language is more standard. They just go through the content. So they feel slightly different to study the soft copy material.

Table 5: Difference between male and female students knowledge on MOOC

Knowledge	Percentage
Male	63%
Female	94%

Female are better than male in receiving the knowledge. Female students are clarifying their doubts in sequence. They are learning through known to unknown. This gives more knowledge to understand the concepts easily. But the male does not follow the sequence. So they are not receiving the sequence of knowledge known to unknown.

Interpretation

Studying through MOOC is worthy and successful. The knowledge of the people is increased by their own effort. They are eager to acquire knowledge by known to unknown. This helps the students to step forward into the society. It helps the students to know about various fields. They can easily adapt into MOOC.

Conclusion

Massive Online Open Course is relatively successful to know more. It helps to keep touch with various fields of work. So that people can gain knowledge in all related area of interest.

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UNDERGRADUATE LEVEL ENGLISH LANGUAGE TEACHERS' AWARENESS OF WEB 2.0 FOR ELT

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Abstract

In this Digital Age, the World Wide Web has become one of the most powerful and versatile tool of teaching and learning of all subjects, across disciplines - arts, science, social sciences, humanities etc., Within the context of ELT also, no doubt the impact of the web has triggered new processes, new practices, new methods and new materials for facilitating English Language Learning to the new generation of learners, whose life is immersed in digitally rich environments. The teaching and learning of English has become more accessible, equitable and relevant by providing good quality content and possibilities for interaction, collaboration and practice in communication by facilitating Web 2.0; bringing in a new wave in the domain of Technology Enabled Language Learning (TELL), making unprecedented changes in the ways which the teachers can facilitate the learning of English Language steps for the learners especially in the context of English as a Second Language. In this backdrop, the present paper explores the ways for effective use of Web 2.0 for English Language teaching and also tends to measure the level of awareness among the undergraduate teachers of English.

Keywords: Web 2.0 Tools, Technologies, English Language Teaching

"In the 21st century, students must be fully engaged. This requires the use of technology tools and resources, involvement with interesting and relevant projects, and learning environments – including online environments – that are supportive and safe. ... In the 21st century, educators must be given and be prepared to use technology tools; they must be collaborators in learning – constantly seeking knowledge and acquiring new skills along with their students."

- *Arne Duncan,* (2010)

Introduction

Web 2.0 tools are becoming more and more commonplace in schools. With the change of a "read" Web to a "read/write" Web, teachers are discovering new ways in which to engage technologically savvy students in computer-based educational activities. Blogging, wikis, podcasting, and social networking are a few examples of so-called Web 2.0 technologies that language teachers are currently exploring. Now, the second generation web i.e., Web 2.0 has brought in a new wave in the domain of Technology Enabled Language Learning (TELL), making unprecedented changes in the ways which the teachers can facilitate the learning of English Language for the learners especially in the context of English as a Second Language. These benefits serve to strengthen all students' skills, particularly relevant to both English language teachers and learners who is beginning to acquire or continuing to develop his or her proficiency in English language.

WEB 2.0 – Making 'WEB as a Platform'

The term 'Web 2.0' has often been described as 'the Web as platform' and 'Read and Write Web'. The power of this is that content can be personalized or remixed with other data to create much more contents. Web 2.0 sites allow users to do more than just retrieve information. Web 2.0 offers a wide range technological tools that are needed in the classroom for both students and teachers thereby bringing a shift in learning. There are numerous unique ways that Web 2.0 tools can be implemented into the English Language curriculum to promote student learning. Most commonly used Web 2.0 tools in the context of

teaching and learning of English as a Second Language are listed below:

Blogs

- A blog or Weblog, is a chronological, online diary.
- Blogging is referred to as the act of authoring, maintaining, or adding something (an article) to a blog.
- The blogs are used in many ways in English language teaching. The first, learners can be encouraged to write and post on their blogs.
- Teachers can use a blog to post instructional notes for students, resources, and annotated links.

Wikis

- Is a collaborative tool that facilitates the production of a group work.
- Users are allowed to generate and edit content and users work together to create a specific product: a report, reference guide, a book or an encyclopedia
- Provide opportunities for students to participate
- Wikis can be useful tool for promoting writing skills.

Podcasts

- Podcasts are a great way to summarize lecture notes or provide additional information on a topic for students to listen to on either a computer or a portable MP3 device.
- Enables students and teachers to share information with anyone at anytime. An absent student can download the recorded podcast. For English Language Learners, podcasting can be potentially powerful instructional medium, especially for providing Listening, Speech Practice Experiences.

Web Quests

- Web Quests is a lesson in the format of a questionnaire, created by Bernie Dodge at San Diego State University. Web Quests are based on ideas of inquiry and constructivism.
- This tool encourages students' to use higher level of thinking viz., synthesis, analysis, problem-solving, creativity and judgment, facilitating collaborative and cooperative learning.
- In the context of ESL, Web Quests can be effective tools for teaching and learning of prose, poetry, drama and grammar.

Hot Potatoes

Hot Potato is a tool that allows teachers to create their own material for subject content instruction. The programs are also useful for tests. Teachers can develop interactive multiple choice and fill-in-the-gap exercises as well as crosswords, questions where short answers are required or where ordering and rearranging words is necessary to make up sentences. Hot potatoes are best suited for language tests than any other subject.

Statement of the problem

Diverse strategies of ICT and web tools are incorporated into the teaching and learning of science subjects. But, the technology tools of Web 2.0 have not been effectively used by the English Language Teachers at collegiate level for teaching languages. The possible reason for such poor integration of Web 2.0 tools into ELT is due to the lack of awareness. Hence, the present study investigates into the awareness of English Language Teachers at the undergraduate level in Arts and Science Colleges of Tiruchirappalli District towards using Web 2.0 tools for teaching English. Hence, the problem of the study is stated as "Undergraduate level English language Teachers' awareness towards web 2.0 for ELT"

Objectives and Hypotheses

The objectives of the present study are:

- to ascertain the level of awareness of Undergraduate level English Language Teachers' of Web 2.0 Technologies suitable for English Language Teaching.
- to ascertain the level of awareness of Undergraduate level English Language Teachers' towards the application of Web

2.0 tools in terms of gender, domicile and with regard to the categories of institutions.

In line with the above objectives, the following hypotheses are formulated:

- The Undergraduate level English Language Teachers do not have any awareness of Web 2.0 tools and technologies.
- The awareness of the Undergraduate Level English Language Teachers of Arts and Science Colleges of Tiruchirappalli District do not differ significantly in line with the difference in gender, domicile and categories of institutions.

Methodology and Research Design

The present study is descriptive by nature involving a normative survey.

'Web 2.0 Technologies for English Language Teaching and Learning: Teachers' Awareness Questionnaire' was developed by the investigator for the purpose of collecting data to as many as 70 teachers of 10 Arts and Science Colleges located at Tiruchirappalli district.

The collected data were subjected to descriptive and differential statistical analyses.

Analysis of Data and Findings

Mean and Standard Deviation of the whole Sample's Web 2.0 Technologies Awareness Scores for English Language Teaching and Learning

No. of Teachers	Mean	Standard Deviation	Absolute Score
70	16.5	4.0	30

The mean value of the Awareness Score is 16.5. This indicates that Web 2.0 awareness of the English Language Teachers of Tiruchirappalli district is neither high nor low, as the mean score is average.

Analysis of the Web 2.0 Technologies level of Awareness of the sample in terms of gender and domicile

Variable	Groups	N	Mean	SD	't' value
Gender	Male	42	15.7	4.00	1.92
	Female	28	17.7	4.10	
Domicile	Urban	50	16.4	0.64	0.43
	Rural	20	16.9	0.74	

The following findings emerge from the above given differential analysis:

From the above table, it can be understood that the female English Language Teachers (28) stand better than their male (42) counterparts in their awareness of web 2.0 technologies for English Language Teaching and Learning. This implies that the male and female teachers of Arts and Science College in Tiruchirappalli District do not significantly differ in their Web 2.0 Technologies Awareness. Similarly, the urban (50) and rural (20) teachers of Arts & Science Colleges in Tiruchirappalli District do not significantly differ in their Web 2.0 Technologies Awareness.

The English Language Teachers of Tiruchirappalli district were classified in terms of the category of Government, Govt. aided and Self-financing colleges for the

purpose of analysis based on their board of affiliation. In order to test whether there is any significant difference among the means of the awareness scores of the English language teachers, ANOVA was attempted.

Difference among the Awareness Scores of Web 2.0 Technologies for English Language Teaching and Learning of the groups in terms of categories of Institutions

Source of Variance	Degrees of Freedom	Mean square	F-Ratio	5% F-Value
Between Groups	2	11.9	0.68	3.07
Within Groups	67	17.6		

As seen in the above table the computed value of F (0.68) is not significant at 0.05 level of significance. This reveals that the English Language Teachers, in Government, Govt. aided and Self-financing do not vary in their awareness scores towards Web 2.0 technology.

Major findings of the study

- The English Language Teachers' of Arts and Science Colleges of Tiruchirappalli District have an average level of awareness of Web 2.0 tools and technologies for English Language Teaching.
- The male and female English Language Teachers of Arts & Science Colleges in Tiruchirappalli District do not differ significantly in Web 2.0 tools and technologies for English Language Teaching.
- The level of awareness of the urban and rural teachers of Arts & Science Colleges in Tiruchirappalli District do not differ significantly in Web 2.0 technologies for English Language Teaching and Learning.
- The level of awareness of Web 2.0 technologies for English Language Teaching and learning among the English Language Teachers do not vary with regard to the categories of institutions.

Conclusion

The present study has investigated into the awareness of English Language Teachers of Arts and Science Colleges of Tiruchirappalli District towards the Web 2.0 technologies for ELT. The study has shown that there is a crucial need to improve the awareness of English Language Teachers' towards Web 2.0 tools and technologies. Against this backdrop, it becomes essential that the Ministry of HRD and other agencies take stock of the situation and evolve strategies to create a positive outlook in the minds of the English Language Teachers towards the second generation of Web and their useful tools for the rich enhancement of learning. But for the integration of web tools and technologies in learning, the learning communities of the nation would miss the rich potentials of the ICT revolution which is reshaping the lifestyle of human life.

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A COMPARATIVE STUDY ON RURAL AND URBAN HIGHER SECONDARY TEACHERS WITH REGARD TO M-LEARNING IN TIRUVANNAMALAI DISTRICT

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Abstract

Education is an essential human virtue. Man becomes man through education. Education is a powerful tool to empower an individual on all aspects of his/her life. A comparative studies on M-Learning among Rural and Urban higher Secondary teachers are investigated in this research. Data was collected and analyzed through Mean, SD, t-test. The major findings of the study indicate that there is significant difference in the M-Learning towards teachers handled types of subjects.

Kewwords: Learning, Technology, Science, Teachers, Mobile

Introduction

Now-a-days technology devices are dominating the world. Computer, Mobile, Tab, Laptop, Ipod, etc., are the important technology devices. Aim of this research is to compare the rural and urban higher secondary school teachers with regard to mobile learning. M-learning should play important role in this world. Starting from the age of 10 everybody is using the Mobile, Especially most of them using Android in urban area compare to rural area. Teachers should be responsible for helping students to use mobile devices as a tool for learning.

Computer

"You go to your TV to turn your brain off. You go to your computer when you want to turn your brain on." - *Steve Jobs*

Need for the study

The higher Secondary teachers should know to teach using technology in the classroom. Now-a-days teachers are having Mobile, Tab, Laptop, Ipod etc., They shall use this to improve the students' knowledge in this technology world.

This study is to assess the level of using technology for teaching in rural higher secondary school teachers with regard to M-Learning.

Objectives of the study

The investigators framed the following objectives related to the present study.

- To find out the level of utilizing mobile learning.

Methodology

The investigator used the Survey Method in this study to find the significance relationship between M-Learning with respect to Rural and Urban higher secondary school teachers. The survey method gathers data from a relatively large number of cases at a particular time.

It involves a clearly defined problem and definite objectives and requires expert and imaginative planning, careful analysis, interpretation of data gathered and logical and skilful reporting of the findings. Best rightly said, „The survey is an important type of research. It involves clearly defined problem and definite objectives. It requires expert imagination, planning, careful analysis and interpretation of the data gathered and logical and skillful reporting of the findings.

Sample

In this study the investigator selected 50 higher secondary school teachers working in

rural and urban higher secondary schools in Tiruvannamalai district.

Pilot study

Pilot study had been conducted for a minimum sample of 30 teachers from a selected school. The tool had been validated by calculating reliability and validity. The teacher's response was scored. The same tool was administered to the same set of teachers after 10 days. When both the sets of scores were compared, it was found out that there was a correlation co-efficiency of 0.1496 between the two sets of scores.

Distribution of the sample

Rural

Variables	Sub samples	N
Gender	Men	20
	Women	30
Subject	Arts	21
	Science	29
Institution	Government	28
	Private	22

Urban

Variables	Sub samples	N
Gender	Men	28
	Women	22
Subject	Arts	14
	Science	36
Institution	Government	33
	Private	17

Differential analysis

Hypothesis-1

There is no significance different between Rural and Urban higher secondary school teachers with regard to M-Learning.

Place	N	Mean	S.D	t-value	Level of Significant
Rural	50	68.36	6.69	2.7263	S
Urban	50	56.46	8.69		

From the above table, the't'-value is calculated. The critical ratio found to be (2.7263) is greater than the table value (1.96) at 0.05 level of significance.

Hence the null hypothesis is rejected. This indicates that "There is no significant difference between Rural and Urban higher secondary school teachers with regard to M-Learning".

Hypothesis-2

There is no significant difference between Rural Men and Urban Men teachers with regard to M-Learning.

Men	N	Mean	S.D	t-value	Level of Significant
Rural	28	67.644	6.33068	0.000274	NS
Urban	20	71.940	7.36347		

From the above table, the‘t’-value is calculated. The critical ratio found to be (0.000274) is lesser than the table value (1.96) at 0.05 level of significance. Hence the null hypothesis is accepted. This indicates that “There is no significant difference between Rural Men and Urban Men teachers with regard to M-Learning”.

Hypothesis-3

There is no significant different between Rural Women and Urban Women teachers with regard to M-Learning.

Women	N	Mean	S.D	t-value	Level of Significant
Rural	22	60.279	7.2610	0.605365	NS
Urban	30	60.972	6.1901		

From the above table, the‘t’-value is calculated. The critical ratio found to be (0.605365) is lesser than the table value (1.96) at 0.05 level of significance. Hence the null hypothesis is accepted. This indicates that “There is no significant difference between Rural Women and Urban Women teachers with regard to M-Learning”.

Hypothesis-4

There is no significant difference between Rural and Urban Government higher secondary school teachers with regard to M-Learning.

Women	N	Mean	S.D	t-value	Level of Significant
Rural	33	52.78	8.06802	0.00536	NS
Urban	28	58.71	8.87317		

From the above table, the‘t’-value is calculated. The critical ratio found to be (0.00536) is lesser than the table value (1.96) at 0.05 level of significance. Hence the null hypothesis is accepted. This indicates that “There is no significant difference between Rural and Urban Government higher secondary school teachers with regard to M-Learning”.

Hypothesis-5

There is no significant difference between Rural and Urban Private higher secondary school teachers with regard to M-Learning.

Private School	N	Mean	S.D	t-value	Level of Significant
Rural	17	70.735	7.34	0.935	NS
Urban	22	79.012	6.89		

From the above table, the‘t’-value is calculated. The critical ratio found to be (0.935) is lesser than the table value (1.96) at 0.05 level of significance. Hence the null hypothesis is accepted. This indicates that “There is no significant difference between Rural and Urban Private higher secondary school teachers with regard to M-Learning”.

Hypothesis-6

There is no significant difference between Rural and Urban higher secondary Science teachers with regard to M-Learning.

Science Teachers	N	Mean	S.D	t-value	Level of Significant
Rural	36	76.40179	7.50620	0.043	NS
Urban	29	86.47872	6.18924		

From the above table, the't'-value is calculated. The critical ratio found to be (0.043) is lesser than the table value (1.96) at 0.05 level of significance.

Hence the null hypothesis is accepted. This indicates that "There is no significant difference between Rural and Urban higher secondary Science teachers with regard to M-Learning".

Findings of the study

1. Urban Men teachers have better in M-Learning than Rural men teachers.
2. Urban Women teachers have better in M-Learning than Rural Women teachers.
3. Urban Government teachers have better in M-Learning than Rural Government teachers.
4. Urban Private teachers have better in M-Learning than Rural Private teachers.
5. Urban Science teachers have better in M-Learning than Rural Science teachers.

Recommendations

Teachers need to continuously improve the knowledge related to technology level of teaching (PowerPoint Presentation, Subject related applications using Internet to download, Online Video related to subject, Science teachers used Internet to show the working experiments to students).

Conclusion

The result of the present investigation has indicated that the urban higher secondary school teachers have better M-Learning experience compare to rural higher secondary school teachers. Now-a-days compare to teachers, students' know to use Mobile devices very well. So, Investigator suggests that teachers must improve their quality related to Mobile Communication technologies.

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COMPUTER SELF–EFFICACY AMONG TEACHERS IN TERMS OF LOCALITY

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Abstract

The digital natives of this scenario are facing a great problem of having most of the teachers without any knowledge of using computers. They should be given thorough knowledge of using computers to improve the technology enhanced learning in their future classrooms. For that the teacher educator should have knowledge about the computer – self efficacy of the teachers, so that they can manipulate their process of transaction of technology enhancement among them. In this paper computer self-efficacy of the teachers was analysed in terms of their locality and the year of study. Objectives of the study were to analyse the computer self-efficacy of the teachers on the basis of their localities as rural and urban and to find the computer self-efficacy among the I and II year students of diploma teacher education course in terms of their locality. Normative survey method is used for this research. Computer Self – Efficacy scale was developed and standardised by S. Thangarasu (2010). It has 0.9979 intrinsic validity and 0.9959 reliability. The tool has both positive and negative items. The results show that the teachers do not differ in acquiring computer self-efficacy in the above said cases. The result paves way to have a uniform pattern of technology enhanced training programme in the pre service teacher education course.

Keywords: computer self-efficacy, teachers, locality, year of study, technology enhanced training.

Introduction

"Smart habitation is an integrated area of villages and a city working in harmony and where the rural and urban divide has reduced to thin line." – APJ Abdul Kalam

Our former presidential ways insisted upon the equality between rural and urban societies. To have equality, first we must recognise the differences and the difficulties. "Most of the discussion about equality in education is focused on how to equalize access to and participation within different levels of formal education for different social groups." (Lynch, 2000). The present teachers pursuing their teacher education programme are having this kind of differences and the difficulties in attaining various skills. "These academic skills are acquired, sharpened and updated to make teaching learning more competitive (Murthy, 2008)."Today's teachers are going to handle the children who are of digital natives. "Our students today are all "native speakers" of the digital language of computers, video games and the Internet."(Marc Prensky, 2001). The teachers those who undergo the pre-service course are going to handle this type of digital natives. "Effective adoption of computers within the classroom takes time (Somekh and Davis, 1997)". The teaching learning methodologies are taught to the teachers by the teacher educators who are digital immigrants. "So there is a shift towards the inclusion ICT related training within pre-service teacher training programmes" (Farrell andIsaacs, 2007). The teacher educators after enabling themselves should first know about the abilities and disabilities in the skill of student teachers in using latest technical devices.

Need for the study

Enhancement of technology skill among teacher is necessary to enable them to manage with the digital natives in their future classrooms. "While it is possible that students have access through libraries, cafés and other places, it is also likely that some students do not have a clear idea of what is meant by Internet access." (Martin et al.,

2000)Locality to which the teachers belong to is to be noted because their exposure to the latest gadgets will be different from that of urban. "Not surprisingly, it appears that children from poor households or living in remote areas are the hardest to reach"(Vandermoortele, 1999). By testing their Computer Self – Efficacy in terms of locality, the teacher educators can fix various levels of teaching methodologies to enhance the skill of handling the latest digital devises to the teachers.

Statement of the problem

Locality may influence the Computer Self – Efficacy of the teachers. "The future role of teachers depends not just on the specifics of how teaching is organised, but also on the future role of the school itself (OECD, 2001)" Analysing the Computer Self – Efficacy of the teachers enables a teacher educator to manipulate the technology enhanced learning among teachers to meet out the needs of the future class rooms. Thus it was taken as a problem and can be stated as "Computer Self – Efficacy among Teachers in Terms of Locality"

Operational Definitions

Computer Self-efficacy: The self-analysis regarding the usage of computer skilfully is referred here as Computer Self – Efficacy.

Teachers: The teachers who try to develop their computer technology skills to provide a technology enhanced learning in their future class rooms are mentioned here as teachers.

Locality: Various places from where the teachers come to the teacher training institutes is called locality.

Limitations of the study

- Only teachers of diploma in teacher education course were selected for the study.
- teachers of Trichy district alone is taken for the research.
- Only private institution student teachers are taken for analysis.

Objectives of the study

- To analyse the computer self-efficacy of the teachers on the basis of their localities as rural and urban.
- To find the computer self-efficacy among the I and II year students of diploma teacher education course in terms of their locality.

Hypothesis of the study

- There is no difference among the computer self-efficacy of diploma teachers in terms of their locality.
- There is no difference among the computer self-efficacy of diploma teachers within the year of the study.

Research method

Normative survey method is adopted in this research.

Population and sample

Twenty teachers of from Teacher Training Institute are selected for the research. There is 20 TTIs in that district. Out of which two TTIs were randomly selected for the study.

Procedure

According to the procedure of sample selection 10% of the total population is to be selected as sample. Hence the researcher selected two private TTIs. The tool constructed and standardised by S. Thangarasu (2010) was given to the student teachers of those selected two private TTIs and the data was collected.

Tool

Computer Self – Efficacy scale was developed and standardised by S.Thangarasu (2010). It has 0.9959 reliability and0.9979 validity. General Computer Efficacy, Word Processing Efficacy, Excel Efficacy, Power Point Presentation Efficacy, Internet Efficacy and Computer in Classroom Process Efficacy were the six dimensionsof the tool. The tool has both positive and negative items to verify all the dimensions.

Data Analysis

The collected data was subjected to student t- test analysis.

Table : Analysis on the basis of Locality and year of study

Group of study	df	Mean	Standard Deviation	't' Value		Remark of Difference
				Calculated	Table	
I Year Rural	32	201.72	40.60	0.8106	2.037	Not Significant
II Year Rural		213.31	42.73			
I Year Rural	18	201.72	40.60	1.5110	2.101	Not Significant
I Year Urban		249.00	60.81			
I Year Rural	21	201.72	40.60	0.0414	2.080	Not Significant
II Year Urban		202.60	47.45			
II Year Rural	16	213.31	42.73	1.0844	2.120	Not Significant
I Year Urban		249.00	60.81			
II Year Rural	19	213.31	42.73	0.1658	2.093	Not Significant
II Year Urban		202.60	47.45			
I Year Urban	5	249.00	60.81	1.1143	2.571	Not Significant
II Year Urban		202.60	47.45			
Rural of I & IIYear	39	210.09	44.19	0.3065	2.023	Not Significant
Urban of I & IIYear		215.86	51.28			

The table shows that there is no significant differences among the teachers belong to rural and urban localities. They also do not significantly differ among their year of study.

Finding

The teachers of the private diploma teacher training institutes do not differ in terms of locality and within their year of study.

Conclusion

Providing computer enriched programmes for the todays teachers can develop the future teacher educator of the course, student teachers and the future school children. "It must be ensured that all such pre-service teachers have equal access to this new technology regardless of their economic background." (Cochran and Fries, 2001). With that the nation will be benefitted to have both digital native and digital immigrants with appropriate usage and sound knowledge of computer technologies respectively.

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EFFECTIVENESS OF MULTIMEDIA COURSEWARE IN PHYSICAL EDUCATION

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Abstract

The purpose the present study was to develop and validate multimedia biomechanics for physical education classes. The study consist of two parts, the first of the study was to develop multimedia technology in teaching selected units in biomechanics for physical classes and second the part of the study was to find out the effectiveness of the developed multimedia courseware.Twenty students from the department of physical education and sports, Manonmanian Sundaranar University, tirunelveli, who studying master degree in physical education, were randomly selected by lot method as subject. The age of the subject ranged from 20 to 25 years. The selected subjects had basic knowledge about the computer. The learning achievements and attitude of students towards the courseware were selected as a dependent variables and it was measured through the Learning Achievement Test and Attitude Scale toward Multimedia courseware respectively. The experimental group attended the multimedia Courseware on biomechanics and they were tested before and after treatment for the level of knowledge. The researchers developed the multimedia courseware for the selected units in biomechanics. Hence, multimedia courseware teaching was selected as independent variable. The pre and post test random group design was used as experimental design. The data pertaining to this study were examined by using one way analysis of variance (ANOVA) with repeated measure for the variables in order to determine the difference if any among the means of three test. Whenever 'F' ratio was found to be significant, the Scheffe's Test was used as post-hoc test to determine which of the paired mean differ significantly. Descriptive statistics was also used to analyze the attitude of students towards the multimedia courseware on using computer. This paper presents the study with in findings and conclusions.

Introduction

Technology acts as a catalyst for fundamental change in the way students learn and teachers teach. Technology revolutionizes the traditional methods teachers' use. Students become re-energized and much more excited about learning - resulting in significantly improved grades - while dropout and absentee rates decrease dramatically. Teachers can and will embrace technology, if they are given the kind of professional development and support they need. Technology implementation often stimulates teachers to present more complex tasks and material. Introduction of technology will tend to support teachers in becoming coaches rather than dispensers of knowledge. Technology use increases teaches' sense of professionalism and achievement. Technology can motivate students to attempt harder tasks and to take more care in crafting their work (Jeganath, 2003). Multimedia is the use of text, pictures, audio, and/or video to deliver information multimedia is a technology of content, applications and people. It encompasses many concepts and ideas that are important to understand. Multimedia courseware is an electronic collection of multimedia rich learning materials combined with varying levels of tutorial interactivity, which can be independently accessed by learners at any time and used at their own pace. Courseware can be made available on CD-ROM, over an intranet or through the internet (Gold, 2008).

Statement of Problem

The purpose the present study was to develop and validate multimedia courseware for the subject biomechanics for physical education classes. The study consist of two parts, the first of the study was to develop multimedia technology in teaching selected units in biomechanics for physical classes and second the part of the study was to find out the effectiveness of the developed multimedia courseware.

Methodology

The pre and post test random group design was used as experimental design. To achieve the purpose of the study, twenty students from the Department of Physical Education and Sports, Manonmanian Sundaranar University, Tirunelveli, studying Masters Degree in Physical Education, were randomly selected by lot method as subject. The age of the subject ranged from 20 to 25 years. The selected subjects had basic knowledge about the computer. The learning achievements and attitude of students towards the courseware were selected as dependent variables and they were measured through the Learning Achievement Test and Attitude Scale toward Multimedia Courseware respectively. The experimental group attended the multimedia courseware on biomechanics and they were tested before and after treatment for the level of knowledge. The researchers developed the multimedia courseware for the selected units in biomechanics. Hence, teaching through multimedia courseware was selected as independent variable.

Analysis of Data

The data pertaining to this study were examined by using one way analysis of variance(ANOVA) with repeated measure for the variables in order to determine the difference if any among the means of three test. Whenever 'F' ratio was found to be significant, the scheffe's test was used as post-hoc test to determine which of the paired mean differ significantly. Descriptive statistics was also used to analyze the attitude of students towards the multimedia courseware on using computer. The level of significance was fixed at 0.05 level of confidence for all the courses.

Summary of mean, standard deviation and dependent 'T' ratio between pre- and post-test on learning acheivement of expreimental group:

Test	Number	Mean	Std Deviation	't' Value
Pre Test	20	25.2	6.49	8.2*
Post Test	20	34.8	6.59	

The above table reveals that the mean value of the pre test and post test of experimental group were 25.2 and 34.8 respectively. The obtained't' test value is 8.2 which is greater than the table value of 2.093 with df 19 at 0.05 level of significance. Hence it is concluded that there was significant difference between pre and post test of experimental group on learning achievement scores of the experimental group students.

Conclusions

The following conclusions are drawn from the present study.

1. It was found that learning achievement in selected unit of biomechanics had improved significantly through multimedia courseware.
2. There was a significant difference among the pre test ; post test I (test after nine days) and post test II (test after fifteen days) on learning achievement of biomechanics.
3. Impact of the multimedia courseware is very effective; the students achieved mastery in the post test I in selected units of biomechanics.

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MOBILE LEARNING WITH SOCIAL MEDIA: NEXT PARADIGM SHIFT IN EDUCATION

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Abstract

ICT enabled teaching enhances learning in classrooms.Classroom education is also moving towards to a new paradigm shift called Online Education in recent years. Many technologies have evolved in due course to impartthis online program effectively among the student community. In thisfast paced world immediate access to information is essential. By integrating Mobile deviceswith Social Media we can disseminate information effectively. These technologies will provide a new platform for the educators and students to share their knowledge. Education community is benefiting a lot by effectively implementing this technique in their curriculum.This paper presents the benefits of mobile learning and suggests some ideas through which it can be integrated with social media.

Keywords: *Mobile Learning, m-Learning, Social Networks, Online Education, Blended Learning*

Introduction

Introduction of Tablet PCs or smart devices in colleges and universities for learning motivates the student community and increases their involvement towards learning. By using digital technologies in education, the learners develop digital skills, as well as other skills that are relevant in the current century. In the recent times popular social networking sites like Facebook, Twitter,YouTube, LinkedIn and Google have changed the way we are using Internet.These social networking sites provide aplatform for content sharing.This new approach of information exchange has not only affected the way we communicate, but has also presented new opportunities within the context of teaching and learning. Nowadays use of social media in educational context is increasing.

In the current scenario of education, learning through online depends on the usability of the mobile device, social technology, interaction of the students and their staff [Leach 2013]. It is necessary to create a Social Community among the various parties involved in this type of learning as illustrated below in Figure1.

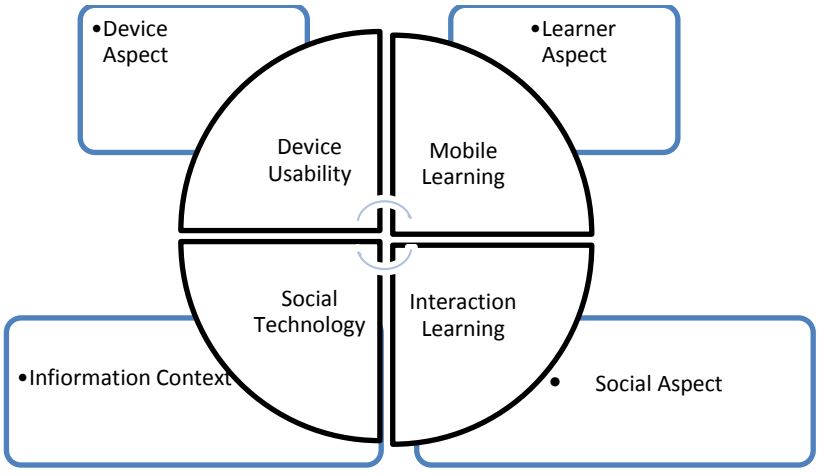

Figure 1: Model for evaluating social learning on educational achievement

The usage of mobile handheld devices has been increasing over the last few years. The 2015 Horizon Report states that mobile technology will be the key technology in the years to come. The implications for education in general and mobile learning in particular, are enormous. Increased connectivity via Internet enabled mobile devices provides access to learning content cheaply and easily.The low-end mobile phones (not Internet enabled) allow access to learning content via SMS, as the BBC Janala project in Bangladesh shows. In China, the mobile providerswerejoin hands with partners such as Pearson Education and British Council to deliver content in English preloaded onto mobile handsets. Many companies are developing Mobile applications that can be downloaded onto your iPhone or Android phone. Universities and colleges have been experimenting with handheld devices both inside and outside the classroom

Mobile Learners

Figure 2 summarizes a number of ways in which people are using mobile devices.

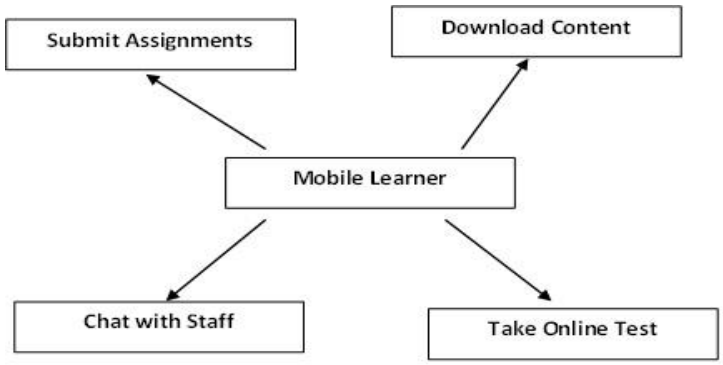

Figure 2: Various ways of learner's interaction with Mobile devices

Following are things a Mobile learner can do by using his / her mobile phone

- Starting to learn a new language on his iTouch. He uses flashcard apps to help him/ her memorize vocabulary, on his way to work.
- Subscribing to video podcasts from a number websites and watch themthe time suits for her / him.
- Using dictionary on his iPhone to check any new words he comes across on reading news papers
- Complete an online training courses in Moodle

Benefits of Mobile Learning

Before starting Mobile learning or m-Learning in our class rooms we need to ask ourselves why we need m-learning, what benefits it will make us and how it will satisfy learning community and so on.

Why do I want to use mobile learning?

- Because of the technology
- Providing something new for the learners
- Nowadays every learnerhas smart phones. Why not get them using these for learning?

What are the benefits of learning through mobile?

Following benefits can be achieved by using mobile Learning:

a) **In the classroom**: Start by suggesting a number of good apps to your learners for their own informal learning. Make Mobile self-study as optional - encourage only those students *interested.* Get them to report back regularly to the class. The enthusiasm may spread to other learners.

b) **Own devices**: It makes a lot of sense for learners to use their own devices

outside class rooms and on the class sets in the classroom for more formal learning activities.

c) **Rich content**: *Rich* content includes multi-media (images, audio, video), the chance to interact with others via social networking, and access to web resources

Social networking sites such as Facebook and Twitter have seen massive growth in the past years. There is a very popular comment in Social media community "If Facebook were a country, it would be the third most populous country in the world". The massive increase was driven by the rise in the use of mobile devices and smartphones.

Mobile Learning with Social Media

Table 1: How people are using Social Media on their Mobile Phones?

Browse Social Networking Sites	47%
Send and Receive messages	62%
Comment on Social Networking Site	35%
Chat on Social Networking Site	34%
Post Photos on Social Networking site	33%
Tag Photos	24%
Forward Items thru Social Networking site	33%
Blog Comments	24%

Table 1 shows information about mobile phones and social networking sites. It also shows how people use social networking sites on their mobile:

The big question is how Mobile learning with Social media is going to help educators? We can integrate Social networkinginto the Mobile app or learning program. For example, British Council provides a podcast *Learn English* which includes a Facebook page where learners can post comments and questions.

Educators can create blogs and post their materials for their teaching and consulting by keeping the students in mind. Due to the highly interactive nature of web, the educator can mix the text and audio visual content in a correct way to post their content online. With a wide range of device support (Mobile Apps for Mobile Devices) social media platform can blend with mobile devices as a way to extend learning activities.For each blog post, the staff can also create a discussion post which will give an elaboration on the topic and the students reading it has to click on a link for further getting further information about the post. The educator can ask the students to post comments in reply to the blog post. He can also provide credits for the students who are using the resource in effective manner.This activity can be conducted on a weekly basisand make the students to use of the blog for enhancedlearning. By doing this activity in a regular fashion, the students were becoming co-creators of learning content and interaction not only with their classmates in thecurrent and future course sections, but also with the blog reading public.

At the next stage, the educators can use the micro- blogging feature through an alternative means of providing enhanced learning activities. The micro blogging technique can be adopted with the use of this social media resource in the contextof a "push-pull" strategy.Here the educator will announce a topic of interest in a brief "tweet" message and include a link to the corresponding blog post. This would "push" learners (and other users subscribing to the twitter feed) directly to that source of information. This tended to bring learners into more blog posts of course-related topical interest. Some of the online learners who were also twitter users would "re-

tweet" for this message in their twitter feed(to direct those who subscribed to them to the intended posts or web sites). Similar to WordPress, twitter.com also provides apps for mobile devices.

To embed relevant video presentations into the blog posts, the educator can use you tube channel through which she / he could upload original video and create playlists of existing youtube.com video presentations. Using the online video editor in youtube.com, the educator could also edit his original video in useful ways (e.g., to control brightness or connect two or more videos into one presentation). From this educators can realize that online learners would use these models ofteaching practice with social media sites and mobile devices to produce learner-generatedcontent that could be used for their online course activities.

Conclusion

Usage of smart devices such as cell phones, tablets, iPads, and many other devices are gaining importance in educational field. Integrating Mobile technology with social media allows people to share information regardless of their location and time.

Mobility in mobile devices allowslearners to roam and share knowledge wherever they are. This type of learning makes educators and students work together and empower collaborative learning.

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VIRTUAL LEARNING ENVIRONMENT IN CLASSROOM

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Abstract

The information age and a networked world are forcing educators to rethink the educational experience. It has become very clear that the value add in a 'knowledge based future' will be a learning environment that develops and encourages the ability to think and learn both independently and collaboratively. The recent trend in computer based education is to move beyond traditional ways towards more interactive media and hyper media, where computing and communication technology are combined to make flexible connections. The method combines media such as writing paragraphs, video, sound, graphic and computing to forum is called virtual classroom. A virtual classroom is a learning environment created in the virtual space. The objectives of a virtual classroom are to improve access to advanced educational experiences by allowing students and instructors to participate in remote learning communities using personal computers; and to improve the quality and effectiveness of education by using the computer to support a collaborative learning process. Virtual learning provides a learning system. As virtual classroom offers a flexible self-paced, self-centered learning is very help for the students. Students come to a place nearer, use the technology and even know how the technologies are very important in the daily life and also the computer simulation used in wide variety in almost all fields. There by educational goals and objectives can be achieved.

Introduction

The proliferation of personal computer combined with the internet has precipitated far-reaching changes in the society. Electronic communications and digital networks are transforming the way work and reshaping personal communication and entertainment. This transformation has a tremendous effect on the need opportunity to learn. Unfortunately the transmission model still dominates higher education has changed little, E-learning as the gradual development phase of this transformative medium and is yet to experience its explosive effects in higher education. We are experiencing e-learning in its early forms and have much to learn of inherent capabilities and the creation of a new 'learning ecology'. E-learning transforms education in ways that extend beyond the efficient delivery or entertainment value of traditional approaches. E-learning cannot be ignored by those who are seriously committed to enhancing teaching - learning in higher education. The web as a communications tool has been developed and refined to stimulate all of the formats undertaken using earlier technologies - including the face-to-face classroom.

Virtual Learning Environment (VLE)

A virtual learning environment is a term that refers to technology which supports teaching and learning; it involves collaboration, communication and content tools, as well as providing students with an online personal learning space. It enables teaching and learning to take place any place at any time - a college / university with no physical boundaries.

According to Dillenbourg *et al*. (2002) Virtual Learning Environment

1. It is a designed information space;
2. It is a social space: educational interaction occur in the environment, turning spaces into places;
3. It is a virtual space that is explicitly represented; the representation of this information/ social space can vary from text to 3D immersive words; where students are not only active but also actors; they co-construct the virtual space;
4. It is not restricted to distance education; they also enrich classroom activities;

5. It integrates multiple tools, hetero-geneous technologies and multiple pedagogical approaches;
6. It overlaps with the physical learning environment.

Content Management System (CMS)

It performance the functions of a Content Management System (CMS) but also keeps track of students' progress as they work through the learning resources it stores. A VLE can be considered part of a managed learning environment MLE if the data it records on students' progress are passed to the college or school management information system (MIS).

Components and Features of VLE

The different components of the VLE are as follows:

- Notice -board / bulletin board;
- Course outline (course structure, assignments, assessment dates);
- E-mail facility;
- Conferencing tools (asynchronous conferencing discussing);
- Student home pages;
- Metadata (ability to add metadata to resources);
- Assignments (ability for tutor to create assignments);
- Assessments;
- Synchronous collaboration tools (such as whiteboards, chat and video conferencing);
- Multimedia resources (accessing, storing and creation);
- File upload area (ability for students to upload their resources to a shared area)
- Calendar.

The features VLE 2.0 are as follows (Weller, 2007)

a) Personalized;
b) Continual updating;
c) Students as co-creators;
d) Based around services;
e) Reusable content and components;
f) Lightweight programming;
g) Social software;
h) Harnessing collective intelligence;
i) Open architecture.

Functions of VLE

- Providing Controlled access to curriculum that has been mapped to elements (or "chunks") that can be separately assessed and recorded.
- Tracking student activity and achievement against these elements using simple processes for course administration and student tracking that make it possible for tutors to define and set up a course with accompanying materials and activities to direct, guide, and monitor learner progress.
- Providing support to online learning, including access to learning resources, assessment, and guidance, the learning resources may vary from self - developed to professionally authored and purchased materials that can be imported and made available for use by learners.
- Facilitating communication between the learner, the tutor, and other learning support specialists to provide direct support and feedback for learners, as well as peer-ground communications that build a sense of group identity and community of interest.
- Providing links to other administrative systems, both in - house and externally.

The typical learning that any VLE system facilitates are (Weller 2007):

- Community of practice / socio-cultural learning;
- Resource - based learning;
- Peer learning;
- Content - led / instructivist learning;
- Collaborative learning;
- Instructor - led leaning;

VLE : Analysis, Perspectives

A'Herran (2000) suggests that there are four perspectives from which a VLE system should be analyzed:

- Administrators - scalability, value for money and integration with existing systems are important for the users.
- Technician - robustness, user base, technical support and ease of maintenance will be significant.
- Course developers or Teachers - customizability, flexibility, and the integration of legacy materials will be paramount.
- Learners - consistency, accessibility and quality of design will be main concerns.

Weller (2007) has suggested a six stage process for choosing a VLE system as given below:

1. Devise scenario appropriate for your organization / institution.
2. Engage in stakeholder consultation.
3. Perform an external and internal review.
4. Devise a set general principles;
5. Draw up a feature list.
6. Map to strategic objectives.

There are some major tips for getting started with VLEs are (Trinick, 2007).

1. Don't automatically opt for the solution the college next door or your LEA recommends-your VLE choice is unique to your needs and circumstances.
2. Investigate the usability and flexibility of benefits of VLEs won't be realized overnight one step at time.
3. Manage staff expectations of the benefits of VLs won't be realized overnight-one step at a time.
4. Consult with your teachers and pupils - they are the ones who will be using it and it is vital that the system you deliver is appropriate to their needs,
5. Involve parents in the consultation process too moving to a VLE is culture change for all involved and it's important to get 'buy-in' from everyone right from the outset.
6. Do not under estimate the staff training and resources that will be needed to make your VLE strategy a success. Consider the flexibility of a specialist outsourced provided for VLE training and support.

Advantages and Disadvantages of VLE

As with any technology used in teaching and learning, VLEs have no intrinsic educational value in themselves. The way in which online activities are designed and delivered can add value and increases effectiveness. O'Leary has been given some commonly perceived advantages and disadvantages of using VLEs.

VLE can help teaching and support staff's management and deliver a variety of daily tasks, including:

- General class administration and organization.
- The creation of lesson plans using existing resources.
- Assessment and monitoring of students.
- Allocation and marking of on-line assignments.
- Discussion and support with students online.
- Submit and track their assignments on line via a personal home page.
- Contribute to and participate in discussions with classmates and other schools via the various conferencing tools.
- Work at their own pace within and out of school this is particularly beneficial to learners with special educational needs, such students in hospital or children unable to attend regular classes for health reasons.
- Facilities self-learning at the learner's convenient time and place.
- Electronic publication is cheaper and faster.
- Facilities faster and cheaper and cheaper delivery of material.
- Promotes better teacher student interactivity.
- Easy online delivery of materials.
- Easy to use for both students and teachers

- Widenstudents access on and off campus to learning materials and resources.
- Offers flexible support for educators who do not communicate with the students.
- Has the potential for new ways of learning and teaching such as active and independent learning which make use of online communication, online assessment and collaborative learning.

The following are the disadvantages of VLE:

- The student and tutor need reliable access to a computer and internet.
- The student and tutor need basic information technology skills.
- Training is required for both tutor and student.
- The development of high quality learning materials is time consuming and expensive.
- Online tutoring can be more time consuming then face to face tutoring.
- Learning is a social process and many people enjoy face interaction.
- The use of the large virtual learning environments is expensive and may demand additional equipment and specialized staff.
- Some learning environments require state of the art computers and the most up to date browser.
- Blended solutions can be expensive as they may involve the development of expensive online learning resources and providing technology based support as well as face to face support
- Can become a dumping ground for materials not designed to be delivered online.
- Copyright and IPR of materials need to be considered.
- Off campus access to hardware and networks can be problematic for both students and educators and raises issues of equality. Stability legislation and accessibility to online materials also need to be considered.
- Need to plan online support carefully to avoid.
- Such independent learning still needs to be guided and supported. Appropriate training and ongoing support is still needed for both students and educators.
- Lack of student motivation.
- Many people find it daunting, especially at first.

Conclusion

"Virtual Learning Environment" as a range of systems that comprise features likes a designed information space, a social space being a "place", participants that are active and present actors. Using a virtual learning environment does not guarantee effectiveness *per se*. It must integrate with rich pedagogical scenarios and these scenarios must profit from its various facilitating features. Applying the "virtual learning environment" concept any sort of internet technology (classic web sites, learning management systems, 3d environments, etc.) entails the danger of ignoring interesting avenues of research and development that could and should enrich education (Dillenbourg et al., 2002) there have been many advances in the world of education and the VLE is by far the most exciting and provocative evaluation to happen yet. The VLE, if used effectively, changes the entire support is dedicated to improving and enhancing the teaching and learning experience not only for the student but for the teacher as well.

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INNOVATIVE PEDAGOGICAL METHODS FOR CLASSROOM TEACHING

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Abstract

The purpose of this paper is to evaluate the traditional methods of teaching as well as multimedia teaching and to suggest other useful teaching methods that can be attempted in imparting knowledge to the students. Basically teaching must include two major components sending and receiving information. Ultimately, a teacher tries his best to impart knowledge as the way he understood it. So, any communication methods that serve this purpose with out destroying the objective could be considered as innovative methods of teaching. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower people, strengthen governance and galvanize the effort to achieve the human development goal for the country. Education is a light that shows the mankind the right direction to surge. The purpose of education is not just making a student literate but adds rationale thinking, knowledge ability and self sufficiency. When there is a willingness to change, there is hope for progress in any field. Creativity can be developed and innovation benefits both students and teachers. Quality of higher education has been an issue of global concern in recent years. It is directly linked with the economic development, skill and knowledge generation over the various subjects. It has substantial role to play in developing skills and preparing intellectual manpower for catering the needs of society as well as creation of knowledge.

Keywords: Methodology, Traditional Teaching, Multimedia Learning, e-learning technologies,

Introduction

Teachers in the twenty-first century are responsible for the overall well-being of their students, as well as educating, disciplining, and stimulating their developing minds. Because teachers have these additional duties, many more requirements are needed to be an effective teacher than simply an education and a certificate. Certain personality traits are necessary to be able to accomplish all of these tasks and duties. One must be passionate, patient, cooperative, authoritative, and creative in order to be an effective teacher. Teacher effectiveness depends more on the methods and strategies adopted for classroom teaching. Hence, in this paper the traditional and innovative methods of teaching are critically examined ,evaluated and some modifications in the delivery of knowledge is suggested. As such, the strengths and weaknesses of each teaching methodology are identified and the challenges involves in ICT implementation in education are also presented.

Traditional Teaching Method

In the pre-technology education context, the teacher is the sender or the source, the educational material is the information or message, and the student is the receiver of the information. In terms of the delivery medium, the educator can deliver the message via the "chalk-and-talk" method and overhead projector (OHP) transparencies. This directed instruction model has its foundations embedded in the behavioral learning perspective (Skinner, 1938) and it is a popular technique, which has been used for decades as an educational strategy in all institutions of learning. Basically, the teacher controls the instructional process, the content is delivered to the entire class and the teacher tends to emphasize factual knowledge. In other words, the teacher delivers the lecture content and the students listen to the lecture. Thus, the learning mode tends to be passive and the learners play little part in their learning process (Orlich et al.,1998). It has been found in most universities by many

teachers and students that the conventional lecture approach in classroom is of limited effectiveness in both teaching and learning. In such a lecture students assume a purely passive role and their concentration fades off after 15-20 minutes.

Teaching in classroom using chalk and talk is "one way flow" of information. Teachers often continuously talk for an hour without knowing students response and feedback.

- The material presented is only based on lecturer notes and textbooks.
- Teaching and learning are concentrated on "plug and play" method rather than practical aspects.
- The handwriting of the lecturer decides the fate of the subject.
- There is insufficient interaction with students in classroom.
- More emphasis has been given on theory without any practical and real life time situations.
- Learning from memorization but not understanding.
- Marks rather than result oriented.

Innovative Methods

Multimedia Learning: Multimedia, is the combination of various digital media types such as text ,images, audio and video, into an integrated multi-sensory interactive application or presentation to convey information to an audience. Traditional educational approaches have resulted in a mismatch between what is taught to the students and what the industry needs. As such, many institutions are moving towards problem based learning as a solution to producing graduates who are creative; think critically and analytically, to solve problems. In this paper, we focus on using multimedia technology as an innovative teaching and learning strategy in a problem-based learning environment by giving the students a multimedia project to train them in this skill set.

The teacher uses multimedia to modify the contents of the material. It will help the teacher to represent in a more meaningful way, using different media elements. These media elements can be converted into digital form, modified and customized for the final presentation. By incorporating digital media elements into the project, the students are able to learn better since they use multiple sensory modalities, which would make them more motivated to pay more attention to the information presented and retain the information better.

Creating multimedia projects is both challenging and exciting. Fortunately, there are many multimedia technologies that are available for developers to create these innovative and interactive multimedia applications (Vaughan, 1998). These technologies include *Adobe Photoshop and Premier* to create edit graphics and video files respectively, *Sound Forge and 3D Studio Max* to create and/or edit sound and animation files, respectively. They can also use an authoring tool such as *Macromedia Director or Author ware* to integrate and synchronize all these media elements into one final application, add interactive features, and package the application into a distributable format for the end-user. Another advantage of creating multimedia projects in the classroom setting is that when students create multimedia projects, they tend to do this in a . By working in a group, the students would have to learn to work cooperatively and collaboratively, using their group skills and a variety of activities to accomplish the project's overall objectives.

Other Innovative Tools Suggested

E-learning: E-learning refers to the use of ICTs to enhance and support teaching and learning processes. Itis the instructional content or learning experiences delivered or enabled by electronic technologies and it incorporates a wide variety of learning strategies and technologies. E -learning ranges from the way students use e-mail and accessing course work online while following a course on campus to programmes offered entirely online.

Functionally, e-learning includes a wide variety of learning strategies and ICT applications for exchanging information and gaining knowledge. Such ICT applications include television and radio; Compact Discs (CDs) and Digital Versatile Discs (DVDs); video conferencing; mobile technologies; web-based technologies; and electronic learning platforms. This section discusses what these ICTs entail and their pedagogical, technical and cost implications. TV and radio can improve teaching and learning process indifferent ways such as by showing processes and activities that may not otherwise be available to the learner.

ICT Implementation

Challenges in higher learning institutions: Despite of the achievements revealed by some of the Tanzanian universities in implementing ICT for teaching and learning processes, these universities still face a lot of challenges in undertaking such a process.

Lack of systemic approach to ICT implementation: Integration of ICTs in the functions of any organization is a complex process that needs to be fully conceptualized and defined from the beginning. The institution ICT policy and strategic plan should be defined to provide a frame work for the development and implementation of specific ICT projects. The diversity and competing interests of different stakeholders in the institution should be recognized when developing ICT policy and a strategic plan. The following issues, amongst others, should be take into consideration:

i) ICT infrastructure already in place;
ii) ICT skill levels in the institution;
iii) Number of staff and students in each department and projected growth;
iv) Academic management process: curriculum development, assessment methods and administration;
v) Cost-effectiveness analysis (including hidden costs) and the choice of proper technologies for the needs of the institution; and
vi) staff development in new technologies.

Awareness and attitude towards ICTs: It is important for all stakeholders in the institution to know the existing ICT facilities and services and their importance in relation to their specific tasks. However, according to Tusubira and Mulira (2004), there tends to be some vague knowledge about ICTs, some interpreting them as simply advanced technologies that require a lot of money and very advanced skills. They are not appreciated as a means of creating efficiency and cost effectiveness.

Administrative support: Administrative support is critical to the successful integration of ICTs into teaching and learning processes. Administrators can provide the conditions that are needed, such as ICT policy, incentives and resources. The commitment and interest of the top management and other leaders at every level is the most critical factor for successful implementation of ICTs. According to Cameron and Ulrich (1986), a transformational leadership is a leadership that involves a process of fundamental change which is required for the institutions to adapt to changes brought about by the information society3. Dwyer *et al* (1997) emphasize that for the integration of ICTs to be effective and sustainable, administrators themselves must be competent .in the use of the technology, and they must have a broad understanding of the technical, pedagogical, administrative, financial, and social dimensions of ICTs in education.

Technical support: This includes issues like installation, operation, maintenance, net work administration and security. This is an important part of the implementation and integration of ICT in education system. In most cases however, technical support is not available, which implies that trainers and students require some basic troubleshooting skills to overcome technical problems when using ICTs.

Transforming higher education: Many institutions fail to integrate ICTs into teaching and learning because they are using ICTs to replicate their traditional practices, content and control. Their plans appear to be

driven by ICTs and not by pedagogical rationale and focus .Indeed, the effective use of technology requires a revolution in thinking about teaching and learning. Part of that revolution necessitates restructuring universities and colleges - that is, changing the way higher education institutions are planned, managed and organized.

Staff development: Integration of ICT in teaching and learning does not only deal with introduction of new hardware and software, but both trainers and the students have to adopt new roles, and change their ICT behaviors and ways of teaching and learning. As Farrell (1999) points, training and workshops are needed not only to improve the skills of the instructors, but also as a means of getting them involved in the process of implementing and integrating ICTs in teaching and learning. For example, faculty staff require training not just in the choice and use of appropriate technologies, but more fundamentally in how people learn and in instructional design (Bates1997). Pelgrum (1999) recommends staff training to be a continuous process for regular up dates with the development of ICTs.

Lack of ownership: It is critical that all stakeholders contribute to and own the policy and the plan. Institution-wide consultations are necessary in the identification of challenges, and in proposing areas for ICT application. Stakeholders must agree on the projects to be implemented, including their role therein. Employees must see ICTs as tools rather than as competitors for their jobs. A related challenge is getting stakeholders in an organization to think for the organization, rather than the natural tendency of considering the interests of their particular departments.

Inadequate funds: Financial resources form a key factor to the successful implementation and integration of ICTs in education. It is obvious that countries with higher financial resource bases stand a good chance than those with limited resources to reap benefits offered by ICTs. In addressing the problem of limited funds and sustaining donor funded projects, higher learning institutions can do the following:

i. Adopt freeware and open source software for teaching and learning activities;
ii. Continuously press for more funds from their governments; and
iii. Diversity sources of funds to have a wide financial base.

Conclusion

ICTs provide great opportunity for universities in developing countries to improve their teaching and learning processes. So far most of the universities in developing countries possess basic ICT infrastructure such as Local Area Network (LAN), internet, computers, video, audio, CDs and DVDs, and mobile technology facilities that form the basis for the establishment of e-learning. It is argued that, universities in developing countries should adopt e-learning technologies to improve teaching and leaning processes. Pedagogical, technical and cost issues should betaken into account for each specific technology when integrating ICTs in teaching and learning practices.

- The strategies, techniques, and approaches that trainers use to facilitate learning.
- Moving Picture Experts Group. The standard for compression and storage of motion video, for example, videos available though the World Wide Web.
- A society in which economic and cultural life is critically dependent on information and communications technologies.

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USE OF ICT TOOLS IN EDUCATION

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Abstract

Language teaching in general and English Language Teaching in particular has tremendously changed over the centuries. The phrase "E-learning" of "Technology in Education" has become the buzz word in every educational environment. The use of ICT in education and training has become a priority during the last decade. However, the impact of ICT on pedagogy has been very small, the technology integrated teaching and learning has not been implemented in a meaningful and productive way into the regular teaching and learning activities across the curriculum. This paper focuses on the use of ICT tools in teaching and learning which would help teachers and learners to utilize their skills and competencies efficiently in their teaching learning process.

Keywords: ICT, e- Learning

Introduction

Language teaching in general and English Language Teaching in particular has tremendously progressed over the centuries. Due to the ubiquitous presence of technology the pedagogy of teaching methodology has also undergone a sea change. The phrase "E-learning" or "Technology in Education" has become the buzz word in every educational environment. The use of ICT in education and training has particularly become a priority during the last decade. However, the impact of ICT on pedagogy has been very feeble, and the technology integrated teaching and learning has not been implemented in a meaningful and productive way into the regular teaching and learning activities across the curriculum.

ICT is a valuable tool to enhance teaching and learning. For teachers ICT is a professional resource, a mode of classroom delivery, and a source of valid and valuable text types. For students, ICT provides opportunities to communicate more effectively and to develop literacy skills including skills in critical literacy. It is a valuable tool for researching, composing and responding, along with viewing and representing in English. Furthermore, it has been proved that new technologies have lots of benefits for the students. ICT allow for a higher quality lessons through collaboration with teachers in planning and preparing resources. Students learn new skills: analytical and critical thinking, including improvements in reading comprehension (Lewin *et al*., 2000).

ICT also develop some writing skills: spelling, grammar, punctuation, editing and re-drafting (Lewin *et al*., 2000). Still new technologies encourage independent and active learning, and students' responsibility for their own learning (Passey, 1999) ICT proves that students who used educational technology felt more successful in school. They are more motivated to learn more and have increased self- confidence and self-esteem. It is also confirmed that many students found learning in a technology-enhanced setting more stimulating and much better than in a traditional classroom environment (Pedretti and Mayer-Smith, 1998).

ICT use is a complex and slow process (Levin and Wadmany, 2008) that is influenced by many key factors such as the characteristics of users (teachers and students), context of technology use, and pedagogical philosophies of the country's educational system. This paper focuses on the use of ICT tools in teaching and learning which would help teachers and learners to utilize their skills and competencies efficiently in their teaching learning process.

Blog

A weblog or blog is a personal diary, collaborative space, breaking-news outlet and a collection of links to your own private views memos to the world. In the field of education, blogs are being used to satisfy a variety of communication needs to favour e-learning practices (Susana and Sergio 2007). Blogs are easier to set up and administrate in contrast to other technologies and are easier to publish all types of resources (text, images, videos, etc) to the web when compared to traditional web publishing. The advantages of Blog as a platform for facilitates learning are as follows:

1. It increases the students' motivation to take an active part in the learning process, since blogging is fun and interesting.
2. It develops the communication skills of students that are less internet-savvy through peer-to-peer learning.
3. It keeps students informed with the most up-to-date information about of their object of study.
4. Through the use of comments and other forms of feedback, it develops critical thinking and the appropriate ways to put it into writing.
5. It makes learning flat, not hierarchical, with the teacher as control point rather than unique source of information and interpretation.

Diigo

Collaborative learning tools like Diigo and Google Sidewiki, expand the concept of social bookmarking by allowing users not only to share bookmarks but also to digitally annotate web pages. Collaborative annotation allows users to highlight specific content on a web page and add a note explaining their thoughts or pointing to related resources. Users can highlight text or images, add a note explaining their own comments, and share annotations with their friends. In addition, bookmarks and comments can be grouped and tagged to provide organization. As a result, students in a course can compile an annotated bibliography of useful sites, with marked paragraphs they found important and notes about why a site is significant.

Elluminate

Elluminate provides web, audio, video and social networking solutions optimized for21st century education and training. From two-way audio, multipoint video, and shared whiteboards to application sharing, interactive recording, and breakout rooms, all Elluminate Live components are tightly integrated to provide the ultimate interactive learning environment. It can also be used in conjunction with a telephone conference call or when available, the Voice over IP function. The following are the benefits of using ElluminateLive

1. Increase completion rates and retention
2. Eliminate geographical barriers
3. Build online communities
4. Save travel costs
5. Increase productivity
6. Accommodate multiple learning styles
7. Incorporate technology in the classroom
8. Using Elluminate vroom with application sharing and chat
9. Scale information and knowledge
10. Leverage limited teaching resources
11. Provide professional development

Glogster

A glog is created using very easy to understand, drag and drop interface that is relevant, enjoyable, and scalable for students of all ages and learning styles. A Glog is a interactive visual platform in which users create a 'poster' or 'web page' containing multimedia including text, audio, video, images graphics, drawings, and data. Glogster EDU is the leading global education platform for the creative expression of knowledge and skills in the classroom and beyond. The features and advantages of this platform are as follows:

1. A creative, dynamic, and innovative digital outlet that captures learner's excitement for online creations, keeps

learners engaged in course content, and makes teaching learning more fun filled.

2. A private and safe platform, monitored directly by teachers. Teachers control all the activities of their learners.
3. A valuable teaching tool that integrates diverse core subjects including math, science, history, art, photography, music and more for individual learner portfolios, unique alternative assess-ments, and differentiated instructional activities.
4. Improves student-teacher relationships by allowing both to explore Web 2.0 and learning concepts together.
5. Keeps teacher and students up-to-date with modern technology.

Ning

Ning is an internet-based service that allows users to create their own social networks and participate in other networks. Ning allows creators of networks to determine the site's appearance and functionality, as well as whether the site is public or private. Ning provides an avenue for instructions to a neutral setting, offering functionality and an experience that are familiar and comfortable to students.

Prezi

Prezi severs a several function to power point, but with more powerful and interesting features. In Prezi Presentations are created on a 'canvas' rather than on slides. This encourages presenters to focus on combining text, image and multimedia. According to Tarr (2009), Prezi has the following benefits:

1. The 'canvas' layout deters presenters from using too much text.
2. It is easy to incorporate images, sounds and videos into one presentation.
3. It is very easy to use.
4. It embeds easily into most webpages and can be used as standalone teaching aids with some creativity in the design of the presentation.

According to Lydia (2010), Perzi can be used for formatting, text, Images, Vedio, Sharing, Differentiation, and Wheel Reinvention

Skype

Skype is for doing things together, wherever one is located. Skype's text, voice and video make it simple to share experiences with the people. Upto 9 users can conference on a call at no cost.The users can make calls online is that users can effortlessly call other people whether they are close to them or the other side of the world, either on computers or mobile phones.

According to Chris Clark (2011), Skype can be integrated into teaching and learning process as follows:

1. Remote Class
2. Guest Speaker
3. Field Trip
4. Language Practice
5. Panel
6. Group Work
7. Collaboration
8. Performance

Skype provides wide range of activities that can improve student engagement and comprehension. Interacting with people from other parts of the world helps students understand cultural differences learn about history and social forms and fine tune foreign language Skills.

Slideshare

Slideshare is a media site for sharing presentations, documents and pdfs. It features a vibrant professional community that regularly comments, favorites and downloads content. Content also spreads virally through blogs and social networks such as LinkedIn, Facebook and Twitter. Anyone can view presentations and documents on topics that interest them.

Wallwisher

Wallwisher is a collaborative tool that lets students be prosumers rather consumers (Sharon Tonner 2011) Wallwisher is an

internet application that allows students to post their topic using electronic sticky notes on a shared digital wall. Students can type a maximum of 160 characters per electronic sticky notethat can incorporate an image audio or video using the appropriate web address link. It can also be used for personal note taking, to do lists, feedback collection, etc. It can be effectively used:

1. To allow students to participate in a collaborative conversation.
2. To brainstorm an idea.
3. To allow students to access discussions and ideas after lectures.
4. To provide an interactive area that incorporates text, audio and visual materials.
5. To assess students' to access discussions and ideas for lectures.
6. To enable students' to summarize their understanding of learning in a limited number of characters.

Wordle

Wordle is a tool that looks at the text provided and generates a "word cloud" summary from those words. The word cloud gives greater prominence to words that appear more frequently in the source text. The obviates benefits of wordle are:

1. It can be used as a means of assessment
2. It can allow Self-Reflection
3. It summarizes survey results from text fields
4. It illustrates a student's writing with picture.
5. It improves vocabulary and develop knowledge by taking the text from documents or webpages and makes them into word clouds to help remember the texts one reads.

Wordpress

Wordpress is a free online publishing. It is a web-based software program that allows anyone to build and maintain in term of creating and editing a website or blog. It allows to set up various levels of access to one's site by changing the user role. Its key features are:

1. Easy to use and versatility
2. Feature rich interface
3. Expandable
4. It is Open source

Delicious

Delicious is a social bookmarking web service for storing, sharing and discovering web bookmarks. It allows users to tag, save, manage and share web pages from a centralized source. With emphasis on the power of the community, Delicious greatly improves how people discover remember and share on the internet. The features and advantages are as follows:

1. Saving and accessing bookmarks online.
2. Promoting one's own sites.
3. Finding bookmarks from other users on the network
4. Networking with other users who are in the network
5. Reading ones network bookmark

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VIRTUAL LABORATORY FOR SCIENCE LEARNING: AN OVERVIEW

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Abstract

Virtual laboratories are developed to provide a platform for performing practical work virtually that enables the students to think and act in a scientific manner. The scientific method is developed with the infusion of laboratory experiments interrelated with theory. Nowadays, while learning biological science one should really depend on technology mediated laboratory for developing practical skills. Such virtual laboratories will conserve the animal species which are otherwise extensively killed in the name of science experiments. Multimedia based Virtual laboratory replaces the real objects in the science laboratory and it helps the student and teachers to enhance the laboratory skills in the area of science learning. In this background, this paper discusses the Virtual Laboratory, its significance and advantages and presents varied Virtual Laboratories.

Key words: Virtual lab, Virtual learning, Virtual laboratory

Introduction

Modern science is the interplay of experiments, observations and theoretical inference. The laboratory of science is an indispensable aspect because the laboratory provides students with opportunities to engage in the processes of investigation and inquiry. It provides students with some understanding of the nature of sciences (Ravichandran, 2013). According to Ausubel (1968), the laboratory "gives the students appreciation of the spirit and method of science, it promotes problem-solving, analytic and generalization ability. Many researchers in science education admitted that laboratory studies increase students' interest and abilities for the science subjects.

Importance of Experimental Works in Science

The 'hands on' approach has the potential to stimulate student interest in the subject matter, teach laboratory skills, enhance the learning of knowledge, give insight into the scientific method and develop scientific attitudes such as objectivity (Gorst & Lee, 2005). Laboratory exercises such as biological dissections offer a sensory as well as an intellectual experience and students develop a sense of personal discovery which stimulates intellectual curiosity (Kinzie, Strauss and Foss, 1993).

Nowadays, while learning biological science, due to the responsibility to conserve the animal species sacrificed for the purpose of learning, one should really depend on technological mediated laboratory for developing practical skills. Multimedia based Virtual laboratory replaces the real objects in the science laboratory and it helps the student and teachers to enhance the laboratory skills in the area of science learning. Thus computer-based virtual learning environments open new realms in the teaching, learning and practice of the Life Sciences.

Virtual Laboratory

A virtual laboratory is a tool for distance learning and/or experimentation that allows people to share knowledge, data, voice, video, tools, and many other resources. It provides a suitable environment to extend, improve, integrate, refine, and assist the learning and/or experimentation process of many subjects, thus contributing to an increase of the effectiveness of scientific research and widening the use of scarce or costly equipment's (Giuseppe Carnevali, 2011).

According to Özdener, 2004, 2010, virtual labs are tools that simulate phenomena that cannot be investigated or observed in natural environments or in cases where the lab facilities are limited. A virtual laboratory is a computing system that allows to share the physical resources available in a laboratory with remote users connected on the internet.

Advantages in Utilizing Virtual Laboratory for Science Experimentation

Virtual laboratory enables the students to repeatedly carry out experiments in a safe environment during lessons. The major purpose of the Virtual Learning Platform is to support actual in physical laboratories, while on the other side is to replace them too. Virtual labs create a convenient learning environment that takes into consideration the individual's characteristics (Guzzi *et al.*, 2005; Noor and Wasfy, 2001; Özdener, 2010). These programmes also provide an affordable, safe, easy and ideal working environment.

Students are enabled to access resources they do not have, and can run experiments much longer than typically allowed in University labs. They can visit several virtual laboratories available in the world, thus comparing the divergent approach and solutions for the same. Scientists and technicians can cooperate by running joint experiments from their own place on large and expensive equipment, reducing travel costs and allowing observation of results to other people in real-time.

Different kind of experiments can be implemented using a virtual laboratory approach. For example, a user could acquire data from expensive devices, such as infrared cameras, stereo vision systems, 3D laser scanners, or mobile cameras, in order to test his algorithms on real data. Control experiments can also be carried out on robotic devices, by changing input set points and control parameters.

In the absence of real laboratories, or when the available resources are not sufficient for satisfying the actual demand from the students, experiments are performed via simulation, through specific software tools (Bassem, 2000; Ph, 1998; Alhalabi and Marcovitz, 2000; Hamza *et al.*, 2000; Carnevali, 2011)

Thus, Virtual laboratories (simulated versions of the hands-on labs) present a series of advantages, such as they are more cost-effective to implement and run, are not constrained by time or space, they are safe, etc. In science education virtual labs have emerged as complementary or alternative tools of the hands-on laboratory education.

Shortcomings in utilizing Virtual laboratories for Science experimentation

A real laboratory experience offers the student the possibility to know the actual behaviour of a system, including on linearity and noisy data which is the major contradictory present in Virtual lab. A Virtual laboratory environment does not preclude a student to face with these problems. Although there is no direct interaction with the remote system, the student can send input data to the real system and can receive back all output data produced during the experiment.

Indian Initiatives in promoting Virtual laboratory

India has embarked on National Mission Project to build over 150 Virtual labs targeting over 1450 experiments mapped to the UG and PG Curriculum. (Prema Nedungadi, 2011)

The axiomatic design of the Virtual Labs Collaborative and Accessibility Platform (VLCAP) built into the various modules including Virtual lab workbench, Collaborative Content management, Repositories which are developed as a user-friendly interfaces, by the involvement of 12 premier institutes partnering to build over 150 Virtual lab with the mission to collaborate and involve many more institutes in the course of the project. In this context , the Indian classrooms has changed to limitless boundaries breaking the conventional rules of education, making the same at the outreach of every single student

to acquire knowledge in a Virtual learning environments (Prema Nedungadi,2011).

All Virtual Labs by the mission project can be accessed through a common website, www.vlab.co.in.

Virtual Labs and online courses in Biosciences

As mentioned by Shyam Diwakar,(2012) there are online 'dissections' of frog tutorials by Mable Kinzie developed in 1994 and an improved version of the same was hosted in 2002 (http://curry.edschool. Virginia.EDU/go /frog/ menu. html).

- Quick"movies":http://www.bio.unc.edu/faculty/goldstein/lab/movies.html Virtual "experiments"
- Biology Labs On-Line (BLOL) is a collaboration of the California State University system Center for Distributed Learning and Addison Wesley Longman, with partial funding provided by the National Science Foundation (http:// biologylab.awlonline.com).
- A project titled "BIOTECH Project" developed by University of Arizona, with aim of supporting Arizona teachers to conduct molecular genetics (DNA science) experiments with their students and assists teachers in developing new activities for their classroom (http:// biotech.bio5.org/home).
- "Protein Lab" by A.J. Booth, is a computer simulation of protein purification. These labs are extremely helpful for beginners in the art of protein purification. It gives them a chance to get beyond the details of individual techniques and get a sense of the overall process of a protein purification strategy. http://www.booth1.demon.co.uk/archive.
- To enhance education, there is a great need for individualized courseware to provide educational content that fits to the learner's learning style and knowledge base. University of Utah's genetic science learning center has its very animated genetics labs at http:// learn.genetics.utah.edu/gslc. The labs were developed with the mission in making science easy for everyone to understand.
- Similar projects at Howard Hughes http: // www. hhmi.org /bio interactive/vlabs
- Pearson's http: //www. phschool.com/ science/biology place/lab bench.

Conclusion

The pedagogical goal of education is to achieve meaningful learning outcome. Meaningful science learning will be possible when appropriate practical experiences are provided for the learners. It is proved that the provision of adequate laboratories becomes mandatory for enhancing experimental skills among science learners. In this connection if experiments are developed with the help of virtual laboratory method, it will be helpful for students and teachers to develop the desired skills in science teaching and learning. Virtual laboratory provides a chance for doing the experiment and hence resulting in a much higher knowledge retention rate than using the lab manual alone.

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TEACHING GRAMMAR THROUGH MOBILE ASSISTED LANGUAGE LEARNING

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Abstract

Education plays a vital role in evolution and the development of mankind. Its has shaped so many generations for thousands of years and it remains doing the same today too. Traditional teaching has been around for thousands of years shaping the minds and thoughts of so many people. Nowadays traditional teaching methods are often compared and criticized because of the incorporation of technological advances in modern teaching methods from the last decade the use of high tech equipment in the educational institutions is increased immensely. This paper focuses on the some of the mobile applications in teaching grammar.

Keywords: modern teaching methods, mobile Applications

Introduction

Education plays a vital role in evolution and the development of mankind. It has shaped so many generations for thousands of years and it remains doing the same today too. A sound education system is mandatory for the development of a nation. But in these days technology has changed a lot of things. Digital tools like computers, laptops, LCD projectors, interacting white board and mobile phones slowly intruded our lives and replaced the traditional teaching methods .Before we discuss the issue of technology as replacing conservative methodology of teaching ,we will now analyse the pros and cons of traditional teaching method .

Traditional teaching has been around for thousands of years shaping the minds and thoughts of so many people. The term traditional classroom brings to mind picture of a classroom of twenty or more children, all roughly the same age listening raptly to the teacher while working diligent at their studies. In most parts of our country traditional teaching methods are used in the educational institutions. The main objective of traditional teaching is to help the students pass the examination. This method is economical efficient and suitable in the institutions of rural areas. More interaction happens between the teacher and student. Discipline and decorum in the class is maintained. Teachers do not require any special technical knowledge and can focus only on the subject; It facilitates large class communication. Even though this method has positive features it is restricted to some extent. Traditionally classroom settings are teacher- centred where the teacher often talks to the students instead of encouraging them to interact. It is common for students to become bored or frustrated. Students play a passive role, which hinders learning. It lacks students focused learning and also does not emphasis on critical thinking.

Nowadays traditional teaching methods are often compared and criticized because of the incorporation of technological advances in modern teaching methods. From the last decade the use of high- tech equipment in the educational institutions increased immensely. Some of the most popular equipment which can be used in modern teachings are:

- Use of Computers or Laptops with Wi-Fi connection in the classroom.
- Use of LCD projector
- Use of interactive White Boards.

Modern teaching methods stepped into with the foot steps of ICT. Information and Communication Technology can contribute to universal access to education, equity in education, the delivery of quality learning and teaching. ICT is an umbrella term that includes any communication device or

application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. For the student, it is an initiation into:

- Creativity and problem solving,
- An introduction to the world of information and technologies, and
- An opportunity to shape career pursuits.

Modern teaching methods create more interest among the students with the help of interesting animations and videos. Research has shown that the use of visual media for teaching helps the students to understand the subject better and also helps students to memorize the concept for longer time. The teacher can cover more syllabus in lesser time and in an efficient manner traditional blackboards are replaced by more learner friendly modern methods like videos and animation.

However over the past two to three decades, there has been a gradual paradigm shift from a teacher -centered to a learner - centered approach. Enhancing language learning through the modern methods affords some dynamic which are not available through the traditional classroom. So there is a paradigm shift in the teaching learning process in the world of emerging technology digital devices are rapidly growing, wireless communication technology, is not an exception in this respect.

Mobile Learning and MALL

Mobile phones with high capabilities extend into all areas of human life. They are widespread and it is affordable and a sophisticated device has changed the landscape of e-learning in many ways. It is not a substitute of the existing learning device but serve as an extension for learning in the new environment .It assists in learning a second language in an effective way. This is better compared to classroom or e-learners. The learner need not sit in a classroom or at a computer terming to access learning. Thus arrived the emergence of Mobile Assisted Language Learning (MALL). This is an approach to language learning that is assisted or enhanced through the use of a handheld mobile device. It is a subset of m-learning and CALL. Computer Assisted Language Learning (CALL) is as an approach to language teaching and learning in which the computer is used as an aid to the presentation, reinforcement and assessment of material to be learned. The reasons for using CALL include: experiential learning, motivation, enhance student achievement, authentic materials for study, greater interaction, individualization, independence from a single source of information, and global understanding.

MALL indicates that the demand for it will only increase along with the demand for second language acquisition and learning flexibility .It is rare to think that some day mobile devices would become an important part of routine life .As lives they play a crucial part in our lives the urge for using them in language learning tasks has gone up. Then it has increasingly grown towards becoming tools for language learning .The emergence of the internet has made distance learning a means of receiving education from all parts of the world. Many researchers have tried and are still trying to make mobile devices a rich resource for teaching and learning .With such a learning process and progress in their own space based on their cognitive state. Some unique properties of mobile what device can produce educational affordances:

- Portability
- Social interactivity
- Connectivity
- Individuality

In this modern era affording a smart phone is not difficult. A person without a mobile device is unseen. Even an illiterate person owns and uses a smart phone. So learning through mobile device can be made efficient and effective. Although learning service through mobile devices has some advantages, it has its own constraints as small screen, reading difficulty on such a screen, data storage and multimedia

limitations. Many of the mobile phones are not designed for educational purposes. However, those devices which learning tasks are too expensive for most of the learners to buy.

Our world today is obsessed with doing everything quickly, including learning. Self - study is obviously important in language learning particularly in learning grammar .It surely will boost a students' progress immensely. Although learning through mobile phones may take longer time compared to other technologies, the learners feel a greater sense of freedom of time and place. So that they can take the advantage of their spare time to learn a second language when and where they are living or working.

There is often a trouble in deciding whether to use 'who' or 'whom'-'effect'/'affect' while writing and there will be a moment when you stopped mid-way through a sentence only to wonder whether what written was grammatically correct? People rarely appreciate the importance of having a good command of grammar .Proper grammar is a must for everyone. Whether you are applying for a job or a promotion or business; proper grammar is necessary. Good grammar means better communication. Grammar plays a very important role in sending out the right message. It is a systematic study and description of a language .People desist from working on their grammar mainly because they consider the process to be tedious and boring. However we cannot ignore it because grammar constitutes the rules and framework changing the form of words and join them into sentences .If there is no rules and if everyday follows their own rules, it creates a problem in communication. So Grammar is an important factor to learn a language.

In this paper the focus is led on learning second language (grammar) for the undergraduate technical students. Nowadays due to the technological advancement, learning grammar is made easier for students. With the help of modern learning aids ie., the mobile device, students can easily download the applications online and can have access to study grammar on their own. Many applications are there online to facilitate grammar learning specifically for students. This is a self study method for students. And they could share and clarify their ideas and queries to his /her peers or with the language instructor. Students can have easy and better access to gain linguistic competency. This enhances the learning process. This is a learners centered approach .The learners skills and his/her prior knowledge and experience with mobile devices for learning ,as well as the learner's attitude toward the learning through mobile phones play a crucial role in the output quality of such a mobile based tasks.

Here are a few applications that can be used in smart phones to learn English grammar.

iGE Lite : i Grammar of English

Learn English Grammar Tutorial

Grammar Express : Degree Lite

Learn English Grammar

Learn English Grammar Quick

Practice English Grammar

English Grammar Ultimate

English Grammar Book

English Grammar Test

English Grammar Handbook

Basic English Grammar Practice

English Grammar Learn and Quiz

The accelerating development of mobile technology is penetrating all aspects of our lives. This technology plays a vital role in acquiring different dimensions of knowledge. Today a clear shift from teacher-led learning to student-led learning that is M-learning has made the students feel using the technology more effective and interesting than before. In fact we can provide a sophisticated learning environment through mobile phones for the language learners .Mobile based learning faces many challenges, but it has grown in exponentially in spite of all its problems MALL is an ideal solution to language learning barriers. Thus technology assisted language teaching and learning builds an overall development and provides the best education system for the students. It is time to adopt to the digital world and its demands for staying ahead of the competition.

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INNOVATIVE ICT APPLICATIONS FOR CLASSROOM TEACHING IN PROFESSIONAL EDUCATION

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Abstract

ICT is the gift of information technology to the mankind. ICT can play a vital role in developing knowledge in teachers as well as students. Usage of ICT is a innovative method used in education to upgrade the knowledge. There are applications such as Interactive White board, Video-conferencing and Computer Assisted Instruction are all a part to improve the education level in professional education. These are all the applications that give growth to the level of students. This provides teaching learning process to be a great success.

Keywords: ICT, Computer Assisted Instruction

Introduction

The information technology is taking a new shape of knowledge society. This knowledge society in turn must go forward and should flourish into the society full of wisdom where social inclusiveness has to be a primary goal. Technology is improving day by day. The people in this world should know about it especially students. To get adapt with it they should be familiar with ICT. When they are seeking for a job, it will be a gate way to reach their goal. Indeed a small percentage of schools and colleges somehow achieved high levels of effective use of ICT. There are also many advantages of using ICT Applications for Classroom Teaching.

ICT in Education

The UNESCO (2005) study, "Information and Communication technologies in schools: a handbook for teachers or how ICT can create new open learning environment" is a publication describing how ICT potentially offers numerous advantages and provide opportunities for:

1. Facilitating learning for students who have different learning style, abilities, including slow learners, the socially disadvantaged, the mentally and physically handicapped, the talented, and those living in remote rural areas.
2. Making learning more effective, involving more senses in a multimedia context and more connections in a hyper media context.
3. Providing a broader international context for approaching problems as well as being more sensitive response to local needs.

Instructional Role of ICT

Information and communication technology alone does not produce learning; technology is a tool that can be used in many ways, to enhance learning. The literature describes three categories ie, learning from the technology, learning about the technology, learning with the technology. This helps to get mastery in learning. Teaching in the classroom is still driven by traditional teaching practices although there may be occasions when ICT is used.

Applications of ICT in Education

The learning process could be more strengthened in many ways through these new approaches. These help us to provide not only a good quality of information but also intend to –

1. To interact effectively and efficiently with students to gain information.
2. To motivate the students towards to reach the task
3. To make improvement in the quality of teaching
4. To develop professional Attitude among teachers.

5. To develop professional growth.
6. Developing interest in students as well as teachers.
7. To increase learning productivity year by year
8. To produce knowledge to handle real life problem and
9. To ensure new research based approach to professional development.

ICT Tools (Materials and Resources) for Successful Teaching and Learning

Technology Hardware: Camera, television, computers, printer, digital camera, projection system, scanner, internet connection, video camera.

Technology Software: Database/spread-sheet, image processing, web-page development, desktop publishing, internet web browser, word processing, e-mail software, multimedia, encyclopedia on CD-ROM.

Printed Materials: Textbooks, lab manuals, reference materials.

Innovative ICT Applications for Professional Education

The teachers have not fully changed their use of ICT in education, however most of them changed their way of thinking about the application of ICT in education. It has been proved that new technologies have lots of benefits on the students. ICT develop many skills of the students like some writing skills, spelling, grammar, punctuation, editing and redrafting. Because, in traditional classroom teaching they will not so, much interest, but through technological Application they will be more interested and involvement in it. So that automatically their skills will be improved . It makes education student-centered, visual, time - saving and motive the students to produce creative assignments. Teachers can use integrate online activities, videos, graphs, databases, templates, articles and presentation in their everyday lesson plans to make their explanations clear and interesting.

Advantages of Using ICT in Classroom Teaching

When using ICT Applications in the class-room there is an significant improvement on learner's performance. Many students consider ICT tools very helpful in that it helps them to do assignments for their professional courses. There is also evidence that broadband and interactive white boards play a central role in fostering teacher's and student's communication more interactive. It also helps the students to remember the concept for a long period of time as they are taught through ICT. We can see about the Innovative ICT Applications that we are can effectively use in the classroom teaching.

Innovative ICT Applications Used in the Classroom

Information & Communication Technology used in classroom teaching is a broad area. Many curriculum-based websites offer free tutorials, vocabulary tools and quick lesson summaries which can be used in numbers ways in classrooms and at home. Teachers can also use online diagrams and games to explain complex subject matters in an engaging way and even design worksheets to keep their students interested, students can be encouraged to write online and email their essays, reports, observations and descriptions.

Learning with the technology means focusing on how the technology can be it includes presentation, demonstration and the manipulation of data using productivity tools. Use of curriculum specific applications types such as educational games, drill and graphical representations of abstract concepts. ICT also helps a lot in distance education and to attend the classes in the distance place through Educamp classroom. The students can attend the class from the different places through a single tutor or teacher. Many students can be benefited through this Educamp class through single class.

Motion analysis software is an important application used with in physical education. There are many software applications under

this software. So that the visual images of their performance in physical education can be slow down and enlarged. Through this the students can easily grasp the exercise and they will not forget it easily as they visually seen it.

Interactive whiteboard is also an important application in the ICT. Interactive whiteboard is a surface on to which a computer screen can be displayed through data projector. As the screen is sensitive, teachers can use pen or finger like mouse to control the computer. Through Interactive whiteboard the classroom will be interactive so that so that the students will be more interested and involvement in it.

Next video-conferencing plays a significant role in the applications of ICT in the classroom. It is mostly similar to the Educamp class in which the pupils can see other person on a TV screen and ask questions. This interactive approach of teaching can be highly motivating for pupils and improve their communication and presentation skills.

Computer Assisted Instruction package also plays an improvement role in application of ICT in the classroom. As the self-learning and teaching of the students is improved and their errors can be corrected by themselves without others. This will be more effective because students learn through their own computers and the computers will not get tired and students can use it for several number of times. Thus the use of ICT plays a significant role in classroom teaching and also in developing the students creative power and also several skills and learning powers. The students are benefited high through this application. This shows that ICT plays an extra ordinary role in classroom teaching.

Assignment can be submitted by students through e-mails and they can summit it through softcopy , so that the teachers need not to be worry about handwriting and students need not use eraser. They can use Autocorrect, spelling and grammar in the computer. In the subject like science and mathematics , teachers can use ICT methods like instead of drawing the pie charts and bar charts on blackboard , teachers can use power point and word how the proportion changes. It will be more useful to the students when they go to college and also in their working place Too.

Conclusion

ICT can change the entire outlook of the present-day education. However, it needs to be planned and structured proficiently to being a difference in the way our students learn. Through these we can see that ICT plays an significant and necessary role in the professional education. For this professional education ICT has made a marvelous change, to bring the learners so efficient to face the problems boldly.

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WEB 2.0 TOOLS IN EDUCATION

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Abstract

The rapid advances in ICT in recent years have resulted in an extensive search for possible uses of ICT in educational settings. Many educators all around the world, including English language teachers, are now taking innovative steps to integrate technology into their teaching environments. Internet has become a new platform for users because it has become easy for anyone to create, upload and share information with Web 2.0 technologies and we are more connected than ever. Web 2.0 has captured the interest and the imagination of both educators and researchers while it is expected to exert a significant impact on instruction and learning, in the context of the 21st century education. The purpose of this paper is to identify Web 2.0 tools in education.

Keywords: Web 2.0, ICT

Introduction

The rapid advances in ICT in recent years have resulted in an extensive search for possible uses of ICT in educational settings. Many educators all around the world, including English language teachers, are now taking innovative steps to integrate technology into their teaching environments. Internet has become a new platform for users because it has become easy for anyone to create, upload and share information with Web 2.0 technologies and we are more connected than ever. Web 2.0 has captured the interest and the imagination of both educators and researchers while it is expected to exert a significant impact on instruction and learning, in the context of the 21st century education. The purpose of this paper is to identify Web 2.0 tools in education.

Web 2.0 is the term used to describe a variety of web sites and applications that allow anyone to create and share online information or material they have created. A key element of the technology is that it allows people to create, share, collaborate and communicate. Web 2.0 differs from other types of websites as it does not require any web design or publishing skills to participate, making it easy for people to create and publish or communicate their work to the world. Although there is no consensus on exactly Web 2.0 is, the term refers to a second generation of World Wide Web, making it available for people to collaborate and share information online easier.

The following are the advantages of using Web 2.0:

- It increases the creativity.
- It's collaborative.
- It promotes student-centered learning
- It provides many opportunities for language practice.
- It engages students.
- It creates freedom and independence in learning.

The pedagogical benefits of Web 2.0 have been well documented in the literature. However, most of the existing studies on the use of Web 2.0 technologies in teaching and learning environments have been anecdotal in nature or in the form of case studies. Huang, Yoo, and Choi's (2008) study, for example, found that correlation exists between learning style and learners' preferences and attitudes towards using Web 2.0 technologies. Lambert and Kidd's (2008) explored the potential impact of the design of Web 2.0 environments on cognitive load. While such studies are collectively useful in providing a broader view of issues surrounding instructional uses of Web 2.0 technologies, they are limited in scope, as they address such issues within the context of one or two courses.

Today's students are "digital natives" (Prensky, 2007), and make increasing use of Web 2.0 technologies in their daily lives. The vast majority of educators, on the other hand, still have little or no experience with these new tools. Teachers and instructors need to understand what opportunities Web 2.0 tools provide for teaching and learning, what kinds of barriers they may encounter when using them, and how to effectively implement the new tools in their teaching.

Web 2.0 Tools in Education

Google Docs

Google has managed to replicate Excel, Word, and PowerPoint with Google Spreadsheets, Docs, and Presentations, respectively. One can upload, create, and store all these files online, and then download them to other office applications and save them on your hard drive or share your work with others online. Google surrounds these tools with their famous search application, access to online books, and a scholars' search for online documents. The tools for teaching are virtually endless.

LiveText

Live Text is a Web-delivered subscription service for teachers featuring collaborative lesson-building activities. Simple and easy to use, LiveText uses lesson planning as a focus for engaging the educational community.

Edmodo

Extremely similar to Twitter, except specifically designed for educators, Edmodo facilitates collaboration and content sharing among students, teachers, and school districts.

Grammarly

Several universities use this tool as a grammar checker. Students can use this as a method to improve the process of peer editing because it checks for more than 250 points of grammar.

Mindomo

Mindmapping is a highly productive method of visual brainstorming that you can use to plan projects or to map out a knowledge base. Mindomo has an interface and feature set that rivals other free standalone mind-mapping applications such as Freemind. Maps are shareable but require you to register and login to save them

Sloodle

Sloodle is an open source project that aims to develop and share useful, usable, desireable tools for supporting education in virtual worlds, making teaching easier. If one has enough technical support, and own server, one can download the Sloodle source code and install it on the Moodle ienvironment.

Lams

LAMS (Learning Activity Management System) provides teachers with a highly intuitive visual authoring environment for creating sequences of learning activities. These activities can include a range of individual tasks, small group work, and whole class activities based on both content and collaboration.

Pinterest

With Pinterest, teachers can organize and share anything from lesson plans, ideas, and crafts using a virtual bulletin board. Teachers can also use this tool to network with other educators.

Apache Open Office

It is a multiplatform and multilingual office suite and an open-source project that includes key desktop applications such as a word processor, spreadsheet, presentation manager, and drawing program with a user interface and feature set similar to other office suites. OpenOffice.org also works transparently with a variety of file formats, including those of Microsoft Office, and the vendor-neutral Open Document standard from OASIS. One can also save files in PDF format.

Skype

Teachers can collaborate on classroom projects while having their students visit a classroom in another part of the world using

the interactive Skype in the classroom. Skype is a part of Microsoft, and it's free to use.

MERLOT

A free and open resource designed primarily for faculty and students of higher education. Links to online learning materials are collected here along with the ability to connect with peers.

TeacherTube

It is like YouTube for teachers and educators, as this site's layout and focus is similar; however, TeacherTube seeks to fill a need for a more educationally focused, safe venue for teachers, schools, and home learners.

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MOBILE LEARNING - THE FUTURE OF YOUNG LEARNERS

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Abstract

Blended learning is an intentional integration of traditional and online learning in order to provide educational opportunities that maximize the benefits of each mode of delivery and thus effectively facilitate student learning. Blended/hybrid designs are as diverse as course offerings. Each design is uniquely tailored to address the course content and learning objectives and integrates the strengths of synchronous (face-to-face) and asynchronous (text-based) learning environment. This paper attempts to provide an understanding of pedagogical strengths and weaknesses of each delivery mode to design complementary instruction to maximize learning.

Keywords: Blended learning, Mobile learning, ICT

Introduction

Wireless technologies are revolutionizing education. They are transforming the traditional way of learning and teaching in to "any time" and "any place" education. They are engaging learners in learning related activities in diverse physical locations and enhancing communication and collaborative learning in the classroom (Liut *et al.,* 2003).

Mobile learning is one of the technological advancement in education. Mobile learning simply means "learning on the move". In this, the learning process takes place anytime, anywhere. According to Clark Quinn (2003), "it is e-learning through mobile computational devices". Traxler (2005) defined it as "any educational provision where the sole or dominant technologies are handheld or palmtop devices". Another popular definition of m-learning states it as the delivery of teaching by means of mobile devices such as pocket pcs, mobile phones, personal digital assistants (PDAs) and similar hand held devices. While defining mobile learning one confronts tension between functionality and mobility. There is a continuum from the point of view of functionality in t he devices used for e-learning and m-learning. This continuum goes from desktop computers to laptop computers to PDAs or handhelds to smart phones to mobile phones. It is obvious that these m-learning technologies can potentially provide significant opportunities for learning and collaborative interaction.

Mobile Learning

A wide definition of mobile learning (commonly referred to as m-learning) is the ability to learn independently of place and time, facilitated by a range of mobile devices. Mobile learning means learning that is enhanced with mobile tools and mobile communication. Mobile computing devices offer a unique opportunity for teacher and students in different kinds of instructional settings to capitalize on the flexibility and freedom afforded by these devices. If appropriately facilitated, mobile learning can benefit learner by providing instructional methods and interaction through their mobile devices whatever and whenever they need it.

The teaching - learning process takes place with the help of educational devices. Likewise, the m-learning process takes place with the mobile devices. They are:

- Mobile phones
- Smart phones
- Personal Digital Assistants (PDAs)
- Laptops
- Tablet PCs
- E-book Readers
- I-pod
- MP3 player
- USB drive

The non-telephony devices like e-book readers, i-pod, mp3 player and USB drive are also mobile devices. But, the telephony and non-telephony mobile devices strengthen the process of m-learning.

Characteristics of Mobile Learning

From a technology perspective, handheld devices such as handheld computers and personal digital assistants are more affordable today than before. From a pedagogical perspective, mobile learning supports a new dimension in the educational process. The following are some of the characteristics of mobile learning:

Ubiquitous

Mobile learning content can be accessed anywhere, regardless of location. With ever increasing coverage by mobile network providers, m-learning services can have an increasingly ubiquitous presence. An availability via.mobile device at any time provides convenience for the learner.

Bite sized

Mobile learning components need to be relatively short in duration, given that they are accessed in environments that are likely to be full of potential interruptions that may be a challenge to concentration.

On demand

The 'always on' nature of mobile learning devices provides access on demand for the learner, maximizing the potential for delivering valuable content at the point of need.

Typically blended it is a rare for mobile learning to be the primary platform for a topic. It is far more common to use it as part of a blended approach, extending a course offering, providing packaged content that can act as performance support, providing ongoing access to tutors and support, or acting as promotional/teaser material, for example with short quizzes to raise awareness.

Most mobile devices are designed to enable communication; mobile learning can take advantage of this. Research suggests that the most successful internet and hand held technologies tend to involve rich social practices built around rather simple but reliable technology such as SMS. Youth around the world have developed incredibly rich social practices around this simple, cheap and reliable technology. Thus mobile learning has the potential to create mobile communities, or at the very least, interaction with a coach / tutor as a part of the blend.

Location dependent

Mobile devices offer the potential for delivering content that is relevant to the learner's location.

Parameters of M-Learning

The mobile revolution is finally here in the form of m-learning, which is a natural extension of e-learning. In a span of 5 years, mobile learning has made an exponential leap from theory explored by academicians to a real contribution to learning. There are five basic parameters for production and development of m-learning. They are:

1. **Portable**: If you are using a mobile phone, then it is easier to carry it along with you everywhere including the restroom. This makes information access though this platform easy and fast.
2. **Social Interaction**: The data can be sent to your friends, colleagues and others via. Short messages. You can exchange data with other people and considerable knowledge.
3. **Sensitive to the Content**: This has capability of gathering data unique to the current location, environment and time. This includes both types of data-real and simulated.
4. **Connectivity**: Connectivity plays an extremely important role and is the back bone of mobile learning. With the help of a strong connectivity network, one can connect to data collection devices, other mobile phones and to common network.

5. **Customized**: The most unique capability is to be able to offer customized learning information.

Benefits of Mobile Learning

Most mobile devices are useful in education both as administration, organization and teaching aids for practioners and also as learning support tools for students.

- It offers an interactive learning experience where learners can interact with one another.
- It is easier to accommodate several mobile devices in a classroom than several desktop computers.
- It is not always easy to work on a computer sitting in a far off village or town, but a mobile can be accessed anywhere.
- Mobile phones, PDAs or tablets holding notes and e-books are lighter and can facilitate the entire m-learning process with ease unlike bags full of files, paper and textbooks or even laptops.
- Writing with the stylus pen is more effective than using keyboard and mouse.
- A range of possibilities arise out of this like sharing assignments and working as a group; learners and practioners can e-mail , copy and paste text , or even "beam" the work to each other using the infra red function of a PDA or a wireless network such as Bluetooth.
- Mobile devices can be used anywhere, any time, including offices, homes or when in transit.
- This technology may contribute to combating the digital divide, as mobile devices are generally cheaper than desktop computers
- The size, shape, weight and portability of mobile devices have made them extremely effective for users with permanent or temporary disabilities.
- Just-in time learning/reference tool for quick access to data in the field. Ex: accessing step-by-step guides to help you achieve a task.
- SMS can be used to get information to staffs and learners more easily and quickly than phone calls or e-mail.

Disadvantages of Mobile Learning

The following are the disadvantages of mobile learning:

1. **Small screen**: The small screens of a mobile or PDA limits the amount and type of information that can be displayed at given time.
2. **Low storage**: The memory or storage capacity is limited.
3. **Discharged battery**: It is important to have fully functional devices and batteries have to be charged regularly. At times, a discharged battery can result in loss of important data.
4. **Difficulty to use**: It is difficult to work on moving graphics, especially on mobile phones, although 3G and 4G will eventually facilitate this.
5. **Easily lost**: More easily lost or stolen than desktops, more attractive to thieves than paper notes.

Conclusion

The mobile learning enables the learners of the century to learn quickly and conveniently. The advancement in teaching and learning is motivated by mobile technologies. The future of education is here with the mobile technologies.

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ICT ENABLED STRATEGY FOR CONSTRUCTIVIST LEARNING IN TEACHER EDUCATION

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Abstract

ICTs are basically information handling tools-a varied set of goods, applications and services that are used to produce, store, and process, distribute and exchange information. Teachers play an instrumental role in bringing about the educational reform by the introduction of ICT in the school curriculum.ICT in education to equip trainee students with requisite skills and knowledge needed in the 21st century. ICTs provide powerful new tools to support cognitive apprenticeships, enabling groups to share online workspaces to collaboratively develop artifacts and intellectual products. Vygotsky's social constructivist learning theory highlight that learning take place with the help of a teacher, classmate or another concerned person, who is more expert in the subject or skill than the learner. Many teachers are uncomfortable with the use of ICT in their subjects, either because they do not see any value in using ICT with their students, or because they, themselves, lack skills in the area(Cuban1998). Individuals need to be helped to construct their knowledge by relating the new knowledge with their earlier knowledge. Planners and administrators have to provide academic leadership to prepare them to manage the educational system effectively.

Keywords: ICT, teacher educator, pre-service teacher, constructivism, UNESCO

Introduction

Information and communication technology refers to the computer and internet connections used to handle and communicate information for learning purpose. ICTs are basically information handling tools-a varied set of goods, applications and services that are used to produce, store, and process, distribute and exchange information. They include the "old" ICTs of radio, television and telephone, and the "new" ICTs of computers, satellites and wireless technology and the Internet. These different tools are now able to work together, and combine to form our "networked world", a massive infrastructure of interconnected telephone services, standardized computer hardware, the internet, radio and television, which reaches into every corner of the globe. (UNDP2011). ICT is not, and never will be, transformative on its own - it requires teachers who can integrate technology into the curriculum and use it to improve student learning. The motivation of teachers is of supreme importance for integrating ICT in teacher education. With the emerging new technologies, the teaching profession is evolving from an emphasis on teacher-centred, instructivist approach to student centered, constructivist approach, Cognitive apprenticeship of interactive learning environments. Teachers play an instrumental role in bringing about the educational reform by the introduction of ICT in the school curriculum.ICT in education to equip trainee students with requisite skills and knowledge needed in the 21st century. So, the onus lies on the training institutions for skilling and re-skilling teachers for tapping the potential offered by ICT. This paper aspires to throw light on the potential role of ICTs in promoting Quality teacher education.

Constructivism and ICT Empowerment

Constructivism is founded on the work of individuals such as Piaget, Dewey, Vygotsky, Ernst von Glaserfeld, Kant and Kuhn (Phillips, 1995: Twomey Fosnot, 1996). Constructivism is gaining considerable influence in the integration of information technology into educational

contexts at primary, secondary and tertiary levels. Cognitive apprenticeship is a term for the instructional process in which teachers or more experienced or knowledgeable peers provide 'scaffolds' to support learners' cognitive growth and development. Cognitive apprenticeship permits students to learn through their interactions, construct knowledge,, and share knowledge-building experiences with the other members of the learning community, ICTs provide powerful new tools to support cognitive apprenticeships, enabling groups to share online workspaces to collaboratively develop artifacts and intellectual products. They also make possible tele-apprenticeships, in which an expert is able to work with or mentor a student who may be thousands of miles distant. The emphasis should be on active approaches, which encourage learners not simply to take on board ideas and skills, but to adapt an integrate them into their own ways of thinking and behaving. Thus learning should incorporate not only knowledge and work at the conceptual level, but, also, skills. Teaching needs to be a two way communication, is much to be gained from learner-centered communication as well as teacher-learner communication. Hence, the teacher becomes a facilitator of learning, finding, selecting and offering information in a variety of ways, on the basis of what their learners must learn in order to meet their diverse needs. Vygotsky's social constructivist learning theory highlight that learning take place with the help of a teacher, classmate or another concerned person, who is more expert in the subject or skill than the learner. This person provides assistance (scaffolding) to the learner at the right ties, in the right ways and removes his assistance as the learner's performance indicates that it is no longer needed.

"Students can look at their grades and even turn in their homework over the web. Teachers hold online discussion groups. Students e-mail friends and fairly as naturally as they call them. Their 'job' is to learn and explore and find unexpected relationships between things" (Bill gates).

Changing role of Teacher Educators

Under the changing scenario of globalization and development of information and communication technologies, there is a need to redefine the role of a teacher-educator. It is high time that they understand their role rather than simply assess the teacher education system. If they do not contribute, they will move from the current marginalized status to the one of irrelevance. They will have to respond at both conceptual/empirical and pedagogical levels (Liston *et al.,* 2008) For the successful integration of ICT in teacher education, in addition to taking up the role responsibilities in the areas of competence, commitment and performance.

UNESCO planning guide for ICT in teacher - education (2002) cites four professional development strategies which are helpful in successful technology integration.

1. First, professional development needs to focus on teaching and learning rather than on hardware and software. It should be designed by first considering what student teachers are expected to know and be able to do in a specific discipline, and then infusing ICTs into the learning process so that acquiring the knowledge and skills is more efficient.
2. Professional development is practically useless unless leaders and teacher educators are provided with access to technology resources and have the time and support-when needed -to apply the new knowledge and skills that they have learned. In this approach professional development is provided to teacher educators when they have a need or opportunity to use a specific technology tool or application to enhance learning.
3. Professional development in the use of ICTs is not a one-tie activity. To keep current with new developments means

that professional development in ICTs use be an ongoing process.

4. A further strategy for professional development in the use of ICTs is to start in a small group of teaching staff. Working with this small group allows the professional development staff to determine the specific interests and needs of the teacher educators and what works best in the professional development process.

The application of these four strategies will be a mile stone towards effectively integrating ICT in Teacher -education. All the teacher educators should be lifelong learners and should not shy away from learning new technologies and applying them in the field situations.

Integrating of ICT for pre service training

ICT is used in education for supporting pre-service teachers' learning or for development of competences, in other words for helping to reach the goals of education. Learning represents each individual learner's own personal knowledge construction process which presupposes each learner's active, goal-oriented and feedback-seeking role. Learning new concepts presupposes a dialogue both between the teacher and the pre service teachers (explaining, debating, and questioning). In addition to face-to-face interaction ICT offers several possibilities to share ideas through news groups, e-mail, or through social media like Face book. Pre -service teacher need to be helped to construct their knowledge by relating the new knowledge with their earlier knowledge. Therefore, the faculty of teacher education institutions should encourage the pre service teacher educators to bring their previous views and beliefs, share them with others and construct their new understanding based on their shared information.

Limitations of ICT uses in education

ICT facilitates all activities in respects, but also has many limitations.

Teachers' attitude plays an important role in the teaching- learning process that utilizes computers and internet connection. Although teachers' attitude towards use of these technologies is vital, many observations reveal that teachers do not have clarity about how far technology can be beneficial for the facilitation and enhancement of learning. Of course, some teachers may have positive attitudes to the technology, but refrain from using it in teaching due to self-efficacy, tendency to consider themselves not qualified to teach with technology. In this respect Bandura (1986) describes self-efficacy as "individual's opinion of capabilities to organize and perform courses of actions to achieve particular types of performances". Moreover, as identified by Brosnan (2001), attitude, motivation, computer anxiety, and computer self-efficacy are factors affecting teachers' use of computers in their lessons. Teacher resistance and lack of enthusiasm to use ICT in education may also be another limitation. Many teachers are uncomfortable with the use of ICT in their subjects, either because they do not see any value in using ICT with their students, or because they, themselves, lack skills in the area (Cuban, 1998). Further more many teachers may not have the required IT skills and feel uncomfortable, nor do they have trainings needed to use the technology in their teaching. Unless teachers develop some basic skills and willingness to experiment with students, ICT use in education is in a disadvantage (Brosnan, 2001).

On the other hand, the limitation of ICT use in education is related to student behaviour. Students tend to mishandle the technology for leisure time activities and have less time to learn and study. If ICT is not properly used, the disadvantage will overweight the advantage. Research studies identified the following limitations of ICT use in education as related to student behavior:

- Computers limit students' imagination.
- Over-reliance on ICT limits students critical thinking and analytical skills.

- Students often have only a superficial understanding of the information they downloaded.
- Computer-based learning has negative physical side-effects such as vision problem.
- Students may be easily distracted from their learning and may visit unwanted sites,
- Students tend to neglect learning resources other than the computer and internet
- Students tend to focus on superficial presentations and copying from the internet.
- Use of ICT may be difficult for weaker students, because they may have problems with working independently and may need more support from the teacher.

Conclusion

ICT provides a great deal of advantage in the delivery of equitable quality, provide literate citizen, leveraging ICT to assist and facilitate learning for the benefit of all learner teacher across the curriculum.ICT has desirable implications for both improving teacher training mode and more broadly, for ensuring that teacher are in a position to take up new roles suited to education in knowledge-based societies. New conceptualizations of ways of using ICT in teaching and learning need to be considered (Cuban 1993, Pea 1998). Successful execution of the ICTs in teacher education will certainly lead to the quality teacher education finally ensuing in enhanced standards of students. Planners and administrators of teacher education have to provide academic leadership to prepare reflective teacher who can manage the educational system effectively.

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STRATEGIES TO IMPROVE THE GROSS ENROLMENT RATIO IN INDIAN HIGHER EDUCATION

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Abstract

Higher education is of vital importance for the country, as it is a powerful tool to build knowledge-based society of the 21st Century. The Indian Higher Education System has established itself as the largest system in the world in terms of number of institutions and third largest in terms of student enrollment after China and USA (MHRD, 2012).The improvement of access along with equity and excellence are the main focus areas of the higher education in the country. However, the gross enrolment ratio (GER) in higher education in India has improved to 23.6 per cent in 2014-15 from 21.5 per cent in 2013-14. The gross enrollment ratio (GER) in higher education in India is witnessing a consistent and significant rise for the last five years. It aims that additional enrolment capacity of 10 million students including one million in open and distance learning would be created. This would raise the country's GER from 21.5 per cent for 2013-14 to 25.2 per cent by 2017-18 and to reach the target of 30 per cent GER by 2020 which would be broadly in line with world average (MHRD,2012). It is in this context, the paper makes its attempt to come out with different strategies that help to enhance GER in higher education institutions in India.

Keywords: Gross Enrolment Ratio, Strategies, Higher Education.

Introduction

The central objective of the 11th plan was focused on expansion of enrolment in higher education with inclusiveness, quality, and relevant education and supported by necessary Academic Reforms in the university and college system. The Government of India has taken several initiatives during the Eleventh and twelfth Five Year Plan period to increase access to higher education by adopting specific strategies, enhancing the relevance of higher education through Curriculum reforms, Vocational programs, Networking, Information Technology adoption and Distance Education along with reforms in governance. However, the Eleventh Five Year Plan(2007-2012), considerable momentum has been generated in the establishment of new higher education institutes and increasing the enrolment in government as well as private institutions. Presently, there are about 46,360 higher education institutions including Universities and Colleges providing education to more than 120 million students and the majority of the students are enrolled in variety of courses at UG level at affiliating colleges (12th FYP, GOI).

During the plan period the nation has been successful in crossing the threshold of 15% GER, thus moving the country from being an 'elite' to a 'mass' higher education system (Planning Commission,2012). However, the higher education system is undergoing rapid changes in the recent years to increase the GER and to enhance the quality in higher education, the gross enrolment ratio (GER) in higher education in India has improved to 23.6 per cent in 2014-15 from 21.5 per cent in 2013-14(MHRD,2014).

Current Status of GER in Indian Higher Education

As per UNESCO estimate, at least 20 per cent GER in higher education is a prerequisite for rapid socio economic development of country (Chauhan, 2010). The higher education institutions are at present engaging in enrolling international students, becoming partners of inter-institutional schemes, and pushing forward

in the drive towards globalization, students, academic staff and curricula are transferred and exchanged between the institutions of higher education for the betterment of the quality and to increasing the GER at global level. Higher Education sector has witnessed a tremendous increase in the number of Universities/University level Institutions and Colleges since Independence. The number of Universities has increased 34 times from 20 in 1950 to 677 in 2014.

The students' enrollment in higher education has grown six times in the last 30 years; during eleventh plan (2007-12) India achieved a GER of 17.9 % up from 12.3 % at the beginning of the plan period (2006-07). But, India's GER of 17.9% (2012) was much below the world average of 26%, as well as the other emerging countries such as China (26%), USA (95%) and Brazil (36%) (MHRD, 2012). From the year 2012-13(18.8%), 2013-14(22.5%) and 2014-2015(23.6%) GER indicates the phenomenal growth in access to higher education cuts across in States, religion, gender thereby increasing the Gross Enrolment Ratio from 10% in 2000 to 23.6% by 2015. It will be increased to 25% by 2017. Former HRD Minister Kapil Sibal said "We will need 800 to one thousands new universities and 40,000 new colleges to meet the aim of 30 percent GER by 2020(MHRD Report, 2010). It is the evidence for the progress of the higher education in the country. However, the increase in the number of colleges and universities improves the national GER and to realize the ultimate aims of the Rashtriya Uchchatar Shiksha Abhiyan (RUSA). The Gross Enrolment Ratio (GER) in higher education in India is witnessing a consistent and significant rise for the last five years.

Gross Enrolment Ratio in Indian Higher Education - Year-wise

Year	GER (%)
1950-60	0.7
1960-61	1.4
1979-80	5.0
1989-90	6.0
1999-00	10.0
2006-07	12.3
2011-12	17.9
2012-13	18.8
2013-14	22.5
2014-15	23.6

Source: 12th FYP Report (2012-2017)

From the table, 2012-13 (18.8%) and 2013-14 (22.5%) indicates the phenomenal growth in access to higher education cuts across in States, religion, gender thereby increasing the Gross Enrolment Ratio from 10% in 2000 to 23.6% by 2015. It will be increased to 25% by 2017.

Strategies to Improve the Gross Enrolment Ratio in Higher Education

From the year-wise table, witnessing the improvement of GER in Indian higher education one can acknowledged that it will lead to the global average. This improvement is directly related to adopting various strategies and initiatives in various academic and its related activities.

Towards addressing the challenges in higher education in India, the most significant response by the Government of India in recent years has been the launch of RUSA, a centrally sponsored scheme for higher education which will focus on state higher educational institutions and be spread over the 12th and 13th Five Year Plan periods.

RUSA aims to improve Access, Equity and Excellence through planned development of higher education at the state level. The Gross Enrolment Ratio (GER) in higher education to 17.9 % by 2011-12, 18.8% by 2012-13 and 32% by the year 2020, now the GER in higher education level is 23.6 per cent from 22.5 per cent in 2013-14.

The UGC has recommended increasing and enhancing access through a mission mode national programme, "Rashtriya Uchch Shiksha Abhiyan (RUSA)" aimed to achieve 25% national level GER which will include:

a) Upgradation of autonomous colleges with College with Potential for Excellence status and NAAC-A grade accredited colleges as university level institutions;
b) Promoting evening universities/evening colleges
c) Introduction of undergraduate programs in universities as integrated UG/PG programmes
d) Enhancing intake capacity of existing institutions of higher education
e) Developing the 'College Cluster Universities' regionally
f) Establishing 'Meta university complexes' in association with Public/Private sector undertakings as a part of their corporate-social responsibilities on an industry and academia mode.

Strengthening State Universities and Colleges

The bulk of enrollment in higher and technical education takes place in universities and colleges supported by the state governments. Assessment of critical infrastructure requirements and additional infrastructure for capacity creation (including branch campuses) in State universities, government and government aided colleges, as also engineering and technical institutions is essential.

- Efforts would be made to expand the number and coverage of scholarship schemes for SCs/STs and OBCs.
- Girls Hostel schemes and Single Girl Child Scheme would be continued.
- All efforts would be made to ensure that 3% reservations to PWDs are ensured in all institutions.
- Efforts would also be focused on skill enhancement of special classes needing special efforts.
- GER parity of all classes would have to be ensured.
- Free transportation , issue of free laptop and cycles

National Mission on Education through ICT

- National Mission in Education through Information Communication Technology is a mission mode project to provide connectivity, valuable content and low cost computing devices to all the Institutions of higher learning in the country.
- A National Knowledge Network will interconnect all universities, libraries, laboratories, hospitals and agricultural institutions for sharing data and computing resources across the country over a high-speed information network having gigabit capabilities.

Special Programmes for deprived sections

UGC support the education of Scheduled Castes and scheduled Tribes e.g. remedial coaching at UG and PG level, coaching classes for preparation for National Eligibility Test (NET), coaching classes for entry in services, postgraduate scholarships, establishment of centres in universities for study of social exclusion and inclusive policy.

Expansion of Secondary Education with a Focus on Science Enrolment

Achievement of enrolment targets in technical/professional and general higher education by 2020 would require that class XII enrolment of 8 million (in 2007-08) be raised to overall enrolment of estimated 16 million in 2020 and that in science stream in class XII be raised from 2.3 million (in 2007-08) to 6 million by 2020.

Attracting and Retaining Talent in Universities for Faculty Positions

Addition to higher education enrollment by over 26 million and class XII enrolment by an estimated 8 million requires, 1 million additional faculty in higher education and at least 1 million school teachers by 2020. Thus, a concerted strategy to retain best talents in universities for faculty positions and preparing secondary teachers needs to be formulated. It would also require changes in strategies relating to Open Learning and Technology Enabled Learning.

Technology Enabled Learning

The potential of ICT has to be utilized to its maximum to support expansion as also quality. Present endeavour in this direction has been mainly towards providing the infrastructure and network to the institutions of higher education. The digital resource development and utilizing the digital resource into quality certified programmes and courses need to be fully exploited by the universities.

Establishment of Higher Learning Institutions

- ✧ **New Degree Colleges**: A new scheme has been approved to provide central assistance for setting up of one model Degree College in each of the identified 374 Educationally Backward Districts where the Gross Enrolment Ratio (GER) of higher education is less than the national average.
- ✧ **Indian Institutes of Technology (IITs)**: In order to increase access to these institutions, new IITs have started functioning from the academic year 2009-10 at Indore in Madhya Pradesh and Mandi in Himachal Pradesh.
- ✧ **National Institutes of Technology (NITs)**: Government of India has established 10 new NITs in the States of Sikkim, Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Mizoram, Uttarakhand, Goa and Delhi, and in the UT of Puducherry.
- ✧ **Indian Institutes of Management (IIMs)**: Indian Institutes of Management are the flagship institutions whose graduates are recognised the world over. As a measure of increasing access to these institutions of excellence, four new Indian Institutes of Management have been established, namely, IIM Rohtak (Haryana), IIM Raipur (Chhattisgarh), IIM Ranchi (Jharkhand) and IIM Tiruchirapalli (Tamil Nadu). Two new IIMs at Kashipur (Uttarakhand) and Udaipur (Rajasthan) are likely to start function soon.
- ✧ **New Central Universities**: Accordingly 15 new Central Universities, including three State Universities converted to Central Universities, were established under the Central Universities Act 2009. Total central university in India at present 45.
- ✧ **Sub-Mission on Polytechnics**: There is a need to promote vocational education and skill development of our youth. Under the Sub-Mission on Polytechnics, the Government of India provides financial assistance to the State Governments / UTs for setting up of polytechnics in the un-served and underserved districts during the XI Plan

Open and Distance Learning

Distance education system is emerging as an important means to cater to the increasing demand for higher education. Open and Distance Learning (ODL) is recognised and accepted as an important mode for achieving enhanced access, developing skills, capacity building, training, employability, life-long education and continuing education. n. Open and Distance Learning has contributed significantly in development of education structure of India. In addition, many Central/State Universities also offer courses through distance mode.

Educational Advancement of Minorities

New Model Degree Colleges being established in districts with Gross Enrolment Ratio (GER) lower than the national average

in higher education, include 90 districts having minority concentration.

Interest subsidy on educational loans

In order to ensure that talented students are not deprived of access to technical and professional education for want of financial resources, a scheme is in operation since the year 2009-10 to provide full interest subsidy during the period of moratorium on educational loans for students belonging to economically weaker sections, whose parental income is less than Rs.4.5 lakh per annum.

Increased focus on Vocational Education

Even after achieving a GER of 30%, there would be 150 million or more youth who would require vocational education. A target of 50% enrolment in vocational education sector of higher education by 2020 may be attempted.

Conclusion

Higher education board in India has observed an improvement in the Gross Enrollment Ratio where a growing number of students are being seen as taking active part in higher education. The quality in higher education shall ensure the economic growth and social transformation of a country. Improving Gross Enrolment Ratio is inevitable to produce skilled forces to this country. Hence the modest efforts taken in the paper shall be believed to promote the significance of improving GER of this country so as to strengthen the skilled forces in diverse fields.

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THE FLIPPED CLASSROOM: A TWIST ON TEACHING

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Abstract

The flipped classroom has become prevalent in higher education, and more traditional courses will likely employ the element of the flipped classroom to supplement out-of-class work with video presentations. In particular, the rapid development of mobile devices will put rich educational resources into the hands of students at any time and at any place. Some new tools may emerge to support the curriculum of the flipped classroom. In order to face this situation, there are obviously benefits and challenges that co-exist in the flipped model. The paper gives an evaluation of the flipped classroom and provides some recommendations for colleges and universities to ensure that they can take a hard look at class spaces and support the cooperative and collaborative work running smoothly.

Keywords: Flipped Classroom, Teaching and learning.

What is a Flipped Classroom?

In the traditional classroom model, teachers first explain each topic, and then assign homework. In the flipped classroom model, students first view the topics outside of class, and then use class time for inquiry-based learning, which in some ways resembles traditional homework assign-ments. A flipped or reversed classroom uses educational technologies to leverage valuable classroom time. Once students have covered material traditionally covered in lectures outside of the classroom, teachers can focus on learning-based activities in the classroom, and also deliver more one-on-one, customized assistance.

Origin of the concept

The 'Flipped Classroom', also known as the Inverted Classroom, is a concept of school work organization associated with the work of J. Wesley Baker presented in the 11th International Conference on College Teaching and Learning, in Florida in 2000. The communication introduced the concept of "flipping the classroom" using learning management tools based on the web. In the same year, Maureen Lage and colleagues (Lage, Platt, and Treglia, 2000) published in "The Journal of Economic Education" an article where they highlighted the negative effects of the likely gap between existing teaching and students' learning styles, taking into account the diversity of the students. Lage and colleagues noticed that the development of technologies and multimedia resources, their easy access and use, and students' enthusiasm for them, created a favorable environment to their integration in teaching and learning processes. The teaching methodology the authors reveal (Lage, *et al.*, 2000, p. 32) is, in their own words, one that "can appeal to all types of learners. This method uses a variety of teaching styles, although multimedia is the cornerstone."

The flipped classroom is a pedagogical model where the typical lecture and homework elements of a course are reversed. It inverts traditional teaching methods, delivering instruction online outside of class and moving homework into the classroom. Online video are watched by learners at home in extra-curricular, while curricular time is devoted to discussions, projects, or summary. The video lecture is often considered as the key ingredient in the flipped class model, such lectures being either created by the teacher and posted online or selected from an online repository. The prerecorded video could certainly be a podcast or other audio format. It is easy to assess and view the video today, which made it so ubiquitous that the flipped model

has come to be identified with it. While often defined simplistically as *"school work at home and home work at school,"* Flipped Learning is an approach that allows teachers to implement methodology, or various methodologies, in their classrooms. Flipping the classroom does not mean that are can never lecture or that the classroom is always flipped. The teacher is still necessary in the flipped classroom. The teacher still has to plan and prepare for every class. The flipped classroom also does not require technology to use.

Ash (2012) suggested to the teachers the following 5 tips for flipping the classroom:

1. Don't get hung up on creating your own videos.
2. Be thoughtful about what parts of your class you decide to "Flip" and when.
3. If possible, find a partner to create videos with.
4. Address the issue of access early.
5. Find a way to engage students in the videos.

The flipped classroom should not just be a band wagon that all teachers jump on to use in their classrooms. It is vital that teachers approach the flipped classroom with care and knowledge.

Why the Flipped Classroom?

The term flipping comes from the idea of swapping homework for class work (Ash, 2012). When students go home to work on homework, some of them have well educated parents that can assist them with the work while others have parents that are not knowledgeable in the content and cannot assist them with their homework. Thus according to Ash (2012), students are able to return to class with the content and then receive assistance with the homework from the expert in the field - the teacher during class time. The flipped classroom provides the students with in class support for completing work. The flipped classroom provides more time for hands on activities and content inquiry and analysis. Fulton (2012) also found that the flipped classroom causes "students to take more responsibility for their own learning." Students also have access to the content at home so if they are absent due to illness they can easily catch up and do not miss out on vital lectures.

Neilsen (2012) identified the following five reasons to implement the flipped classroom with caution:

1. Many of our students don't have access to technology at home
2. Flipped homework is still homework and there are a growing number of parents and educators who believe mandatory homework needlessly robs children of their after-school time.
3. Flipping instruction might end up just providing more time to do the same type of memorization and regurgitation that just doesn't work.
4. If we really want transformation in education, one thing we must do is stop grouping students by date of manufacture, which the flipped classroom is ideally suited for. True flipping should include a careful redesign of the learning environment, but this is often overlooked.
5. The flipped classroom is built on a traditional model of teaching and learnin

Millard (2012) found 5 reasons the flipped classroom works as follows:

1. Increases student engagement
2. Strengthens team-based skills
3. Offers personalized student guidance
4. Focuses Classroom Discussion
5. Provides Faculty Freedom

What does the Flipped Classroom aim to do?

The Flipped Classroom model tries to make a good use of the technological infra-structures, multimedia resources and digital technologies in order to promote learning and school activities organized in such a way that their focus is the everyday life and activities of the students. Both teachers and investigators have found that most students develop skills in information searching, content production and online publication.

They are reachable 24 hours a day online, participate in social networks, have access to content that interests them and learn online. The Flipped Classroom aims to direct these practices of daily access and use of digital networks to study activities and self learning, supported by multimedia resources (above all short videos, screen casts or podcasts) created by the teachers, by other students or already existing in the web. In this way, using classroom time for more interactive activities, e.g. projects, themed discussions, practical exercises or lab work.

It aims to engage teachers in the preparation and selection of learning support materials, structured in such a way that they can be used by students whenever and wherever they want. It also aims to support different rhythms and learning styles and allow the teacher to be a 'guide on the side' in the classroom.

What does it change?

The traditional classroom is frequently organized as a place where the teacher presents and explains content whilst students listen to and note down all the information provided. The class is usually teacher centered, though one can have a more dialogic approach with the students, depending on one's own perspective. Routinely, in the classroom, all students have to do the same activities, based on the resources available in the classroom and following the same pace and the one established by the teacher. Sometimes, the teacher provides some homework tasks, or asks for exercises to be completed outside the classroom, to reinforce knowledge or elicit further questions. In the Flipped Classroom model, the teacher provides in advance materials created or selected by him/herself (short videos, screencasts or podcasts), for the students self learning activities, out of the classroom. These activities can be performed when and where the student feels most comfortable, taking into account his/her own learning rhythm. In this model, the student studies the materials and the resources pointed out by the teacher, he/she also identifies his/her difficulties and topics he/she wishes to be cleared. Students also look for extra information and follow their own learning rhythm and can review the learning materials whenever they need to. Classroom time is used for questioning and to deepen the knowledge, in a more personalized learning environment where students can learn side-by-side, in small groups, and the teacher helps them to clear misunderstanding.

In this model the teacher provides resources and plans learning opportunities for the students, proposes specific questions that can direct the learning process. The teacher can anticipate where students need the most help and as a consequence offer activities and experiences in the classroom that adapt to their difficulties and doubts, establishing a logic of questioning and learning valued by several researchers e.g. Rupert Wegerif (Wegerif, 2013; Wegerifand Yang, 2011).

The advantages of the Flipped Classroom

The flipped classroom encompasses some approaches, including active and collaborative learning, problem-based learning and project-based learning. Some of the advantages of the flipped classroom are presented in the Table 1.

Table 1. Some advantages of the flipped classroom

For Students	For Teachers
Learn at their own pace	Work closely with students in the classroom
Engage concepts with peers	Improve student attitudes
Frustration levels remain low	Teachers can group students together
Particular benefit to those students whose personality types and preferred learning styles impair their performance in traditional educational environment	Improve students' ability to solve open-ended problems

In the traditional classroom, students often try to capture what is being taught at the instant the teacher says it. They cannot stop to reflect upon what is being taught, and they may miss some significant points because they are trying to transcribe the teacher's words. The application of video and other prerecorded media, by contrast, puts courses under the control of students: they can watch, rewind, and fast-forward as necessary. At the same time, collaborative learning projects can encourage social interaction, teamwork and cultural diversity among students, making it easier for them to help each other mutual learning and for those of different skill levels to support one another. Teachers can devote time to helping students develop synthesis and explore application during class time through: experiential exercises, team projects, problem sets, and activities that previously had been assigned as independent homework in the typical classroom, students attend regular class lectures and then do their exercise at home. While, the flipped classroom allows students to read the articles and watch videos at home and then work with their peers on the projects during school hours. All those increase teamwork skills, and enhance mutual understanding and trust. The teacher can spend class time working one-on-one with the student who requires extra help

Disadvantages of the Flipped Classroom

Of course, as with anything, there are also some disadvantages to the flipped classroom. One of the characteristics of the flipped classroom is that everyone learns knowledge and skills at different paces. But this mode of operation relies heavily on students' self-motivated. Some students are not as motivated as others, and this method of teaching may allow those less motivated students to get less done Tests are usually provided to every student synchronously to judge how much they have learned over a period of time. Under the flipped classroom model, every student will each be approaching tests at different times. This could also make students to delay their learning when they are dreading the next test.

Students in poor areas may not have the ability to possess the computers and the Internet that the flipped classroom requires. Students who have not personal computers or network would be forced to use public computers or network at a library or an internet café. There are some limitations if it is busy. This is problematic. Another downside is students spend all of their "homework time" in front of a computer screen, which adds the student's time sitting sedentary, which doesn't help students get up and get away from their computers, televisions, and iPods.

Multi-disciplinary Cooperation Learning Ecology of the Flipped Classroom

Unlike the traditional classroom, the flipped classroom requires additional skills, provided by photographer, videographer, instructional designers, business manager, IT specialists, platform specialists, and so on. Teaching environment, technical environment and social environment form a multi-disciplinary cooperation learning ecosystem.

Science and technology can lay a foundation for the development of the flipped classroom. New tools emerge to support the out-of-class portion of the curriculum. The rapid development of portable electronic devices will put a wider range of educational resources into the hands of students at anytime and anyplace. Currently, more audio and video educational resources can be obtained with the popularization of internet and information technology. Developed social network brings a better platform for learners around the world, which greatly reduces the threshold of online learning. It is easy to get wrong in the flipped classroom. Although the idea is straightforward, a successful and effective flip needs careful preparation. Making videos requires feeding with more energy on the part of faculty, and extra-curricular and curricular elements must be carefully integrated for learners to understand. As a

result, introducing a flipped classroom means additional work and new skills for the teacher.

Conclusion

The flipped classroom provides a new methodology and modality for teaching and learning, which constitutes a role change for instructors who give up their front-of-the-class position in favour of a more cooperative and collaborative contribution to the teaching process. The roles of students have a corresponding change from passive participants to positive participation. The flipped classroom puts more responsibility on the shoulders of students and gives them greater impetus in the process of learning. While it remains unclear how the flipped classroom will evolve in the years to come, early trends allow us to estimate that they might bring about a dramatic impact on the traditional colleges and universities. Combining traditional instructional methods with online learning will no doubt to play a major role in providing high quality education to learners.

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LECTURE CAPTURE SYSTEM FOR INCLUSIVE HIGHER EDUCATION

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Abstract

Internationally, the number of students with disabilities entering higher education institutions is on the rise. Research estimates that 8-10% of students attending higher education are registered with disability. But in India, 0.56 percent of students with disabilities are pursuing higher education while 3% seats in educational institutions are to be reserved for disabled students. Even these less than1% disabled students, who got admission in the Universities and colleges, are mostly persons with minor physical impairments, who required minimum physical assistance of any kind. Education to be inclusive needs to be responsive to the diverse needs of learners. Higher education institutions in developed countries are using technology to provide broader access to instruction and at the same time giving students more control over their learning experience. Lecture Capture System is an example of such technology. Students with physical or learning disabilities find recorded lectures particularly useful as a way to manage the pressure of note-taking in class, or managing their disabilities with regards to attending lectures or to review the course material. It helps enhancing inclusive higher education. Unfortunately in India we are still very far from implementing this system except in some premier institutes like IITs, IIMs where the enrollment of students with special needs is very negligible.

Keywords: Lecture Capture, students with special needs, inclusive higher education, technology

Introduction

Internationally, the number of students with disabilities entering higher education institutions is on the rise. Research estimates that 8-10% of students attending higher education are registered with disability. Widening participation in higher education has been supported by legislative changes, inclusive education practices, the use of ICT and accessible facilities and programs and, ultimately, an increasing belief among students with disabilities that higher education maximizes their opportunities for employment and independent living. However, a recent survey in India has revealed that though enrolment in higher education has grown six times in the last 30 years, only 0.56 percent of students with disabilities are pursuing higher education while 3% seats in educational institutions are to be reserved for disabled students. Even these less than1% disabled students, who got admission in the Universities and colleges, are mostly persons with minor physical impairments, who required minimum physical assistance of any kind. Among them about 76.3% of the disabled students were males, while 23.7% were females. The government's focus on educating girls did not seem to have much impact on the education level of girls with disabilities. Many Universities had no disabled student and only a few of them provided special equipment for the students. In addition, it is lack of proper hostels and financial constraints greatly limit the choices disabled students have for higher education. The problems faced by students with special needs in higher education have been the subject of considerable investigation. A person with a disability studying in mainstream educational institutions in India experiences many difficulties in navigating through the course of the Indian educational system. Problems exist in many areas - physical inaccessibility of educational institutions, unavailability of accessible content, lack of trained and sensitive teachers and the lack of awareness about developments in enabling technologies. In addition, the long waiting periods in getting the course materials digitized into accessible

formats, as well as the assignment of scribes unfamiliar with subject topics for students to write the examinations put students with print disabilities at additional disadvantage. Higher education institutions in developed countries are using technology to provide broader access to instruction and at the same time giving students more control over their learning experience. Improved flexibility and access to information achieved through technology results in enhanced levels of independence and better opportunities for academic success. Lecture Capture System is an example of such technology.

Inclusive Higher Education

Education to be inclusive needs to be responsive to the diverse needs of learners. There must be equality of opportunity to all with freedom and dignity, without any obstacle. Students have a legal right to teaching that does not discriminate against them on grounds of age, disability, ethnicity, gender reassignment, pregnancy or maternity, religion or sex. Disabled students have a legal right to reasonable adjustments to ensure that their needs to access education are met. As a system, inclusive education should be flexible. This need for flexibility must be reflected in the methods and materials used to give these people the widest possible access to the regular curriculum. When discussing the kind of service needed, the starting point should always be what is best for the particular individual. Government policy focus on resources and physical access, or infrastructure such as ramps in schools, and the notion of social justice through equal distribution of benefit, seems to be more about inputs, not processes like pedagogy, curriculum or attitudes. Government of India announces plan to make education disabled-friendly by 2020. It is possible only by making mainstream education not just available but accessible, affordable and appropriate for students with disabilities. One of the main objectives of this plan is to modify existing physical infrastructure and teaching methodologies to meet the needs of all children including children with special needs. These students need special environment for their independent functioning. The plan envisages that all disabled children will be part of mainstream educational institutions, which will be fully equipped with barrier-free access, Braille books, Talking Text Books, Reading Machines and computers with speech software, by the year 2020.

Lecture Capture System

Lecture capture refers to any technology that allows instructors to record a lecture and make it available digitally by placing on the web for students to watch online before or after class. Lecture capture tools can be useful in Flipped classrooms, Course replay, Distance learning, fully online and blended, Massive Open Online Courses (MOOCs). To record and share classes using a lecture capture system, faculty clicks a link or button on a computer to start the recording. The system then records the class and syncs the audio to the slides. At the end of each class, the faculty stops the recording. The program then uploads the recordings to a server where authorized students can view them on their desktops, laptops, or mobile devices.

Advanced lecture capture features include- Integrating live video of the faculty with the audio and slides, Ability to search the slides in the recordings, Specialized laptop and mobile applications which students use during live classes to select sections to review when watching the recording later and Annotation features for students to take notes when reviewing recordings and share them with other students.

The following are a few technologies teachers can use themselves to record their lectures:

- **TechSmith** - Relay allows faculty to record lectures from their personal computers. With this tool, it is possible to record videos, meetings, lectures, presentations, and more.
- **iSpring** allows teachers to record audio directly into their PowerPoint and convert the presentation to Flash or

HTML5 so that it can be uploaded to your website, blog or Learning Management System.

- **Screencast-O-Matic** is a cloud-based or downloadable software that you can use to record your lectures.
- **Jing** is a free application that allows you to take screenshots of your computer screen. Jing also allows you to record up to 5 minutes of screencast.
- **Adobe Captive** is the authoring software for creation of interactive eLearning content.

Overview of Literature

Lecture capture is an all encompassing term describing any technology that allows lecturers or tutors to record their lectures and make them available digitally (Educause, 2008). Students with physical or learning disabilities are thought to find recorded lectures particularly useful as a way to manage the pressure of note-taking in class, or managing their disabilities with regards to attending lectures (Williams 2006). Initial studies at Coppin State University show that lecture capture technology that allows students to view lectures online after the lesson can improve course retention rates as well as student grades (Briggs, 2007). Some of the more widely used Lecture Capture Systems are Echo 360, Panopto CourseCast, Camtasia Relay, Mediasite, and Tegrity. Lecture capture allows students to customise their learning environment by individualising their experience in a way that they cannot do in a conventional classroom. For example, Mediasite allows students to increase or decrease the listening speed of a lecture, while maintaining audio pitch, and this contributes to active learning. Students who want to multitask can watch lectures faster and can even isolate and view specific sections. Students who take classes in their non-native language benefit from having the option to slow down the audio and to replay it as needed (Soong *et al*. 2006; Leadbeater *et al*. 2013). Traphagan *et al.* (2009) and Phillips *et al.* (2011) suggest that more frequent access to recorded lectures leads to more positive results and learning behaviours. However, some studies have found that recorded lectures do seem to have a slight negative effect on lecture attendance (Gorissen *et al*. 2012), which may be explained by natural declines in student attendance over time, the maturity of students, and inability to attend live lectures due to disability

Lecture Capture for students with special needs

The communication mechanism between the lecturer and students with special needs is one of the key factors that affect the students' performance. This lecture capture system improves the academic performance of these students with some modifications.

Visually Impaired

Students who are blind cannot see visual aids, class outline and demonstrations. They use various techniques to accommodate themselves in the class room by recording class sessions with the help of Smart Pens, computer software, tablets, digital recorders and other electronic devices, using of Braille for note taking or seeking the help of note takers, preferential seating, requesting lecturer to speak aloud all visual content presented. Students with low vision need large-print handouts and visual aids large, bold fonts on uncluttered overhead displays in addition to the above. Lecture Capture replaces all these techniques. Vision-impaired students benefit from having the audio recorded for review with screen readers. The use of screen readers like JAWS and Windows Eyes supports the needs of those with visual impairments

After shooting and editing is complete, specially trained professionals can add audio content to the video soundtrack. When pauses occur in the original production, the speaker reads titles, names and describes scenery, objects, and other visual information for the viewer who cannot see. Credits and contact information at the end of the production can be voiced in the original production or added as an audio described feature. A talking menu on a DVD is

another example of how a product can be designed to be fully operable by a person who is blind. Most video producers use outside services for audio description. Because this additional audio content is not of value to other audiences and can be distracting, audio description is usually not included with the standard product but is provided as an optional format as an accommodation when requested by a viewer.

Hearing Impaired

Students with hearing impairments or deafness may have difficulty understanding content presented orally. Students with residual hearing or a hearing aid may require amplification. Other students may need to lip read or use a sign language interpreter. Certain environmental conditions may also impact a student's ability to hear or read lips effectively. For example, hearing aids may pick up extraneous background noise and interfere with the clarity of sound. Poor lighting may make it more difficult to lip read. Likewise, background lighting from a window can cast shadows on a speaker's face. They use various techniques like real-time captioning, captioned presentations, sound amplification systems, preferential seating for optimal listening or lip reading, providing essential course information in written format and sign language interpreters to accommodate them in regular class room. When caption files are added, the caption file is imported into the system and displayed synchronized with the audio and video to give the student the entire classroom experience. In special schools these arrangements can be done as all the students are hearing impaired. But in higher education institutions, these arrangements may distract other normal students. So the recorded lecture should be captioned and made available for these students in online.

Speech Impaired

Students with speech impairments may have difficulty asking questions in a large lecture. They need opportunities to ask questions via email and providing adequate time to allow the student to speak. They can use augmentative communication systems like lecture capture system. As they go through the uploaded recorded material, they can clarify their doubts in online.

Learning Disabled

Some students with learning disabilities may have difficulty processing, organizing, and remembering large amounts of spoken information. Taking effective notes may also be challenging due to poor organizational or writing skills. Students may be dyslexic and find that short-term memory difficulties and writing speeds are problematic in lecture or discussion sessions. Typical accommodations in lectures for students with learning disabilities include note takers, use of a laptop computer in class for note taking. Getting note takers with the particular subject knowledge is difficult. Besides appointing note takers for each subject and for each student with different special need is rather difficult in our Indian education system. People with certain learning disabilities can also benefit from hearing and seeing the spoken word simultaneously. For those learning to read, captioning has educational value; some instructors use captioned videos with the sound turned off to teach people how to read. Captions also provide content access to people viewing videos in noisy settings or in situations when it is important to be quiet.

Physically Impaired

Physical access to the lecture location may be challenging for a student with a mobility impairment. A student who has difficulty using her/his hands will have difficulty taking written notes. They need accessible seating, note takers or use of a laptop computer for note taking. Students may also have upper-limb related disorders, physical disabilities, medical conditions, or concentration difficulties associated with ADHD, OCD etc. These students benefit because lecture capture technologies can provide access to classes which they may not physically be able to attend.

Psychiatrically Impaired

Students with various psychiatric conditions may have difficulty attending class regularly. They may fatigue easily or have difficulty taking notes. Medication side effects may impact endurance, memory, and attention. Lecture Capture system assists them to continue their studies.

Conclusion

Lecture Capture is an important learning tool for students in higher education. In India, little research has been conducted about the impact of lecture capture system for students with special needs. Learning theory indicates that many students, not just hearing impaired students, benefit from having access to both text and audio, as it appeals to two senses. Instead of watering down the syllabus for students with special needs, these modifications can be done using technology. The use of lecture capture shifts student's expectations and practices from a process of information transfer to a more student centered and interactive format. As a result of this shift, instructors may need to devote more time in class to enable students to practice skills and to apply what has been presented in lecture. Unfortunately in India we are still very far from implementing this system which is very much supportive for inclusive higher education.

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E-READINESS OF COLLEGE TEACHERS - A HOBSON'S CHOICE FOR ICT INCLUSION IN HIGHER EDUCATION

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Abstract

Information and Communication Technology (ICT) is the best hope for developing countries to accelerate their development process. It is the most powerful engine for growth. It forms the backbone for the chronological development. Hence, gaining a better understanding of the trends, developments, issues and impact of Information and Communication Technology on Education has been identified as a key research priority, giving rise to a multi attitude of research streams. Literacy in the 21st century has a strong base on computer literacy. This paper deals with the salient features of ICT, the major issues related to ICT inclusion in Higher Education and the lacuna due to lack of Knowledge, Skill and Attitude of ICT among the Higher Education teachers. The dire need of e-readiness is depicted and its level midst Arts and Science College Teachers was tested among a sample group with relevant tools. The results were analyzed and the remedial measures are suggested.

Keywords: Higher Education (HE), Information and Communication Technology (ICT), ICT Knowledge, Skills and Attitude (KSA of ICT)

Introduction

Higher Education (HE) has been brought to centre stage by many changed contexts and many more changing contexts due to various factors like globalization of everything including education in the last couple of decades. In addition, the quantum of knowledge to be learnt and used has also increased enormously, there is "paradigm shift" in national expectations. HE has to become necessarily market smart, nothing short of innovation and flexibility is crucial to cater to the needs of contemporary society. Only institutions with appealing features can breathe for a long span whereas on the other hand, the remaining perish. HE institutions adorned with teachers possessing elevated Knowledge, Skill and Attitude (KSA) in Information and Communication Technology (ICT) can only survive and excel a midst the ever growing competition in education sector.

Jacques Delors the Chairman of the International Commission of UNESCO on "Education for the 21st century, (1) has identified the four pillars of education viz. Learning to know, Learning to do, Learning to live together and Learning to be. It is apt to draw the attention of effective teachers a good old Chinese proverb, "I hear and I forget: I see and I remember: I do and I understand". Tactile and Kinesthetic engagement certainly enhances anyone's learning.

ICT inclusion in Education

Teaching is a noble call with a vision and mission of upbringing the taught to a certain expected level. In Laissez-faire teaching, the students become active and decide what to do, how to do - the teacher just creates a learning situation, provides all feasible ICT tools and behaves as a facilitator. Today, Internet and Web technologies offer a remarkable medium for a new leaning framework that could dominate education in 21st century. The ultimate goal of ICT inclusion in HE is to solve the pertinent problems in Teaching-Learning process.

Role of ICT in innovative teaching - learning process

In contrast with the process of acquiring factual knowledge from text books, ICT

facilitates the visualization of scientific explorations. Teaching-Learning through computer technology is an extremely versatile solution to address the needs of learners in order to provide good and standardized education. Learners can interact with the software and enjoy exciting colorful presentations and answer questions thereby learning a lot with personal involvement (Karpaga Kumaravel, 2002).

It is inevitable for the new educators, who have to deal with new learners, in a new educational environment, using large information repositories. Modeling and computer aided experiments can give deeper insight into the phenomena and bring the real world into the lesson. Computer controlled experiments are less tedious and the collected data can be easily processed. Various ICT facilities available are WWW, Electronic mail, Mailing lists, Newsgroup, Internet Relay Chat (IRC). The handy ICT Web tools incorporated frequently in education are Blogs, Wikis, Podcasts, Instant Messaging (IM- Yahoo Messenger, AOL, ICQ, and MSN Messenger), Bulletin Board Service, Teletext transfer, Voice Message System, Teleconferencing, Audio conferencing, Audiographics Tele-conferencing, Video conferencing, e-Library and Virtual classrooms etc. (Girish Choudhary,2002).

Emerging issues in ICT implementation in HE

Incorporation of ICT in HE systems of developing countries will continue to lag behind developments in developed countries, unless there are interventions those increase the capacity to participate more actively. Several emerging issues are to be noticed with special focus viz. technological, process, pedagogical, socio-political, administrative, ethical and economical.

Appropriateness, Accessibility, Handling, Maintenance and Storage of information and Software and Courseware are the technological problems. Policy drafting, driving force, programme formulation, time frame, resources and modes of dissemination are the process issues. The pedagogical issues emerge out of special needs, gender, language, curriculum, literacy, role of learners, teachers, law makers, policy makers, local community and parents. Socio-political issues predict psychological isolation and unemployment problems. Ethical issues focus on blasphemies and pornography. Economical issues emerge out of global domination and educational market.

ICT Initiatives in India

The National Task Force on "Information Technology and Software Development" formulated a "National Information Policy" with Vidyarthi Computer Scheme, Shiksha Computer Scheme, Concept of Smart Schools etc. It has proposed an investment of Rs. 2,000 crores over a period of six years for increasing capacity and quality of ICT incorporated education. Focus shall be on public institutions like IITs and NITs with high academic standards.

Other measures include inauguration of the National Centre for Computer Education in NCERT, Project Vidya for training teachers and development of curriculum based software, introduction of in-house training facility, constitution of the All India Board of IT Education under AICTE etc. The Department of Information Technology has formulated 'Vidya Vahini' and 'Gyan Vahini' programmes, which will be a stepping stone to improve the quality of education and faculty development and exchange of skills. NCERT is engaged in the production of audio, video and multimedia programmes for training teachers and teacher trainers in various ICT aspects viz., script development, media research and evaluation etc. The programmes produced by NCERT for teachers are telecasted everyday for half an hour.

Teacher Empowerment for Effective ICT Integration

Only teachers with appropriate knowledge and skill in the mode of ICT concerned, with

a positive attitude to welcome the time to time technological changes can only influence his/her students so that they ensure ICT inclusion in education spectrum. Hence it is imperative to raise the Knowledge, Skill and Attitude (KSA) related to ICT of the HE teachers (Vanaja and Rajasekar, 2006).

Statement of the Problem

E-readiness, being the capacity to pursue opportunities facilitated by the use of e-resources has assumed greater significance in the context of digital age pedagogy. The learners being ”digital natives” have no difficulty in coming to terms with the new learning environments. On the other hand, teachers being “digital immigrants” naturally find it difficult to meet the requirements of the new educational paradigm. This gap is to be bridged, for the betterment. Against this back drop, the present study has been undertaken with the view of assessing the e-readiness of HE teachers and the problem is stated as “E-Readiness of College Teachers - A Hobson’s Choice for ICT Inclusion in Higher Education”. In the contact of the present study ‘E-Readiness’ is taken as consisting of ICT K

Hypothesis of the Study

1. The E-readiness of HE teachers is Low
2. There is no significant difference between e-readiness scores of Arts and Science teachers.
3. There is no significant difference between frequency of computer use between Arts and Science teachers.
4. There is no significant difference between length of internet use between Arts and Science teachers.

E-Competencies Assessment Tools

The E-Competencies Assessment Tools consists of three parts viz. (I) General Information section with 25 items eliciting basic information from the respondents regarding their name, sex, age, qualification and experience with computers and internet, frequency of computer and internet use and purpose of web use (e-mail, Chatting, On-line searches, Downloading academic content, teaching on-line, Entertainment like music or video, Social networking, Utility services like Internet Banking, e-payments etc.) (II) ICT knowledge Test consisting of 38 objective type questions and (III) ICT Skills Assessment Scale (ICT-SAS) with 114 items in 5 point scale under 13 headings viz. Computer Management, computing Hardware and Environment, Word Processing, Spreadsheets, Presentation, Using the Interactive Whiteboard, Using the Internet, E-mail Multimedia, Using Web 2.0 Tools, Lesson Planning, Teaching and Delivery and Assessing and Evaluating. By taking the skill audit questionnaire of Eddie Naylor (2002) as a model, with appropriate modifications, this E-Competencies Assessment tool was designed, subjected to experts’ opinion and got metamorphed to its final form.

Collection and analysis of data

The tools were administered to 39 Arts and Science College teachers who formed the sample for the study. It was ensured that the tools were filled without any omission. The collected data were subjected to descriptive analysis. The responses to the items were tested through percentage analysis.

Results and Discussions

In the ICT Knowledge Test among the 39 respondents, 14 scored 0-12 (35.89%) and they are said to be in Low Knowledge Level (LKL), 21 scored 13-2(53.84%) , who are said to be in Modereate Knowledge Level (MKL) and 4 scored 26-38 (10.25%) who are assumed to be in High Knowledge Level (HKL).

Among the respondents whose score was in LKL, 25.6% of them belong to Arts stream where as 10.25% belong to Science stream. Among the respondents whose score was in MKL, 15.38% of them belong to Arts stream whereas 38.46% belong to Science stream. Among the respondents whose score was in HKL, no one belongs to Arts stream (0%) whereas 10.25% belong to Science stream. The bar chart (Figure-1) picturizes the above information in a nut shell.

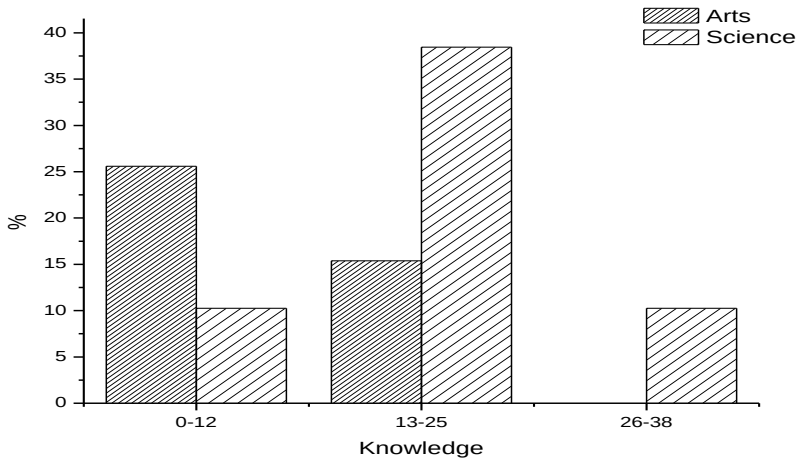

Figure.1: ICT Knowledge Assessment score

In the ICT Skill Test, among the 39 respondents, 12 scored 0-190 (30.76%) , who are termed as Novice in computer expertise, 18 scored 191-380 (46.15%) , who are termed as Moderately Skilled and 9 scored 381-570 (23.07%), those are depicted as Highly Skilled.. Among the Novice, 23.07% of them belong to Arts stream where as 7.6% belong to Science stream. Among the Moderately Skilled, 17.9% of them belong to Arts stream whereas 28.2% belong to Science stream. Among the Highly Skilled, no one belongs to Arts stream (0%) whereas 23.07% belong to Science stream. The Figure-2 represents the above details of three groups along with Arts and Science sub-groups in the bar chart mode.

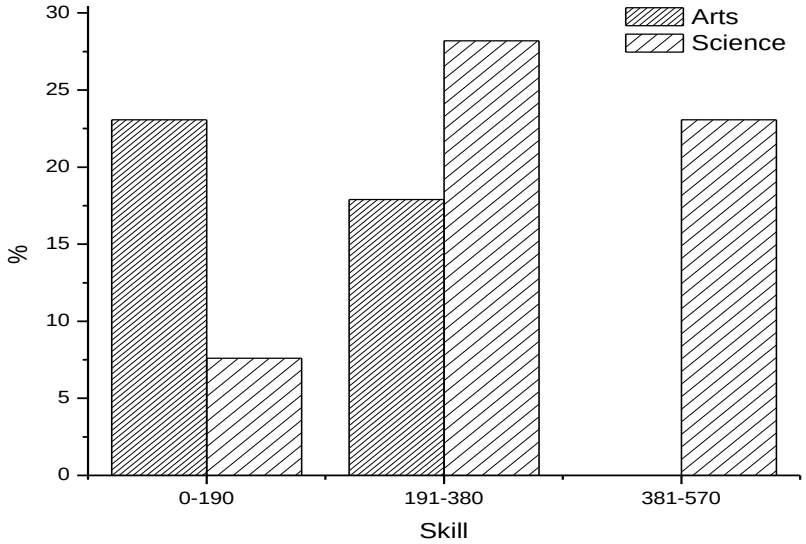

Figure 4: ICT Skill Assessment test

Conclusion

The study reveals that Science teachers have more orientation towards computers and internet. Their knowledge and skill scores are better while compared with those of Arts teachers. The worth mentioning fact is that, majority of both sections utilize internet more for e-mail purpose, utility service and entertainment rather than for academic purpose. A bitter fact to swallow is that in

educational institutions inclusion of ICT in academia will be impracticable unless or otherwise, the level of e-competencies is enhanced to the level of requirement.

"India can become one of the developed countries in the world by the year 2020, if we adopt technology as our tool. For this, the teaching community should change its mindset and enthuse the students by means of technology." - Dr. A.P.J. Abdul Kalam.

As a finale quote, the paper argues in favour of equipping HE teachers with necessary KSA of ICT. Hence the paper recommends restructuring the orientation and refresher courses of UGC-HRDC and designing comprehensive e-competencies development programmes for the escalation of the KSA level of ICT among higher education teachers, by which the ICT polarized teachers will ease the tight corners of teaching-learning process, by which HE will attain new heights.

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CYBER LEARNING TOOLS FOR BLENDED LEARNING

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Abstract

Technology is inevitable in present days learning process. It facilitates teaching and learning process. Learning environment has always been traditionally associated with the physical presence of classrooms, textbooks, pen-and-paper examinations and teachers. However, today's evolving technology has rapidly changed the facets of education. Online learning, teleconferencing, internet, Computer Assisted Learning (CAL), Web-Based Distance Learning (WBDL) and other technologies are integrated in education. Cyber or Online learning is a latest trend for digital natives or google or NET generation learners. The term ''cyber learning'' reflects a growing national interest in managing the interactions of technology and education. Online learning makes human life more comfortable. The access to bug treasure of information is available at the click of a mouse on the Internet. This blended learning environment has become the major role in training and education scene. Blended learning means combination of face-to-face and online learning. In this paper authors discuss a few of the best cyber learning tools for blended learning.

Keywords: Cyber learning, Blended Learning, Web 2 Tools, and Web Based Learning

Introduction

'Cyber learning'' is a term that has recently risen to prominence, and reflects an important shift in approaches to educational technology. The National Science Foundation (NSF) Taskforce on Cyber Learning published a report in 2008 that is often described as the origin of the term, and provides an insightful and thorough meta-analysis of the literature and general movements in educational technology that led to the authors' adoption of the term (NSF Task Force on Cyber Learning 2008). The Task Force defined cyber learning as ''…the use of networked computing and communications technologies to support learning''. The authors go on to explain that although the prefix''cyber'' has come to be associated with computer technology, they also intend it to be used in its original sense, which was ''…built etymologically on the Greek term for 'steering'.'' Although the focus is clearly on the networking technologies that are defining the Information Age, the report authors intentionally left the term open in order to refer to any form of future technology that mediates the human interactions that are at the heart of education. It is this inclusiveness that marks the important development inherent in the term. Instead of attempting to name the newest technologically driven advances in education, the Taskforce aimed to create a term that would encapsulate the way technology and education interact, without specific reference to a particular innovation or even era.

Blended Learning (BL) combines face-to-face learning with online learning to provide the most efficient and effective instructional experience by combining delivery modalities, for example a teacher with more classroom enrollment may choose the computer mediated or online element of instruction, another teacher who is concerned about slow learners may chose face-to-face instruction when motivation can be infused through gesture voice and communication. The other teacher who would like to have the best of both methods can combine both the modes by starting with a classroom discussion, having some activities, web based courseware, text based job, conference call, and so on, which may impart a holistic learning experience to the learner.

However, there is not a well-established procedure to set up a BL program. Different researchers have provided several approaches based on five blending dimensions (Singh 2003; Garrison and Kanuka 2004; Dziuban *et al.* 2004; Howard *et al.* 2006; Mortera-Gutierrez 2006; Larson and Murray 2008; Fong 2008):

- **Offline and online learning**: offline learning is based on the traditional study in a classroom, and online learning is based on the use of Internet.
- **Self-pace and collaborative learning**: the study in selfpace learning is controlled by each student working on his/her own, while the study in collaborative learning is shared among a group of students working together.
- **Structured and unstructured learning**: in structured learning there is a premeditated program with organized content in sequence, while in unstructured learning there is not such a program available.
- **Custom and off-the-shelf content**: Custom content is specifically created for the course, while off-the-shelf content is generic.
- **Theory and just-in-time performance support**: Theory support is organized prior the beginning of the course, while just-in-time performance support is provided during the course just when the students demand it.

Web 2.0 Tools for Classroom Instruction

The World Wide Web and Internet Technology in general, is constantly evolving. Growing from early roots as a relatively static network of hyperlinked documents, Web 2.0 refers to a perceived second generation of Web-based technologies including online communities, wikis, forums, blogs and chat rooms - technology which combines to form the basis for online social networking. Although the name, "Web 2.0" suggests that there is a newer version of the Internet, in truth, there is no specific Web 2.0 program or software, No upgrades are required, and you won't find system specifications for it. Web 2.0 is merely a commonly used marketing label for the rich interactivity that many online destinations now offer to their members. Most of the technologies people think of when describing Web 2.0, such as live, real-time database, content editors that allow instantaneous worldwide publishing and interactive communities with blogs, forums and chat rooms.. have been available since the earliest days of the Web.

Cyber Learning Tools for Blended Learning

1. Blendspace

Blendspace was formerly known as Edcanvas. Blendspace is a connected space where students and adults can organize, present and share information. It is a quick method to blend all materials needed from all over the websites into a beautiful lesson. Presentation can be gathered, annotated and shared easily by dragging and dropping images, movies, maps, audio and text and embedding hyperlinks onto a blank canvas. Blendspace allows the use of multiple frames on each canvas to pre-teach a topic, differentiated instruction, and share pathfinders and explore connections. Users can also upload own content or searching on the Internet.

Users can also create classrooms for students to participate in the lesson. A teacher can grade students' exercises immediately and automatically. Further-more, a teacher would benefit from a comprehensive assessment towards students in this interactive canvas. Older elementary and secondary students can create collaborative projects by copying individual canvases to make a complete dynamic canvas. An attractive presentation will be presented to the audience and serves multitude information in one organized canvas. Blendspace is not only suitable for teaching and learning but it is also suitable for businesses and other fields. Blendspace can be used to present ideas and will be helpful in collecting various ideas from other coordinates.

2. Present.me

Present.me offers a unique new way for people and organizations to communicate. Think PowerPoint plus YouTube, with numerous applications for business, education, human resources, and individuals. The most effective way we can communicate is through face to face communication with one person or with many others. Constrained time, daily pressure, geography and budgets all conspire to make this personal dialogue more challenging. Present.me allows users to share and review everything from tutorials and product demos to business updates and job screening interviews when it suits them, on demand.

3. Realtime Board

Realtime Board is a website that provides online collaborative software which is free and easy to use. The concept of collaboration makes it useful in discussion and presenting ideas especially in education field. Teachers and students can interact with each other by offering opinion and shared it with the class anytime and anywhere. The visual planning on the board makes learning sessions more fun added with multiple icons and tools which can help students express ideas freely and creatively.

4. Schoology

Schoology is one of the Web 2.0 that is quite popular among students and teachers. It is an online learning session, classroom management and social networking platform that improve learning through better communication, association and increased access to curriculum and supplemental content. Moreover, it is also a dynamic, intuitive and user-centric learning management solution focused on making improvement accessible in diverse educational environments. With custom webpage and content creation, interactive collaboration capabilities and seamless, third party application integration, Schoology empowers teacher, inspires students, and simplifies administrative tasks across the board.

Schoology founders Jeremy Friedman, Ryan Hwang, Tim Trinidad and Bill Kindler gathered up and began the development of Schoology at the end of 2009. Their mission and goal is to reinvent the way technology is implemented in the classroom. With a goal of improving student outcomes, they realized the need to disrupt the inactive education technology market by making Schoology obtainable and accessible for every teacher in every classroom. Besides that Schoology not only provides schools and districts with a configurable, scalable and easy-to implement solution, but also provides a basic version of its award-winning platform free for teacher. As a result, enterprise adoption is easier for schools and districts. This is an award winning Learning Management System (LMS).

Another mission is to authorize educators to give the tools and connections to connect students more efficiently and improve educational effectiveness on both a large and small scale. Schoology is not just an LMS. It is a living, breathing educational community that can adjust to changing student needs, learn from collective experiences and continually improve as education and technology progress. Last but not least, Schoology is transforming learning through the collaboration of passionate individuals.

5. Edmodo

Edmodo.com is a web 2.0 website that was created by Nic Borg and Jeff O'Hara. They recognized the need to evolve the school environment to reflect the increasingly connected world. They knew that the Internet had been a great tool to make education more advance so they came up with this idea. This website allows the user to sign up or log in as a teacher, student, parent, or school administration. It does not limit the usage because every role in the school society can be benefited by Edmodo.com. Besides the face-to-face classes in school, the teacher has more option to monitor their students performance online. It makes everything seem easier.

Edmodo.com is a website that also connects the teacher with their students' parents. If anything went wrong, teacher can contact the parents and at the same time, the parents can monitor their children behaviour and performance. Edmodo.com is easy to use because for the first timer, they even prepare a video of how to use their website. And, if any of the users have any problem, we can contact their support team and direct any question. It is confirmed that the team will reply immediately. However, there are other option to master this website. There are links of pages that will directs the user to any page related to the website. In conclusion, this website is comfortable to use because it is quite the same with Facebook and i-Learn Portal. Teachers and students can adapt very quickly because of the characteristics.

Conclusion

The influence of internet in our everyday lives is reaching almost unimaginable levels. Cyber learning tools are being used to increase communication (not just dissemination of information) in ways that strengthen the educational Community and help to center classroom and out of classroom - conversation on issues and topics that support and deepen learning. We examine the following four Lines of Communication in the report:

1) communication among students,
2) communication between students and teachers,
3) communication with parents, and
4) communication among educators. Cyber learning is very popular in the information age.

Many studied reveals that, teachers reluctant to use cyber learning tools for blended instruction. Above mentioned simple cyber learning tools helps the teachers to integrate those technologies for classroom instruction. Teachers can make use of these tools for effective blended classrooms.

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REALISTIC VISIONS OF MOBILE LEARNING FOR GEN Z STUDENTS

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Abstract

Mobile learning is a new way of learning. Today Mobile devices such as handheld computers, mobile phones and smart phones create learning portable, instantaneous, private and exciting. Mobile learning environment enriches the learning process outside the class room and develops a habit of continuous learning. Educational contents are available as mobile applications, which can be downloaded and installed in the mobile devices. The increase in use of mobile devices has paved the way for a new learning process, especially among Gen Z students. Gen Z students who are born after the millennial generation and growing in a world where mobile devices like smart phones and tablets have always been connected to the Internet, receiving responses to any query with a few swipes. Mobile Learning acts as a supplement tool for education which permits the students to collect and manipulate information outside the class room. This paper focuses on the visions of mobile learning for Gen Z Students.

Keywords: Mobile Learning, Gen Z students, Mobile Devices, Mobile Apps

Introduction

M-learning or mobile learning is defined as "learning from multiple frameworks, through social and content interactions, using personal electronic devices". Accessing educational contents by any student irrespective of their location, financial position, etc., is becoming the civil rights issue in our society. The great advantage with mobile is that it really is the primary gateway for social communication nowadays," says Mimi Ito, a cultural anthropologist Gen Z students learn the best if it's related to them and if they actually have a personal interest.

With the ubiquitous nature of today's modern computers, the Gen Z students can easily concentrate on learning activities from anywhere and at any time. Also, the mobile devices are small and they can take it wherever they go. The demand of Gen Z students is once they stored their educational contents; it would be available whenever it is needed again. (Dryer *et al.* 1999: 652)

Gen Z students prefer ambient learning and to make it possible, institution buildings and public places would have to be 'learning enhanced' in such a way that the devices are ready to respond the learners, give information about anything and improve on-the-spot interactions (Fritz *et al*., 2004).

A 2014 NPD Group survey revealed that **children aged 4 to 14 use smart phones and tablets more than any other device**. Based on the survey results, it is evident that the students are enjoying mobile learning. So, in future blended learning (classroom teaching + mobile learning) techniques would be provided to Gen Z students with a variety of mobile learning apps that create interest on their education.

Charactertistics of Generation Z students

Generation Z students who are born after 1995 wish to stay connected in the internet always. They are:

- Good in handling mobile devices and adopt technology at high levels and expect the same from the others,
- Approach every aspect of life from a global and visual perception,
- Long for regular and technology-enhanced blended learning techniques,

- Enthusiastic to have visually enhanced methods of teaching and expect rewards that are changed often based on the demands,
- Interested to see visuals and videos, and
- Attracted towards flexible learning and flexible attendance

Learning Styles for Gen Z Students

Gen Z students have a great passion in embedding the recent technology with learning styles. Gen Z students are:

- Digital integrators
- Connected to a borderless world

Based on the above characteristics of the new generation, the current learning methods can be blended with mobile learning apps to cater to their needs. Colleges which are updating themselves on par with the Gen Z will be getting more enrollments in future.

Mobile Learning Framework

PDA

A handheld device such as a PDA(Personal Digital Assistant) is a combination of hardware, operating system and application programs. Students' use their PDAs very differently from how they use their PCs. Desktop systems require a long 'boot-up' time and applications in the desktop are typically used for long periods and, again, users accept waiting for an application to start up. The typical use for a PDA, however, is to use it to quickly look up or jot down a piece of information, so the device must respond quickly. Most PDAs are instantly ready at switch on and have no latency or 'boot up' time. Any delays, however small, will detract from how useful the device is and become a barrier to its use. So, PDAs are the most preferable device among the Gen Z students

Smart Phones

A smart phone is a mobile phone with an advanced mobile operating system which combines features of a personal computer operating system with other features useful for mobile or handheld use. They typically combine the features of a cell phone with those of other popular mobile devices, such as personal digital assistant (PDA), media player and GPS navigation unit. Most smart phones can access the Internet, have a touch screen user interface, with either an LCD, OLED, AMOLED, LED or similar screen, can run third-party apps, music players and are camera phones.

Mobile Learning Application

Education can be delivered to the Gen Z students via various mobile applications (open source) available in the Internet.

- **Microsoft OneNote** - the most robust single note-taking app
- **Cloud Sync (Google Drive DropBox)** - app for uploading the information
- **Animato** - a great app for college presentations
- **Instagram** - the whole class can share their images instantly
- **Edmado** - connected Learning Management System
- **Math** - an app for improving mathematics skills (similarly for all subjects)
- **Word Web** - Dictionary for English (second language)
- **Color Note** - app for preparing checklist
- **Calendar** - app for scheduling an event
- **Calculator** - app for solving equations quickly
- **Mendeley** - app to keep their research compiled and organized
- **SelfControl** - blocks certain websites that can distract students from studying, and it does it for a set amount of time

"**Basics of C**" Mobile learning app is developed using Android Studio Version 2.0. It helps the learners to revise their subject outside the class room. Android Studio is the official integrated development environment (IDE) for developing for the Android platform. Android Studio is an intelligent code editor capable of advanced code completion and code analysis.

Mobile Learning in the Future

As suggested in a research study conducted by Ambient Insight, India will be the second largest country for buying mobile learning products and services by 2015 with a whopping growth rate of 61.3%. This reflects the fact that the mobile learning space is rapidly evolving in India and playing a significant role in imparting learning.

The key drivers behind growth of mobile learning in India are: the increase in market penetration of mobile devices, portability, small size, low price and - most importantly - mobile devices' adaptable technology. The government initiative to distribute Akash Tablets at school has ensured m-Learning will continue to rise in India.

Conclusion

Since India is considered to be an emerging market for mobile, and as millions of people become equipped with mobile devices, this mobile workforce represents a great opportunity for mobile learning in India. Gen Z students are interested to learn using mobile phones. The problem is that they may be distracted from their regular college activities. So, Gen Z students can be provided a blended learning environment which combines both classroom learning and mobile learning. Colleges which encourage student-centric learning will get the most enrollments in the future.

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WEB-BASED EDUCATION

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Abstract

The rapid development in Information and Communication Technology (ICT) provides tools such as computers, interactive multimedia CD-ROMs, e-mail and Internet. The use of such well advanced technologies has now enabled the learners of flexible learning to stimulate a virtual learning and take the learners to a virtual campus wherein teacher-learner interaction becomes possible in the cyberspace. The flexible teaching-learning strategies provide high quality education and ensure equity in educational opportunities, particularly to the disadvantaged like physically challenged, adult learners etc. The World Wide Web technology is a vehicle for disseminating course materials and for creating active learning experiences within a classroom-based course. Two-way video conferencing, CD-ROM and DVD or Satellite broadcasts. Which provides higher quality and more flexibility and which is more appropriately called 'distributed learning'. Web-based learning environments may be designed for distance as well as face-to-face learners (Robert H. Jackson, 2004), They are Authoring tools, Advanced Collaboration tools, Asynchronous delivery tools. Web- based learning has the following advantages. Fosters meaning -making, discourse, Moves from knowledge transmission to learner-controlled systems. Provides for reciprocal teaching, Is learner-centred. Self-paced learning is possible in this method, Encourages active participation, knowledge construction, Promotes active learning, Allows group collaboration and cooperative learning, Provides multiple levels of interaction, Focuses on real-world, problem solving, Updated information is available in the web sites. The web-based learning has the following limitations. Since course materials are instructionally pre-designed, it hardly provides for individual variation and further revision. Access Internet may be limited. Information may not be available related to all topics Information may not be available in all languages or regional languages. There is no mechanism available to establish standards for Internet materials, instructional design, and quality of interaction. It is difficult to alter the varying teaching styles of teachers and varying learning styles of learners. It needs to be designed, developed implemented very carefully; otherwise its credibility would be at stake. The World Wide Web has streamlined the communication process across the world.

Keywords: ICT, Web-Based Education, Web- Based Learning

Introduction

Web-based communication is seen by many as the key technological innovation of the last decade of the twentieth century. Web-based communication has attracted the attention of educators and trainers to the idea of distance education in a way that no earlier technology managed to do. The explosive growth of this technology is applied in designing and delivering instructional programs and in facilitating learner-instructor and learner-learner interactions in Web-base delivery of distance education. Web-based learning is a major sub-component of the term 'e-learning' with which instruction is delivered. It seeks to serve learners at some distance from their learning facilitator. It attempts to serve learners interacting with the learning source and thus it reduces the barriers of time and space to learning.

Principles of Web - Based Learning

Web-based learning environments may be designed for distance as well as face-to-face learners. The following principles are intended to serve as guidelines for identifying and evaluating Web-based courses in distance education programmes.

- The learning experience must have a clear purpose with tightly focused outcomes and objectives. Web-based

learning designs must consider the nature of content, specific context, desired learning outcomes and characteristics of the learner.

- The learner is actively engaged. Active, hands-on, concrete experiences are highly effective. Learning by doing, analogy and assimilation are increasingly important pedagogical forms. Where possible, learning outcomes should relate to real-life experiences through simulation and application.
- Selection of media may also depend on nature of content, learning goals, access to technology, and the local learning environment.
- Problem-based learning involves higher order thinking skills such as analysis, synthesis and evaluation while knowledge-based learning involves recall comprehension and application.
- Multiple interactions, group collaboration and cooperative learning may provide increased levels of interaction and simulation.
- "Knowledge becomes a function of how the individual creates meaning from his or her experiences; it is not a function of what someone else says in true". (Jonassen, 1995).

Categories of Web - Based Learning

Web-based learning has the following formats within "learning context":

⁂ **Asynchronous Format** (Direct Study Format): The majority of today's 'on-line learning' is in the 'directed study' format. 'Self-study' requires the learner to have a highly developed internal self-motivation characteristic.

⁂ **Synchronous Format** ('Live Real-time' learning): Instructor - led events have the capability to dynamically react to real - time environments and change the plan of study or flow of learning to meet the needs of learners at that particular time.

⁂ **Small Group Collaboration**: Small Group Collaborative activity may utilize asynchronous tools such as email, threaded discussion groups, list serves as well as use of synchronous tools such as telephone, text chat etc.

⁂ **Software Tools in Web-based Learning** There are several software tools used in Web - based learning in the context of what general and administrative functions they address (Robert H. Jackson, 2004).

⁂ **Authoring Tools**: These are multimedia creation tools. A Multimedia professional uses these tools to create media that can either stand-alone or be added as a module into a management system. Examples range from simple tools like Microsoft PowerPoint to sophisticated, Programmable tools like Macromedia's "Director" and "Authorware" software. These tools are used to develop content for all the content delivery systems.

⁂ **Advanced Collaboration Tools**: Advanced collaboration tools is a software product that facilities the synchronous, real-time delivery of content or interaction by the Web, but is not necessarily intended to comprehensively measure performance over time or handle course administrative tasks. Placeware Auditorium and Centra's Conference product are examples of real-time Virtual classrooms.

⁂ **Asynchronous Delivery Tools**: These tools used to embrace a wide range of learning management. Within a Learning Management System (LMS) learners generally are provided an integrated view of all their active coursework and assignments in a syllabus spanning multiple courses and that provides comprehensive assessment and goals teaching. Bryan Chapman (2004) categorized the systems based on the capability to accommodate third party materials. These systems accommodate learning content from other sources than that they themselves deliver. Bryan Chapman (2004) distinguished the two vendors: Computer Managed Instruction

(CMI) and integrated infrastructure system provide distinct sets of services.

- **Computer Managed Instruction**: If third - party courseware is among one's priorities, choose a Computer Managed Instruction (CMI) system. CMIs are open system one can attach third - party courses and they tend to focus on self - paced courses. The drawback of CMIs is they focus little on the community aspect of learning. CMIs include Docent, Ingenium Manager's Edge, Librarian, Phoenix and WBT Manager.
- **Integrated - Infrastructure or Internet Infrastructure System**: Integrated - infrastructure system does not accommodate third - party courses as well. On the other hand, it accommodated mix of self - paced, virtual and live - classroom training. Internet - infrastructure systems tend to be quick starters. They tend not to be self - paced, instead focusing on collaboration and involvement of an instructor. The draw back of Integrated - Infrastructure Systems is that they may not recognize courses created elsewhere. Examples of Integrated - Infrastructure systems include Generation21, Mentorware, TopClass Virtual U, Web Course in a Box, WebCT, and WebMentor.

Merits of Web-Based Learning

Web-based Learning has the following advantages:

- Fosters meaning-making, discourse
- Moves from knowledge transmission to learner-controlled systems
- Provides for reciprocal teaching
- Is learner-centred. Self-paced learning is possible in this method
- Encourages active participation, knowledge construction
- Based on higher level thinking skills-analysis, synthesis, and evaluation
- Promotes active learning
- Allows group collaboration and cooperative learning
- Provides multiple levels of interaction
- Focuses on real-world, problem solving
- More and recent information related to a topic can be accesses and delivered
- Updated information is available in the Web sites.
- More information will be gathered in short duration of time. So energy and time will be saved.
- Abstract concept can be easily explained with the help of animation and graphics.
- It can be used for increasing course delivery for a large number of clients at a particular point of time.
- Learners on-the-job are facilitated by it for own-time access and interaction.
- Instructional materials are already instructionally designed for wider use.
- Web - based instruction will be more effective at higher education and research level.

Limitations of Web Based Learning

The Web-based learning has the following limitations:

- Since course materials are instructionally pre - designed, it hardly provides for individual variation and further revision.
- If not properly designed and navigated, one may manually turn pages which are de - motivating to many.
- Access to Interest may be limited.
- Information may not available related to all topics.
- Information may not be available in all languages or regional languages.
- There is no mechanism available to establish standards for Internet materials, instructional design, and quality of interaction.
- It is difficult to alter the varying teaching styles of teachers and varying learning styles of learners.
- It needs to be designed, developed implemented very carefully; otherwise its credibility would be at stake.

- It has always the possibility of being branded as having the status of a 'provider' rather than as 'creator' or 'manipulator' or knowledge or information.

Conclusion

The World Wide Web has streamlined the communication process across the world. It is very useful for learners due to its ability to remove time and space barriers. It is more effective when combined with the synchronous media. This process is immensely useful for distant learners because it is highly interactive and cost effective. It is the easiest and the most popular way to access the Internet. The Web has also emerged as recent mode of instruction. The Web designers, educationists, cognitive psychologists and scientists are looking forward at how the instruction can be organized and presented effectively through Websites. Web courses are exciting and, if designed properly, can provide valuable and active learning experiences.

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FLIPPED LEARNING: A 21st CENTURY APPROACH

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Abstract

Flipped classroom otherwise known as Reverse Teaching is an innovative form of Blended Learning. The current focus of research in Educational Technology is on flipping the classroom and its emerging models and potentional benefits. In this context, this paper discusses the what, why, and how of Flipped class room and present its elements and benefits.

Introduction

"Flipping the classroom establishes a framework that ensures students receive a personalized education tailored to their individual needs" (Bergman & Sams, 2012).

Technology is the key to educational quality as we enter the new millennium (Fiske and Hammond, 1997). It has become a defining force in human lives, and its relevance is spreading to every field in one way or another. The pace of change brought about by new technologies has had a significant effect on the way people live, work, learn and play worldwide. New and emerging technologies challenge the traditional process of teaching and learning, and the way education is managed. In the past, learning and education simply meant face-to-face lectures, reading books or printed handouts, taking notes and completing assignments generally in the form of answering questions or writing essays. In short, education, learning and teaching were considered impossible without a teacher, books and chalkboards. But today, education and learning have taken on a whole new meaning. Computers have become an essential part of every classroom and teachers are using videos, computers, internet and other technologies to show students, how things work and operate. Students can interact with the subject matters through the use of such technology tools, web based tools and other electronic devices. Moreover, each student can progress at his/her own pace. Educators today, are equipped with an entirely new arsenal of teaching methods to maximize the quality teacher-student interactions occurring within the classroom. Though not a new concept, over the last few years the flipped learning idea has captured the fascination of educators. Flipped learning is a form of blended learning which shifts the learning culture in schools in which students learn online at least part of the time while attending a brick-and-mortar school. Either at home or during a homework period at school, students view lessons and lectures online. Time in the classroom, previously reserved for teacher instruction, is spent on homework, with teacher assistance as needed. Technology enables the teacher to flip modes of information delivery from lecture to video or any other asynchronous method. Rather than the teacher controlling the delivery and pace of the classroom, responsibility is flipped from the teacher to the students. At its core, "flipped instruction" refers to moving aspects of teaching out of the classroom and into the homework space. With the advent of new technologies, specifically the ability to record digitally annotated and narrated screen casts, instructional videos have become a common medium in the flipped learning. Although not limited to videos, a flipped learning most often harnesses different forms of instructional video published online for students.

Flipped Learning

The Flipped Learning Network (2014) defines Flipped Learning as, "a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting

group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter."

Flipped Learning: Concept

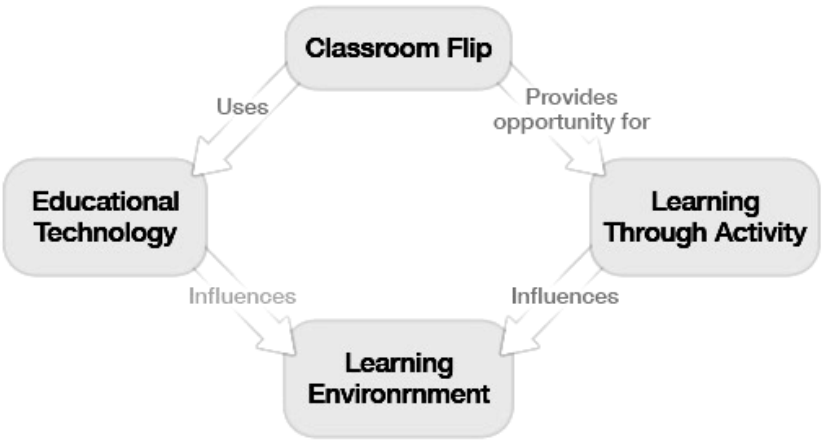
Flip learning (or flipped classroom) is a form of blended learning also known as backwards classroom, reverse instruction, flipping the classroom, and reverse teaching which encompasses any use of technology to leverage the learning in a classroom, so a teacher can spend more time interacting with students instead of lecturing. This is most commonly being done using teacher-created videos that students view outside of class time. It is a reversed teaching model that delivers instruction at home through interactive, teacher-created videos and moves “homework” to the classroom. It's a technology-driven teaching method known as "flipped learning" because it flips the time-honored model of classroom lecture and exercises for homework - the lecture becomes homework and class time is for practice. Moving lectures outside of the classroom allows teachers to spend more 1:1 time with each student. In flip teaching, the student first studies the topic by him/herself, typically using video lessons created by the instructor or shared by another educator. In the classroom, the pupil then tries to apply the knowledge by solving problems and doing practical work. The role of the classroom teacher is then to tutor the student when they become stuck, rather than to impart the initial lesson. This allows time inside the class to be used for additional learning-based activities including use of differentiated instruction and project-based learning. Flip teaching allows more hands-on time with the instructor guiding the students, allowing them to assist the students when they are assimilating information and creating new ideas. Students have the opportunity to ask questions and work through problems with the guidance of their teachers and the support of their peers - creating a collaborative learning environment.

Flipped Classroom: LOTS and HOTS Perspective

There are two key aspects of the Flipped Classroom:

1. Instruction that involves low level cognitive function (low on Bloom’s Taxonomy) like lectures or rote note taking, are moved outside the classroom and
2. Class time is spent on higher-order thinking activities that are completed in a collaborative environment.

Flipped Classroom: Key Elements



Key elements of a flipped classroom (Strayer)

Flipped Classroom: Process

Teachers can flip their classrooms using online video instruction or DVDs of lessons to reverse what students have traditionally done in the classroom and at home to learn. Instead of spending class time listening to a presentation, students watch teacher-created videos and blog posts at home, and then spend their class time doing problem-solving sets and hands-on work. Since students do much of the traditional "homework" in class, teachers are able to help the students on an individual basis and maximize their understanding of the material. The process of the flipped classroom is as follows:

1. Teachers record lectures on video and post them online, rather than lecturing in class time.
2. Students watch the videos as homework. There are three typical ways students view the videos:
   a) View them on their own, outside of the classroom, on a Windows or Mac desktop or laptop computer. They watch at home, or designated times and places at school.
   b) They watch the video on a mobile device.
   c) Project the video at the start of class, and watch as a group. This is especially common for teachers that teach the same class multiple times per day. A concise video delivers the same message to the students and frees up some extra time for you.
3. The classroom is then all about active work and discussion of the videos.

Flipped Classroom: Benefits

- The focus of class time is switched to interaction and giving the teacher a chance to offer more attention to individuals or groups who need it most.
- Students can learn at their own pace - the video lecture can be paused for note taking and skipped back to repeat sections if needed.
- Lessons are delivered to students even if they are absent due to illness, holidays etc.
- Creates a collaborative learning environment in the classroom. Collaborative learning can be achieved during class time, as the lecture part has been completed at home.
- Parental engagement is easier as much of the lesson is delivered at home.
- The learning platforms below can facilitate the online development and storage of video and other multimedia content, as well as discussion and collaborative working - enabling the flipped classroom.
- Gives teachers more time to spend 1:1 helping students
- Builds stronger student/teacher relationships
- Offers a way for teachers to share information with other faculty, substitute teachers, students, parents, and the community easily
- Produces the ability for students to "rewind" lessons and master topics
- The flipped strategy allows to individualize instruction for all learners, including ability level, needs, and learning style.
- Flipped method allows many of these students to feel comfortable in the classroom, and even provides them with the opportunity to remain up-to-date with their classwork during prolonged absences.
- The classroom becomes an interactive environment that engages students more directly in their education.

Conclusion

Regardless of the arguments that technology spoils students, it is an important part of today's society. Therefore, by incorporating it into the classroom students will be better equipped to make the transition to the workplace. The flipped classroom is a simple concept that needs no title.

It does not address all the limitations of the brick-and-mortar school, but still it has many advantages. Good teaching, regardless of discipline, should always limit passive transfer of knowledge in class, and promote learning environments built on the tenants of inquiry, collaboration and critical thinking. Educators must strive to guide students through perplexing situations, and more importantly, work with one another to develop the pedagogical skills to do so. In the world of digital learning, the flipped classroom may just be one good technology. Good teaching comes in many forms, and the flipped classroom mentality can be one of many solutions for educators, in the days to come. "Flipping a classroom doesn't happen overnight. It requires buy-in, collaboration and commitment." Bergmann (2014).

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EMERGING NEW TECHNOLOGY FOR TEACHING - LEARNING PROCESS

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Abstract

In the field of education, technology plays a potential role in every aspect of learning. Technology ushers in fundamental structural changes that can be integral to achieving significant improvements in productivity. Technology also has the power to transform teaching by ushering in a new model of connected teaching. Technology plays a vital role in the teaching learning process. Educational productivity can be produces by the use of open educational resources. These will enhance the rate of learning; reducing costs associated with instructional materials or program delivery; and better utilizing teacher time. In this paper, we are going to describe the emergence of new technology for teaching learning process.

Keywords: Technology, Teaching-learning process, Instructional materials, Educational resources, Computer Network.

Introduction

Teaching is that which results in learning. Teaching is undertaking certain tasks or activities the intention of which is to induce learning. Teaching is the process of carrying out those activities that experience has shown to be effective in getting students to learn. There is a strong relationship between teaching and learning. Teaching is a process, what teachers do. Learning is a process what students do. It creates a good relationship between good teaching and student learning.

Teaching - learning process can be effectively used by the way of emerging new technologies. Teaching learning process can be achieved by the use of new technologies. Technologies help in promoting opportunities of knowledge sharing throughout the world. These can help the teachers and learners to have up-to-date information and knowledge. Accurate and right information is necessary for effective teaching and learning; and new technologies (Haag, 1998; p.10) are "set of tools that can help provide the right people with the right information at the right time." Students are independent and they can make best decisions possible about their studies, learning time, place and resources. Information encompasses and relies on the use of different channels of communication, presently called information and communication technologies (Hussain, 2005) and would be incorporating better pedagogical methods to cope with such emerging situations.

Advantages of New Technology for Teaching Learning Process

- Technology unlocks educational boundaries.
- Technology simplifies access to educational resources.
- Technology motivates students.
- Technology improves students writing and learning Skills
- Technology makes subjects easy to learn
- Promotes Individual Learning
- Supports Differentiated Instructions
- Increases Collaboration between Teachers and Students
- Prepares Students for Tomorrows Technological Jobs
- Increases Students Innovation and Creativity

Recent advancements in educational technologies have yielded positive results in teaching learning process. This new educational technology is supporting both teaching and learning processes, technology has digitized classrooms through digital learning tools like, computers, iPads, smartphones, smart digital white boards; it

has expanded course offerings, it has increased student's engagement and motivation towards learning.

Information Technology "is any computer-based tool that people use to work with information and support the information and information processing needs of an organization" (Haag. 1998; pp.17. 518). It includes computers and its related technologies; WWW, Internet and Videoconferencing etc. Information technology can be used to promote the opportunities of knowledge dissemination. It can help the teachers and students having up-to-date information and knowledge.

Learning may take place more effectively and dynamically in educative environments where teacher and learners are open to each other to interact and exchange information and experiences in a friendly way. Ennis (1989) concluded in a study "Openness on the part of instructor increased their [learner's] desire to discuss problems or topics of interest. These discussions expanded their [learner's] understanding of the content and assisted them in planning the information within a relevant context in their own lives". Educative environments can enhance and shape the teaching learning process to achieve the desired goals. There is a natural tendency for students to learn and learning can accelerate, in interactive and encouraging environments. Accelerating the encouraging environments may be psychological climates and students' interactions can create them. Interactions of students can make learning environment more effective and meaningful and 'much of learning takes place in a meaningful environment'. Learners may get immediate feedback and reinforcement through web-based learning.

New technology facilitate students in their learning process through their active participation on one hand and help teachers on the other hand. Therefore, teachers use the information technologies to:

1. Present the material in more interesting and attractive way.
2. Guide and help students in searching the qualitative material.
3. Make best use of time.
4. Coach the students.
5. Provide individualized instruction.
6. Direct the students toward cooperative as well as collaborative learning activities.
7. Prepare learning material for students, rather teaching in conventional situations.
8. Diagnose the learning problem of students and help them to overcome.
9. Solve the study problems of students.

Information technologies provide the opportunities of global interactions. Students can learn from interactions with the information, interface, teachers and co-learners using global networks. They can interact at their own and get rid of their routine work. They may review and explore the qualitative as well as quantitative data trough computer networks. They can work on group projects participating in peer learning and knowledge building activities. Under the influence of information technologies, teaching and learning occurs in a changed situation. There seems a shift from teacher centered teaching to student centered learning. Menges (1994) stated that the eight "shifts" of Collins (1991) reflect the effects of information technologies on teaching and learning process. These shifts put greater emphasis on the activity of the students than on that of the teacher's. These include:

A Shift from Lecture and Recitation to Coaching

Students learn by interactive technologies and teacher facilitates them on how to use and reflect responses. He/she may be diagnosing learning problems and helping learners to find their solutions. When students work with information technologies, teachers reduce the time they spend directing students; they spend more of their time facilitating student learning.

A Shift from Competitive to a Cooperative Goal Structure

Collaborative and cooperative learning approach provides learners the opportunities of extensive interaction. Students have access to extensive databases and share their own work through networked communications to work on collaborative projects. Teachers guide the students on how to share and interact in networked collaborative learning environments.

A Shift towards More Engaged Students

Conventionally, majority of students is passive listener in the classrooms for most of the time. Teachers carry on delivering lectures without any concern of students' participation in the teaching learning process. Use of Information technologies in classroom situation particularly interactive technologies however; ensure attention and active involvement of students. Well-designed computer-mediated instruction is more likely to engage individuals for effective learning than simple lectures and book reading a classroom.

Conclusion

Emerging new technologies are the result of knowledge explosion. Among that, hardware and software technologies and facilitate teaching learning process. Using by these type of technologies, learners are now able to participate in learning communities throughout the world. The student community can get benefitted and access by the use of new technological resources. They may learn collaboratively, share information, exchange their learning experiences and work through cooperative activities in virtual learning communities. Information technologies facilitate teaching learning process in more productive fashion. Similarly, the role of teacher is also different in new settings than in the conventional system. Teacher facilitates and guides the learners in their study playing the role of a coach or mentor. Now teacher is not at the center of the instruction and sole source of information as in conventional classrooms. The teacher locates the resources and guides learners how to have access and utilize the information for required outcomes. In the present era, new technologies are restructuring teaching - learning process to meet the International standards.

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CLOUD APPLICATIONS FOR EDUCATION

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Abstract

A cloud application (or cloud app) is an application program that functions in the cloud, with some characteristics of a pure desktop app and some characteristics of a pure Web app. A desktop app resides entirely on a single device at the user's location. A Web app is stored entirely on a remote server and is delivered over the Internet through a browser interface. Today's IT professionals in educational institutions need to respond quickly to increasing demands from students and faculty, while coping with fixed or declining budgets and staff. In this challenging environment, cloud-based computing has become an increasingly attractive option for delivering education services more securely, reliably, and economically. A cloud app, unlike a Web app, can be used on board an aircraft or in any other sensitive situation where wireless devices are not allowed, because the app will function even when the Internet connection is disabled. In addition, cloud apps can provide some functionality even when no Internet connection is available for extended periods. In Educational Institutions are increasingly using a wide range of useful cloud based tools and applications to support teaching, learning and assessment. These applications can be used to support, enhance and positively transform the learning experience in order to improve learning outcomes for pupils and students. Many applications are free and provide a diverse and evolving range of possibilities to enhance learning. A key question is if and how can cloud based tools and applications improve the learning environment for educational Institutions.

Keywords: Cloud Applications, Web app, Enhance Learning, Learning environment

Introduction

Cloud application is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models.

Schools are increasingly using a wide range of useful cloud based tools and applications to support teaching, learning and assessment. These applications can be used to support, enhance and positively transform the learning experience in order to improve learning outcomes for pupils and students. Many applications are free and provide a diverse and evolving range of possibilities to enhance learning. A key question is if and how can cloud based tools and applications improve the learning environment for schools. Like desktop apps, cloud apps can provide fast responsiveness and can work offline. Like web apps, cloud apps need not permanently reside on the local device, but they can be easily updated online. Cloud apps are therefore under the user's constant control, yet they need not always consume storage space on the user's computer or communications device. Assuming that the user has a reasonably fast Internet connection, a well-written cloud app offers all the interactivity of a desktop app along with the portability of a Web app.

If you have a cloud app, it can be used by anyone with a Web browser and a communications device that can connect to the Internet. While tools exist and can be modified in the cloud, the actual user interface exists on the local device. The user can cache data locally, enabling full offline mode when desired. A cloud app, unlike a Web app, can be used on board an aircraft or in any other sensitive situation where wireless devices are not allowed, because

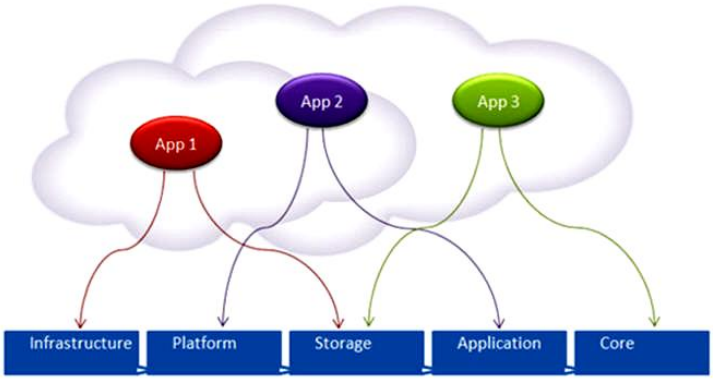
the app will function even when the Internet connection is disabled. In addition, cloud apps can provide some functionality even when no Internet connection is available for extended periods (while camping in a remote wilderness, for example).

Difference between Cloud App and Web App

Cloud App: A cloud app is the evolved web app. It's equally used to access online services over the Internet like web apps but not always exclusively dependent on web browsers to work. It's possible for a customizable, multi-tenancy cloud app to be solely available over the web browser from service providers, but quite often the web-interface is used as alternative access methods to the custom built cloud app for online services.

Cloud apps are usually characterized by advanced features as follows:

- Data is stored in a cloud / cloud-like infrastructure
- Data can be cached locally for full-offline mode
- Support for different user requirements, e.g., data backup cloud app with different features such as data compression, security, backup schedule
- Can be used from web browser and/or custom built apps installed on Internet connected devices such as desktops, mobile phones
- Can be used to access a wider range of services such as on-demand computing cycle, storage, application development platforms

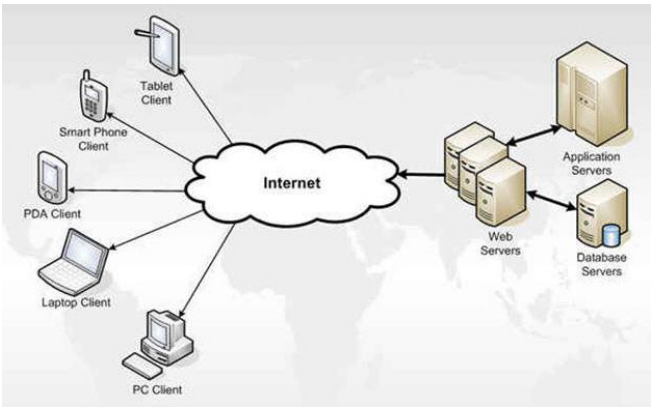


Examples of cloud apps

Some common examples include Mozy, Evernote, Sugar Sync, Salesforce, Dropbox, NetSuite, and Zoho.com. Other qualifying examples such as web email (Google, Yahoo, Microsoft Hotmail, etc.) may not be so obvious, but they depend on cloud technology and are available off-line if consumers so choose to have them configured as such.

Web App

Web apps on the other hand are almost exclusively designed to be used from a web browser.



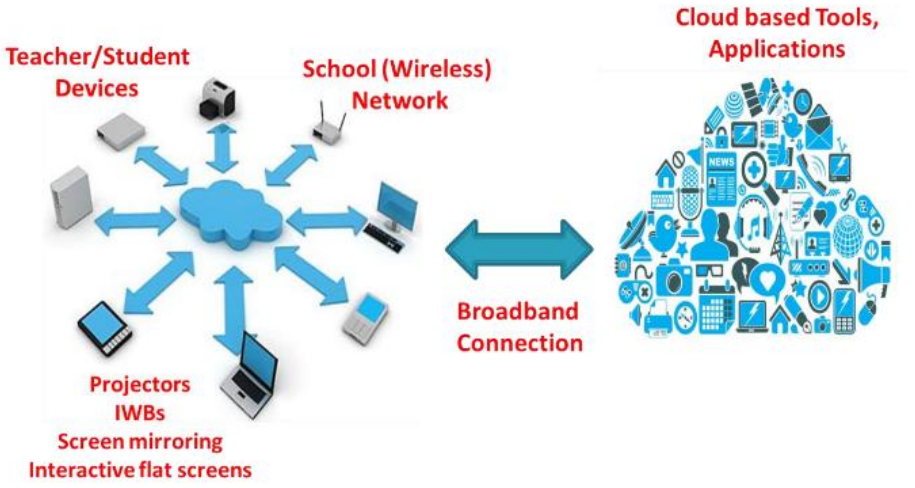
A combination of server-side script (ASP, PHP etc) and client-side script (HTML, JavaScript, Adobe Flash) are commonly used to develop the web application. The web browser (thin client) relies on the web server components installed on backend infrastructure systems for the heavy lifting in providing its core functional web services.

The obvious benefit that this computing model provides over the traditional desktop app is that it is accessible from anywhere via the web browser. Cloud apps can also be accessed this way.

Examples of Web Apps

For many, including myself, web services such as WebEx, electronic banking, online shopping applications, and eBay fall into this category in as much as they are exclusively web-based with limited options for consumer customization.

Learning Context of Cloud Applications



'Cloud Applications' in the context of Educational Institutions

Though schools have much in common, in terms of learning objectives, each school is different in terms of its' own unique blend of requirements, priorities, and challenges. When considering cloud based tools and applications, school management and the ICT coordinating team need to first consider school learning priorities and outcomes rather than just focus on the technology aspects.

This may include:

- As part of school self-evaluation process, identify school learning priorities and outcomes
- School e-Learning plans should form an integral part of wider school planning
- Consider how effective use of ICT could help achieve the learning outcomes

Some target objectives for the school might be:

- To facilitate a better learning environment in schools and classrooms To transform the learning environment to improve learning experiences and outcomes
- To provide more flexibility for teachers to experiment with different cloud based applications
- To try out free cloud based tools and applications without having to invest in local servers
- To more effectively utilise students owned technologies (eg.,student tablets) in classrooms
- To investigate if ICTs can assist in achieving these objectives

Cloud based Tools and Applications

Cloud based tools or applications are online or web based applications that are accessible generally via a web browser. They range from basic websites to complex and highly interactive online learning environments (OLEs). Many are free for education or may have basic versions which are free, while possibly charging for more advanced functionality. Some are subject specific (for Maths, English, Science etc.) while others such as online learning environments can be used to support any subject area or topic.

Today more services, tools and applications are being provided 'in the cloud'. For example, both Google and Microsoft now offer internet cloud-based office productivity suites (word processors, spreadsheets etc.) in the form of Google Apps and Office365. Internet based cloud based data storage services such as Microsoft's Onedrive and Google Drive Apps for Education are increasingly popular with schools. Mobile apps for smart phones, tablets and other devices facilitate simple access to and synchronisation of files and folders across multiple devices, while services such as Apple's iTunes/iCloud and Google Play offer cloud storage and other services.

Cloud based tools and applications are provided using a technology generally referred to as cloud computing. School Principals and teachers are only too well aware that technology changes and young learners thrive in that changing world of technology. Cloud based tools and applications bring flexibility and new possibilities for improving pedagogy as well as a new set of challenges in how to make best use of the potential of the cloud. Here you will find a brief overview of cloud computing and some aspects to consider when deciding if it is right for your school.

Cloud based Applications that are used in Education

Application Focus	Example of Cloud Applications
Portal for educational content	Scoilnet.ie
CPD Platform	Teacher CPD.ie
Productivity applications	Google Apps for Education, Microsoft 365
Online Storage, File Sharing	Dropbox, Google Drive, iCloud, Microsoft OneDrive
Virtual Learning Environment/ Online Learning Environment	Edmodo, Schoology, Schoolwise, Google Classroom
Maths Applications	Khan Academy
Video Sharing Service	Youtube
Blogging Platform	Wordpress, Kidsblog
Online Presentations	Prezi
Surveys	Survey Monkey
Sharing presentations	Slideshare
Microblogging	Twitter
Photo Sharing	Instagram
Schools Administration System	Vsware.ie

Benefits of Cloud Application

1. Provides a flexible, scalable, cost effective model that does not tie schools to out-of-date infrastructure or application investments
2. Offers the flexibility to meet rapidly changing software requirements for today's and tomorrow's teachers and students.
3. Allows software standardization, a wide range of applications, and easier

maintenance through centralised updates

4. Enables rapid development and deployment of complex solutions without the need for in-house expertise.
5. Can eliminate the upfront financial burden of deploying new technologies through either a free or 'pay-as-you-go' model
6. Supports different teacher and student devices (tablets, laptops, desktops etc) both inside and outside the school infrastructure
7. Increased flexibility for teachers, who can select from a wide range of cloud based applications which best complement their curriculum and approach at any given time.
8. Cloud computing allows for cost-and energy-efficient centralization of school infrastructures. It takes advantage of cloud based server capabilities to adjust allocation based on demand.
9. Remote management and maintenance can save time and increase security. For instance, an application or operating system served by the cloud can be upgraded once at the cloud based server level, rather than on each individual platform.

The benefits of cloud applications are being recognized in businesses and institutions across the board, with almost 90 percent of organizations currently using some kind of cloud-based application. The immediate benefits of cloud computing are obvious: cloud-based applications reduce infra-structure and IT costs, increase accessibility, enable collaboration, and allow organiza-tions more flexibility in customiz-ing their products both for their brand and for their audience. But cloud computing is having other effects as well, which have the potential to greatly change how education works, both in online courses and in traditional classrooms.

Surprising cloud application in changing education

No more expensive textbooks

It's no secret that university-level textbooks are expensive. The cost of textbooks has outpaced the cost of virtually everything else in education, including tuition. As a result, many students are simply refusing to buy them. Cloud-based textbooks can solve this problem as digital content is significantly less expensive than printed content. This levels the playing field so that lower-income students can have the same access to quality learning materials as their higher-income counterparts.

No more outdated learning materials

In the K-12 arena, the problem of expensive textbooks means that many of the materials students are using are outdated. The average social studies book in elementary and junior high schools are seven to eleven years old, which means that the world maps in these books are no longer correct. With cutbacks in school budgets, many districts, especially in less affluent areas, simply can't afford to replace these outdated resources. Cloud-based materials are easy to update in real time so that students always have access to the most current learning resources.

No expensive hardware required

Cloud-based applications can be run on Internet browsers, but most are compatible with mobile devices as well. This means that schools and students do not necessarily need to own expensive computers - a $50 smart phone can access these applications just as well as a $500 laptop. Students also don't need to purchase external storage devices as there are plenty of companies, like Google, that offer free cloud-based storage.

No expensive software required

One of the biggest advantages of cloud-based computing is the software-as-a-service (SaaS) model. Many software programs are now available either free or on a low-cost subscription basis, which substantially lowers the cost of essential applications for students. For example, instead of purchasing a single Microsoft Office student license for $140, students and their families can purchase a cloud-based subscription for five computers and five mobile devices for only $10 per month. Even better, they can use Google Docs for free. Institutions can also save big by using SaaS applications—traditional learning management systems can cost upwards of $50,000 or more, but cloud-based learning management systems like ProProfs' Training Maker are available starting at $60 a month with no per-user fee.

Reaching more & more diverse, students

Cloud computing opens up a world of new possibilities for students, especially those who are not served well by traditional education systems. For example, until education moved online, the options for adult students who didn't finish high school were very limited - now these students can earn their diploma or GED online. There are many other types of students for whom a traditional school environment simply doesn't work, and these students now have many options for pursuing alternative forms of education.

Conclusion

In these and other ways, cloud computing is not only reducing costs, but also creating an environment where all students can have access to high-quality education and resources. Whether you are an administrator, a teacher, a student, or the parent of a student, now is a great time to explore how cloud-based applications can benefit you, your children, and your school.

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MEDIA EDUCATION IN THE KNOWLEDGE AGE: PERSPECTIVES AND PROSPECTS

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Abstract

Media Education is the process of teaching and learning about media. It is about developing the public's critical and creative abilities when it comes to the media. Media education should not be confused with educational technology or with educational media. Being able to understand the media enables people to analyze, evaluate, and create messages in a wide variety of media, genres, and forms. Education for media literacy often uses an inquiry-based pedagogic model that encourages people to ask questions about what they watch, hear, and read. Media literacy education provides tools to help people critically analyze messages, offers opportunities for learners to broaden their experience of media, and helps them develop creative skills in making their own media messages. From the 1960s onwards a growing number of teachers became interested in studying mass media forms, especially film, television, radio and newspapers and magazines. In this backdrop, this paper discusses media education and its different aspects, besides presenting different perspectives of the same.

Introduction

Media rule our private sphere as much as they do our working life. The technical facilities for multiplication, transfer and networking are gaining an ever greater influence on the "natural" environment of pupils and students; they are part of their reality, their world. Education should accompany and encourage children and adolescents in their relationships to the world/reality. The share that the media have in our experience of the world/reality is constantly growing - a new dimension of reality has been created by the emergence of highly developed technologies. Considering that a reflective encounter and discourse with realities is a fundamental part of the science of education, the conclusion is that media pedagogy should become much more integrated part of pedagogy. Pedagogy must double as media pedagogy.

What is Media Education?

According to Ferguson,(1991) "Media education is an endless enquiry into the way we make sense of the world and the way others make sense of the world for us". For this, project-oriented teaching methods are recommended. In doing so, integrating the mass media into teaching must not be seen as simply using the media as an impulse for teaching a specific subject or as an illustration for the presentation of a subject. Rather, in using and examining the media, awareness should be raised regarding how they influence our view of the world and how this impacts social and political decision-making. Critical media analysis does not obstruct - as is often feared by practitioners of didactics - the subject-specific information content of the media. Quite on the contrary: dealing with the interfaces between the subject-specific content and the mediation share contributed by a medium adds significantly to the degree of media competence as well as to the subject-specific knowledge yield.

Intersections of Subject-Specific and Media-Specific Contents

A. Across the Curriculum

Curricula are still a constitutive element of teaching. The main structural feature of curricula is the division into the specific subject. A feasible way to achieve a closer and more organic integration of the media aspect is the identification of the intersections between subject-related and media-related contents and the aims of the

curricula. This approach is a productive way to examine curricula and stimulates teachers' creative potential to detect interrelations between media and their subject in passages where the media are not explicitly mentioned. A number of *key questions* can help to determine and clearly mark the overlapping areas:

1a. Constitutive element − what are the consequences of the development of media on the self-image of the subject?

1b. To what degree and in what ways is the subject involved in the development of the media?

2. Intertextuality - To what extent is the content of the subject present in the media? To what extent do they bring about a change of the traditional range of the subject?

3. How can the double function of the media, i.e. as subject as well as educational tool, be adequately used?

B. Media Education as Part of Native Language Teaching

Media studies should be an integrative part of the native language curricula. In our tradition, language has been the main carrier of information and has been studied as the principal means of communication. Language literacy on the sender's and the recipient's sides has therefore justly been the ultimate goal in the teaching of native language. Language and language literacy have formed the basic pillar of the subject thus far. Both address spoken and written linear text. It is only logical in a time when other forms of symbolic meaning are gaining importance that increasingly more young people are reluctant to engage in traditional forms of text. So the subject, be it German, English or French (possibly with the addition of the words 'communication'), should be open to accepting and dealing with other sign systems as well.

Multimedia and Knowledge Logic

This premise forces us to question the meaning of "making multimedia" in today's educational system, to look for its deep reasons, its "original" meaning, besides superficial enthusiasm and generalizations. The answer can be found in the fact that multimedia identifies the technical materializing form of some of the most recent research acquisitions referred to the psycho-cognitive, cultural and didactic perspectives.

1) One of the most discussed themes within the psychology of learning is the need to extend the concept of intelligence beyond the limits of logic and linguistic knowledge, on which we have built approximately two thousand years of education practices in Western countries. Howard Gardner, referring to human intelligence as a *multiple intelligence* including more than these two fundamental dimensions, argues that someone.

Introducing Multimedia in the Classroom lacking in logical and linguistic attitudes can possess musical intelligence, being able to move across the space with a perfect mastering of his body (*spatial and cinestesic intelligence*), communicating well with people (*personal intelligence*).This certainly does not imply a crisis of logical rationality or a loss of the importance of reflective thinking on which it is based: the ability to make inferences starting from previously stored knowledge still represents an essential cognitive state in the human being (Norman, 1998).

2) This polycentric and multimodal structure of intelligence also demonstrates a deep change in the relationship of our society to culture and knowledge. According to Pierre Levy (1997), the critical node of this change can be found in the Age of Illumination, particularly in the project of the *Encyclopedie* promoted by Diderot and D' Alembert. This historical moment, according to the French philosopher, is the last attempt by Western man to completely master knowledge: from this moment on, it will be increasingly clear that "knowledge has definitively passed into the sphere of what cannot be mastered". We can explain what this means in three remarks:

First, today *knowledge* is becoming a *flux*, signed by the quick aging of competencies. The speed of information transmission has its main consequence in the fact that an individual's "initial" knowledge at the beginning of his professional career appears inadequate even after a few months: thus, the difference between the time for training and that for social and professional experience is disappearing.

One can also think of *knowledge as exchange*. Working in the Information Society means creating and sharing knowledge, and this requires open structures supporting self-learning processes: "With the same material resources and economical connections, the winners are the group that are able to work, that learn fast, keeping faith to their own engagements, recognizing themselves as individuals, making territories open rather than protecting them"(Levy, 1994).

Last, following McLuhan's idea, one can evoke the idea of *knowledge as prosthesis*, as an extension of our cognitive functions. In this way, databases and repositories extend our memory, virtual worlds (like *Second Life*) extend our imagination, tele-presence (like in *MSN Messenger* or *Skype*) extends our communication chances and perceptions.

Multimedia acts in this context as *cognitive artifact*, as instrument throughwhich individuals can order their knowledge, thus ordering the world. This means recognizing behind technology a deep cultural meaning and considering that multimedia has a real value: a distributed and non-totalizing rationality (flux knowledge), building knowledge through interactivity (exchange-knowledge) and proposing itself as a frame for our cognitive abilities (prosthesis-knowledge).

A last set of reflections can originate from the idea of knowledge value of practice, connected to some recent psycho pedagogic research perspectives (Pellerey, 1997) offering us at least three basic indications:

This new role of experience as form of knowledge is confirmed by the central role recognized to operative intelligence by cognitive psychology. We talk about meta-components, components of service and knowledge acquisition components. "Meta-components refer to the processes used to plan, control and evaluate the operative activities of problem solving. Components of service are processes used to translate into practice the instruction indicated by the meta-components. While knowledge acquisition competences are the one implied to learn and solve problems" (Pellerey, 1997; 1135).

Today, (Multi) Media Education must meet three strong social needs:

- **Alphabetization** - creating a "familiar" space for technologies at school, teaching how to read and write using multimedia, preparing youth to "exit" into a society that is structurally built on technologies (*Knowledge Society*) and demands of people a radical change in their own profile in the completion of their productive performances (*knowledge workers*);
- **Cultural reflection** - dealing with the "philosophical" dimension of technologies (Maragliano, 1998), questioning how knowledge and competencies can be re-thought within this new context. This issue is directly linked to the others concerning how to find maps to surf non-hierarchical knowledge (the "mosaic culture" education sociologists refer to), or how to find new criteria to evaluate and check information sources (how to distinguish, on the Internet, pertinent from superficial information). Multimedia, apart from being a set of technologies must be referred to as a cognitive condition of educators;
- **Education** - passing from a school system in which media are a "window", to a new school system in which they comprise the real environment of education. This idea of multimedia at school as environment must be translated

into: 1) a systemic action, involving the whole organization; 2) a multi-level action (coordinating, teaching, educating, tutoring); 3) a link between school, extra school and the territory.

Media Education

First, we have to integrate multimedia within an educational approach centred on languages and processes of communication (*social-centred*) more than on the mastery of single tools (*media-centred*). The frame of this kind of integration is an idea of *(Multi) Media Education* sensitive to media cultures (Caron and Caronia,2005; Pasquier, 2005), attentive to their effects on learning processes (Rivoltella, 2007) and, above all, is not imagined as a set of specialized competencies of some teachers, but as the *working style* of every teacher as educator (Jacquinot,2007) — even if this idea does not have to lead to didactic spontaneity, but conceives of thematically areas and unavoidable attention points that cannot be neglected by teachers.

Traditional didactics is usually built on a model normally called *unidirectional/ transmissive*: "'Unidirectional', as the route of information is on a one way direction, from a source (school, teachers, media) to a receiver (student, audience); "transmissive", in terms of what Paulo Freire named 'banking education', where the one who knows is the one who has a set of knowledge and the one who does not know is lacking those knowledge's"(Pinto and Pereira,1998; 7).

The traditional "critical reading" approaches (Master man, 1985), based on literary analysis and textual criticism, and has already been upgraded by *Audience Studies* through more explicit attention to the role of reception contexts. Clearly, it appears inadequate when we approach specific forms of text - as multimedia, SMS, CMC tools, blogs - with non-linear structures, complex architectures, interactive nature, continuous updating. On the one hand, we have to search for tools that are able to answer the new needs expressed by these new forms of communication, and on the other hand we need to enforce the work on contexts and reception.

Introducing Multimedia in the Classroom and Curriculum

To understand how (Multi) Media Education has to be managed so that it finds a place in the curriculum, we need to take into account some variables useful to the teacher in planning activities and to the policymakers for imagining how-to lead the change.

The first is the presence of main intellectual traditions that must be reconsidered not as exclusive teaching paradigms, but as co-existing dimensions of a unique cultural approach:

- Sociological research on the relationship between media and human behavior (*Media Effects*);
- The application of semiotic tools to support the critical analysis of media messages (*Literary Criticism*);
- The approach to images closed to forms, lines, design (*Aesthetics).*
- The practices of Media and Education in the classrooms are based not only on intellectual traditions, but also on methodological choices. Here we have two more perspectives that are important to develop:
- Strategies for *reading and listening* to (multi) Media texts (text analysis);
- Strategies for *writing and speaking* about (multi) Media products (video making, multimedia production).

These practices always include a conceptualization of the media that can be defined as *linguistic-instrumental*, to which teachers and schools mainly refer today. According to this, media are both languages (students must be able to read and write them) and tools (students need to know how they work and how to use them properly).

Conclusion

Media education across the curriculum is not a cross-curricular practice; it is, rather, a transcurricular approach that transcends and

dissolves the borders between the disciplines in educational institutions. In the same way, it is a link between school and the life worlds of children and young people outside school. Media are, or rather should be, as the name implies, mediators and call for a number of competences/abilities that prove useful and productive for lifelong learning: We need the ability to deal with a multitude of diverging standpoints, which in turn requires the skill to deconstruct and reconstruct the standpoints of others. In this way problem-solving capacities are trained, just as at the same time students can experience themselves as active constructors in a social context. Understanding is not merely reproducing content, but is also critical questioning of conditions and motivations as a basis for acquiring knowledge autonomously.

We increasingly need methods such as dialogue, cooperation, considering creative affective elements as equal partners alongside the cognitive aspects. Sustainability in education means providing our students with skills and abilities that not only make them fit for professional life but enrich them both individually and socially. Equipped with these tools, they are prepared for lifelong learning.

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USE OF ICT FOR IMPROVING EDUCATION IN INDIA: CHALLENGES AND OPPORTUNITIES

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Abstract

In today's educational world, Information and Communication Technology has become a vital element for educational reforms. There are several and desirable benefits of Information and Communication Technology (ICT) in Science and Engineering education. Despite advantages of ICT's and its attractive features their role in engineering education is lagging behind with respect to other disciplines of education. This paper outlines the very important role of ICT, Its scope and merits in educational development in Engineering. Besides that a close look at the challenges related to technology adoption and Utilization is also discussed. Enormous opportunities that ICT can offer, actions needed to overcome the challenges and the strategies for integrating ICT Engineering Education for effective teaching and learning at all levels of the tertiary educational system in the country is also highlighted.

Keywords: ICT, Tertiary Education, Engineering, Lifelong learning.

Introduction

Nowadays humans are surrounded by various applications of Science and technology that has strongly influenced our attitudes and lives too. Together Science and technology have altered conditions around a mankind, be it educational, economic or social conditions. In recent years (from 1990's) , the use of Electronics, Computer and ICT tools in the process of teaching and learning has become common phenomenon in educational institutions in developed countries. ICT is used in the process of teaching and learning as a medium of instruction and computer science programme and Engineering subjects is being taught and learned nowadays at all levels of the higher education system Zameer and Leema (2015). However, applied science and engineering related disciplines faces plenty of problems at almost all levels of educational institutions and one such problem is to communicate through the channels by which concepts, ideas and information could be disseminated to the learner because effective communication through proper and appropriate media is vital for effective teaching. ICT has been tested and used in developed countries to tackle most of these Problems associated with teaching and learning process. It can be used in the Indian educational system to teach all subjects like Science, Mathematics including engineering also Kabouridis (2008).

In spite of the fact that large database of articles and books are written on ICT benefits in education, and the thousands of conferences (local, regional and international) and workshops were organized to address this issue, ICT technology penetration in engineering education in particular, and education in general, is still very limited. The literature reveals that the use of ICT in engineering education is has only just started, but in a secluded manner, in certain disciplines of engineering, such as electronics engineering, civil engineering, mechanical engineering, aeronautics Engineering etc. Anis (2011) Although engineering education in all these dissimilar disciplines has some common features and our focus in this paper is to come across at those most frequent challenges that face engineering education in general, the opportunities that are available, and recommendations are for the proper use of ICT in engineering education. The paper concludes with recommendations

suggested to include ICT in Indian Education system.

ICT in Education

Educational technology is now omnipresent or we can say Ubiquitous, but without the appropriate pedagogical strategies the potential of these educational technologies is lost. Today the best technologies available for education purpose are in various forms, and the main core is to find out, how we can make the optimum use of available technology resources to enhance student learning. The necessity for the development of ICT in education is a global decision and has been a subject of great importance to all mankind. Information Communication Technology (ICT) consists of software, hardware, networks, and multiple media for collection, storage, retrieval, transmission, processing, and presentation of information (, texts voice, data and images). However, Information Technology (IT) is an element of ICT that refers to creation of data, storing and processing the data including software applications, hardware and software systems . Several developed countries has been garnered the benefits of ICT in their education system in order to revive it, be it primary level, secondary or tertiary level of education Even the curriculum of engineering education has also been affected by the use of ICT and the results achieved have been widely appreciated. The most influential and important role of ICT in education is pedagogical changes by introducing pedagogical tools and it has been proven that modern pedagogy is more effective and successful. Time has come to brace up towards the challenges given by new modern educational tools to refurbish our traditional learning system through development and use of Information and Communication Technology (ICT).

In general, ICTs implementation in educational system can be categorized in three main areas:

i) The Information and Communication Technology (ICT) components which are implanted in the course for simulation and computation (e.g. Such as MATLAB) to solve linear or differential equations.

ii) The use of Information and Communication Technology (ICT) to deliver learning courses through educational websites or by using video conferencing or,

iii) The Use of Information and Communication Technology (ICT) tools like LMS, which enable us to track student learning process.

Objectives to be Achieved

- Removing barriers to learning and participation in learning.
- Raising standards of engineering education.
- Improving quality of learning in Engineering Education.
- Preparing for employment.
- Up-skilling in the workplace.
- Every learner should achieve their potential.

Functionalities of ICT in Education

i. Planning of Course

✓ Courses should be created in accordance with learning objectives-what, why, how.

✓ Cognitive approach should be used to create the order or hierarchy of cognitive levels for learning objectives.

✓ Concept maps should be used for course planning and corresponding open-source tools.

ii. Effective Writing of Question Assessment

✓ Assessment should be aligned according to learning objectives of a course.

✓ Questions related to assessment should be ranging from basic or simple to higher or complex assessment questions (create levels, Apply, analyze, evaluate,).

iii. Production of Scientific Content

✓ In engineering teaching and learning scientific content such as simulation or animation would benefit a lot.

- ✓ How to find suitable visualizations for the course.
- ✓ Visualizations of learning content produce effective teaching.

vi. An Active-Learning Classroom.

- ✓ The objective of active-learning and how to achieve it.
- ✓ To create a particular active-learning techniques such as peer to peer learning.

v. What, why, and how to create Flipped classroom

- ✓ Need to Introduce Asynchronous mode of learning (videos, Spoken Tutorials.)
- ✓ Group Discussions activities for students based on above content.
- ✓ To Promote collaboration among students.
- ✓ To promote peer to peer learning.
- ✓ To create interactive sessions for student.
- ✓ To use online tools like blogs, Wikis and forums in order to promote Collaboration among student.
- ✓ Evaluating effectiveness of teaching strategies.

ICT Advantages

Different studies has been carried out in various countries to highlight the importance of ICT at higher education level, as it will play a key role in transforming the shape of higher education There are several advantages in using ICT in universities and they are as follows:

a) **Lifelong Skills**: Students may have the option to select learning materials that meets their level of interest and knowledge. Also, self-paced learning modules permit students to study at their own pace and develop computers and Internet knowledge and skills which will help them throughout their lives and careers.

b) **Reduces development time**: The content is directly written by the subject matter expert by using an authoring tool under the supervision of instructional designer. This way an author can cut down few steps in processing and thus reduces overall development time.

c) **Direct Expert input**: The content written by the Subject matter expert have less chances of being misinterpreted by Instructional Designer because an expert is primary author of the content being produced, which means he might be having ownership for the content he produced and this way his engagement in the content creation is likely to increase.

Challenges

i) Lack of Instructional Design methodology:

Most of the projects related to e-learning require the involvement of instructional designer, in order to help the subject expert to author the content, without whom the process results in poor organization of information and incomplete pedagogical integrity of the final product because Instructional Design methodology is the key to how content should be understood and retained.

ii) Time and effort constraints:

Faculty are normally busy with their daily schedule of lecture sessions, maintaining records, making question paper setting, answer sheet correction, interacting with students, conducting seminars , Quiz sessions, discussion forums, assignment checking etc. The basic challenge is that they have to learn the paradigm initially, then prepare the course content according to the instructions and the various assessment documentations as per the formats compatible to the ICT tool courseware within the available time frame.

iii) Broadband Speed:

In India the system of education is struggling with numerous problems ranging from infrastructure deficient, shortage of skilled manpower, lack of funds and severe absence of precise vision. Higher Education Institutions are not at par with other parts of the world at higher education level, and because of this most of the India's top ranking Institutes are showing low

performance both in Engineering education and research as well. Some of the points are as follows:

- Very Low broadband speed Connections.
- Problems in handling Practical's via ICT
- Teachers Lack of motivation.
- No or very little technical support.

Table 1: Percentage of Internet Usage and Broadband Speed Statistics June-2015

Rank	Asian Country	Internet Users % Asia	Broadband Download Speed June-2015
1	Singapore	0.3 %	121.25 Mbps
2	South Korea	3.3 %	59.08 Mbps
3	Taiwan	1.3 %	48.77 Mbps
4	China	46.3 %	31.57 Mbps
5	Thailand	1.5 %	20.08 Mbps
6	Bangladesh	2.9 %	11.3 Mbps
7	Nepal	0.3 %	8.31 Mbps
8	Bangladesh	2.9 %	11.3 Mbps
9	India	17.5 %	7.29 Mbps
10	Pakistan	2.1 %	4.05 Mbps

iv) Pedagogical Issues:

Since, technology itself will not lead to any change; teachers must ensure its integration into their curriculum to bring the potential change into the education process. Teachers should have knowledge about relevant ICT tools, and how to use them in their teaching process effectively. Several IIT's (IIT Kharagpur, IIT Bombay, and IIT Delhi) offer teacher training programmes, which focuses on different pedagogical strategies and issues to be addressed. Teachers participating in such programmes will learn different approaches for teaching with ICT tools and to apply them in designing course material and activities. The main objectives of teacher training programmes is that teachers must understand their responsibility in technology-oriented classrooms, Hence, self-efficacy and attitude towards techno-logy play an important role to develop techno-pedagogues. The professional growth of teachers needs to be given more importance, so there need to be congruence between institutional curriculum and teachers training programme. Otherwise, if teachers are not ready they would not be able to utilize their expert knowledge for designing effective teaching-learning process, assignments and project work. Thus, change in teacher's attitude and education is difficult and tedious task which involves comprehension, anxiety, Fear, caution, and contemplation, workload, time etc. However, to bring effective change in education is only possible when we can bring changes in the management of teacher education programs.

Opportunities

The use of ICT will also address some important issues such as:

- Potential to overcome barriers in Engineering - Time, Pace, and Place.
- Wider participation of Students - Removing distance barrier.
- Ability to modify learning to individual needs.
- ICT support tools - Assistance for physical disabilities and learning

i) Internet Growth

If we see the growth of Internet, In Asia, India alone has Internet penetration population rate of 28% which accounts for 22.6% percentage of Internet users of Asia in a span of just 15 years see (Table 2). Therefore, within a span of few more years we will witness more Internet penetration usage across the country, which creates an opportunity to spread education and include ICT in engineering education also. Though

India has the second-highest number of Internet users in the world after China, its online penetration rate has reached 28.3% percent. It is this Internet growth which will drive users in rural areas and with the availability of low-cost smart phones together with low mobile and internet tariffs it will empower users to study and get access to education anytime, anywhere, and at any place.

Table 2. Population Statistics and Internet Usage of India (Internet World Statistics, June-2015)

Asia Region	Population (2015 Est.)	Pop. % World	Internet Users Dec 31- 2000	Internet Users 30-Jun-2015	Penetration(% Population)	Internet % Users	User Growth 2000-2015
Asia Only	4,032,466,882	55.5%	114,304,00	1,563,208,143	38.8 %	47.8%	1,267.6%
Rest Of World	3,228,154,236	44.5 %	246681492	1,707,282,441	52.9 %	52.2 %	592.01%
World Total	7,260,621,118	100.0 %	360,985,492	3,270,490,584	45.0 %	100.0 %	806.0%%

Table 3. Internet Usage and Population Statistics of India

Region	Population (2015 Est.)	Pop. % World	Internet Users Dec 31- 2000	Internet Users 30-Jun-2015	Penetration(% Population)	Internet % Users	User Growth 2000-2015
India	1,282,390,303	19.24%	5,000,000	354,000,000	28.3 %	22.6 %	**6980%**

There is incredible internet user growth which is 69.80% in a span of just 15 years (See Table 3) The internet and applications associated with education is being seen as an opportunity that should be apprehended by higher educational institutes in India especially Universities to leverage change and to transform themselves and the use of ICT has been seen as a revolutionary tool to overcome various challenges which educational sector in India is facing today.

ii) Educational Data Mining (EDM)

The possible potential benefits of Educational Data mining is a powerful analytical tool. The Educational data set generated in ICT learning scenario hides the knowledge among itself that is extractable using data mining techniques. The purpose of EDM is to obtain the significant data patterns from an educational system that could be used for strategic planning as well as for other learning gains. It will be helpful in engineering education where EDM will help us to explore relevant information results and can produce diverse perspectives to understand more about the learner's activities during a learning process. The data can be related to student demography or academic that can be used to help instructors.

- To understand learner's behaviour.
- To improve their teaching.
- To enhance curriculum.
- To improve and assess ICT systems.
- To keep track of students learning.

Conclusion

In this paper, the authors made an attempt to have an inside look into Information and Communication technology as a big leap towards the improvisation of teaching and learning of education especially engineering education. The potential of ICT tools to change the scenario of learning from teacher centric to student or learner centred is also discussed keeping in view the challenges, faced and the opportunities to acquire. However, if Indian educational Institutes will not succeed to obtain the knowledge of ICT to provide modern means of education (teaching and learning), it will be difficult for the outgoing students of those institutes to fit into the society governed by

technology. Therefore, it is the right time to ponder and efforts should be made by all the stakeholders (administration, faculty, students) to strive for the inclusion of technology (ICT) into our educational system in order to meet the modern educational criterion to be at par with world class institutions.

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E-LEARNING COMPETENCIES FOR TEACHERS

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Abstract

Teaching and learning with ICT requires specific competencies for teachers and lectures. Teachers learned to work with hard- and software. A lot of people attend courses on text processing, spreadsheets, but using a Virtual Learning Environment like e.g. Blackboard, demands more didactical than technical skills. Especially e-learning and blended learning is too demanding to let teachers learn to use these tools only by experimenting. Teachers need to improve knowledge and skills to enhance, improve and explore their teaching practices. Many of the studies on competencies of teachers focus on the teaching role of teachers in the classroom rather than teachers' competencies. Teaching is a complex activity. Competent teachers apply broad, deep, and integrated sets of knowledge and skills as they plan for, implement, and revision of instruction. Technology proficiency (including technical skills and instructional applications) is also a dimension of teacher competence. Teacher's professional competence is the system of knowledge, skills, abilities, and motivational disposition that provides the effective realization of the professional teaching activities. Thus the structure of teachers' professional competence becomes more complex. This paper focus on ICT competencies for teachers, E-learning competencies for teachers in the knowledge society.

Keywords: Digital didactics, e-learning competencies, Information and Communication Technology (ICT)

Introduction

In the 21st century, the literate is increasingly expected to use computer technology to access and manipulate information. Knowing how to manage electronic information from an ever-widening array of resources and in proliferating formats is essential. To be fully prepared to function productively in a technology-oriented society, students must develop not only fundamental computer skills but also proficiency in using a variety of technology tools to solve problems, make informed decisions, and generate new knowledge. The development of these skills, as in other basic areas of knowledge, is the responsibility of the schools and their instructional staff. Yet many of our teachers and educators lack the necessary skills themselves to be comfortable in playing a leadership role in the integration of technology into classrooms.

Technology Competencies for Teachers

Teachers need to improve knowledge and skills to enhance, improve and explore their teaching practices. Many of the studies on competencies of teachers focus on the teaching role of teachers in the classroom rather than teachers' competencies. Competencies are defined as "the set of knowledge, skills, and experience necessary for future, which manifests in activities". Gupta defines competecies a "knowledge, skills, attitudes, values, motivations and beliefs people need in order to be successful in a job."

ICT competencies are based on using tools and technical equipments for the reaching, distributing and transferring the knowledge. They include any technology that helps to produce, manipulate, store, communicate, and/or disseminate information. It means that the ICT competency is very important to improve the communication in the learning and teaching process.

The ICT Competencies are a set of technology standards that define proficiency in using computer technology in the classroom. The competencies consist of computer-related skills grouped into four general domains: (1) Basic Technology Operation, (2) Personal and Professional

Use of Technology Tools, (3) Social, Ethical, and Human Issues, and (4) Application of Technology in Instruction.

Importance of ICT Competency for Teachers

Teaching is a complex activity. Competent teachers apply broad, deep, and integrated sets of knowledge and skills as they plan for, implement, and revise instruction. Technology proficiency (including technical skills and instructional applications) is one dimension of teacher competence.

The acquisition of technology knowledge and skills must be connected with the development of a broader array of competencies. Early attempts to develop technology standards for teachers were isolated from the broader teacher competencies and were focused primarily on technology skills. Consequently these competencies were largely ignored by teacher-training institutions. Typically, colleges of education simply required a single media course to satisfy accreditation requirements; often, colleges were reluctant to insert yet another course into an already overloaded curriculum.

The International Society for Technology in Education (ISTE) has actively addressed the technology isolation problem and has recently released a set of revised teacher technology standards. Developed through a rigorous process of expert and lay-person input, the NETS-T Project (National Educational Technology Standards for Teachers) explicitly describes what competent teachers should know and should be able to do with technology in the context of broader teacher competencies. The NETS-T standards are categorized as follows:

1. technology operations and concepts,
2. planning and designing learning environments and experiences,
3. teaching, learning, and the curriculum,
4. assessment and evaluation,
5. productivity and professional practice,
6. social, ethical, legal, and human issues.

Basic Technology Competencies

Fundamental skills come first - like managing electronic files, using computerized databases and spreadsheets, sending and receiving e-mail messages, and creating documents with graphics. These skills are prerequisites for more advanced skills, such as accessing online resources, creating desktop publishing documents, developing multimedia presentations, selecting and customizing instructional software to fit students' needs, streamlining record-keeping and other administrative procedures with electronic tools, and observing the correct protocols in sharing intellectual property. The competencies are organized into five aspects: productivity, communication, research, media and presentation.

1. Productivity

- Produce and manage learning documents. This includes composing standard educational publications such as parent newsletters and handouts for students and class lists; teaching students how to prepare their own documents on a computer.
- Analyze quantitative data. This includes administrative work such as putting student test scores into a spreadsheet and analyzing them, as well as preparing curriculum materials with digital tables and graphs of curriculum content.
- Organize information graphically. using specialized graphic organizer programs, as well as general tools such as word processors or presentation programs, to create digital representations of educational information.

2. Research

- Use effective online search strategies. In their professional preparation, as well as in their classroom assignments, the teacher chooses the most appropriate research tools and databases, and applies the most effective search techniques, to produce useful and safe online resources in the classroom.

- Evaluate and compare online information and sources. Once located, the teacher knows the difference between authoritative and untrustworthy sources, how to ascertain authorship, and how to find sources with different points of view. And can teach these skills to students.
- Save and cite online information and sources. The teacher knows a variety of methods for bookmarking and saving valuable online resources so that they may easily be found later and employed in learning materials.

3. Communication

- Communicate using digital tools. These include email, instant messaging, mobile colleagues, and knowing how to organize and manage these tools in the classroom.
- Collaborate online for learning. Takes advantage of the tools listed above plus blogs, wikis, chats, audio and videoconferencing to bring outside resources into the classroom and to encourage academic collaboration among students.
- Publish learning resources online. From a simple teacher's web site to a complex curriculum wiki to the online posting of student projects, to podcasting, the teacher has mastered an array of tools and techniques for publishing learning materials online.

4. Media

- Differentiate instruction with digital media. This includes an awareness of assistive technologies for disabled students as well as the ability to use a computer to prepare and present academic ideas in a variety of forms for better learning by all students.
- Capture and edit images, audio, and video. The teacher can use digital still and video cameras, edit their output on a computer, and produce learning materials that range from simple slide shows to the archiving of student presentations and performances.
- Produce digital multimedia educational experiences. The teacher can combine media from a wide array of sources into a useful presentation of academic content, and can teach this skill to students.

5. Presentation

- Create effective digital presentations. Using common tools for preparing slide shows, videos, and podcasts, the teacher can create presentations that follow the principles of communication, and can apply these design principles to the evaluation of students' digital work.
- Deliver digital multimedia presentations. Using common devices such as computers, projectors, and screens, the teacher can set up classroom presentations and arrange for students to do the same.
- Employ new media devices for learning. From large Smart Boards to tiny iPods to science probes, the teacher can incorporate a variety of digital devices into the instruction in the classroom.

Those are the skills that just about every teacher needs, no matter the subject or grade. Beyond these are the more specific technical skills required of a high school teacher or a teacher of visually-impaired students, competencies that would be embedded into specialized courses and programs.

ICT Competencies for Teachers

- The teacher knows for what learning activities ICT can be set in awareness.
- The teacher has the necessary skills for using hard and software.
- The teacher knows the pedagogical elements of ICT (e.g. drill and practice programs)

E-Learning Competencies

- e-Awareness - awareness of ICTs and their relevance in society, including digital citizenship
- Digital literacy - using technology for information and knowledge (students locate, organise, create, adapt, and share information)

- Media literacy - understanding the manipulation and the way that digital media crosses over with mainstream media
- Informational literacy - understanding and interpreting information from different sources
- Technological literacy - confident and critical operation of ICTs.

Reformulated ICT Competencies for Teachers

- **Individual media- competencies**: This includes the basic knowledge and skills for handling the required hard software. These media-competencies also include the use of ICT means like beamer, in a traditional teaching practice.
- **Critical Media- Competencies**: This includes the skills to select critically the media in the learning process of learners. The criteria are educational, human and social.
- **Lifelong Learning Competencies**: This means that teachers have to be aware of all the new technologies that are developed and can be integrated in the teaching and learning practice.
- **Supervising Learning Process Competencies**:

1	Distance Learning	Electronic discussion boards, essential content and guide to the learning process.
2	Workshops	Investigation and discussion of content.
3	Learning Log	Recording of learning activities
4	Research Report	Practical application and demonstration of knowledge
5	Text Books and Study Manuals	Required reading

- **Educational - Design Competencies**: This includes developing right way the necessary learning materials didactical activities by means of ICT and new media.

E-Learning and Digital Literacy Competences

One of the core competences now required in nearly all subject domains, and more specifically in different occupations and professions, is 'embedded' digital literacy, by which mean the ability to use information and communications technologies in ways that are specific to a particular knowledge or occupational domain. Information technology is no longer just a useful tool that supports university and college administration and to a lesser extent teaching and learning; rather it is now an integral and essential component of almost all core higher education activities, and as such needs to be used, managed and organised.

Because digital technology is now so pervasive, and affects the creation, storage, access, analysis and dissemination of knowledge, all areas of human activity are increasingly being touched by it. Academic knowledge is no different. To be a scholar now means knowing how to find, analyse, organise and apply digital information. Studying without the use of technology is increasingly like learning to dive without water. This is not an argument for teaching generic computer literacy skills, such as how to keyboard or use a word-processor, but for using computers for digital imaging in medicine, for graphical information systems in geology, for using wikis to teach writing skills, for knowing what databases hold information relevant to solving a particular problem. Thus e-learning is essential for developing these skills. Without using ICTs in teaching and learning, it will not be possible to develop core digital literacy within a particular subject domain.

Teachers' Competence in the Knowledge Society

In educational process one should agree that high quality teachers are the most important factors in a children and adolescence's education. Teacher's profes-sional competence is the system of knowledge, skills, abilities, and motivational disposition that provides the effective realization of the professional teaching activities. The structure of teachers' professional competence becomes more complex. Teachers' competence includes the three fundamental professional competencies:

i) Educational competencies - system of knowledge, skills, abilities and motivation dispositions to realize educational professional roles;
ii) Programme competencies or course content competencies - system of knowledge and skills from the course content and developed abilities to teach the student about the knowledge and skills;
iii) Communication competencies - system of the knowledge, skills, abilities, and motivation dispositions to realize the goals of communication and teaching social interaction.

Conclusion

E-teaching requires a wide spectrum of e-roles. It is necessary for teachers in e-education environment to acquire sufficient knowledge about e-teaching and e-learning. e-learning can contribute to addressing each challenge by enhancing the preparation of new teachers, providing high quality and readily accessible professional development opportunities for active teachers, and making the teaching profession more attractive (e.g., by providing online resources for teachers and new connections to colleagues and mentors) to help address the teacher recruitment and retention problem. Teachers are central to the effectiveness of technology infrastructures that serve education. How teachers acquire the skills they need to use technologies and how the technology is actually used and to what ends, are critical policy domains that must be carefully explored. Hopefully, issues of this nature will be considered in the near future.

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USE OF TECHNOLOGY IN TEACHING-LEARNING AND EVALUATION

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Abstract

Computers and evolution of Information and communication Technologies have brought about a radical change in the field of education. Everyday newer and newer ways of using these technologies to support better knowledge transfer is evolving. There is a bandwagon of new technologies that have already evolved for teaching, learning and evaluation, which are currently used in about developing and well developed educational institutions across the globe. This paper envisages the new technologies that are used for teaching and learning and the need to use them in the classroom. It also discusses about why teachers should also practice using these new technologies and applications. An overview of various kinds of online assessment methods has also been covered. A cue to new institutions on how they can embrace these technologies to enable better learning and application of knowledge is provided as a conclusion.

Keywords: Teaching, Learning, Evaluation, ICT, pedagogy

Introduction

Technology forms a significant part in education. It consists of media, machines and computer networks and communication. New pedagogies have evolved in tune with the emergence of ICT in learning. E-learning, online learning, blended learning, multimedia in education, web based education, cloud based education are all evolving avenues for use of technology in education. Mobile learning also has also equally spread with the explosive growth in mobile technology.

Any kind of content (text, audio, pictures, video, streaming video) can be digitized and blended with others, leading to multimedia content. Digital content can be delivered through social media like e-newspapapers, television, downloadable content, or as distributable CDRs. Some can only be viewed online. Webinars, online courses, video streaming of pre-recorded or live lectures etc. help in learning online. New forms of instructional theory, learning theories, educational psychologies are growing.

With the evolution of computers, computer aided instruction was used to aid in teaching and learning. Specially prepared learning software was used to teach a specific target group. Models, pictures, photographs, background voice and music, animated slides and video were used to make the process entertaining and effective.

Use of Hardware and Software for efficient management of information, storage, retrieval, processing, communication, diffusion and sharing of information for social, economical and cultural upliftment is ICT. It enables us to use information technologies to create educational content and distribute it using communication technologies.

Web sites are developed to publish information. This enables the student to access lessons online anytime, anywhere. New modes of teaching and learning include On-line learning, e-learning, Virtual University, e-coaching, e-education, e-journal, etc.

Advantages of use of ICT

- Comprehensive information with variety of examples.
- Variety in presentation of information leading to better concentration, better understanding and better retention
- Flexible and can be adapted to user needs - alternate timing, location, accessibility and context of learning.
- multimedia presentations and video conferencing (self-paced, repeatable, flexible, ease of access, ease of communication)

- Virtual classrooms help in simulating real world equivalents through computer technology supported by LMS
- Blending of technology into education
- Online interaction facility
- Fast and cost effective
- Coaching for competitive exams free of cost
- eliminate embarrassment of learning with younger students,
- participation in other activities like sports along with learning is possible
- people from different cultures participate leading to propagation of customs, values, habits, laws and information)

Disadvantages of using ICT

- Plagiarism
- enormous copies of the same content spread out through multiple means
- easy reproduction limits creativity to some extent
- Access is limited to internet and knowledge of how to use these tools
- LMS and VMS are costly to implement
- Both teachers and learners must embrace the technologies for effective imple-mentation

ICT based Teaching/Learning Methods

Growth of ICT based learning increased after 2005 due to rapid growth in internet and mobile technology and also because a remarkable portion of the population had grown up as netizens. Now we have computer mediated learning. Greater flexibility and ease of communication, quick lecture and assignment feedback, equality in learning, pervasive access to internet, support to improved and sustained learning communities and associated knowledge and information management through cloud and web services etc. have led to growing number of students opting for online distance learning programs against regular programs.

Active Learning environment consists of learner centric problem based learning, project-based learning, inquiry based learning involving real-world scenarios inducing critical thinking. Hybrid or blended learning involves use of Smart boards, laptops, palmtops for learning in the classroom.

E-learning may be synchronous or asynchronous. The latter uses technologies like email, blogs, wikis, discussion boards, e-textbooks, web-based content, audio/video supplements, social networking and virtual operating rooms. Students with abnormalities like health issues, family responsibilities, etc. can take up this learning.

Video technology includes VHS, DVDs, streaming video, video games etc. for teaching on demand synchronously. Computers, tablets and mobile devices, apps for m-learning, interactive audio response feedback are tools used for collaborated learning. Other tools used are:

- Webcams for providing a Virtual Learning environment
- Whiteboards enable interactive and participatory learning
- Screen casting is used for showing models and activity charts, to illustrate and explain text, and simulate a classroom environment with clear, complete content. Learners can manipulate the video to repeat or focus on specific portions

Virtual classrooms are learning platforms that integrate video conferencing, whiteboard, screen cast, interaction, polling and testing and evaluation. Classes are pre-recorded and organized for a curriculum / course. These can be played from the server asynchronously.

Thus it gives enormous freedom of learning and preparing for exams. Parents and auditors can also evaluate the quality of content offered. A managed learning environment adds administrative abilities to this virtual classroom to provide a overall way of handling students and courses.

E-learning authoring tools are Software or services that help to create courses and

support conventional ways of handling classes like interaction, quizzes, assignments, tests, handouts, grading and certification.

Learning Management Software are used to deliver, manage, train, and track courses. It provides administrative tools like attendance maintenance, cut-off times for tasks and student progress tracking.

Teachers, students, administrators and parents can participate like in a regular environment. Some handle software distribution and online collaboration. Very effective, sophisticated and complex and involves huge investment. Eg. Canvas, Moodle, Edmodo, Blackboard Inc. and Eliademy.

Learning Content Management Systems are Software for content management alone. It can be tied to a LMS. Computer aided assessment systems are adaptable e-assessment systems that poses questions based on student answers by using formative and summative assessment techniques.

Social networks like Group web pages, blogs, wikis, Twitter help to post thoughts, ideas, comments, and provide an interactive learning environment. Voice chat, IM, video conferencing, blogging on specific subjects aid in talking on schoolwork, collaboration and engagement for self efficacy, flexibility and diversity.

⁂ Newer Teaching-Learning-Evaluation Methods that Evolved after ICT

Diagnostic testing: These provide specially prepared lessons to assess individual student performance. Learning can be at individual student's pace and can be repetitive. Online modular tests provide immediate feedback on performance.

Remedial teaching: These comprise of Online or offline lessons in simplified form. They help in easy modular learning. Multiple choice questions are used to award scores and grades.

Evaluation: Objective type questions are prepared topic-wise in each subject and used for assessment of the understanding of the subject/ topic, application of concepts and principles / rules / equations in real life situations, memorizing of important concepts etc. Individual student can use it to evaluate his learning. Instant feedback about his level of understanding is given, correct answers are given in the place of his wrong answers.

Psychological testing: Lessons to test student psychology are designed and provided online with examples. Learning is through examples and assessment is through analytical questions and responses.

Development of virtual laboratory: Simulated environments where experiments can be conducted are provided online. Students learn by doing experiments. Assessment is done through results of experiments and understanding of concepts are tested through analytical questions.

Online tutoring: Human tutors coach and teach online. Learning is carried out through online interaction (chat, IM, e-mail) and assessment through assignments and questionnaires.

Development of reasoning and thinking: A Structured format that allows self-directed, self-paced instruction on any topic is provided. This involves media rich learning fully capable of evaluation, adaptation and remediation.

Instructional material development: Video Lectures on specific topics by experts are used to supplement class-room teaching. Learning is through class-room interaction, response to questions given in learning material and assessment is through verbal responses to questions asked in classroom.

⁂ New Technologies Used In Teaching-Learning

Video and Podcasting: Lectures, how-to videos, and similar materials available on the web, supplement both face-to-face and online courses. Examples are YouTube, Teacher Tube, Edu Tube, and School Tube. This can be used for demonstrations and learning art (especially in special environments normally unavailable).

Assessment is done through feedback to content and through practical tests.

Digital Presentation Tools: These are tools to create and share presentations. They support classroom teaching or distance learning and provide engaging ways for teachers and students to create and deliver reports and presentations. Assessment of understanding of content can be made through classroom interactions and further written tests.

Collaboration and Brainstorming Tools: Teaching is done through thought-organizing tools like mindmap and bubbl.us, and collaborative tools like web based interactive white-boards and Google Documents, wikis and virtual worlds. An active learning and creative environment helps in edutainment. It supports easy retention of concepts and helps to easily engage students in class. Assessment is done through quiz, interaction in class, assignments and tests after teaching.

Blogs and Blogging: Users can quickly and easily create their own blogs for free, using sites like blogger spot and word press. Useful content for learning can be shared through blogs gradually. Comments provide a way for easy remediation of content and assessment. Popularity of blogs lead to professional communities that share teaching content (peer learning). Students learn by visiting blogs regularly and by following them through email. Evaluative tests can be used as a part of a blog to assess understanding.

Lecture Capture: Students can consume lecture content online before they come to the classroom. This helps in practicing self-learning. Class hours are used to reinforce the material covered in the lecture and make sure students are understanding the new content through interaction and tests.

Student Response Systems and Poll/Survey Tools: Tools like Doodle or Poll daddy can be used to conduct educational polls. Number of correct answers to specific questions can be elicited to assess how many students have correctly understood the concepts taught.

Educational Gaming: Educational games can be used to test the application of subject principles. Learning is entertaining and applicative and easy assessment is possible through award of scores for correct application of principles in different situations. Eg. Angry birds are used to test physics knowledge.

Open Educational Resources: Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge. These promote self-learning. Assessment is done through online tests.

The iPad and other tablet devices: Mobile devices with 3G technology are used as digital substitutes for the PC or laptop. They are used for downloading video, content, software, web pages and can be used for teaching and learning.

Instant Messaging: Instant messaging is used for interaction among classmates and promotes group learning and collaboration in doing homework, assignments etc. There are many great internet based tools available to bring new elements of collaboration, interaction, and even a little fun to the instructional process and thereby better engaging and motivating students and enhancing learning outcomes.

⁂ Why Embrace These Technologies?

Professional Development: Businesses and organizations are increasingly looking to tap into this resource. Another unavoidable fact is the growing desire for experience and familiarity with the Internet and other computer technologies as a hiring requirement in the educational field.

The Power to Engage: Internet tools can be fun and interactive. They are a great way to engage students in the classroom. Many of the tools are collaborative, and they are all hands-on.

Students Use Them Already: Many students use Internet tools on a regular basis. If one uses some of them in the classroom, the teacher will be talking to them in their language.

It's Not Going Away (It Will Only Grow): The Internet is here to stay. It's only going to grow and evolve. It's already woven into the fabric of the daily lives of millions of people. We have to become a part of it and contribute our part.

Businesses Want to Hire Workers Who Understand the Internet: If one introduces the students to technologies like Blogs, RSS Feeds, Wikis, and so on, the teacher will be helping to build their student's resume. Employers want to hire workers who understand the Internet.

Thus, leveraging technology outside of the classroom (online tests, assigning homework via email, etc.) frees up more time for interaction in the classroom. Technologies enhance student engagement and improving learning outcomes. Encouraging new forms and outlets for their creativity, collaborating skills, tapping into their world makes learning more relevant.

These technologies help the student in mastering fundamental skills, becoming proficient users of technology, write better, express themselves more clearly, and understand presented material faster and with greater recall. Technology can decrease absenteeism, lower dropout rates, and motivate more students to continue on to college.

Technology offers educators a way to individualize curriculum and customize it to the needs of individual students so all children can achieve their potential. By giving students access to a broader range of resources and technologies, students can use a variety of communication media to express their ideas more clearly and powerfully. Students who regularly use technology take more pride in their work, have greater confidence in their abilities, and develop higher levels of self-esteem.

Methods for Assessment of Students Online

- Topic-wise objective assessment - to measure listening skills, understanding skills, verbal and non-verbal reasoning skills, applicative skills and analytical skills
- Topic-based subjective assessment - to measure integration of concepts and principles in applicative environments, assessment of vocabulary and writing skills, evaluation of skills in creating art.
- Interactive sessions, chat rooms, assignments, case studies and reports, research oriented tasks - to assess overall skills in creation, presentation and organization through understanding.

Conclusion

The use of technology to make improvements in learning and outcomes for pupils should be practiced. In developing plans for technology, educational institutions may want to:

- Provide technology to deliver excellent teaching, effective school management and improved accountability.
- Provide knowledge and resources available to pupils beyond the bounds of the classroom and the textbook
- Employ Skilled teachers who use technology and professional tools for teaching
- Deliver an ICT curriculum that engages pupils and equips them with the skills and knowledge needed for further study and work
- Manage technology infrastructure and services professionally

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E-RESOURCES FOR TEACHING, LEARNING AND RESEARCH: SOME PRACTICAL ISSUES

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Abstract

Libraries function as an essential integral component in higher education system. Academic libraries in India are facing a lot of problems due to static budget and exponential price hike of library collections. The library environment is currently undergoing a rapid and dynamic revolution leading to new generation of libraries with the emphasis on e-resources. A lot of efforts have been taken in past few years to overcome this problem of financial crunch by resource sharing through consortia for libraries. These revolutionary steps are providing scholarly resources including peer reviewed journals, databases, abstracts proceedings etc. These efforts must be a boon to library users which will definitely boost the level. It will definitely strengthen higher education system in India free and or highly subsidized access to scholarly e-resources will help educational institutions in fulfill their mission in to reality of higher education system in our country. All have library systems to support education, learning and research and meet information needs of their academic and research community. These are the hub for information storage and dissemination. E-Resources should be platform-independent. The widest meaning of e-resources - that is any computer or electronic based technology that is used by our institutions to help with learning, teaching, student support and research. The paper focuses an exploiting the e resources for teaching, learning and research.

Keywords: e- resources, teaching, learning, research

Introduction

Change is the law of nature and as it is very apparent in the present library culture, libraries are not untouched by the change which is affecting almost every activity in the library. A few decades back Lancaster talked about the "paperless society". R.G.Parashwar stated in his one book "paperless society "is a distance dream. That day has gone when it was only a dream, now that very idea sounded whimsical all over the world. However, step towards a Paperless society very rapidly and the most of libraries particularly university and special libraries, began allocating separate funds for e-resources. E-Resources (such as the use of Web 2.0 technologies, social networking technologies or mobile phone technologies) as they relate to systems used to aid learning, teaching, research.

Definition of E-Resources

An electronic resource is defined as a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. These may be delivered on CD ROM, on tape, via internet and so on. Over the past few years, a number of techniques and related standards have been developed which allow documents to be created and distributed in electric form. Hence to cope with the present situation, libraries are shifting towards new media, namely electronic resources for their collection developments that the demands of users are better fulfilled.

The e-resources on magnetic and optical media have a vast impact on the collections of university libraries. These are more useful due to inherent capabilities for manipulation and searching, providing information access is cheaper to acquiring information resources, savings in storage and maintenance etc. and sometimes the electronic form is the only alternative.

The Role of E - Resources in Educational Development

Education and Library are two inseparable indivisible concepts, both being fundamentally and synchronically related to and co-existent with each other. One cannot be separated from the other. None of them is an end in itself; rather both of them together are a means to an ultimate end. One dies as soon as the other perishes. One survives as long as the other exists. Education cannot exist alone in the absence of library and library has no meaning if it cannot impart education. A well equipped library is a sine qua non for the intellectual, moral, and spiritual advancement and elevation of the people of a community. It is an indispensable element of the absolute well being of the citizens and that of the nation at large. People acquire education through certain institutions, schools, agencies, welfare bodies, museums and organizations, and the library is the most outstanding of such institutions. A school, a college, a university and enterprise of a society can never impart education alone each of them is dependent upon a library - a centre of wholesome education, and the quencher of thirst for concrete, fathomless, ultimate knowledge.

Types of E-Resources

The e-resources are basically divided in two major types are:

1. Online e-resources, which may include:
   a) E-journal (Full text and bibliographic)
   b) E-books
   c) On-line Databases
   d) Web sites
2. Other electronic resources may include:
   a) CD ROM
   b) Diskettes
   c) Other portable computer databases

Electronic Book

E-book, e-library book- a digital version of a traditional print book, or a book-like electronic publication with no print counterpart, designed to be read on a personal computer or an e-book reader.

Electronic Journal

E-journal, e-magazine, e-zine, e-serial - a digital version of a print journal, or a journal-like electronic publication with no print counterpart, made available via the Web, e-mail, or other means of Internet access. Includes electronic versions of popular magazines, newsletters, newspapers, and zines.

Website

An information resource suitable for the Internet which is accessible through a web browser. The content is formatted with a markup language and often provides navigation to other web pages via (hypertext) links. Websites are differentiated from online databases by their general lack of internal database management system (DBMS) software although they may have a "search this site" box (powered by external software like Google, Yahoo!, Ask.com, etc.) that allows a keyword search of the site.

- Internal websites are sites whose content is created and maintained by library personnel.
- External websites are sites whose content is not created and maintained by library personnel.

CD/DVDs

Sound Recordings: CDs are the Library's preferred format for sound recordings. It is the only format for which the Library maintains the equipment required to access information stored as a sound recording.

Data Recordings: CDs are not the Library's preferred format for data and/or software applications. For data recordings, the preferred format is web based data files. For software applications the preferred format is web based.

Video Recordings: DVDs are the Library's preferred format for video recordings. It is the only format for which the Library

maintains the equipment required to access information stored as a video recording.

Database

The extent to which the resource in question either directly or obliquely supports specific areas of the educational and/or research purpose.Cost is almost always a consideration in the decision to purchase a new database. This is more often the case than with monographic purchases because of the recurring financial commitment that a subscription requires and also because freely available databases (as defined by this policy) are fairly rare.

Use of the Electronic Information Resource

The license should permit fair use of all information for educational, instructional noncommercial and research purposes. The following considerations regarding fair use, user statistics and liability for unauthorized use should be addressed in any licensing agreement which a library, its governing institution, or its consortium signs:

a) **Interlibrary loan (ILL)**: Interlibrary loan should always be permitted. At a minimum, FAX or postal dispatch of photocopies of printed electronic articles should be allowed. Use of secure ILL software, such as Ariel or comparable systems, for lending to other libraries should be allowed.

b) **Pay-per-view - Service**: To access articles which are not available in the library's print or online collections. It should be possible for the library to purchase the article and send it to the patron via email. Pay-per-view is not a replacement for ILL.

c) **Viewing, Downloading and Printing**: Authorized users should be allowed to view and print copies and to download electronic copies of single articles from the electronic resource for private use, in line with 'fair use' provision in the applicable governing copyright law.

d) **Course packages**: Use of the information content from the electronic resource should be permitted in course packs and other material of an educational nature, as compiled for a restricted set of authorized users.

e) **Course reserves**: Electronic copies of articles or a discrete portion of the information content from the electronic resource should be permitted to be included in a library's course reserves (print or digital), as requested by an instructor for a restricted set of authorized users in conjunction with specific courses.

f) **User statistics**: The information provider should provide statistics for each library's use directly to the library whether participating individually or as a member of a consortium. In the case of a consortium, aggregated statistics for the consortium should be delivered to the consortium's administration.

g) **Liability for Unauthorized use**: The license should reflect realistic expectations regarding the library's ability to monitor and trace unauthorized use.

h) **Privacy and Confidentiality of User information**: The license should ensure the privacy and confidentiality of the user's information when they are accessing the e-resource, including information that is collected from users to create a personal account on the resource.

Functionality and Reliability of E-Resources

In assessing the suitability of E- Resource in terms of functionality and reliability issues the library it may be useful to evaluate the following:

a) Interface

The electronic resource interface should be user-friendly, easy to navigate and intuitive. User-friendly resources often include such features as online tutorials, introductory screens, navigation aids and context-sensitive help and personalization options such as subscribing to feeds/e-mail alerts,

save search history etc. The screen design should be easy to read and follow and consideration should be given to the similarity of the resource interface to others already in use and with which users are already familiar. Search and retrieval - The resource should offer a powerful, flexible and user friendly search engine. Common features might include keyword and Boolean searching, full-text searching, truncation, browsing (index and title), relevancy ranking, thesaurus and search history. Consideration needs to be given to how the search engine works and how issues such as transliteration and diacritics are managed. These are explored in more detail below.

b) Search strategies

Particular consideration should be given to how the search engine works. This knowledge will be helpful in determining appropriate search strategies-particularly important when texts are in languages requiring the use of cases, declensional endings, suffixes, and prefixes. It is important in such cases to understand whether searching is set up to retrieve exactly the set of characters the user has entered, or if it will also retrieve all words with the same root and whether options are available to limit or expand searching.

c) Transliteration

Sometimes texts in databases are in Roman script, inhibiting the searching capabilities for subject and resources from other countries that use non-Roman scripts. For example, an article that deals with a country that uses the Cyrillic alphabet may not be found based on a Roman script search query. The selector needs to know what transliteration system is used for articles written in English or any other Western European languages for personal, corporate, and geographic names originating in languages that do not use Roman script. There is a big difference, for example, between the spelling of the name of the former Russian president - Yeltsin and El'tsin or Eltsin; each spelling could result in different search results.

d) Diacritics

Many languages use diacritics. The selector needs to check whether diacritical marks affect the outcome of searching. For example, to conduct searching in the Czech newspaper *Lidové noviny*, the user must have an add-on Czech keyboard driver installed on his or her computer. In the case of Lidové noviny, searching is impossible without diacritics.

e) Exporting and downloading

A range of export options such as e-mail, printing, and downloading (to a machine or a Personal Digital Assistant) should be supported. Provision of citation downloads to citation management software (such as Endnote, Mendley, BibTex etc.) should be available. Consideration needs to be given to the ease of printing or downloading and to any restrictions or additional fees imposed.

f) Response, reliability and availability

The system should be available 24/7. It should be stable with limited evidence of unscheduled downtime. The system should be technologically up-to-date and have the appropriate capacity and network infrastructure to support multiple users and optimum response times. Expectations around system availability, maintenance and support should be reflected within the license agreement.

g) Integration

The system should support integration with other resources via reference and full-text linking. The content should be indexed in discovery tools to facilitate effective discovery and delivery of local and remote resources.

Advantages of using E-Resources

- Easy information retrieval.
- Ability to do full text search across a huge number of resources in one go
- Ability to download, print, or send the desired document instantly (easily manipulate data to suit the need as long as the acknowledge source. i.e. can cut/ paste/undo/redo)

- Ease to skim and search through.
- Currency, quality and timeliness of the information
- Convenience of accessing articles any time from your own computer/ Home/anywhere
- Ability to link directly to additional resources or related content
- Ability to create personal collections i.e. favorites, bookmark, etc
- Comprehensive (wider range and organized access to high quality information), convenient, diverse, current, time saving and accessible to many users concurrently from anywhere, anytime, whether or not the physical library is open.
- Because they provide a wider range and organized access to high quality information they have brought about innovations in teaching, learning, and research at all levels of education in universities i.e. from undergraduate through postgraduate and beyond.

Conclusion

The use of e-resources is very common among the teachers and research scholars of the society and majority of the teachers and research scholar are dependent on e-resources to get the desired and relevant information. But practical use of e-resources is not up-to the worth in comparison to investments made in acquiring these resources; secondly infrastructure and training programs should also be revised as per requirements. It is observed that the availability of e-resources on the campus is almost sufficient for all the existing disciplines but the infrastructure to use these resources is not adequate and can hinder the ability to meet the requirements of users.

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EDUCATIONAL ENVIRONMENTS AND MOBILE LEARNING (M-LEARNING)

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Abstract

Mobile devices show a dramatic departure from old-fashion of computing platforms as they no more represent a static or fixed notion of context, where changes are small, absent, or predictable. With this dramatic departure, the expansion and continued evolution of modern mobile devices an opportunity has arisen for much more comprehensive integration of these modern devices into educational environments. Mobile learning is a new research area, that has become an emerging tool for our education system. The mobile learning can be used to enhance the overall learning experience of our students and teachers. This paper discusses the background of mobile learning and how it can be used to enhance the whole eLearning system. The paper presents the M-learning approach as the next generation of eLearning, whereas the next generation of the learning systems will provide easy access and widely available to all who wish to be part of it. The paper also highlights the benefits and future challenges of mobile learning in our educational environments.

Keywords: Mobile Learning, eLearning, Educational Environments, User interface, Personal Digital Assistant (PDAS)

Introduction

The term mobile refers to possibility of taking place in multiple locations, across multiple times, and addressing multiple content areas using either static or portable equipment's such as wireless laptops, Personal Digital Assistants (PDAs) and smart phones. The fastest developing and rising computing platform with an estimated 1.6 billion mobile device users by 2016 is smart phones, mobile devices and PDAs. Different kinds of educational usages have been reported, such as language teaching using short messages, vocabulary and practice questions, and many experiential learning situation and informal problem-solving. As Internet and computers become very important educational tools, the modern technologies become more effective, portable and easy to use. Mobile devices are much more reasonably priced (phones and PDAs) than desktop computers, and have a less expensive method of Internet access.

Currently, the tablet PCs allows mobile internet access with equal or more functionality than desktop computers. The term mobile learning or in short M-Learning refers to the use of mobile and handheld IT devices, such as mobile telephones, laptops, PDAs and tablet PC technologies, in training, learning and teaching. The mobile learning can be considered as the third wave of learning with mainframe and, desktop computers as the first and second waves.

One of the mobile technologies strongest argument is their availability, where mobile devices can be accessed much easier than desktops. Somewhat surprisingly, despite a large amount of installed desktop computers over the world, students are enjoying a little access to those desktop computers. For example, universities provide many computer facilities, and indeed they have many labs densely packed with desktop computers. But, most of these computer labs are located for underground students in a remote corner of the campus and they are usually unavailable for self-access due to the fact that they are almost constantly reserved for teaching classes.

At home, a huge number of desktop computers are distribute between families, but in fact it is usually shared between family members. Mobile devices outnumber desktop computers. Moreover, many students spend most of their daytime away from home. In fact most of students spend

only a very few hours with computers each week. This lack of exposure and the complexity of desktop computers means that many of our students are not very comfortable with computers. In contrast, most of university's students constantly carry web capable mobile devices. Students extensively use their mobile devices to send short email messages and view huge number of web pages each week, during the waiting time between classes. In future students should be regularly allowed to utilize some of this time, and enable the use of mobile technology outside the classroom.

Nowadays, students are very rarely asked to use their mobile devices for school work. In fact, most of universities explicitly prohibits the use of mobile devices inside classrooms and students are very rarely use the web browser in their mobile devices to search or look up information during lectures and classroom exercises. Some students may use their mobile devices in foreign language classes for look up words in bilingual dictionaries either built in or web based dictionaries. Other students may use their mobile cameras to photograph blackboards, PowerPoint displays or any other important documents. Therefore, mobile devices can be an effective educational platform, due to the fact that mobile devices are easily accessible by students and provide adequate support for standard Internet technologies. Using modern methods and techniques integrated in M-learning, help in making the learning of our student more interesting, more interactive, widely available and flexible.

M learning is cost-efficient that helps students to learn more without traditional restrictions. Furthermore, the possibility to integrate M-learning systems into existing E-learning systems makes it easy to stay in touch with the newest advances made in teaching research. Mobile devices are expected to be a part of every class and activity both inside and outside lecture classrooms, rather than being limited to a few assigned functions in rarely visited computer labs.

M-Learning is the Next Generation of e-Learning

M-Learning is a technique that uses mobile and wireless technologies for learning and education. M-Learning enables learners to merge their learning experiences in a shared collaborative environment [4]. Currently, Internet and WWW have improved the learning activities providing a high level of interaction between geographically separated teachers and learners. In fact, Internet is not just a way to deliver and distribute the knowledge and learning contents, but it creates learning environments that fit the needs of modern, diverse learners where it engages the learners in many activities such as interactions, collaborations, conversations and problem solving. An Internet enables the e-learning to become the state of art for distance learning over the world and the mobile learning (m-learning) will be the next generation of distance learning. Mobile devices are technologies that can be carried and used everywhere to enable learners accessing knowledge anytime and anywhere. The main target of the next generation of the learning systems is to use current and modern technologies to provide new techniques of learning, training and education that will be easy access and available to all who wish to be part of it. The nomadic computing environment is different from the normal and traditional distributed systems. In nomadic computing environment there is a diversity of handheld devices, smart phones and mobile workstations, which enable users to access and use Internet services anywhere [6]. Although M-Learning started to be used in supporting a wide range of learning activities there are not much of research done to know the students requirements or understand what types of mobile applications students need to use on their mobile devices and how an effective mobile educational software can be designed to support learning in an educational environments. This rapid increasing of mobile devices in the last five years has dramatically altered the platform for

business, social, gaming, entertainment, marketing and productivity using software applications. Containing global positioning sensors, wireless connectivity, voice recognition, built-in web browsers, photo/video capabilities among other sensors, mobile devices have enabled the development of mobile applications that can provide rich, highly-localized, context-aware content to users in handheld devices equipped with similar computational power as a standard PC. So far, these novel features present new benefits, challenges and requirements to mobile application developers that are not found in traditional software engineering applications.

Benefits of M-Learning

The computing and communication devices such as smart phones, laptops and PDAs with the connection to wireless networks facilitate M-Learning. M-Learning enables educator, learner and teacher to extend beyond the traditional schoolrooms (classroom , tutorial room, laboratories and lecture theatre); The schoolrooms, portable computing and communication devices provide instructors and learners increased flexibility and offer new interaction opportunities. The benefits of M-Learning are as follows:

- Anytime access to content.
- Anywhere access to content.
- Support distance learning.
- Can enhance student-centered learning.
- Great for just-in-time training or review of content.
- It can be used more effectively for the differently-Abled.
- Support differentiation of student learning needs and personalized learning.
- Can enhance interaction between and among students, learners and instructors.
- Reduce cultural and communication barriers between faculty and students by using communication channels that students like.

M-learning is a natural extension of E-learning. It has the potential to additional extend when, where and how students learn and perform in all aspects of their life. One of the main benefits of M-learning is its possibilities to improve students productivity by making knowledge and learning available anytime and anywhere, enabling learners to participate in learning activities without the traditional place and time restrictions. Mobile technologies supports accessible and widely available learning than the learning that used in the existing E-learning environments. M-learning supports performance with easy access to information, which can immediately impact students' performance in a learning environment, facilitating their education. M-learning manages different learning requirements, where it is ideally geared for allowing students to get knowledge at their own speed. M-learning enhances two-way interaction where it supports direct communication between students and their teachers, in such way to encourage shy or hesitant students to communicate more easily than in classrooms. As well as, teachers of large groups can use the direct interaction as a way of giving special instruction to all students. M learning also helps students those facing financial, family or health problems in migrating out to university classes. Finally, M-learning is self-motivated, self-disciplined that supports studying with on time waste, studying anywhere and at any time.

Challenges of M-Learning

The previous benefits, do not come without challenges. The rapid proliferation of mobile applications has outpaced the traditional software applications. However, these traditional software engineering applications cannot be applied directly in mobile devices because of the following issues:

- Mobile device user interfaces (UI) which provide a new mechanism of human computer interaction sequences such as multi-touch interfaces, image recognition, code scanning, etc. that have not been previously explored in research and

there is not any established user interface guidelines exist.

- Different mobile platforms such as iOS, Android, Windows 7, etc.
- Different hardware makers for platforms such as HTC, Google, Samsung, Apple, etc.
- The future challenges of M-learning are as following:
- May make it easier to learn.
- Finding the best infrastructures.
- Creating universal user interface.
- Design an effective context aware mobile application.
- The problem of learners trusting the wireless network.
- Prevent the disclosing of the learner information via network.
- Could require additional learning curve for non-technical learners.
- Enable the use of M-Learning application across mobile platform.
- Can create a feeling of isolation, separation or of being out-of-the-loop.
- Could give tech-savvy learners an advantage over non-technical learners.
- Might render some content outdated because of rapid upgrades (here today, outdated tomorrow).

Conclusion

M-Learning makes the merge and connection between technology and education possible. The learner includes nomadic, institutional, home, children and adult users and the variety of learning environments includes standalone, schoolroom, networked, internet-based, nomadic, distance, collaborative, asynchronous and synchronous will arise the interest of the new generation of distance learning (M-learning). The paper has discussed the background of M Learning and how it can be used to enhance the whole learning system. The paper also provides highlights of the benefits and future challenges of M-Learning in our educational environments.

Finally, our learners, instructors, students and teachers should be prepared for the next generation of learning and training. The development of a mobile infrastructure for the provision of nomadic learning will meet this need and opening new scenarios for both the developing e-learning and the telecommunication industry. M-learning can be used to solve the traditional learning system problems. Both teachers and students need a proper and handy system to interact with each other and facilitate the teaching system. The M-learning systems are not to replace traditional classrooms but they can be used to complement the learning process in our schools and universities.

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DIGITAL COMICS IN THE CLIL CLASSROOM: EXPLOITING THE SYNERGIES

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Abstract

Today, teaching of English imposes innovations in methodological frameworks and the way knowledge is disseminated. Digital Comics is an efficient way to connect learning to real life experiences either through autonomous learning or group work, thereby motivating the students and ending up with self improvement. Content and Language Integrated Learning (CLIL) is an European Initiative for language teaching, in which a target language is used as a vehicle for teaching of a content. Using Languages to learn and Learning to use Languages is the principle behind CLIL. Since, this method employs both autonomous learning as well as cooperative learning, synergising digital comics with CLIL teaching extrapolates real experiences in language learners, in creating and improving their language skills. The paper highlights the importance of joint effort, in integrating the two innovative pedagogical tools and provides an insight into redefining the teaching of English for a globalised future.

Keywords: Content and Language Integrated Learning (CLIL), Digital Comics, English Language Teaching.

Introduction

Comics reflect the values and models of contemporary societies. The important aspect of comics is that it combines reality but also can be satirical and fictional. It stimulates critical thinking, creativity along with refection on social and cultural values. Comics are visual metaphors which can be easily understood without the help of words. They inject the language learners with the emotional treatment. Hence the role of affective domains in language learning can also be catered to. The aesthetic value of comics also creates well suited ambience for language learning. Hutchinson's pedagogical experiment (1949, as cited in LLull, 2014) observed that comics could increase imagination, emotional intelligence, empathy and critical thinking.

Today's language learners live in a world where technology dominates and impacts their lives. Integrating technology makes the learners to navigate through these technologies and explore the new knowledge. Digital comics are electronic comic books. The term digital comics are a surprisingly broad umbrella that covers digital versions of print titles and original digital titles. They can be termed as web comics, online comics and internet comics. Since they are eye-catching, they grab the attention of the readers. Digital comics have changed the way we think about the print. Tablets are the best way to read favourite titles due to their comic book-like dimensions, but smart phones and Web browsers can also be used as a platform for learning through digital comics.

Content and Language Integrated Learning

Learning a new language can be a daunting and frustrating experience, especially for people living in a country where they don't yet speak the local language. CLIL redefines the role of language in teaching in which language is both the object and medium of learning and constructing new knowledge.

Content and Language Integrated Learning (CLIL) is an educational approach where some content learning (like a topic on global climate, or a subject) is taught in an additional language (such as English language in Korea). It is a single educational approach which involves very different models (Marsh,2008). CLIL is in two forms Content driven known as Hard or Strong

CLIL and Language driven known as Soft or Weak form of CLIL. The soft CLIL focuses on language objectives and content provides a framework for working communicative competences in the target language. The hard form focuses on content objectives and the target language serves as a means and medium of content delivery operating content learning through the language.

CLIL is guided by a 4C Framework. The components of 4C are Content, Communication, Cognition and Culture. This 4C framework provides a high quality language rich environment for learning.

- Content can be any form. It may a curricular subject or any topic of interest to the learners. Content matter is not only about acquiring knowledge and skills, it is about the learners creating their own knowledge and understanding and developing skills (personalised learning);
- Cognition is related to thinking skills. Both high order thinking skills and low order thinking skills are activated in this component. It is guided by Blooms Taxonomy of skills. Content is related to learning and thinking (cognition). To enable the learners to create their own interpretation of content, it must be analysed for its linguistic demands; thinking processes (cognition) need to be analysed in terms of their linguistic demands;
- Communication is the language component in 4C. It builds on the communicative competence of the learners. It is guided by Language Triptych that is Language of Learning, Learning Through Learning and Language For Learning. Language needs to be learned through communication, reconstructing the content and its related cognitive processes. This language needs to be transparent and accessible; interaction in the learning context is fundamental to learning;
- Culture is related to citizenship both as local and global. The relationship between culture and languages is complex. This, intercultural awareness is fundamental to CLIL.

Thus, CLIL encourages the use of curricula which promote the right interpersonal skills, cultural sensitivity and communication and language abilities which are in demand by today's employers.

Benefits of Digital Comics to CLIL Embedded Language Learning

Digital comics brings with it enormous benefits that facilitates language learning. CLIL and the 4C framework infused together with digital comics makes language learning interesting and context embedded. Digital comics can be used as a support strategy in a CLIL Classroom. The content presents the theme for the digital comics. The communication and cognition are decided by the teacher based on the content selection.

Digital comics which reflects cultural values also goes hand in hand with the culture component of CLIL. Hence, both CLIL and Digital comics are mutually benefited. It is the sole responsibility of the teacher to properly integrate both the pedagogical tools in language teaching. Some features of CLIL classroom are use of authentic materials, autonomous and collaborative learning, Learning by doing, content based language input, gradual scaffolding and unconscious acquisition of the target language. Digital comics engulf in it all these features which makes best suited in CLIL Classroom. The positive aspects of digital comics for language learning are as follows:

Learning through Authentic Materials

Digital comics are a form of authentic materials with multimodal input in a language classroom. The words and drawings together interact with the narration and other communicative means such as colours, layouts and speech bubbles. Digital comics can be viewed as encouraging translation skills among the learners which is a learner strategy to improve the language skills.

Digital comics expose the learners with a wide spectrum of socio cultural traditions. When working with authentic materials, ESL/EFL learners can also realize that they may need that particular language in the situations presented in the comics; this will also work towards increasing students' motivation. Intrinsic motivation is initiated through comics.

Learning of Different Cultures

Digital comics and CLIL together address the language problems of digital literates and also serves as a mediator between cultures as a means to bring intercultural competence among learners.

Vocabulary Acquisition

The language learners are provided with contextual clues, scaffold content and sequencing promotes understanding. The quality of visual representation of comics helps the learner to remember the content better. The learners can take the time they need to pause, go back, analyze the text again, etc. The visual support provided by digital comics helps to comprehend unknown words ensuring better understanding. There is incredible possibility in improving the language skills of learners in digital comics embedded CLIL classroom. It is a versatile platform for language learning and not just a fun art-enrichment classroom.

Sharing and Collaborative Work

Digital sharing and collaborative work among teachers is also facilitated by digital comics. These digital comics boost coordination between the learners as well as teachers. It surreptitiously builds both the improvement of self and interpersonal relations through instant sharing.

Develops Analytical Skills

Graphics together with the text makes meaning in digital comics. The learners had to interact with them, analyse and conclude on the stated information. Hence, they help build analytical skills among learners. It also serves as a good prompt for developing writing skills in a language classroom

Why Digital Comics

Comics come in printed form also. The debate between the usability of printed comics versus digital comics is ongoing. Since, computer literacy is so emphasized today in teaching of English, the very act of encouraging a student to create a simple comic strip online also provides a way for students to become more comfortable using computers. As they learn to negotiate a comics generator web site and move characters and thought balloons around, they are also improving their computer skills.

The use of a computer to generate a comic strip provides students with a very focused and gratifying personal experience as they manipulate characters and conceive of words that they will key into the computerized comic.

Educators who are teaching new vocabulary or grammatical structures might have students create a comic strip in which the characters use the new words or constructions that have been learned that day in class. It's a much more engaging way to practice a language and creative writing than simply writing them out as words alone on an otherwise blank page.

It is versatile across many age ranges, generating strips also becomes a tool to help teachers and children work jointly and communicate effectively in creating something new. The creation of the comics, thus, becomes an empowering experience for many students and reinforces the learning they have accomplished.

They are easy to use; storage and retrieval is also convenient. Digital books are available in abundance that makes easy to grab lot of materials but just a click. Repurchasing is not needed when using digital copies, it can be downloaded any number of times.

Digital Comics Creation Tools

It is essential to acquaint with some of digital comic creation tools for use in classrooms.

The following are some of them:

- Bitstrips is a Web 2.0 tool to create comic strips for free. Stripgenerator is another web 2.0 cartoon strip generator that is free.
- Comic master is a free web application that allows to easily create comics (graphic novels) online for free.
- Kerpoof creates fully animated comics online. Choosing from a library of scenes and characters, adding animation, movement, as well as music and speech bubbles brings story idea to life.
- Read Write Think Comic Creator is an extremely easy-to-use comic strip tool. Though the features are at a minimum: import people, text and props, projects can be printed when complete. It is a simple tool, but with limited functionality.
- Toondoo is another tool to create comics quickly,
- Make beliefs comix creation tool should primarily be used to create comics that will be printed out for submission for the option to publish and share online is not included in the platform.
- Chogger can create comics online by creating original art or uploading pictures to the comic strip. Speech or thought bubbles can be added quickly and published.
- Sketchfu captures art as it is being created and allows others to see the creation process in action.
- Pixton - An online drop and drag comic creator with a paid education section for teachers and students to work in a secure environment.

Integrating Digital Comics into the Classroom

Digital comics can be used in all classrooms irrespective of age and range of learners. Below are some suggestive activities a language teacher can make use of

- Teachers can first make use of digital photos in creating comics.
- Digital storytelling and role play may be used as a follow up activity for advanced learning.
- Teachers can do remixing of the comics and come up with new one.
- Teachers can assess prior knowledge of the learners and subject interests through this visual representation. The visuals may also be used to foreshadow what might happen later, that builds in prediction skills.
- Writing exercises such as completing a story or a comparative essay can be given.
- Personal experiences comic strips create interest. While writing dialogues they can simultaneously learn form with its use.
- Sequencing exercises helps write narrative essays and coherence skills.
- Teachers can teach punctuation using comics.

Conclusion

Digital comics strips can be very motivating for learners and they are reinforced by the visual element, which can make them easier to understand the learnt content.

CLIL also encompasses quality contributions to language teaching in many countries with ample recent research, clear and justified theoretical solid foundations of second language theories. The characters become surrogates for them and can be used, too, to help students work out problems or situations that are troubling them in their lives. In effect, producing the comics provides a safe way for students to deal with uncertainties or with issues that give them problems.

Thus, digital Comics synergised with CLIL is an excellent practice in a English language classroom as it builds solid bridges across contexts, bringing everyday reality into the classroom so that the reflection on teaching of English become relevant and rewarding for the learners.

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CLOUD APPLICATIONS IN EDUCATION: SURPRISES AND STRUGGLES

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Abstract

Cloud Application is a model for enabling convenient, an demand network access to a shared pool of configurable computing resources like networks, storage, applications and services that can be rapidly provisioned and released with minimal management effect or service provider interaction. It can be used by anybody with an internet connectivity and is application are in innumerable fields like banking, industry, medicine, education etc. This paper explores what, why, and how of cloud applications in the field of education besides directing problems involved in the same.

Keywords: Cloud Applications, Educational cloud

Introduction

Cloud applications are infact on-demand software solutions designed for enterprises, SMBs and consumers. They are specifically called Software- as - a - Service (SaaS). They include almost all the applications found in the traditional software market. All are designed for multi-tenant use and run on an infrastructure cloud environment. They are different from traditional software products, infact cloud applications are subscription based which can be updated and maintained by the provider.

Cloud Computing

Though in early 1980s, Lancaster predicted a paperless society, still the prediction has not come true. But, No one can be confident at what time the whole educational administration will go paperless. Even though we have e-Books, people still prefer to have an actual paper book for their use. In few situations digital makes sense. However, classroom and school administrative management is largely based on the traditional framework. Contrary to this, cloud computing is being recognized in business and educational institutions across the board with almost 90% of organizations currently using some kind of cloud based application. The immediate benefits of cloud computing are reduction of infrastructure, reduction of IT cost, increased accessibility, increased collaboration, and enhanced flexibility of organizations in customizing their products both for them and for their audience.

Moreover it has the potentiality to effect greater changes in online courses as well as in traditional classrooms. In terms of administrative perspectives, the following benefits will emerge:

- Staff and teachers may reduce their time in printing, filling, and distributing with the advantage of making them more directive and student oriented.
- Cost saving in terms of buying, leasing, and maintaining photocopies and printers, ink cartridges and papers.
- Investment in purchasing, housing, maintaining service software and related IT items almost become negligible.
- Efficiency of teachers is enhanced because of easy access to documentation without relying on others or in signing out a paper file at their desk.
- Workflow can be tracked using various analytical tools.

Cloud Applications in Education Field

The following are some of the best applications one can think of in the educational field.

Instructional Applications:

- Teacher Kit is a personal organizer for the teacher to enable him to organize classes and students.

- Moodle is Learning Management System for the delivery of e-learning education courses.
- School Tube is the best source for videos from students and teacher everywhere.
- Class DOJO is a classroom behavior management tool sharing data with parents and administrators.
- Edmodo is to help educators harness the power of social media to customize the classroom for each and every learner.

Storage Applications:

- Dropbox is a free service that lets people bring photos, documents, and videos anywhere and share them easily.
- Google Drive lets people store up to 15GB of the stuff for free, access them from anywhere and collaborate with other
- In Skydrive one can get 7GB of free cloud storage for files like Word, Excel, PowerPoint and OneNote accessible from anywhere.

Infrastructure Applications:

- Deep Freeze Cloud takes PC management, data protection, assert administration, power management to the next level.
- Aruba Networks is a leading provider of enterprise mobility including Enterprise Wireless LAN, access points and BYOD solutions (retrieved[2]).

Presumed Changes in Education on Cloud

Cloud computing is not only reducing costs but also creating an environment where all students can have access to high quality education and resources. It is the goodtime for administrators, teachers, students, parents as well to explore how cloud applications can benefit them. The following are some of the distinct advantages of using cloud applications.

No More Expensive Textbooks: On getting into cloud application the highly expensive textbooks of higher education will dramatically drop down to be just taken from the computers. The cost of such books will outpace the cost of virtually everything in education including tuition because of such advantage most of the students may not preferred to buy such books. Cloud based textbooks are basically with digital content. Because of these the lower income students can have the benefit of accessing to quality learning materials as their counterparts in the high income bracket. This is what being done in the educational institutions across the United States with the involvement of 80 publishers bringing out around 30000 textbooks.

No More Outdated Learning Materials: In the K-17 arena, the problem of text book means that many of the materials, being used by students are outdated. The average social studies book in elementary and junior high schools is 7 - 11 years old which means that the world maps in this books are no longer correct. Because of financial burden especially in less affluent areas, the people as well as the government cannot afford to replace these outdated resources. Whereas, cloud based materials are easy to update in real time so that students always have access to the most current learning resources.

No Expensive Hardware Required: Cloud based applications can be run on Internet browsers, whereas most of them are compatible with mobile devices as well. Because of such convenience schools and students do not necessarily need to own expensive computers, rather a moderately cost smart phones can access these applications. students also need not purchase external storage devices as there are plenty of companies like Google that ofter free cloud based storage.

No Expensive Software Required: One of the biggest advantages of cloud based computing is the Software - as - a - Service (SaaS). Many software programmes are now available either free or on a low cost subscription basis. Because of this practice the cost of essential applications for students are kept at a very low level. For example, instead of single Microsoft Office, student can purchase a cloud based subscription for

five computers and five mobile devices for only a small amount per month. More than this, they can use Google documents for free use. Institutions also can save a very big amount by using SaaS applications avoiding the traditional learning management system costing a lot. Cloud based learning management systems like ProProfs' Training Maker are available at a very low cost without any cost for personal use.

Reaching More, and More Diverse Students: Cloud computing opens up a world of new possibilities for students especially those who are served well by traditional educational system. For example, until education moved online, the options for adult students who haven't finished high schools were very limited, however these students can earn the diploma or degree online. There are many other types of students for whom the traditional school environment is not suitable, such students may now have several options for pursuing alternative forms of education (retrieved[3]).

Challenges Facing Cloud Applications In Education

After highlighting the advantages and the developments, the cloud application will bring in, it is better to know in detail the inherent problems blocking the application or adoption of cloud computing in educational institutions. The following are some of the challenges identified in implementing or utilizing cloud application:

IT Vision at the Low Ebb*:* In the global scenario, institutions of secondary education or even pre-professional education do not seem to have an attraction towards IT ruling the field of education. Very often the adoption of IT is considered as the necessary evil. Some of the teachers seem to prefer IT oriented teaching and administration but the implementation of IT oriented teaching and learning will be made possible only with the initiative of the head teacher. Unfortunately most of the head teachers at the verge of the retirement do not seem to have adequate knowledge of the IT and its applications, as such they seem to have only a little vision about the utility of the IT. Though many of the IT companies are knocking the doors of the educational institutions for introducing their IT products, the heads are quite reluctant to accept a change towards digital learning and digital teaching largely because of their ignorance and incapability.

Building IT and Services into the Curriculum*:* Traditionally, the administrative system is so fixed and does not undergo visible changes for years together. Similarly, the curriculum being adopted for different classes at the lower as well as at the higher classes also almost remains the same without taking up or incorporating innovations introduced in the world in different subject areas or new practices that are being incorporated for the transaction of curriculum in the nearby states or countries. Only in some of the private schools, supposed to be the modern ones, catering education to the cream of the student population, the trends like clouds computing or cloud applications can be seen. Microsoft has introduced features of Lync 2010 to help create online classrooms. But without setting up a fundamental infrastructure the new application will not work. That is, the institution should be ready for a big shift from traditional to online classrooms. However, services like Office 365 seem to fulfill the basic environment and necessity of the educational institutions.

Partner with Expert Solution Providers*:* It is the crucial one in effective a change from the most traditional to the latest innovative trends like cloud application. The need for additional funding for such attempts becomes a stumbling block to allow the institutions to avail the expertise of staff with IT skills and experience. Employing a knowledgeable and experienced service provider naturally calls for additional expenditure towards staff maintenance which the budget does not allow.

Use Technology to Make the Most Existing Infrastructure*:* For institutions with good investments in on -premises infrastructures, a migration to cloud based services may not be an easy affair. They have to face the

challenge of maximizing the computing, networking, storage resources already they possess. In most of the institutions with fairly good infrastructure with lack of technical knowhow, they too run into incurring large expenditure. The technique like reduplication has a big role to play within schools because it can maximize available storage and forestall the capital investment in more storage. Solution providers can easily provide such technical skills to employees in educational institutions.

Convince in-House IT Staff to Work Together: In all sorts of institutions, the IT staffs are considered just as the technical oriented ones without having any role to play along with subject teachers. They are also few in number and they are not able to concentrate on their work because of frequent calls from various departments for various technical purposes. Therefore, a teacher teaching a subject does not have a full-fledged knowledge for developing an IT based teaching or implementing what has been prepared already with IT applications. Therefore, in such circumstances cloud applications may not go smoothly in educational institutions for want of expertise (retrieved[4]).

Conclusion

Cloud applications in schools seems to be a challenging one in the present day mainly because of generating monitory resources to meet the additional expenditure and also to avail the qualified IT staff to launch and make use of cloud applications. As it has already been shown, integrating the works of IT staff and subject staff the resources and skills can be pooled in the school itself or by drawing resources from neighboring institutions, this sort of cloud computing can be successfully introduced. This sort of collaborative effort would certainly bring in best practices and experiences so as to make teaching learning more creative and efficient due to the effective use of cloud applications.

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COMPUTER SIMULATIONS FOR SCIENCE LEARNING: BEST PRACTICES

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Abstract

Simulation, the process of imitating a real phenomenon. Simulations attempt to predict aspects of the behavior of some system by creating an approximate model of it. It has been utilized in many different types of environments that simulate the real world and have helped people learn for over 50 years in industries such as games, sales and marketing. Simulations are one of the most effective ways to learn. These are based on a simple, but effective, learning strategy -- practice makes perfect. Simulation is grounded on action learning. Its underlying discipline is arguably the foundation of Kolb's experiential learning. Simulations provide opportunities for learners to explore environments that mirror real-world situations or complex ideas. Simulations also provide innovative ways to use technology. Computer simulations make these types of interactive, authentic, and meaningful learning opportunities possible. Learners can observe, explore, recreate, and receive immediate feedback about real objects, phenomena, and processes. The benefits of computer-based simulation share the same traits as other forms of e-learning: travel reduction, decreased classroom time, currency, reduced time to competence, learning measurement, etc. At the same time, simulation-based e-learning provides added benefits, such as providing training where costs of failure are high and providing learning by experimentation. In this paper the researcher discusses some popular simulation and virtual labs package and applications.

Keywords: Computer simulations, Physics teaching, Virtual labs, Virtual Reality, Simulation Packages, Virtual lab applications

Introduction

Physics is said to be a difficult subject. Among the reasons for the learner's difficulties, one has been subject to intense research: the conceptual framework in which students insist to explain the world around them. Nevertheless, there have been more questions arising than answers provided to solve these kinds of problems. The role of computational techniques, namely Simulations, Multimedia, Telematics, Virtual Reality, and Computer Based Labs which may deal with those difficulties and increase the learning success. Experimental work is an integral part of science courses. Although excellent science learning can take place using the simplest equipment, the integration of laboratory activities with classroom work requires careful balancing between time allocation and budget restrictions. Technology can be a powerful tool for learning science concepts and developing skills of measurement, analysis, and processing information. Virtual labs and simulations should not substitute for laboratory experience, but may be used to supplement and extend such experience. Computer games and simulations can be defined as interactive multimedia with dynamic elements that are under user control. Computer simulations make these types of interactive, authentic, meaningful learning opportunities possible. Learners can observe, explore, recreate, and receive immediate feedback about real objects, phenomena, and processes that would otherwise be too complex, time-consuming, or dangerous. Broadly defined, computer simulations are computer-generated dynamic models that present theoretical or simplified models of real-world components, phenomena, or processes. They can include animations, visualizations, and interactive laboratory experiences.

In a simulated environment, time changes can be sped up or slowed down; abstract concepts can be made concrete and tacit behaviors visible. Teachers can focus students' attention on learning objectives when real-world environments are simplified, causality of events is clearly explained, and unnecessary cognitive tasks are reduced through a simulation.

Technological advances have increasingly brought instructional digital technologies into the science classroom. Teachers may have greater access to Internet- connected classroom computers, wireless laptop carts, computer projectors, and interactive whiteboards than ever before.

Simulations and its advantages

Students learn better when physics is connected to reality; physics can seem like it's not about the "real world," but labs, experiments, demonstrations and simulations connect Theory to reality. These online simulations and demonstrations help students create and manipulate that connection without having the messiness of reality come in. These packages to give students an opportunity to see, experience and interact with the principles in a more tangible way as opposed to conceptually manipulating an equation.

Simulations can help students translate among multiple representations*:*

Simulations contain physical systems represented in many different ways in two or three dimensions: pictures, graphs, words, equations, diagrams, data tables, contour maps, etc. The students can make sense of the concepts by seeing the connection between the representations and how one variable affects another.

Simulations can help students build mental models of physical, chemical or biological systems:

Simulations allow students to visualize concepts that appear on textbooks or hear from their teachers in lectures. By using the simulation they can see a concrete situation that helps them build a mental model.

Simulations can give students engaging, hands-on, active learning experiences:

Simulations give the control to students when exploring scientific concepts and phenomena.

Simulations can help students understand equations as physical relationships among measurements:

Simulations are great tools to help students recognize how equations relate observations and measurements. Using a simulation where the students are able to vary parameters and see the effect of these variations, the role of equations is powerfully enriched.

Simulations can serve as a vehicle for collaboration:

Students working in groups can use a simulation to explain and describe their understandings to each other.

Simulations can allow students to investigate phenomena that would not be possible to experience in a classroom or laboratory:

Students can have access to investigations and equipment not commonly available in the classroom like.

Examples of Best Practice:

Physics Education Technology Project (PhET) *https://phet.colorado.edu/*

The University of Colorado's Physics Education Technology project (PhET) provides an extensive online suite of simulations that covers the majority of high school and introductory college physics; it also illustrates the concepts behind advanced topics such as semiconductors. The simulations create animated game like environments where the visual and conceptual models that physicists use are made accessible to students. They often animate what is invisible to the eye, such as atoms, electrons, photons and electric fields. This is an active project; the website is regularly updated with newly developed or improved simulations. User interaction is encouraged by PhET's engaging graphics

and intuitive controls that include click-and-drag manipulation, sliders and radio buttons. By immediately animating the response to any user interaction, the simulations are particularly good at establishing cause-and-effect and at linking multiple representations.

Open Source Physics
http://www.compadre.org/osp/

The OSP Collection provides curriculum resources that engage students in physics, computation, and computer modeling. Computational physics and computer modeling provide students with new ways to understand, describe, explain, and predict physical phenomena.

Visionlearning
http://www.visionlearning.com/

Visionlearning is a free, web-based resource for students and educators in the science, technology, engineering and mathematics (STEM) disciplines. Geared toward those studying at high school and undergraduate levels, Vision learning takes advantage of recent advances in new media to provide students and educators with learning and teaching materials. Research by project personnel has shown that this peer-reviewed and bilingual content improves student understanding of science and facilitates multidisciplinary teaching. The project also strives to build community around improving STEM education.

Space Foundation

https://www.spacefoundation.org

The Space Foundation delivers PreK-20 student programs in laboratory, classroom and after-school settings. Programs include STEM, social studies, history, the arts and literature and are available to individual classes, school districts, public and private school, colleges and universities offering education curriculum and homeschool organizations.

Virtual Proteomics Lab

http://iitb.vlab.co.in/?sub=41andbrch=118

The Indian Institute of Technology Bombay has developed pioneering proteomics learning resources such as the Virtual Proteomics Lab, Clinical Proteomics Remote Triggering Virtual Laboratories, and other related e-learning initiatives supported by India's ministry of human resources and development (MHRD) with a goal to disseminate high-quality educational content exclusively in proteomics6. The resource contains modules on gel-based proteomics, mass spectrometry-based proteomics and bioinformatics, each with a set of experiments

OnlineLabs.in
http://onlinelabs.in/

OnlineLabs.in aims to serve as a comprehensive, encyclopaedic reference about online labs in a variety of subjects, particularly virtual laboratory simulations for science education. There are useful listings for online lab simulations, virtual science experiments and free educational software.

Smart Science
http://www.smartscience.net/

Smart Science Education Inc. are building highly interactive experiential learning systems to which we are adding adaptive learning and collaborative learning. Smart Science lessons are "experiential online science lessons with real experiments and hands-on measurement. They are Experiential Online Science Lessons, Real Experiments and Hands-On Measurement. Understanding each of these leads to understand the overall Smart Science concept.

Molecular Workbench (MW) software
http://mw.concord.org/

The Molecular Workbench is a free, opensource software package for creating and delivering interactive scientific simulations and learning modules based on these simulations. Students can experiment with atomic-scale systems to understand a wide variety of concepts such as the kinetic molecular theory, gas laws, diffusion, heat transfer, phase change, chemical reactions, fluid mechanics, material properties, structure-function relationships, genetic

code, protein synthesis, light-matter interactions, quantum phenomena, and much more.

Intel Education Resources
http://inteleducationresources.intel.com/

Intel Education Resources - STEM is built to be used anytime, anywhere - including in your classroom. The resources lend themselves to group instruction, and make suggestions for the best way to bring Intel Education Resources - STEM into the classroom.

The Internet Plasma Physics Education eXperience (IPPEX)
http://ippex-test.pppl.gov/

IPPEX uses interactive multimedia over the World Wide Web to engage students in formulating questions and creating meaning from their own experiences. Rather than passively learning facts and following routine instructions, students solve problems and learn. It allows students and teachers to participate remotely in scientific research at the country's largest fusion energy laboratory.

.ilab central:
http://ilabcentral.org/

Remote Online laboratories (iLabs) are experimental facilities that can be accessed through the Internet, allowing students and educators to carry out experiments from anywhere at any time.

Go-Lab Project
http://www.go-lab-project.eu/

The Go-Lab Project (Global Online Science Labs for Inquiry Learning at School) opens up online science laboratories (remote and virtual labs) for the large-scale use in school education. In the Go-Lab Repository you can find remote and virtual laboratories for different science domains such as Physics, Astronomy, Chemistry, Biology, Geography, and Math.

Yenka Science
http://www.yenka.com/en/Yenka_Science/

Yenka Science is a highly interactive virtual lab, which lets you model physics and chemistry experiments safely and easily. design circuits and optical systems, model reactions using over 100 different chemicals, investigate wave propagation or accelerate masses. Powerful graph tools are available.

Virtual Labs
http://virtuallabs.nmsu.edu

It helps students learn basic laboratory techniques and practice methods used by lab technicians and researchers in a variety of careers, using specific food science lab processes.

LabInApp
http://www.labinapp.com/

LabInApp is a 3D, interactive virtual laboratory tool that focuses on heuristic approach of understanding science. This heuristic ideology facilitates students and teachers to perform science experiments on computers or mobile devices, and eliminates the physical barriers of actual laboratory. LabInApp's real-time 3D computer graphics technology promotes "learn by doing" pedagogy.

Virtlab

www.virtlab.com

Virtlab is a series of hands-on experiments and demonstrations using a simulated chemistry laboratory. Students can also build their own simulations using electronic spreadsheets. It is a laboratory manual that uses laboratory simulations to perform its experiments.

Modern Physics Virtual Lab

vlab.amrita.edu

Amrita University seeks to transform the landscape of Science and Engineering education. Through the use of virtual labs - a revolutionary technology-enhanced educational tool, laboratory learning is being extended beyond the walls of the classroom. Virtual labs are immersive media-rich online learning environments, where users can perform physical laboratory experiments in a computer simulated environment - Anytime, Anywhere. Whereas traditional physical laboratories require tremendous

resources, Amrita's VALUE virtual labs apply new learning technologies that are exciting and fun for the new generation of students.

Vlab
http://vlab.co.in/

It is an Initiative of Ministry of Human Resource Development (MHRD) Under the National Mission on Education through ICT. It provides remote-access to Labs in various disciplines of Science and Engineering.

Virtual Physical Laboratory (VPLab)
http://www.vplab.co.uk/

The Virtual Physical Laboratory (VPLab) software contains over 250 interactive experiments for use by teachers and by pupils individually. It demonstrates physical principles and applications and these simulations may be of value at other academic levels.

Chem Collective
www.chemcollective.org

The ChemCollective is a collection of virtual labs, scenario-based learning activities, tutorials, and concept tests. Teachers can use our content for pre-labs, for alternatives to textbook homework, and for in-class activities for individuals or teams. Students can review and learn chemistry concepts using our virtual labs, simulations, and tutorials.

Y SCIENCE- Virtual Physics Tour
http://yscience.byu.edu/

In these laboratories, students are put into a virtual environment where they are free to make the choices and decisions that they would confront in an actual laboratory setting and, in turn, experience the resulting consequences.

These laboratories include simulations of inorganic qualitative analysis, fundamental experiments in quantum chemistry, gas properties, titrations, calorimetry, organic synthesis and qualitative analysis, mechanics and planetary motion, density, circuits, optics, and for biology, microscopy, genetics, molecular biology, ecology, and systematics.

Conclusion

Computer simulations have the potential to enhance the way you teach and your students learn. They allow you to bring even the most abstract concepts to life for your students and incorporate otherwise impossible or impractical experiences into your daily instruction.

By using simulations to complement and enhance traditional teaching and learning, students are given an opportunity to participate in active learning. They are called upon to make decisions and through this team-based exercise they gain a better understanding of group dynamics and processes.

Ultimately, simulations allow for a deeper exploration of a complex issue or concept with greater student involvement and enjoyment in the learning experience.

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BLENDED LEARNING

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Abstract

The changing scenario of classroom environment mounts pressure on the stakeholder of education at all levels. The rapid advancement in information technology has made remarkable changes in traditional educational system. A modern technology and pedagogical techniques in teaching - learning process create an innovative learning environment for the younger generation. Blended is commonly used to describe a class that combines face to face instruction with on-line learning blended learning has gained consideration in recent years. We are living in a technological world which is occurring at break - neck speed and has become an integral part of our day - today lives. The role of teachers in blended learning is very prominent in developing the skills of the student.

Keywords: Blended learning, on-line learning, ICT

Introduction

The term 'blended learning' has been found around for a long time but was not firmly established until the beginning of the 21st century. The first handbook of blended learning was published by Bonk and Graham. Blended learning technique is a learner centered instructional method in which the instructor uses combination of learning aids so as to make the subject reach effectively to the learners. According to the 2010 study from the U.S department of education states that blended learning classes produce statistically better results than face to face non-hybrid equivalents. Blended learning is the best of online learning which will work better for students and the tutors.

Concept of Blended Learning

The term "blended", "hybrid", web-enhanced instruction and mixed mode instruction are mostly used in our recent researches. Currently use of term blended learning mostly involves combining internet and digital media with established classroom forms that require the physical co-presence of teacher and student.

Definition of blended learning

The term blended learning is rooted in the idea that learning is not just a one-time event - learning is a continuous process. Blending provides various benefits over using any single learning delivery medium alone (Singh, 2003).

A combination of face to face instruction combined with computer mediated instruction to facilitate interactive and reflective higher order learning (Graham, 2006).

Blended learning thoughtful combining the best elements of online and face to face education is likely to emerge as the predominant teaching model of the future (Yen and Lee, 2011).

Elements of Blended Learning

Learning theories proposed by Keller, Gagne, Bloom, there are five important elements in blended learning.

Live Elements: synchronous, instructor - led learning events in which all learners participate at the same time such as in a live "Virtual Classroom"

Online Content: Learning experiences that the learners work independently and complete individually at his own speed, his own accuracy such as interactive and internet CD-Rom

Collaboration: It's very needed for a learner which helps to communicate with others for clarification eg. E-mail, threaded discussion and online chat etc.

Assessments: This gives the dimensions of the individuals in different situation to measure the learner's knowledge and also his level of transfer in learning.

Reference Materials: On the job reference materials that enhance learning retention and transfer including use of internets in all fields.

Learning Materials of blended learning

- Hybrid course
- M- Learning
- E - Learning
- Flip - teaching
- Media - Psychology
- Network - Learning
- Virtual - education
- Virtual - university

Blended Learning for Instructional Implementation

This models was suggested by Bersin and Associates (2004)

The instructor gives the overview session of the traditional class room interaction if it is non - technical blend or technical blend. In self paced learning activity the learner can make use pick books in non technical and in technical blend one can move on to e-books, electronic performance support system (EPSS). Query session enhance face to face clarification and also by technical mode.

Core - Spoke Model

- The activities are blended in a non chronological order
- The topic is being finalized by the course designer.
- Learners have liberty in selection.

In this model the activities CD-Rom based course such as off - line videos, e-books, books. Remaining activities can be considered as on-line activities which may be either instructor led or peer alone activities.

Suitability of Program Flow Model

- Blends the activities in chronological order and is cognitive based.
- Blend may be traditional or technical.
- Best for reflectors and theorist type of learners.
- Theorist is clearly structured with situation.
- A model suitable for pedagogical learning activities at school level.

Suitability of Core Spoke Model

- Blends the activities in chronological order.
- A model of pedagogical learning activities at higher education level.
- The model suggests the classroom activity either face to face or virtual mode.
- Suitable for activities and Pragmatists type of learners.

Smart Classrooms via Blended Learning

These are technology based class rooms which give creative, innovative, and networking facility in teaching learning process. Technology does old things in new ways and also uses technology to enable and transform teaching learning and the curriculum of the academia. A successful blend would strike the right balance between innovations and mass utility.

Practices of Blended Learning

- Teacher at the centre
- Teacher support in vital
- Determine technology
- Ease of use is essential
- Rigorous and engaging curriculum
- Track student progress and data
- Tools that give instant access
- An online platform that does not limit

Facilitators Facilitation in Blended Learning

In some occasion the move to blended learning has inspired educators to redefine traditional roles. The facilitators as a great emphasis on empowering students with skills and knowledge required to make the utmost of online materials and independent study time guiding students towards the most meaningful experience possible.

Facilitators focuses on development of online and offline course content, communication aspects of the students, guiding the learning experience of individual students and also in assessments and grading processes.

Advantages of blended learning

- Students have greater time, flexibility, freedom
- Students interact more with instructor and follow students
- Students have access to unlimited up-to date resources available (web)
- Students enhances skills in time management, creativity, critical thinking, Reasoning, problem solving.
- Students enjoy increased success as measured by fewer course with drawals

Conclusion

The success of blend largely depends on the right mix of the elements it posses. A good blend should provide optimum role of live interaction. It should also provide a wide choice to learners as per their self regulatory perception. Blended learning provides flexibility in learning for both students and teachers. The outcomes are most effective when participants share an inspiring vision, seek maximum possible involvement and bring out the best in students, celebrate accomplishments and model behaviours that facilitate collaboration.

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DIGITAL LEARNING

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Abstract

New and emerging technologies are having a profound impact on how we communicate, interact, access and use information. They are affecting business, entertainment and social activity. Commentators and futurists suggest there are profound implications for education as well. They argue that because this "Net Generation" of learners is so immersed in a networked world of digital technology, they behave differently, have different social characteristics, different ways of using and making sense of information, different ways of learning, and different expectations about life and learning. Clearly, digital technology is the fabric of nearly everything associated with teaching and learning. We can think of this fact as an overarching trajectory: digital technology is the core strategic enabler of learning in higher education. It sets for all campus players the ambitious goal of a learning ecosystem that is responsive and can be personalized. Enabling that ambitious goal are six individual trajectories of digital technology: device ownership and mobile-first; the textbook and open educational resources (OER); adaptive learning technology; learning spaces; the next-generation learning management system (LMS); and learning analytics and Integrated Planning and Advising Services (IPAS).

Keywords: Net Generation, infrastructure, digital technology, OER, LMS, IPAS

Introduction

Digital learning refers to the process of learning with the aid of digital content, platform or facilitators. The future of learning would see an increased use of digital components increasingly as more content becomes available, the comfort and willingness of the players in the learning ecosystem changes along with their mindset and pedagogy evolves to leverage the value proposition of digital learning. Digital learning thinking also leads to the fundamental path for the new age learning approach.

Digital Learning Environment

A Digital Educator creates a learning environment in the classroom that provides the opportunity for students to develop both academic skills and 21st century skills. The digital classroom is conducive for all students by expanding the classroom beyond the four walls into the community. Students are engaged in authentic tasks that have a connection to the real world. In addition, the digital classroom involves all partners of the learning community such as teachers, students, parents, business partners, and higher education experts. Educators must develop an environment in the classroom so that students can be empowered and develop a passion for learning.

- ✧ **Time**: Learning is no longer restricted to the school day or the school year. The Internet and a proliferation of Internet access devices have given students the ability to learn anytime.
- ✧ **Place**: Learning is no longer restricted within the walls of a classroom. The Internet and a proliferation of Internet access devices have given students the ability to learn anywhere and everywhere.
- ✧ **Path**: Learning is no longer restricted to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn in their own style, making learning personal and engaging. New learning technologies provide realtime data that gives teachers the information they need to adjust instruction to meet the unique needs of each student.
- ✧ **Pace**: Learning is no longer restricted to the pace of an entire classroom of students. Interactive and adaptive software allows students to learn at their

own pace, spending more or less time on lessons or subjects to achieve the same level of learning.

There are 5 reasons in Digital Learning:

- Personalization
- Accessibility
- Cultural Relevance
- Efficiency
- Performance

Digital learning is more than just providing students with a laptop. Digital learning requires a combination of technology, digital content and instruction.

Technology: Technology is the mechanism that delivers content. It facilitates how students receive content. It includes Internet access and hardware, which can be any Internet access device - from a desktop to a laptop to an iPad to a smartphone. Technology is the tool, not the instruction.

Digital Content: Digital content is the high quality academic material which is delivered through technology. It is *what* students learn. It ranges from new engaging, interactive and adaptive software to classic literature to video lectures to games. It isn't simply a PDF of text or a PowerPoint presentation.

Instruction: Educators are essential to digital learning. Technology may change the role of the teacher but it will never eliminate the need for a teacher. With digital learning, teachers will be able to provide the personalized guidance and assistance to ensure students learn and stay on track - throughout the year and year after year - to graduate from high school. Teachers may be the guide on the side, not the sage on the stage.

Digital Literacy - Concept and Elements

Literacies can be grouped together in what is known as the Essential Elements of Digital Literacies which expounds the theory that having an understanding of these eight essential elements of digital literacies will enable an individual to be digitally literate. The development of these core skills correlated to the particular contexts in which an individual may develop their skills with a view to ensuring that they align with their needs. The eight elements are Cultural, Cognitive, Constructive, Communicative, Confidence, Creative, Critical and Civic. The value of each of these core elements is dependent on varying needs at different times.

Cultural: The cultural element of Digital Literacies requires technology use in different contexts and an awareness of the values and concepts specific to the varying contexts.

Cognitive: The cognitive component of Digital literacies aims to enable mastery of the use of technological tools, software and platforms. Gaining expertise in digital tools helps learners become more digitally literate.

Constructive: The constructive element requires re-using and remixing existing resources depending on the need; or adapting them into new resources. Through construction, a digitally literate user creates new data and shares their creations with others digitally.

Communicative: The communicative component requires awareness about different communication devices both digital and mobile. Being digitally literate means communicating in the digital world in several ways.

Confidence: The confidence element of Digital Literacy means gaining competence with digital technologies and the ability to create an environment for practising skills and self-learning.

Creative: Through the Creative element of Digital Literacy, digital learners create new data in digital environments based on personal interests. This element places emphasis on taking risks while developing searching skills and producing new things.

Critical: The critical component requires the digital learner to develop various perspectives. While actively taking part in

digital environments, the user should take different circumstances into account.

Civic: The civic element is all about developing and acquiring the concepts of democracy and global citizenship through digital technologies. This component helps the participation of the individual in society. Part of digital literacy is the ability to form communities online.

It is recognised that the implementation of these elements in an individual's context will require constant updating and upgrading as digital information and tools change along with our understanding of them. From a pedagogical perspective, digital literacy seeks to include knowledge and understanding of the applications and implications of digital technologies, in contrast to the skills focus of computer literacy.

Digital literacy is considered a key aspect of contemporary citizenship to enable individuals to fully participate in the digital economy and the democratic process, and knowledgeably engage with debates relating to the networked society, such as those relating to personal privacy. Digital literacy may be studied at a number of levels. While fundamental concepts and skills are normally covered in the lower levels of national qualification frameworks, more advanced treatments, dealing with more sophisticated concepts and skills such as critical thinking, are higher level competencies.

1. **New Leaining**: Expounds upon the new type of learning in regards to the technological advancements of society.
2. **Layered Literacy**: Describes the way that print and digital overlap, creating intertextuality.
3. **Transliteracy**: The ability to read and write across a wide variety of media formats.
4. **Electracy**: The pedagogical skills necessary for new digital skills.
5. **Digital citizen**: The role and rights of a person within the digital world

Digital Learning and 21st-century skills

Digital literacy requires certain skill sets that are interdisciplinary in nature. Warshauer and Matuchniak list information, media, and technology; learning and innovation skills; and life and career skills as the three skill sets that individuals need to master in order to be digitally literate, or the 21st-century skills. In order to achieve information, media, and technology skills, one needs to achieve competency in information literacy, media literacy and ICT (information communicative technologies).

Encompassed within Learning and Innovation Skills, one must also be able to be able to be exercise their creativity and innovation, critical thinking and problem solving, and communication and collaboration skills. In order to be competent in Life and Career Skills, it is also necessary to be able to exercise flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, leadership and responsibility. Aviram and Eshet-Alkalai contend that there are five types of literacies that are encompassed in the umbrella term that is digital literacy.

1. Photo-visual literacy is the ability to read and deduce information from visuals.
2. Reproduction literacy is the ability to use digital technology to create a new piece of work or combine existing pieces of work together to make it your own.
3. Branching literacy is the ability to successfully navigate in the non-linear medium of digital space.
4. Information literacy is the ability to search, locate, assess and critically evaluate information found on the web and on-shelf in libraries.
5. Socio-emotional literacy refers to the social and emotional aspects of being present online, whether it may be through socializing, and collaborating, or simply consuming content.

Use of Digital Literacy in education

Schools are continuously updating their curriculum for digital literacy to keep up with accelerating technological developments. This often includes computers in the classroom, the use of educational software to teach curriculum, and course materials being made available to students online. Some classrooms are designed to use smartboards and audience response systems. These techniques are most effective when the teacher is digitally literate as well. Teachers often teach digital literacy skills to students who use computers for research. Such skills include verifying credible sources online and how-to cite web sites. Google and Wikipedia are used by students "for everyday life research." Educators are often required to be certified in digital literacy to teach certain software and, more prevalently, to prevent plagiarism amongst students.

Use of Digital Literacy in society

Digital literacy helps people communicate and keep up with societal trends. Literacy in social network services and Web 2.0 sites helps people stay in contact with others, pass timely information and even sell goods and services. This is mostly popular among younger generations, though sites like LinkedIn have made it valuable to older professionals. Digital literacy can also prevent people from believing hoaxes that are spread online or are the result of photo manipulation. E-mail frauds and phishing often take advantage of the digitally illiterate, costing victims money and making them vulnerable to identity theft. Building on digital literacy is the concept of digital creativity which is the expression of creative skills in the digital medium. This can include programming, web sites and the generation and manipulation of digital images.

Digital Literacy and Social Networking

With the emergence of social networking, one who is digitally literate now has a major voice online. The level of digital literacy needed to voice an opinion online today compared to the Internet before social networks is minute. Websites like Facebook and Twitter, as well as personal websites and blogs have enabled a new type of journalism that is subjective, personal, and "represents a global conversation that is connected through its community of readers." These online communities foster group interactivity among the digitally literate. Social networks also help users establish a digital identity, or a "symbolic digital representation of identity attributes." Without digital literacy or the assistance of someone who is digitally literate, one cannot possess a personal digital identity. This is closely allied to Web Literacy.

Global Impact

Government officials around the world have emphasized the importance of digital literacy for their economy. According to HotChalk, an Online resource for educators: "Nations with centralized education systems, such as China, are leading the charge and implementing digital literacy training programs faster than anyone else. For those countries, the news is good."

Many developing nations are also focusing on digital literacy education to compete globally.Economically, socially and regionally marginalised people have benefited from the ECDL Foundation's ECDL / ICDL programme through funding and support from Corporate Social Responsibility initiatives, international development agency funding and non-governmental organisations (NGO's).

The Philippines' Education Secretary Jesli Lapus has emphasized the importance of digital literacy in Filipino education. He claims a resistance to change is the main obstacle to improving the nation's education in the globalized world. In 2008, Lapus was inducted into Certiport's "Champions of Digital Literacy" Hall of Fame for his work to emphasize digital literacy.

Conclusion

In underdeveloped and developing countries, e-learning raises the level of education, literacy and economic

development. This is especially true for countries where technical education is expensive, opportunities are limited and economic disparities exist. Thanks to satellite technology, the costs have come down so significantly that every student-whether a grade school student or medical student doing a rotation in a remote area-can take full advantage of bandwidth provided by broadband satellite systems.

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NARRATIVE LEARNING IN TECHNOLOGY- ENHANCED ENVIRONMENTS

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Abstract

Technology-enhanced learning is not a new concept. Educators have integrated technology into their instruction for as long as there have been classrooms. Whether it be through textbooks made possible through the invention of the printing press, an overhead projector, a film strip, or an online simulation, teachers have always looked toward technology to provide students with higher quality learning experiences.

Keywords: Technology-Enhanced Learning, Technology Learning Modes

Introduction

"Learning" designates the range of possibilities presented by combining Internet and digital media with established classroom forms that require the physical co-presence of teacher and students.

Why Technology Learning?

Learning strategies vary according to the discipline, the year level, student characteristics and learning outcomes, and have a student-centered approach to the learning design. Blended learning can increase access and flexibility for learners, increase level of active learning, and achieve better student experiences and outcomes. For teaching staff, blended learning can improve teaching and classroom management practices. A learning might include:

- face-to-face and online learning activities and formats
- traditional classes with different modes, such as weekend, intensive, external, trimester
- well established technologies such as lecture capture, and/or with social media and emerging technologies
- simulations, group activities, site-based learning, practical's

How is Technology Learning different from classroom learning?

Teachers have been blending or integrating different types of learning activities and resources in classroom, laboratory, practicum, studio contexts for a very long time. Today, the term 'blended learning' has evolved to mean the integration of classroom learning with online or e-learning.

Technology Enhanced Learning

- Managing the marking, entering and releasing of grades for a course with over 700 students using an online grade centre in Learning and accuracy for multiple markers by reducing double handling, while giving students flexible and timely access to their results and feedback.
- Delivering a lecture to on and off campus students simultaneously using an online virtual classroom tool helps to create a sense of community for the whole group and reduces workload for the lecturer by presenting only once.
- Small group problem based learning activities are managed more effectively and efficiently within a large class by using an online collaborative workspace, allowing for greater transparency in group work assessment as well as providing an archive of resources for current and future students.
- Weekly online practice quizzes to support lecture and textbook material using automatic marking functionality producing immediate and automatic feedback to individual students about their understanding of concepts and

avoiding ongoing workload for the teaching staff.

Technology Learning Modes

Blended learning spans a continuum that covers a wide range of activities between conventional face-to-face interactions and those that are fully online. Blended Learning Strategy identifies three modes of operation to indicate the level of use of technology in learning and teaching.

Different Modes of Blended Learning

Mode 1	Technology is used to facilitate course management and resources for learner support. For example, to provide information and resources to students (e.g., lecture notes or recordings, assessment guidelines), and to perform basic administrative functions (e.g., announcements or course emails).
Mode 2	Technology is used to enrich the quality of the student learning experience through interactive learning activities beyond those attainable through face-to-face classroom interactions. For example, utilizing technology to support communication and collaboration, assessment and the management of your course.
Mode 3	Technology is used to support learning that is largely self-directed but also involves the use of interactive and collaborative learning activities. In this mode courses are delivered fully online.

The Process of Technology Learning

Designing for blended learning requires a systematic approach, starting with:

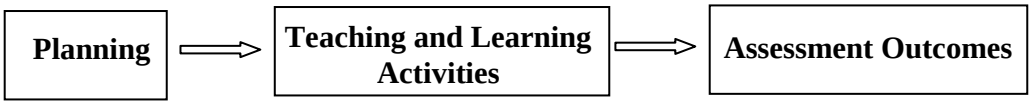
1. Planning for integrating blended learning into your course, followed by;
2. Designing and developing the blended learning elements;
3. Implementing the blended learning design;
4. Reviewing (evaluating) the effectiveness of your blended learning design, and finally;

Planning

Planning is the first stage of the design process. At this point you should think about a number of critical considerations before jumping in to designing the blended learning components of your course. For example, are you developing a new course, taking on an existing course or redesigning a course you have previously taught/ convened?

What is the broader context for your course, in terms of the program, school, faculty, professional bodies, or the community and what influences do you need to take into account? Finally, what is the typical student cohort like for this course, and are there particular student or group needs you should consider?

Design and Development



1. Course learning objectives (and including relevant Graduate Attributes), teaching and Learning activities, and assessment tasks need to correspond with each other.
2. Activities should be purposeful, and where appropriate and possible, authentic.

3. Teaching and learning activities need to be clearly linked in time and content.
4. The workload for a blended learning course should not exceed that of a course in traditional (a 10 credit-point course equals 10 hours per week).
5. Keep in mode proportion the time, effort and resources involved in developing blended learning in relation to the impact or importance in the course. For example, don't spend weeks designing and developing a small element of your course unless the pay-offs for you and your students are worth it.

Implementing

- Have you trailed the blended learning components of your course
- Have you identified the sources of technical support for yourself as well as the students?

Reviewing (Evaluating)

Obtaining feedback about various aspects of the course experience(including content, design, learning and teaching activities, assessment) is a crucial part of the course design process, as well as being important to your own ongoing professional development in curriculum design and teaching.

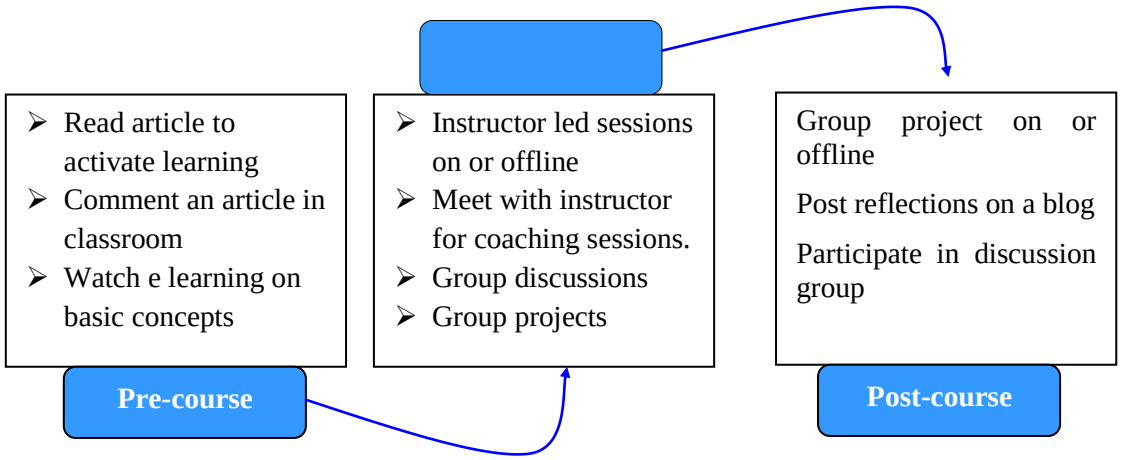
Delivery Method of Approach

Approaches reflect a combination of the following factors

Schedule	:	synchronous	⟷	Asynchronous
Guidance	:	instructor-led	⟷	self-paced
Technology	:	Online	⟷	offline
Participation	:	individual	⟷	Group

Examples

	Individual (IN)	Group (GR)	Instructor (IS)
Online (ONL)	▪ Research online ▪ Create a wiki or online document ▪ Take an e-learning course ▪ Write a blog	▪ Participate in a discussion forum ▪ Review other's work remotely ▪ Create a report, presentation ▪ remotely ▪ Watch a lecture online and ▪ Discuss remotely	▪ Coaching (online) ▪ Advising on project ▪ Case study with feedback ▪ Synchronous class online (e.g., WebEx)
Offline (OFL)	▪ Read articles, books ▪ Keep a journal ▪ Write a paper	▪ Group project work ▪ Field Trip ▪ Guest lecturer	▪ In-class lecture ▪ Hands on with feedback ▪ Coaching(face to face) ▪ Advising on project ▪ Case study with feedback



Current Use and Elaboration

Having stabilized mid-decade in the higher education context, one can say that blended learning as a term depends on the differences, similarities and compatibilities evident between two sets of terms: These are (to borrow from Graham) "F2F" and "distributed" systems,modes or forms of instruction. To answer the questions, posed above, about the minimal acceptable quantities of each of these two forms in blended learning, this part of the report analyzes three examples:

a. Examples of the instructional forms and practices that are opposed to one another in definitions and discussions of blended learning, and to clarify the meaning of each set.
b. An example of an analysis and taxonomy of blended learning forms for the primary and secondary educational sectors.
c. An example of a decision tree developed for this report that combines common definitions of blended learning together with other widely-accepted definitions of other course types.

Opposed Forms, Contexts and Practices in Blended Learning

The table below lists common examples of the two sets of opposed terms that are generally said to be "blended" in blended learning courses. Within each set, the terms listed should be viewed as being broadly interchangeable or synonymous. Thus, physical co-presence, in-class instruction and face-to-face have generally the same meaning, and the term online is generally considered interchangeable with the terms virtual and distributed.

Physical Co-presence	Technical Mediation
▪ Face-to-Face(F2F)(Graham,2006;StaceyandGerbic,2009) ▪ Oral communication(GarrisonandVaughan) ▪ In-class instruction(Chase,2012) ▪ "place of the classroom"(Friesen,2011) ▪ Bricks, mortar(Schulte,2011) ▪ "a supervised brick-and-mortar location away from home"(StakerandHorn,2012)	▪ Online(Graham,2006;Staceyand Gerbic) ▪ Written communication(Garrisonand Vaughan,2007) ▪ Distributed learning(Graham,2006) ▪ "space of the screen"(Friesen,2011) ▪ Clicks, virtual(Schulte,2011) ▪ "online delivery of content and instruction" (Staker and Horn,2012)

Face-to-face communication thus takes place in the form of both oral and non-verbal communication, but not in written form .Significantly, this description so indicates that non-verbal communication in face-to-face settings can extend to and encompass aspects of the context that the speakers inhabit, since this context is shared by speakers for a period, however brief or lengthy. At the same time, this account of face-to-face communication also suggests that oral communication, and even some kinds of non-verbal communication, does not need to occur strictly in a face-to-face setting. This communication can take place through the mediation of audio technologies such as teleconferencing or audio/visual media such as Skype or H.323 video systems. In these cases, communication is both oral and mediated, rendering problematic this particular part of the Garrison and Vaughan definition of blended learning, as quoted above.

Conclusion

Technology learning is a design construct rather than one proper to learners, in any determination of a course as "Technology Learning, "the benefits accruing to students should be of principle concern. This paper guide around the notion of engaging in a systematic process of planning, designing and developing, implementing and reviewing; good practice for any curriculum design endeavor.

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MOBILE LEARNING IN HIGHER EDUCATION

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Abstract

This paper discusses the background of mobile learning and how it can be used to enhance the whole e-Learning system. The paper presents the M-learning approach as the next generation of e-Learning, whereas the next generation of the learning systems will provide easy access and widely available to all who wish to be part of it. The paper also highlights the benefits and future challenges of mobile learning in our educational environments. This paper seeks not to discuss one fixed meaning of mobile learning but to disassemble the basic components and provide an interpretation of the model in the context of higher education. The concept relates to the mobility of the technology, examines the mobility and dynamism of the learning processes and the flow of information.

Keywords: Higher Education, E-learning, Mobile learning

Introduction

The evolution of handheld portable devices and wireless technology has resulted in radical changes in the social and economic lifestyles of modern people. Today, many technological devices are produced in portable form and people have become accustomed to them. But, the development of digital technologies has so far been limited to social communication and few people have regarded mobile learning as a core pedagogical activity in higher institutions of learning. Although this model has been used as a minor adjunct to learning activities such as lectures and assignments, it is still not the primary mode of delivery in higher education. Currently, the instructional technology transmitted by means of mobile technology is mainly social and, to a lesser extent, economic. Advanced mobile devices such as "smart" cellular telephones are very popular among people primarily because they are wireless and portable. Mobile devices are expected to be a part of every class and activity both inside and outside lecture classrooms, rather than being limited to a few assigned functions in rarely visited computer labs.

Mobile learning in higher education

The most important yet sophisticated concepts for designing instruction in this context are identifying the technology, learner and learning material as well as mobile technology such as portable devices. It also involves identifying learners who are nomadic and able to understand and interpret learning materials. In general, mobile learning - or m-learning- can be viewed as any form of learning that happens when mediated through a mobile devices, and a form of learning that established the legitimacy of 'nomadic' learners (Alexander, 2004).

These are the developments that have made mobile devices strategic tools with the capacity to deliver higher education instruction in a way that was never anticipated when the first prototypes of these devices were designed and marketed. Designers can deliver successful higher education products to the present generation of learners, by means of a technology, distinctively adapted for its own personal (mostly social) purposes. This makes technology a particularly potent tool for the delivery and reinforcement of content that would otherwise be identified with the higher education "establishment".

Devices "such as mobile phone and mp3 players have grown to such an extent over recent years and are gradually replacing personal computers in modern professional and social context" (Attewell and Savill-Smith, 2005).

The kind of informal learning through the use of mobile devices makes it an even more potent tool of educational communication than the customary forms and modes of traditional education. These revolutionary changes developed out of the unforeseen significance of human social life generally more "mobile", creative and opportunistic, than the formal modes of traditional education.

The foregoing observations can help designers to understand the position and significance of mobile learning in the context of higher education. It is possible to argue that the portability and mobility of these technological devices have had strong implications for the meaning of terms that had been extensively defined in existing literature. Using the mobile device as a signifier, the concepts of mobility can be divided into three significant areas: mobility of technology, mobility of learner and mobility of learning especially in higher education.

M-Learning as the next generation of E-learning

M-Learning is a technique that uses mobile and wireless technologies for learning and education. M-Learning enables learners to merge their learning experiences in a shared collaborative environment. Currently, Internet and WWW have improved the learning activities providing a high level of interaction between geographically separated teachers and learners. In fact, Internet is not just a way to deliver and distribute the knowledge and learning contents, but it creates learning environments that fit the needs of modern, diverse learners where it engages the learners in many activities such as interactions, collaborations, conversations and problem solving. The nomadic computing environment is different from the normal and traditional distributed systems. In nomadic computing environment there is a diversity of, handheld devices, smart phones and mobile workstations, which enable users to access and use Internet services anywhere.

Although M-Learning started to be used in supporting a wide range of learning activities there are not much of research done to know the students requirements or understand what types of mobile applications students need to use on their mobile devices and how an effective mobile educational software can be designed to support learning in an educational environments .

Benefit of M-Learning

The benefits of M-Learning are as follows:

- Anytime access to content.
- Anywhere access to content.
- Supports distance learning.
- Can enhance student-centred learning.
- Great for just-in-time training or review of content.
- Can be used more effectively for the differently-abled.
- Supports differentiation of student learning needs and personalized learning.
- Can enhance interaction between and among students, learners and instructors.

M-learning is a natural extension of E-learning. M-learning manages different learning requirements, where it is ideally geared for allowing students to get knowledge at their own speed. M-learning enhances two-way interaction where it supports direct communication between students and their teachers, in such way to encourage shy or hesitant students to communicate more easily than in classrooms. As well as, teachers of large groups can use the direct interaction as a way of giving special instruction to all students. M-learning also helps students those facing financial, family or health problems in migrating out to university classes. Finally, M-learning is self-motivated, self-disciplined that supports studying with on time waste, studying anywhere and at any time.

Mobility of learners

E-learning mediated by personal computers is mostly bound by location and time

(availability) because of the configuration of a personal computer. The computer has no wireless learning tool linked to the Internet, which means that one must always work in one place at a particular time determined by availability and connectivity. But with mobile learning, learning can occurs at any place and at any time. The ordinary (non-mobile) personal computer with landline connections to the Internet is constrained by the places in which they are located and their availability. Non-portable personal computers are too heavy to move easily and so learners are compelled to work in the same place and during the time slots allocated to them by university authorities. By contrast, learning with mobile is a learner centric activity because it is both mobile and nomadic, and not pedagogically teacher-centric as in the case of traditional lectures and hardware installed in one particular location under the aegis of the university's authorities.

Mobility of learning

Researchers and practitioners of mobile learning are engaged in pioneering experiments for transmitting the full content of higher learning to students by means of mobile cellular devices. Walker (2007) points out that the advantages of mobile learning are not dependent solely upon the ability to use a portable and wireless communication device successfully. He argues that the kind of learning experienced by mobile owners is unique because it is received and processed within the context in which the learner is situated. The context is utterly individual - completely different from the rigid outlay of the traditional classroom or lecture room, and the computer laboratory.

Challenges of M-learning

The benefits of M-Learning do not come without challenges. The rapid proliferation of mobile applications has outpaced the traditional software applications. However, these traditional software engineering applications cannot be applied directly in mobile devices because of the following issues:

- Different mobile platforms such as Android, Windows 7, etc…
- Different hardware makers for platforms such as HTC, Google, Samsung, Apple, etc.

The future challenges of M-learning are as following:

- May make it easier to cheat.
- Finding the best infrastructures.
- Creating universal user interface.
- Design an effective context aware mobile application.
- The problem of learners trusting the wireless network.
- Prevent the disclosing of the learner information via network.
- Could require additional learning curve for non-technical learners.
- Enable the use of M-Learning application across mobile platform.
- Can create a feeling of isolation, separation or of being out-of-the-loop.
- Could give tech-savvy learners an advantage over non-technical learners.

Conclusion

In conclusion, the authors define mobile learning as "any type of learning that takes place in learning environments and spaces that take account of the mobility of technology, mobility of learners and mobility of learning". Since mobile learning is spreading rapidly and likely to become one of the most efficient ways of delivering higher education instruction in the future, it has become necessary to examine its implication for the design of teaching and learning. M-learning can be used to solve the traditional learning system problems. Both teachers and students need a proper and handy system to interact with each other and facilitate the teaching system. The M-learning systems are not to replace traditional classrooms but they can be used to complement the learning process in colleges and universities.

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WEB 2.0 FOR EDUCATION

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Abstract

Web 2.0 is a buzzword introduced in 2003-04 which is commonly used to encompass various novel phenomena on the World Wide Web. Although largely a marketing term, some of the key attributes associated with Web 2.0 include the growth of social networks, bi-directional communication, various 'glue' technologies, and significant diversity in content types. Our goal is to identify the the importance of web 2.0 for education. We identify novel challenges due to the different structures of Web 2.0 sites, richer methods of user interaction, new technologies, and fundamentally different philosophy. Although a significant amount of past work can be reapplied, some critical thinking is needed for the networking community to analyze the challenges of this new and rapidly evolving environment. Using technology in the classroom is very important to help motivate students as well as help teach skills that are necessary in learning (Borshiem, Merrit and Reed, 2009). Kids today are "tech savvy" and are in the "Net Generation" (Williams and Chinn, 2009). Web 2.0 is a debatable term and draws much argument. In spite of one's opinion towards the term, Web 2.0 tools such as blogs, wikis, podcasts and RSS feeds are enormously used in learning environment. In this context, this paper discusses Web2.0 in terms of its concept, characteristic features and technologies fit for use in the context of education.

Introduction

Web 2.0 captures a combination of innovations on the Web in recent years. A precise definition is elusive and many sites are hard to categorize with the binary label "Web 1.0" or "Web 2.0." But there is a clear separation between a set of highly popular Web 2.0 sites such as Facebook and YouTube, and the "old Web." These separations are visible when projected onto a variety of axes, such as technological (scripting and presentation technologies used to render the site and allow user interaction); structural (purpose and layout of the site); and sociological (notions of friends and groups) Web 2.0 is a buzzword. Like all buzzwords, it gained popularity because it's useful for capturing the meaning of something. But it also has been overused and become something of a cliché.

The technology have now moved on and are talking about Web 3.0 (the Semantic Web) and even Web 4.0. But for most of us, "Web 2.0" accurately describes the Web we know and use. The origins of the term are a bit disputed, but its most prominent early use was by O'Reilly Media, which sponsored the "Web 2.0" conference in 2004. The term "2.0" refers to the system used by software developers to signify new versions of software - that is, by assigning a new number (rather than using, say, 1.8 or 1.9), the developers signal that this software release has significant changes and differences. "Web 2.0,"then, was used to signify that the Web had begun a fundamental change in the way people were able to use it.

Web 2.0

The term "Web 2.0" was first used in January 1999 by Darcy DiNucci, an information architecture consultant in her article, "Fragmented Future". DiNucci writes, "The Web we know now, which loads into a browser window in essentially static screenfuls, is only an embryo of the Web to come. The first glimmerings of Web 2.0 are beginning to appear, and we are just starting to see how that embryo might develop. The Web will be understood not as screenfuls of text and graphics but as a transport mechanism, the ether through which interactivity happens".

Characteristics of Web 2.0

Instead of merely reading a Web 2.0 site, a user is invited to contribute to the site's content by commenting on published articles or creating a user account or profile on the site, which may enable increased participation. By increasing emphasis on these already-extant and file storage facilities. This has been called "network as platform" computing. Major features of Web 2.0 include social networking sites, self-publishing platforms, tagging, like buttons, and social bookmarking. Users can provide the data that is on a Web 2.0 site and exercise some control over that data. These sites may have an "architecture of participation" that encourages users to add value to the application as they use it.

Web 2.0 offers all users the same freedom to contribute. While this opens the possibility for serious debate and collaboration, it also increases the incidence of "spamming" and "trolling" by unscrupulous or misanthropic users. The impossibility of excluding group members who don't contribute to the provision of goods from sharing profits gives rise to the possibility that serious members will prefer to withhold their contribution of effort and free ride on the contribution of others. This requires what is sometimes called radical trust by the management of the Web site. According to Best, the characteristics of Web 2.0 are: rich user experience, user participation, dynamic content, metadata, Web standards, and scalability. Further characteristics, such as openness, freedom and collective intelligence by way of user participation, can also be viewed as essential attributes of Web 2.0. Thus, the key features of Web 2.0 include:

1. Folksonomy - free classification of information; allows users to collectively classify and find information (e.g. tagging)
2. Rich User Experience - dynamic content; responsive to user input
3. User Participation - information flows two ways between site owner and site user by means of evaluation, review, and commenting. Site users add content for others to see
4. Software as a service - Web 2.0 sites developed APIs to allow automated usage, such as by an app or mashup
5. Mass Participation - Universal web access leads to differentiation of concerns from the traditional internet user base.

Web tools

Web 2.0 is about revolutionary new ways of creating, collaborating, editing and sharing user-generated content online. It's also about ease of use. There's no need to download, and teachers and students can master many of these tools in minutes. Technology has never been easier or more accessible to all. The most popular tools of Web 2.0 are video tools, presentation tools, mobile tools and community tools.

Web 2.0 in Education

Will Richardson states that, "The Web has the potential to radically change what we assume about teaching and learning, and it presents us with important questions to ponder: What needs to change about our curriculum when our students have the ability to reach audiences far beyond our classroom walls?" Web 2.0 could lead to major shifts in the way education is provided for students. One of the biggest shifts that Will Richardson points out the fact that education should be collaborative. "Weblogs are not built on static chunks of content. Instead they are comprised of reflections and conversations that in many cases are updated every day. They demand interaction." Will Richardson's observation of the essence of Weblogs speaks directly to why blogs could be well suited to discussion based classrooms. As long as the students are invested in the project, Weblogs give students a public space to interact with one another and the content of the class. Given the importance of creation, collaboration and communication to the use of these technologies, educationalists have been

quick to point out the potential of web 2.0 for supporting and enhancing learning.

Technology in Education: Historical Perspective

The philosophical, pedagogical and conceptual underpinnings of learning are interconnected, with many specific changes throughout history identified as change makers shaping the way students learn at particular points in time. For example, the renowned philosopher Locke (1690) used the term tabula rasa (blank slate) as he described the minds of babies. He believed personal sensory experiences were the only method data could be added to this blank slate. Locke argued that humans are incapable of innate ideas or principals. Rationalists such as Descartes (1641) refuted this view, believing that reason was a source of knowledge. Although pedagogical practice often claims to give credence to students' reasoning, traditional schooling seemed to function with the tabula rasa pedagogical approach with the teacher as sage on the stage providing the empty vessels with content.

Throughout history, technologies have played a significant role in the way students learn. Many historians describe the printing press as a technology causing one of the most significant radical transformations towards intellectual life in Western culture (Eisenstein, 1979; Roberts, 1996). Interestingly, since the dawn of the Internet, historians now posit the Internet, in particular Web 2.0, as triggering a change to learning comparable to that during the time of the printing press. In the 21st century, some argue that we have a new breed of students (Oblinger and Oblinger, 2005; Prensky, 2001). Academics and researchers have claimed that technologies, such as Web 2.0, have been held responsible for these changes (Boulos and Wheelert, 2007; Ferdig, 2007; Klamma, Cao, and Spaniol, 2007; Prensky, 2001). While many Web 2.0 tools were not specifically designed for academic purposes, they possess attributes supporting a change in the way students learn by providing opportunities for students to be involved in active social learning, or various forms of scaffolded learning and venues to publish and to receive rapid, effective feedback .

Conclusion

Web 2.0 is a highly dynamic entity, evolving at an exponential rate. This paper provides a brief insight into the influence Web 2.0 has had on the way in which today's students learn and explicated Darwikinism and Folksonomy as two examples highlighting how these changes have evolved. Many academics have provided empirical and theoretical evidence identifying attributes of Web 2.0 that are changing the way in which students learn. These attributes include opportunities for active social learning, venues for publishing and receiving rapid, effective feedback, and opportunities for students to move from passive consumers to active, critical consumers of information (Boulos and Wheelert, 2007; Ferdig, 2007; Franklin and van Harmelen, 2008). While this paper is written to emphasis the way in which Web 2.0 is changing the way in which students learn, it would be a mistake to attribute Web 2.0 as the sole driver of this change. The majority of students' formal learning takes place within educational establishments, and one must account for teachers' technological perceptions, abilities, and pedagogical practice which encourage or inhibit this change in the way students are learning with technologies such as Web 2.0 (Crompton, 2011; Franklin and van Harmelen, 2008).

The new learners are challenging the traditional flow of information (Klamma *et al.*, 2007; Lee and McLoughlin, 2007), moving from the monological, to the dialogical, and finally to the trialogical approach to learning (Paavola and Hakkarainen, 2004) as students learn while they collaboratively create, manipulate and share information with the larger community. The teachers' role is to facilitate in the learning process and to consider ways in which they can turn the knowledge the students are gaining into wisdom.

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TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE IN THE MATHEMATICS CLASSROOM

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Abstract

Technological pedagogical content knowledge is an understanding that emerges from interactions among content, pedagogy, and technology knowledge. Underlying truly meaningful and deeply skilled teaching with technology, TPACK is different from knowledge of all three concepts individually. Instead, TPACK is the basis of effective mathematics teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students' prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones. The working technology knowledge of a mathematics teacher using graphing calculators, computer software programs, and computer-based laboratories to deeply explore a mathematical topic is vastly different than that of an English teacher using the Internet and software programs to investigate and prepare literary documents. Each content area has specific instructional goals and needs that technology can address in a variety of ways.

Keywords: Technology, Content, Pedagogy, Technological pedagogical content knowledge, Mathematics class room

Introduction

TPACK is an emergent form of knowledge that goes beyond all three "core" components (content, pedagogy, and technology).One area that has seen dramatic growth in the influence and applications of technology on the development of content and the evolution of instruction is mathematics. Technology has had considerable impact on the development and expansion of new and existing mathematical concepts and applications in the past few decades. For example, technology has allowed us to apply computer-like algorithms to create, analyze, and recursively define fractals, fragmented geometric shapes, objects, or quantities that are reduced size copies (or self-similar structures)of the whole. Fractals have emerged as especially useful applications in defining and measuring geographic and meteoric features and phenomenon. Similarly, technology has influenced content development and exploration in areas such as statistics, combinatorics, algebra, probability, geometry, and matrices by providing novice and expert mathematicians increased access, understanding, and application of advanced mathematical concepts through concrete modelling, iterative applications, and recursive functioning.

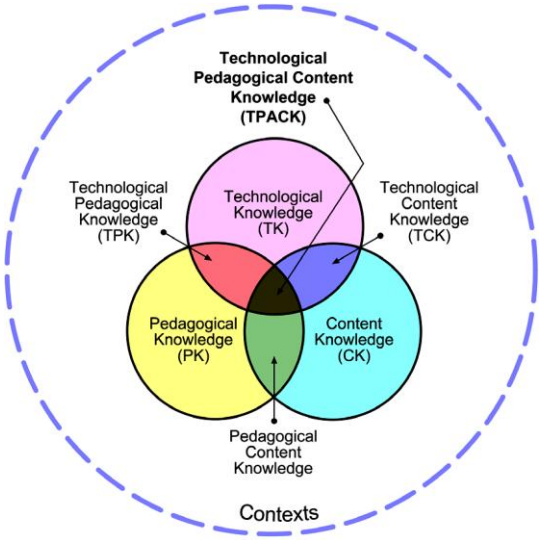
In short, TPACK is a rich understanding of how teaching and learning within a specific content area occur and change as a result of authentic, meaningful application of appropriate technologies."A teacher capable of negotiating these relationships represents a form of expertise different from, and greater than, the knowledge of a disciplinary expert (say a mathematician or historian),a technology expert (a computer scientist), and a pedagogical expert (an experienced educator)".

Technology, Pedagogy, and Content Knowledge (TPACK)

Shulman (1986) launched a new way of thinking about the knowledge teachers need for teaching with a construct that he called

pedagogical content knowledge (PCK). This new way of thinking about teacher knowledge called for the integration of content knowledge and pedagogical knowledge. The revolution was that a teacher's success in teaching relied on the knowledge from the intersection of these two knowledge bases. PCK was described as the way of representing and formulating subject matter knowledge that makes those ideas comprehensible to learners.

TPACK Knowledge areas



Technology Knowledge (TK)

Technology knowledge refers to an understanding of the way that technologies are used in a specific content domain.

Content Knowledge (CK)

Content knowledge may be defined as "a thorough grounding in college-level subject matter" or "command of the subject".

Pedagogical Knowledge (PK)

Pedagogical knowledge includes generic knowledge about how students learn, teaching approaches, methods of assessment and knowledge of different theories about learning .

Pedagogical Content Knowledge (PCK)

Pedagogical content knowledge is knowledge about how to combine pedagogy and content effectively. This is knowledge about how to make a subject understandable to learners.

Technological Content Knowledge (TCK)

Technological content knowledge refers to knowledge about how technology may be used to provide new ways of teaching content.

Technological Pedagogical Knowledge (TPK)

Technological pedagogical knowledge refers to the affordances and constraints of technology as an enabler of different teaching approaches.

Technological Pedagogical Content Knowledge (TPCK)

Technological pedagogical content knowledge refers to the knowledge and understanding of the interplay between CK, PK and TK when using technology for teaching and learning.

Developing a Mathematics TPACK

Niess (2005) adapted Grossman's (1989, 1990) four components of PCK to describe teachers' knowledge of incorporating technology in teaching mathematics as the knowledge and beliefs teachers demonstrate that are consistent with:

- An overarching conception about the purposes for incorporating technology in teaching mathematics;
- Knowledge of students' understandings, thinking, and learning of mathematics with technology;
- Knowledge of curriculum and curricular materials that integrate technology in learning and teaching mathematics;
- Knowledge of instructional strategies and representations for teaching and learning mathematics with technologies.

Niess, Sadri, and Lee (2007) proposed a developmental model for TPACK based on Rogers' (1995) five-stage process by which a person makes a decision to adopt or reject a new innovation.

- Recognizing (knowledge) where teachers are able to use the technology and recognize the alignment of the technology with mathematics content, yet

are not willing to integrate the technology in teaching mathematics in their classrooms.

- Accepting (persuasion) where teachers may attempt to engage their students in learning mathematics with an appropriate technology as part of the process of determining if they have a favourable or unfavourable disposition toward incorporating the technology in their classrooms.
- Adapting (decision) where teachers engage their students in activities in teaching and learning mathematics with an appropriate technology.
- Exploring (implementation) where teachers actively integrate teaching and learning of mathematics with an appropriate technology.
- Advancing (confirmation) where teachers evaluate the results of the decision to integrate teaching and learning mathematics with an appropriate technology.

Central Components of Mathematics - Related TPACK

1. Conception and use of technology

The first component of TPACK includes a teacher's overarching conception of the use of technology in support of teaching and learning mathematics. It includes what the teacher believes about mathematics as a field, how he or she feels mathematics can best be addressed through the use of technology, and what is important for students to learn about mathematics through the use of technology. The teacher must decide how to best use technology to address the needs of the students, the content, and instruction and then decide which technology best accomplishes all these goals.

2. Technology Based Mathematics Instruction

The second component of TPACK includes teachers' knowledge of and ability to makeover through various instructional issues specifically related to the use of technology in support of mathematics teaching and learning. From this point of view, teachers need to understand that technology should be viewed as one instructional tool among many. Technology's success as a learning and instructional tool depends upon it being integrated into a meaningful curricular and instructional framework, and it should be used only when it is the most appropriate means of reaching an instructional goal.

3. Technology-based management

The third component of TPACK in mathematics covers management issues specifically related to teaching and learning with technology. The use of technology in instruction introduces a number of management variables and issues that teachers seldom encounter when their instruction does not use technology. A final element of the management component of TPACK is a teacher' ability to maintain student engagement once the novelty effect has worn off. Using technology with every activity and for every instructional purpose is just as futile as using direct instruction for every topic and lesson.

4. Depth and breadth of mathematics content

The fourth component of TPACK takes into account the increased responsibility teachers have to understand their mathematics in breadth and depth. Placing technology in the hands of students gives them the power to explore math to a depth that may be unfamiliar to the teacher. As a result, teachers need to be confident in their ability to handle students' investigations and inquiries. As with instructional flexibility, depth in content knowledge provides teachers with the ability and flexibility to explore, emphasize, or deemphasize various mathematical topics that may arise in the course of instruction and investigation.

Six characteristics of TPACK with mathematics teachers

- Opening to experimentation with technological tools and willingness to experiment with new lessons using technology;

- Staying on task and not being sidetracked when teaching mathematics topics with technology;
- Offering clear pedagogical strategies by knowing where students are academically, what students need to know, and how the lesson should be taught;
- Helping students understand why technology is important; Using technology for teaching, assessment, and classroom management; and
- Being comfortable and optimistic about changes in technology.

Implementing technology in mathematics classrooms

In particular, the Ontario Ministry of Education has made some recommendations for integrating technology in mathematics classrooms (2005, 2007). Some of the ways in which mathematics teachers should use technology are:

- Communicate and exchange opinions in classrooms, from home and with other classrooms and schools,
- Locate, disseminate, and access different Internet resources,- Use databases, spreadsheets, word processing, presentations, multimedia documents,
- Manipulate large quantitative data, reduce the time for routine mathematical tasks allowing students more time to think for conceptualisations and designing solutions,
- Use graphical software, computer algebra systems (CAS), statistical software, and
- Practice simulations and computer assisted learning modules for supporting mathematical inquiry.

Conclusion

Development and understanding of TPACK, especially as it relates to specific content areas, is imperative because of the importance of technology's appropriate use in educational settings. If technology is to influence mathematics teachers' practices in reform-oriented ways and improve students' mathematics learning by having a positive impact on engagement, achievement, and confidence, it must be successfully integrated into instruction in effective, authentic, and non routine ways.

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INNOVATIVE INFORMATION AND COMMUNICATION TECHNOLOGIES FOR CREATIVE LEARNING

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Abstract

Information and Communication Technologies (ICT) are contemporary factors that influence every aspect of human life including education. The contribution of ICT to the improvement of teaching and learning processes is higher in the educational institutions that have integrated ICT as an innovation factor. To attain this highest level implies that a institution not only has to modernize the technological tools, but also has to change the teaching models: the teacher's role, issues regarding classroom organizational, the teaching and learning processes, and the interaction mechanisms. In this context, this paper discusses ICTs as drivers of innovative pedagogies.

Keywords: Information and Communication Technologies, Creative Learning

Introduction

ICT is viewed as a "major tool for building knowledge societies" (UNESCO 2003) and, particularly, as a mechanism that could provide a way to rethink and redesign the educational systems and processes, thus leading to quality education for all. In India, the use of ICT in teaching - learning processes happens through its eLearning Action Plan, one of the aims of which is "to improve the quality of learning by facilitating access to resources and services as well as remote exchange and collaboration"

The Action Plan outlines several aspects to be observed and promoted, such as widespread access to broadband technologies, professional development support policies for teachers, more research into how people teach and learn using ICT, development of new high-quality online content and adaptation of current regulations to make the use of ICT at schools easier, as more recent UNESCO publications also highlight.

Media and ICT for Education

Educational media, and more particularly on the integration of digital media in education, has allowed us to identify several areas that have been developed in different periods and under different epistemological, methodological and didactic assumptions. From the beginning, it has been centered on audiovisual media, but given the development of other technologies and, particularly, the inclusion of computers in classrooms and the impact and effects of the use of these technologies in colleges and schools.

Innovations in Techno - Pedagogy

When, how and why do computers come to be used in classrooms? What are the factors involved in the processes of technology integration in colleges? In what teaching and learning processes are computers used in the classroom? How and under what conditions can these practices generate processes of innovation? Attempts to answer these questions have resulted in a number of different methods that have identified the uses of technology in education and its role in the educational innovation processes.

Since the 1980s, there have been several attempts aiming at integrating ICT into society and, particularly, in education. The actions carried out ranged from the development of infrastructures, to the setting up of educational portals and platforms with educational resources for teachers, parents and students, to training programmes for using ICT. In the international context, there have been a number of significant trainings carried out by associations and

organizations. ICT integration in colleges are complex and that internal and external factors play an important role (Davis *et al.* 2009) Amongst the internal factors, characteristics of school organization and staff are mentioned. Policies regarding ICT, infrastructures, staff training and relationships with the context, one of the main handicaps to develop the educational potential of ICT comes from the traditional culture of teacher education (Pelgrum 2001). Previous practice in using computers and positive attitudes towards technology are variables that favour success in teachers' integration of ICT (Mueller *et al.* 2008). It is clear that educational changes addressed through ICT may result in effective changes in student learning (Wong and Li 2008).

Techno Pedagogy for Creativity

A major enabler for fostering creative learning and innovative teaching is certainly the teaching and learning format. If technologies, for instance, are adopted on a large scale, but their usage is a plain reproduction of old, traditional teaching formats, their impact on creativity will be minimal. Current and forthcoming cohorts of students are already at home, and at a very young age, exploring new technologies and changing their ways of retrieving and accessing information, of appropriating technologies, of understanding and exploring. These changes have an impact on their cognitive skills and on their meaning-making.

Therefore, current educational systems need to adopt new methods and formats that are suitable for present and future learners, that grasp and expand students' low concentrations spans, that provide them with interesting, up-to-date and engaging materials. In line with this, fostering creativity also requires an active mode of learning, and consequently a new teaching format, where the teacher is a coach and supporter and learners are empowered to take ownership of their own learning processes. Creativity is stimulated by the co-production of knowledge, where learners have an active role in the exploration and negotiation of meaning. These aspects point towards a learner-centred pedagogy, where personalization and individualisation of learning have a growing role, and where pupils have a say in the fashioning of tasks (Craft, 2005; Williamson, 2009). The above mentioned aspects are all in line with emerging institutional and educational trends (Punie and Ala- Mutka, 2007), which are advocating for a democratic, personalized and collaborative approach to learning, involving wide - spread use of technologies.

Technologies as Drivers of Educational Change and Creativity

The role of ICT in the debate for creativity and innovation in education has become an important one over the past decade. The rapid development of interactive technologies, mainly as a result of the Internet, has brought about an upsurge of technological tools which young people are appropriating in their everyday lives. As explored by the domestication theory, the arrival of ICTs in homes has brought the mobilisation of material resources, skills, cultural values and social competences and capabilities (Silverstone, 2006). The recent rise of social media is also having an influential impact on education. These applications have shifted the way users seek information, and create and connect knowledge.

Evolution in communication practices suggests that developments for pedagogy need to address what it means to be educated in our times (Loveless, 2007), so as to avoid 'yesterday's education for tomorrow's kids' (Prensky, 2005). The rapid uptake of these technologies, generally referred to as social computing applications, has also taken many by surprise. Social computing applications vary from social networking sites (like Facebook; MySpace); sharing of bookmarks (del.icious) sharing of multimedia (Flickr; YouTube), online gaming and blogging to mention a few. These applications offer new opportunities for people to express their creativity, make it available to a large audience and get

feedback and recognition (Cachia, Compano, and Da Costa, 2007). As the analysis of creative people and artistic innovation demonstrates, scientific and artistic innovation emerges from collective effort, what is commonly referred to as social creativity (Fischer, Giaccardi, Eden, Sugimoto, and Ye, 2005).

Blogging is an example of how youngsters are using technologies to express their creativity and to be innovative. Creativity can be both at the individual level, as well as the collective level. These applications demonstrate variety of means of how users learn how to learn, which according to Rogers (1983) is a major component of creativity. The example of blogging shows that there are various ways in which children learn how to write for a public, how to link their work to other works, how to network with other bloggers and how to utilize the blog for their eventual career paths. Such activities show that users have understood the technology and hence are able to make new and valuable connections between old knowledge and new one. Writing becomes not merely a tool associated with homework, but also a tool which a student can utilize to network with other students, to share and co-produce material and to communicate with a wide audience with all its consequences. The processes involved in appropriating such new technologies suggests that users learn how to learn in new, creative ways. Technological skills are important not only for children at schools but also for lifelong learning (European Commission, 2008). The different levels of interaction and collaboration characteristic of new technologies facilitate personalization of learning paths: learners becoming active stakeholders who are 'empowered to shape their own learning spaces and resources' and *collaborative learning processes*: knowledgeable actors acting as scaffolding for the development of new abilities and competences by the learners (Ala-Mutka, Bacigalupo *et al.*, 2008).

Continuous technological changes mean that learners today need to develop on the one hand positive attitudes towards change and, on the other hand, adaptability (Hinkley, 2001). As Hinkley argues, students in the future will endorse 'portfolio careers', moving through several careers and different jobs, including jobs that still do not exist today. Hence, it comes as no surprise that substantial pressure is being addressed towards schooling systems to acknowledge new creative and innovative ways of dealing with continuous rapid development of technology and knowledge. Appropriation of technological platforms requires new approaches for education. Creativity plays an important role in such a change. Technologies as tools of interaction can enhance knowledge creation, meaning-making and the provision of new connections. Technologies are also in many ways apt in addressing multitasking, short attention and non-linear behaviour. There are different ways of how users interact with technology in learning processes (Loveless, 2008). Interaction with technology is primarily based on how users understand the capacity of technology. Loveless calls this level of learning 'active learning process'. Interaction with ICT provides users new ways of doing things: 'extend or enhance ability; novel ways of dealing with a task which might change the nature of the activity itself, or provide limitations and structure which influence the nature and boundaries of the activity'. When learning to use a new technology, there are different ways users interact with it. As Loveless argues it is the interplay of human intention and activity which exploits the potential of a technology. However, basic technology skills are prerequisites for creative learning. Without basic skills in writing, it would be unlikely for a child to write an essay or a poem. Literature in this area demonstrates that the digital generation, which is assumed to be totally proficient with technology, often lacks basic technological skills and IT knowledge (Herold, 2009). This shows that if we want children to be creative with

technology, we have first and foremost to teach them how to use them.

Research about games has also demonstrated that when games are used in educational contexts, appropriation can take place on different levels, borrowed from film studies, explore the different experience of immersion in games and the other role of being outside the game. De Freitas and Oliver (2006) argue that, in educational contexts, learners need to be able to enter the world of the game, but also be critical about the process, so as to be able to reflect upon their relationship with the games, when viewed from outside. In the cinema, typically refers to the internal world created by the story that the characters themselves experience and encounter: the narrative 'space' that includes all the parts of the story, both those that are and those that are not actually shown on the screen.

Conclusion

Technologies are already accepted by the young generation, who are appropriating ICT-tools in new creative ways. New pedagogies have to take into account what it means to be educated in our times, as the overwhelming presence of technologies in our lives brings about a change in the way young people and children learn and understand. A cultural shift is also required in order to promote values that are not always recognized in a college environment, such as risk-taking, uniqueness and originality. Teachers are key figures in implementing change, but they need support to understand and accept creativity in their practices. They can empower students to become more responsible for their own learning. This will require a shift of pedagogy, moving towards students' centeredness and the idea of cooperative learning as a means to foster not only creativity but also other transversal skills, such as learning to learn skills and entrepreneurship.

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WEB-BASED EDUCATION

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Abstract

Technological change, which not only permits new activities but makes those new activities superior in many important ways over the previous method of operation, creates long lasting innovations in the society. Web-based education is one of those innovations. Teachers at all levels can merely post their syllabi on Blackboard but some have radically changed their whole method of teaching so that the class venue for the teacher and the student becomes the computer. The classroom now is a "virtual learning environment." Learning is no longer bound by space and time. A brief discussion of interchangeably used vocabulary in necessary computer based instruction is discussed in the article. The literature tends to use the following words interchangeably: online education and web-based education; computer assisted learning, web assisted learning and web mediated learning; virtual learning environments, online courses, and web-based courses.

Keywords: Educational Model, Virtual Learning Environment

Definition

Web-Based Education and Pedagogical Technologies Solutions for Learning Applications provides cutting-edge research on such topics as network learning, e-learning, managing Web-based learning and teaching technologies, and building Web-based learning communities.

Web-based learning has got much attention as being an incredible opportunity to study nowadays. Despite of its popularity the notion still remains unclear and confusing. First of all it has many names are used interchangeable Online learning, e-learning, computer-based training, technology-based instruction etc. Generally the meaning and the basic concept of them are the same. Web-based learning is one way to learn, using web-based technologies or tools in a learning process. In other words, learner uses mainly computers to interact with the teacher, other students and learning material. Web-based learning consists of technology that supports traditional classroom training and online learning environments. "Pure" web-based courses are wholly based on computer and online possibilities. In this case all the communication and learning activities are done online. On the other hand, web-based courses may have some face-to-face sessions besides the distant learning tasks. In this case they are called blended courses as they blend web-based activities with face-to-face activities.

Web-based learning can be also formal or informal. Formal web-based learning is purposed and learning activities are organised by teachers. Informal learning takes place while one searches material from the Internet. It is self-paced, depending on the goals and ambition to learn.

Networking Learning

Networked learning is a process of developing and maintaining connections with people and information, and communicating in such a way so as to support one another's learning. The central term in this definition is connections. It takes a relational stance in which learning takes place both in relation to others and in relation to learning resources. It has been suggested that networked learning offers educational institutions more functional efficiency, in that the curriculum can be more tightly managed centrally, or in the case of vocational learning, it can reduce costs to employers and tax payers. However, it is also argued that networked learning is too often considered within the presumption of institutionalized or education aliased

learning, thereby omitting awareness of the benefits that networked learning has to informal or situated learning.

E-Learning

E-Learning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered completely online.

There are many terms used to describe learning that is delivered online, via the internet, ranging from Distance Education, to computerized electronic learning, online learning, internet learning and many others. We define eLearning as courses that are specifically delivered via the internet to somewhere other than the classroom where the professor is teaching. It is not a course delivered via a DVD or CD-ROM, video tape or over a television channel. It is interactive in that one can also communicate with them tutors teachers, professors or other students in the class.

Computer Assisted Learning

Computer Assisted Learning is a dynamic and interactive educational method that helps to improve reading, writing, and math skills. Computer-Assisted Learning is one of several terms used to describe this application of computers. Other terms include Computer-Aided (or -Assisted) Instruction (CAI), computer-Based Learning (CBL), and Computer-Managed Instruction(CMI).

Advantages of Computer Assisted Learning (CAL)

The advantages of Computer assisted learning as follows:

Flexibility and time

- Training may occur anytime, anyplace that there is Internet access.
- Individuals can learn at their own pace and around their own schedules within a given training time frame.
- Individuals gain access to colleagues and experts from geographic locations with whom they would ordinarily not have the opportunity to communicate.
- Individuals are able to take advantage of lifelong learning without relocating or quitting their jobs.

Learning and understanding

- Individuals must think, respond, problem solve, use critical reasoning, interact and be creative to fully participate in CAL.
- Individuals may feel more in control of their own learning, thus possibly taking on more responsibility.
- Individuals gain access to real-world examples, databases, experts and additional sources of information online.
- Individuals are able to reflect in greater depth on responses to questions or activities posed in training before making their answers and opinions public to other participants.
- CAL emphasizes a learner-centered approach to training versus simply logging the number of hours spent in training.

Accessibility and equal opportunity for all

- The standardized nature of WBT equalizes delivery of the materials for all individuals.
- Opportunities to attend training are created for individuals with disabilities and others who may be excluded due to time, geography or mobility.
- Multimedia such as graphics, video and audio can enhance learning and understanding, as well as be adapted to individuals with various learning styles.
- Individual characteristics such as physical disabilities remain anonymous to other participants, thus eliminating judgments and stigmas often associated with particular disabilities.

Disadvantages of CAL

Despite the advantages of offering CAL, there are many challenges that need to be addressed. Many of the disadvantages are directly related to the advantages previously mentioned. The disadvantages of web based

education include cost issues, the time it takes to develop an online course, technical problems, potential for poor instructional design, and retention issues related to student motivation, isolation, and misconceptions about CAL.

Virtual Learning Environment (VLE)

Virtual Learning Environment (VLE) is a system for delivering learning materials to students via the web. These systems include assessment, student tracking, collaboration and communication tools.A virtual learning environment is a Web-based platform for the digital aspects of courses of study, usually within educational institutions. VLEs typically: allow participants to be organized into cohorts, groups and roles; present resources, activities and interactions within a course structure; provide for the different stages of assessment; report on participation; and have some level of integration with other institutional systems. VLEs have been adopted by almost all higher education institutions in the anglosphere.

Online Course

Online learning, sometimes referred to as e-learning, is a form of distance education. Online courses are delivered over the Internet and can be accessed from a computer with a Web browser (ex. Internet Explorer).

There is no single definition for online learning. It includes learning with the assistance of the Internet and a personal computer. The term e-learning, or electronic learning, often is used interchangeably with online learning.

Conclusion

Online Education has great potential and well designed Web-Based Course can provide students with the quality of learning experience as traditional face to face class do. In web based Instruction, it is the instructor's expertise, instructor's devotion that hold the key to successful students learning Experience.

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VIRTUAL LEARNING - A NEW PARADIGM IN TEACHING AND LEARNING

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Abstract

Most people are not aware of how computers and Internet technology are transforming the way students learn. This emerging education paradigm is often called "virtual learning," and it has the potential to improve student achievement, educational access and schools' cost-effectiveness. Specifically, virtual learning uses computer software, the Internet or both to deliver instruction to students. Virtual learning comes in several forms: Computer-Based, Internet-Based, Remote Teacher Online, Blended Learning and Facilitated Virtual Learning. The benefits of virtual learning are many viz; no bound of venue or time , greater global reach, increased access to high-quality teachers, mass customization and optimization, increased flexibility ,improved productivity and efficiency and innovation. So, virtual learning has a very broad application. It's not only about online courses, but also about the way that we extend what is happening in the premise of school—way beyond the school gates. In the future, colleges will no longer choose between audio or video systems, between interactive or independent systems, or between one-way or two-way systems.

Keywords: Virtual Learning, Blended Learning, Internet-Based Learning.

Introduction

At its heart Virtual Learning is about the learning that takes place outside of the school, or bringing what is outside of the school into the school. It is about the online environment as a way of connecting students who may be located physically in a school with their learning that is somewhere else. Most people are not aware of how computers and Internet technology are transforming the way students learn. This emerging education paradigm is often called "virtual learning," and it has the potential to improve student achievement, educational access and schools' cost-effectiveness. Specifically, virtual learning uses computer software, the Internet or both to deliver instruction to students. This minimizes or eliminates the need for teachers and students to share a classroom. Virtual learning does not include the increasing use of e-mail or online forums to help teachers better communicate with students and parents about coursework and student progress; as helpful as these learning management systems are, they do not change how students are taught. Teachers and students are learning to use the Internet in a variety of ways to enhance their teaching and learning experiences. The Internet provides an immediacy and global awareness that has been unavailable to students. Students and teachers are able to have interactions not only in other parts of the country, but also around the world. From this they can learn about the life and issues that impact on other people. Many teachers can get access to relevant discussions hosted by the Internet. Educators can use these discussions and the ability to share experiences with other educators for professional development and to combat the sense of professional isolation.

Forms of Virtual Learning

Virtual learning comes in several forms, as detailed below:

- ***Computer-Based**:* Instruction is not provided by a teacher; instead, instruction is provided by software installed on a local computer or server. This software can frequently customize the material to suit the specific needs of each student.

- ***Internet-Based**:* This is similar to *computer-based* instruction, but in this case, the software that provides the instruction is delivered through the Web and stored on a remote server.
- ***Remote Teacher Online**:* Instruction is provided by a teacher, but that teacher is not physically present with the student. Instead, the teacher interacts with the student via the Internet, through such media as online video, online forums, e-mail and instant messaging.
- ***Blended Learning**:* This combines traditional face-to-face instruction, directed by a teacher, with computer-based, Internet-based or remote teacher online instruction. In effect, instruction comes from two sources: a traditional classroom teacher and at least one of the forms of virtual learning described above.
- ***Facilitated Virtual Learning**:* This is computer-based, Internet-based or remote teacher online instruction that is supplemented by a human "facilitator." This facilitator does not direct the student's instruction, but rather assists the student's learning process by providing tutoring or additional supervision. The facilitator may be present with the learner or communicating remotely via the Web or other forms of electronic communication.

Similar forms of virtual learning are sometimes grouped into broader categories:

- ***Online Learning***: This is any form of instruction that takes place over the Internet. It includes Internet-based instruction; remote teacher online instruction; and blended learning and facilitated virtual learning that involves these two virtual learning methods. It excludes computer-based learning.
- ***Full-Time Online***: This is online learning with no regular face-to-face instruction or facilitation. It is Internet-based and remote teacher online learning only, though it may include some occasional interaction with human teachers and facilitators.

Virtual Learning - Benefits and Impact

There are many ways one can think about the benefits, or the impact, of virtual learning technologies and their use in educational institutions. Some are presented below:

Virtual Learning is not bound by a Venue or Time

Virtual Learning is impacting on the connection between school and home. This may not seem to meet the *virtual learning* definition on first impression, but, if you think about it, we have historically talked about *home-work* and *school-work*. In the online world that distinction disappears. And so, the connection between *home* and *school* becomes something that is quite seamless—whether it is home, as in the physical home that the student lives in, or outside-of-school places such as the local library, local café, a friend's house, grandma's house that they might visit after school. The fact that they can continue with their learning in a seamless way and connect with the work that they are doing in online worlds makes the use of a virtual learning environment very high impact.

Virtual Learning has Greater Global Reach

Another factor about virtual learning is the global reach that's now possible for students. Once they had to rely on resources from the local library. Or, from time-to-time, a visitor to the school could provide them with a feel or an insight into what it might be like in other lands or countries that they might be studying. Now, global reach means that they can reach directly into the lives of those who live in some of those countries and lands. They can talk to experts who have visited there, and are familiar with the geography, the terrain, and some of the social issues that might occur there. And they can connect with learners in those areas to collaborate on projects, to look at topics that are germane to them. So, the global reach is becoming increasingly important as

students become prepared to be citizens in a much more globalised society than they have previously.

Increased Access to High-Quality Teachers

Online learning could address main discrepancies in education--the disparate access to high-quality teachers and instruction caused by socioeconomic and geographic differences. A child's chances of attending a school with high-quality teachers largely depend on where she lives, which is shaped by her parents' financial means. Online learning could give all students, regardless of where they live, access to the best instructors. It could also address teacher shortages. In some subjects, such as science and mathematics, some schools have difficulty employing skilled teachers and therefore cannot offer students instruction in certain subjects. However, through online learning, a student attending a school without a physics teacher, for example, could learn physics from a teacher in another school district or even in another state.

Mass Customization and Optimization

Education generally treats students in a standardized manner. For example, students are typically grouped by age, rather than by achievement level or learning style. Online learning has the potential to provide all children with customized education. Students can receive instruction at their own pace and in ways tailored to their unique learning styles and interests. Increased customization can make the learning process more enjoyable and productive. Moreover, it will also allow for more accurate feedback on students' progress, enabling parents to monitor their children's progress more closely and to hone accountability.

Increased Flexibility

Online learning can provide students with greater flexibility in when and how they learn. Virtual learning allows students to learn anytime at their own pace. This allows students and families to use their time more efficiently to pursue other interests and activities. In addition, the flexibility of online learning can particularly benefit students who have specific challenges in their education, such as those who must change schools frequently and those who have fallen behind in their studies.

Improved Flexibility for Teachers

Online learning will also provide teachers with new career options and increasingly give teachers more freedom to instruct students in more productive ways. This has the potential to expand the talent pool of the teacher workforce and improve teacher quality overall. For example, teachers who are parents could value the flexibility of teaching from home, which allows them to balance their career more easily with their parental responsibilities.

Improved Productivity and Efficiency

Online learning has the potential to improve productivity and lower the cost of education, thereby reducing the burden on taxpayers. Moe and Chubb made this point in *Liberating Learning*: "Schools can be operated at lower cost, relying more on technology (which is relatively cheap) and less on labor (which is relatively expensive)." They estimate that a school could reduce its teaching staff by approximately one-sixth if elementary school students spent one hour per day learning electronically. The cost savings could be used in a number of ways, such as investing more in teacher training or teacher pay to improve teacher quality and effectiveness.

Innovation

The increasing use of online learning will provide instructors and online learning operators with incentives to innovate and develop new learning tools that could improve students' learning options in ways unimaginable today:

- general class administration and organization
- the creation of lesson plans using existing resources
- assessment and monitoring of students

- allocation and marking of on-line assignments
- discussion and support with students on line

The various interactive tools of Virtual learning also support students with both class work and homework, and can cater for individual learning styles. For example, students can.

Virtual learning can help teachers and support staff manages and deliver a variety of daily tasks, including:

- submit and track their assignments online via a personal home page
- contribute to and participate in discussions with classmates and other schools via the various tools
- work at their own pace within and out of school
- complete their worksheets and tests online for final submission and grading
- attempt offline assignments with instructions and guides from the learning platform

Being able to work at their own pace is particularly beneficial to students. This allows the student to personalize their learning, to go back on lessons taught in classrooms and revise on their work, or if they feel confident they can progress to the next level or topic and prepare for lessons ahead. Doing so allows them to reinforce teaching and learning in the classrooms.

Conclusion

It's not only about online courses, but also about the way that we extend what is happening in the premise of school way beyond the school gates. In the future, colleges will no longer choose between audio or video systems, between interactive or independent systems, or between one-way or two-way systems.

A single wire will provide everything by connecting the classroom, the library, the workplace, and the home. The challenge will be to choose the most practical combination of learning experiences based on a trade-off between the costs and capabilities of a vast array of media options. In this environment, the focus of educational organizations will shift from teaching to learning.

Adapting to this shift will require educational organizations to adopt new approaches for defining faculty work and securing funds for new technology.

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WEB- BASED LANGUAGE LEARNING: TOOLS AND APPLICATIONS

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Abstract

Technology stimulates learning motivation through collaborative learning and it also improves learning efficiency by integrating classroom learning. Globalization has changed the status of English Language. Technology is no longer a enhancement, of interest to only enthusiastic 'technophile' teachers and learners, but rather, it has an importance for everyone concerned in language teaching. Technology is an ever-increasing part of the English language classroom. Today's teachers are developing new and exciting means of integrating language in all aspects with innovative technologies. This paper explores opportunities that English teachers have created to help students meet English language Teaching and Learning literacy goals in technology enhanced language learning (TELL) classroom environments.

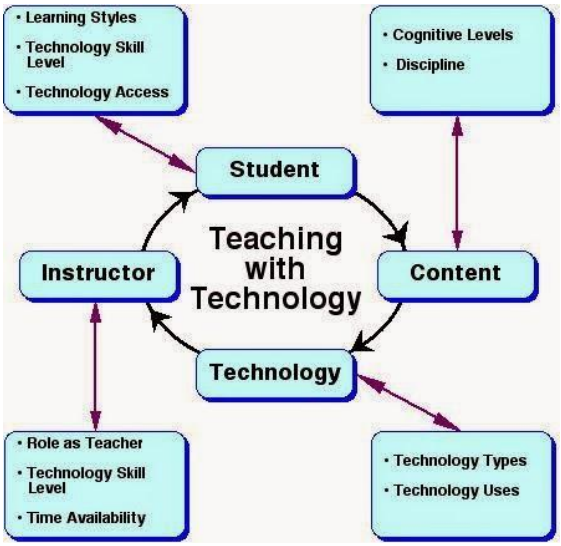
Keywords: Technology Enhanced Language Learning, English Language Teaching.

Introduction

Now, English is no longer a foreign language, it is considered as a universal language. Global Revolution changed the entire scenario of English language in association. i.e. Technology which further explores in to net, web, blog etc., Technology is an ever-increasing part of the English language classroom. Technology, as a powerful and convenient tool which can provide learners with a rich resource, a visual environment as well as an instructional platform, plays a vital role in language learning. Each technology is likely to play a different role in students' learning. Students can learn "from" computers - here technology is used essentially to increase students' basic skills and knowledge - and students can also learn "with" computers - where technology is used as a tool that can be applied to a variety of goals in the learning process and can serve as a resource to help develop critical thinking, creativity and research skills.

Technology Enhanced Language Learning

A TELL activity has goals and objectives like any other language learning activity It can be integral or peripheral to the lesson or curriculum. It can integrate skills or treat them separately. A TELL activity requires instructor technological literacy, requires student technological literacy, requires class access to technology, sometimes requires technical support. During a TELL activity, the instructor may be monitoring, guiding, facilitating, assisting, and evaluating, the students may be working individually, in pairs, or in groups, the students are clicking, dragging, and scrolling, but also listening, speaking, reading, and writing. A TELL activity has processes, products, and actions that can be assessed. These should be assessed in a way that matches the activity objectives and approach.



A TELL activity should be evaluated during and after implementation. It can be altered during implementation based on evaluation

to meet student needs. It reflects principles of language learning. A typical ELT environment involving technology is shown in the above figure.

Web 2. 0 Technology

The term Web 2.0 is associated with web applications that facilitate participatory information sharing, interoperability, user-centered design, and collaboration on the World Wide Web. A Web 2.0 site allows users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in contrast to websites where users are limited to the passive viewing of content that was created for them. Examples of Web 2.0 include social networking sites, blogs, wikis, video sharing sites, hosted services and web applications.

Blogs

Blog is derived from weblog. It is a diary or regular opinion columns posted on the internet. In blog, the writer posts diary entry which others can read and comments on it. Web blogging is for learners' autonomy. The blogs are used in two main ways in English language teaching. The first, learners' can be encouraged to write and post their blogs. If learners are learning to write journals or engaged in other form of extensive writing in the classroom, is the right place to check their ability of writing. Learners' are asked to post their blogs to create wider and more meaningful audience for their writing. The experience of creating publicly available blogs may be motivating their learners and encourage to develop the new set of writing strategies. The second, the most common in the language learning, the teacher can write the main blog entries, which learners can then comment on them. Even teacher can send assignments or projects to students on the taught topics, by which students can complete the work and send back to teachers. It is very easy for the teacher to access the work through the blog and students can rectify their mistakes. So the blog can encourage teachers to control teaching outside the classroom.

Wikis

A wiki is a web based platform for collaborative writing. It is used within a private domain as well as public domain for collaborative. The important feature of wikis is particularly used for language learning which record of all drafts. This emphasis and focus on the writing process as well as written products.

Podcasts

Podcast is a great revolution in the field of communication. It has entirely changed the way people share their knowledge with other people. Podcast is a digital recording of a radio broadcast or similar program that can be accessible through the web for downloading and personal use. It is audio file that can be made, shared and heard. Podcast is an audio story created for sharing music ideas and presentations. It is often referred as audio blogging.

Not just teacher's even students can use it to tell stories, to interview each other, organize debates as well as run radio shows. It can also be watched or listened everywhere at any point of time using any device.

Podcasts serve a lot of educational purpose like:

- It helps educators in delivering quality research content and lessons in order to help students who need it.
- Learners can make their own podcast and can share their experiences with each other.
- Educators can record their audio in the podcast for revision material as well as giving their feedback to their students on their work.
- Auditory learners can hugely benefit from podcasts in their learning process.
- Making a podcast enables students to develop good communication skills, problem solving ability, researching, writing, improving vocabulary etc.

SMS

SMS stands for Short Messaging Service which is a protocol used in communications

that gives way to the exchange of short text messages from one mobile telephone device to another.

The Short Message Service (SMS) technology is one of the most powerful mobile technologies in current usage. Most students own a mobile phone with free SMS which can be used for learning. In this text we explain how we used SMS for teaching and learning languages (first and foreign languages). The experiment conducted presents a range of opportunities for integrating text into teaching and learning strategies and for demystifying the use of SMS in educational contexts. Via SMS technology we can deliver several learning activities to students easily and immediately.

Short messages (SMS) can be of great importance to English language teaching in particular and to languages in general. SMS is widely used, some schools include them in their lesson plans. Some teachers use the quick writing style to spark the students' learning. They allow children to use SMS language in their first draft to get thoughts and ideas into paper more quickly. Then students can go back to Standard English when editing and revising.

Using SMS in language learning classes is one of the best opportunities for language learners to extend and increase their learning outside of their classrooms whenever and wherever they desire. Language learners would be able to extend their learning opportunities and participate in novel types of learning.

Learning-by-SMS.com allows people from all walks of life to learn a complete foreign language quickly. Languages are taught using SMS technology, with supporting course material also available via the Learning-by-SMS.com website

English changes with each new generation; new words appear and some words become old fashioned.

You Tube

YouTube offers fast and fun access to language and culture-based videos and instruction from all over the globe. It provides an outlet for student and teacher-created videos, and most importantly, YouTube videos provide students with an opportunity to engage meaningfully in the target language.

As far as language learning is concerned, YouTube is an unlimited resource for language learning. To illustrate, one can listen to all kinds of spoken language (formal, informal, colloquial, slang) and all genres (songs, debates, talks, poems) and learn a lot of vocabulary in context, which, without doubt, will help learners to memorize more easily.

Language teachers can benefit from YouTube in terms of reading comprehension and the use of YouTube texts to start discussion or writing tasks. Also, language teachers could help their students to explore the world of online language learning possibilities. In this regard, YouTube may be particularly valuable to cater to learners' needs for real world language use and their interests in exploring the world. Language teachers can take advantages of YouTube in their classrooms to make the learning process not only more meaningful, but also more fun and independent.

YouTube has the potential to connect learners with authentic English, input through what is quite possibly already a part of their life experience - there already exists a YouTube site dedicated to users and provides a context through which users can interact, exchange ideas and opinions, share feelings and participate in a web-based environment.

In addition, encouraging students to interact in an educational capacity with popular culture through the use of the English language may act as a motivating factor for students wishing to further develop their language skills as they endeavour to gain a deeper understanding of content they willingly access online. Moreover, this is also available for students to use outside of the class environment, maybe in some form of student-centred, self-directed learning.

Advantages from the use of YouTube in the process of learning the English language are:

- it does increase the knowledge of the language by repetition;
- one finds various material to improve listening and understanding;
- one is exposed to music, commercial, comedy, different styles and genres of the language;
- it helps a lot to develop independent language skills.

YouTube is a great online learning tool for the following reasons:

- It is useful for learning a language in and out of the classroom.
- One can find various styles and genres of the language.
- You Tube can help students explore the target culture in a variety of ways.
- You Tube can help students develop their learning autonomy levels as it encourages them to watch videos and clips continuously.

Students use YouTube for their independent skills development, and language learners could benefits from things like; online TV shows that could be valuable for vocabulary and grammar purposes; group karaoke activities that can be used to make the learning experience more fun and also beneficial in terms of authenticity for the language.

E- Forums

An online forum is a discussion area on a website whereby members can post discussions, read and respond to posts by other forum members. A forum can revolve around any subject in an online community. An online forum is also known as a message board, online discussion group, bulletin board or web forum. It differs from a blog. They enable users of a website to interact with each other by exchanging tips and discussing topics related to a certain theme. Like other internet-based learning environments, online forums provide a way for maintaining communication for learners who are not able to meet face-to-face or who prefer logging-on at different times. Online forums are a kind of computer mediated communication which allows individual to communicate with others by posting written messages to exchange ideas. Proper utilization enhances effectiveness of communication

Learning through online forums is an important learning strategy for students to improve their language skills.

Online forums provide many benefits to students and teachers.

- Intellectual exchange
- Learning new ideas and refining old ones
- Enjoying community membership
- Influencing the forum's evolution
- Contributing to others
- Making new friends and contacts
- New business leads
- Keeping up with current events
- Learning about new opportunities

Researchers have found that students can take more time to read, craft, reflect on their responses, and find relevant information when composing messages in such an environment

Conclusion

This paper has attempted to outline some of the trends developing in technology-enhanced language learning. With increasing sophistication in both the technology and the users of that technology, it is sure that more appropriate technology-based second language learning systems will emerge.

The World Wide Web should never be used in the language lesson just for the sake of novelty. It should be used to develop purposeful interaction in the language classroom. Rather than trying to describe the impact of all technologies as if they were the same, researchers need to think about what kinds of technologies are being used in the classroom and for what purposes.

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EDUCATIONAL MULTIMEDIA: ISSUES AND CONCERNS

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Abstract

Educational multimedia is a large industry with billions of dollars invested in it, across the globe - at the professional level. At an individual level, everyone can be a multimedia developer, thanks to the vide availability of innumerable free tools for multimedia work. This paper addresses the various issues and concerns of educational multimedia development.

Keywords: Educational Multimedia, Multimedia Development

Introduction

Multimedia projects incorporate both students' and faculty members' original material, such as course notes or commentary, together with various copyrighted medium formats, including but not limited to, motion media, music, text material, graphics, illustrations, photographs and digital software which are combined into an integrated presentation.

Students may incorporate portions of lawfully acquired copyrighted works when producing their own multimedia projects for a specific course. Faculty members may incorporate portions of lawfully acquired copyrighted works when producing their own educational multimedia programs as teaching tools to support curriculum-based instruction. Lawfully acquired copyrighted works refers to those works in which permission has been granted by the owner

Students may perform and display their own multimedia projects created for educational uses in the course for which they were created and may use them in their own portfolios as examples of their academic work. Faculty members may perform and display their own multimedia projects for curriculum-based instruction to students in the following situations:

1. Face-to-face instruction;
2. Assigned to students for directed self-study;
3. Remote instruction to students enrolled in curriculum-based courses and located at remote sites, provided over the institution's secure electronic network in real-time, or for after class review or directed self-study, provided there are technological limitations on access to the network and educational multimedia project (such as a password or PIN) and provided further that the technology prevents the making of copies of copyrighted material.

Key Issues and concerns in multimedia projects

Time: Faculty members may use their multimedia projects created for educational purposes for teaching courses for a period of up to two years after the first instructional use with a class. Use beyond that time period, even for educational purposes, requires permission for each copyrighted portion incorporated in the production.

Portion: The amount of a copyrighted work that can reasonably be used in multimedia projects under these guidelines regardless of the original medium from which the copyrighted works are taken. "In the aggregate" means the total amount of copyrighted material from a single copyrighted work that is permitted to be used in a multimedia project without permission under these guidelines. These limits apply cumulatively to each faculty members' or students' multimedia projects for the same academic semester, cycle or term. All students should be instructed concerning the reasons for copyright protection and the need to follow these guidelines.

Motion Media: Up to 10% or three minutes, whichever is less, in the aggregate

of a copyrighted motion media work may be reproduced or otherwise incorporated as part of a multimedia project.

Text Material: Up to 10% or 1000 words, whichever is less, in the aggregate of a copyrighted work consisting of text material may be reproduced or otherwise incorporated as part of a multimedia project. An entire poem of less than 250 words may be used, but no more than three poems by one poet, or five poems by different poets from any anthology may be used. For poems of greater length, 250 words may be used, but no more than three excerpts by a poet, or five excerpts by different poets from a single anthology may be used.

Music, Lyrics, and Music Video: Up to 10%, but in no event more than 30 seconds, of the music and lyrics from an individual musical work (or in the aggregate of extracts from an individual work), whether the musical work is embodied in copies, or audio or audiovisual works, may be reproduced or otherwise incorporated as a part of a multimedia project. Any alterations to a musical work shall not change the basic melody or the fundamental character of the work.

Illustrations and Photographs: The reproduction or incorporation of photographs and illustrations is more difficult to define with regard to fair use because fair use usually precludes the use of an entire work. Under these guidelines, a photograph or illustration may be used in its entirety, but no more than five images by an artist or photographer may be reproduced or otherwise incorporated as part of an educational multimedia project. When using photographs and illustrations from a published collective work, not more than 10% or fifteen images, whichever is less, may be reproduced or otherwise incorporated as part of an educational multimedia project.

Numerical Data Sets: Up to 10% or 2500 fields or cell entries, whichever is less, from a copyrighted database or data table may be reproduced or otherwise incorporated as part of a multimedia project. A field entry is defined as a specific item of information, such as a name or social security number, in a record of a database file. A cell entry is defined as the intersection where a row and a column meet on a spreadsheet.

Copying and Distribution: Only a limited number of copies, including the original, may be made of a faculty member's multimedia project. There may be no more than two use copies, only one of which may be placed on reserve. An additional copy may be made for preservation purposes, but may only be used or copied to replace a use copy that has been lost, stolen, or damaged. In the case of a jointly created multimedia project, each principal creator may retain one copy.

Permission: Educators and students must seek individual permission (licenses) before using copyrighted works in multimedia projects for commercial reproduction and distribution. Even for educational uses, educators and students must seek individual permissions for all copyrighted works incorporated in their personally created multimedia projects before replicating or distributing beyond the limitations listed previously. Educators and students may not use their personally created multimedia projects over electronic networks, except for uses of remote instruction as noted previously.

Downloading from the Internet: Multimedia developing educators and students are advised to exercise caution in using digital material downloaded form the Internet in producing their own multimedia projects, because there is a mix of works protected by copyright and works in the public domain on the network. Access to works on the Internet does not automatically mean that these can be reproduced and reused without permission or royalty payment, and furthermore, some copyrighted works may have been posted to the Internet without authorization of the copyright holder.

Attribution and Acknowledgement: Educators and students are reminded to credit the sources and display the copyright notice and copyright ownership information if this is shown in the original sources, for all works incorporated as part of multimedia projects prepared by educators and students, including those prepared under fair use. Crediting the source must adequately identify the source of the work, giving a full bibliographic description where available (including author, title, publisher, and place and date of publication). The copyright ownership information includes the copyright notice, year of first publication, and name of copyright holder.

Notice of Use Restrictions: Faculty members and students are advised that they must include on the opening screen of their multimedia program and any accompanying print material, notice that certain materials are included under the fair use exemption and have been prepared according to the multimedia fair use guidelines and are restricted from further use.

Integrity of Copyright Works/Alterations: Faculty members and students may make alterations in the portions of the copyrighted works they incorporate as part of a multimedia project only if the alterations support specific instructional objectives. Educators and students are advised to note that alterations have been made.

Licenses and Contracts: Faculty members and students should determine whether specific copyrighted works, or other data or information is subject to a license or contract. Fair use and these guidelines shall not preempt or supersede licenses and/or contractual obligations.

Conclusion

Educational multimedia promotes learning in such ways that no other method or a system can promote. No wonder, it has because a well-researched area in education and a well-invested and growing industry in the corporate IT world. If the above-discussed issues and concerns are taken care by the multimedia developers, whether they are teacher or students in their multimedia projects, whether amateur or professional, the downsides of this potential platform can be overcome.

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NEURO LINGUISTIC PORGRAMMING (NLP) IN HIGHER EDUCATION

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Abstract

Effective Teaching and Learning in Higher Education is a process that demands a continuous updation of knowledge. Due to the intelligentsia, Learners at present entirely differ from the learners of those days. Present learners think and act faster because of their exposure available to them. Moreover the students have the privilege to enjoy the digital platform at their hand. Internet is their world by which the students access information at any time at any place. In this context, it is a great challenge for a teacher in Higher education to handle learners successfully unless they are efficient. Teachers are also expected to continuously update their knowledge in Higher Education in order to fulfill the requirements of the learners. In spite of the updation in their subject, still problems between the teacher and students are found obviously. Students sometimes behave extremely. This is the need of the hour in Higher Education to discover alternative approaches, strategies to make teaching and learning effective. Survival in Higher Education would be a great challenge unless a teacher becomes skillful. This paper helps the teachers by providing alternative approaches that facilitate Teaching-Learning process through NLP, a hall mark in Higher Education.

Keywords: Neuro Linguistic Programming (NLP), NLP Principles, Preferred Representational System

Introduction

Neuro Linguistic Programming (NLP), originated with Richard Bandler and John Grinder at California University in Santa Cruz, refers to a stated connection among our thinking (Neuro), our language (Thinking), our behavior (Programming). The appearance of NLP happened between 1972 and 1981 (Zorica, 2006).The founder of NLP started to analyse the highly efficient people and their approach towards their life (Richard, 2003) by which they arrived the term NLP. Dilts and Epstein (1995) have stated that the application of NLP is for the purposes of improving the effectiveness and speed with goal oriented learning cited by Sumrall (2010). Research shows that integration of Neuro Linguistic Programming in teaching is highly effective (Neigel, 2014). Certain Teachers appears to be good to students where others to be bad since they fail to win the confidence of their students and become less successful. The reason behind the success of such teachers were analyzed and found that those teachers Meta-programmes were preferred by their students and it was matching with the preferences of the students. So, teachers should develop their cognitive knowledge to understand the learners better and handle them diplomatically using the NLP ideas and principles recommended. It is found that characteristic of successful teacher depends on the teaching technique like 'teacher-students rapport' adopted by them (Forrester Jones, 2003). Matching the meta programs of the teachers with the learners is appealing to them.

Principles of NLP

The basic principles of Neuro Linguistic Programming are considered to be the heart of NLP which are explained below (Saman , 2006).

1. Outcome

Knowing the outcome plays a vital role in NLP. The fixed outcome urges the learners to move towards. Goal that is fixed by the individual is predominantly achieved ultimately. Professors being a motivator to learners may train them to set achievable goals like studying lessons, preparing for exams properly, getting first mark in the class, winning the competition exams,

etc…(Saman, 2006). Once if the learners are tuned, they will start to assign their goals and run behind it. To refine their outcomes, ask them to imagine as they have already the goals achieved (Bavister and Vickers, 2004). This is termed as 'visualization' that works efficiently.

2. Sensory Acuity

Teaching faculties has to analyze what happens around their class. Learners are continuously communicating much by non-verbally. Observe them closely and suggested to be sensitive to their learners and demands. It is suggested for the teachers to assess their teaching style and quality of teaching by students' feedback (Zhongqi, 2000).

3. Preferred Representational System

A core principle proposed in NLP is the notion of Preferred Representational System (PRS). Individuals construct internal maps of the world by processing external information through five sensory systems: Visual, auditoy, kinesthetic, olfactory and gustatory (Roderique, 2009).It is suggested in NLP that a person's conscious activity predominantly uses one of these systems-visual, auditory and kinesthetic (Roderique, 2009). So of the five Representational Systems, visual, auditory and kinesthetic are the predominating Representational System. Thus, It is important to discover the leaning modalities of each student (Shnanon, 2010). In the past 40 years, a number of learning style researchers have made a strong claim that students can achieve better academic results when their preferred learning styles are matching with the teaching styles (Ren, 2013). Visual learners have imaginations, learn by seeing images. So they find verbal instructions difficult and prefer the visual sense. Learning becomes best by reading and watching (Kanar, 1995). A well-organized place will improve the visual learner's ability to comprehend a topic .Posters can get the visual students' attention (Al-Failkawei, 2005). Auditory learners, also known as aural learners, learn best when they are presented with information that has been verbally executed through a lecture fashion or form of oral communication. Aural learners are good at listening and like to talk (Davis 2007). According to Marilee Spregner (2008), aural learners "need to talk as much as they need to listen." This kind of learner can do well through teacher's lecture since it requires a lot of good listening. Aural learners listen well that they, according to Davis (2007), can frequently repeat back word-by-word what the speaker originally stated. Kinesthetic students have a special way to learn. The teachers can get students to participate in a lot of activities (Al-Failkawei, 2005). They must touch or feel to understand. They learn best by engaging in hands-on activities (Kanar, 1995). In general, kinesthetic students prefer to manipulate objects (Al-Failkawei, 2005).

4. Behavioural Flexibility

Teachers have behavior flexibility to make adjustment according to the need of the time. Behavioural flexibility at right time leads the learners in the right direction. If the same method is repeated by the teacher without any change, the same result will naturally be repeated. The process of dynamic learning is based on learning by doing, exploring different methods of thinking (Dilts and Epstein, 1995).

5. Rapport

Teachers cannot succeed unless making the students to understand better the concept. To succeed in teaching, building relationship and understanding the mind of the students are fundamentally required. Establishing relationship with the learner and maintaining is called 'Rapport' (Saman, 2006). NLP suggests the powerful ways to create rapport with students like making our communication to suit with the learners, altering body langague, etc..(Bavister and Vickers, 2004). To have the command over their communication and facilitate the process of Teaching and learning, Teachers have to create rapport with the learners. In short, NLP deals with the art of communication and the study of the

structure of subjective experience (Tosey, Mathison and Michelli, 2005).

Conventional Ideology in Higher Education

The Higher Education system professors face a lot of problems due to conventional thinking. Blackerby (2002a) has projected that students undergo problems in colleges because of the following behavioral presuppositions that exist in higher education system.

- Students obviously know how to learn the subjects in the classroom.
- All learners learn at the same speed and same way.
- Some students will fail in the exam.
- The system of the school is important than the student.
- More money will solve all the problems of our schools.
- Learners can be motivated through punishment and reward.
- Learning activities cause learning to happen.
- Something is wrong with a student who performs poorly in school.
- The better the teacher, the better the learning

NLP Ideology for Higher Education

Blackerby (2002) Empowering presuppositions for Higher Education teachers to have the vision of understanding the mind of the learner and educating them accordingly.

- All behavior has a positive intention behind it.
- There is no failure, only feedback.
- We choose the best behavior based upon the choices we know and our model of the world.
- More choice is better than limited choice.
- If it is possible in the world, it is possible for me to learn.
- Anything can be learned if it is chunked properly.
- The map is not the territory; it is only a perceptual filter.

Conclusion

Neuro-Linguistic Programming has established an outstanding potential tool for improving educational approaches. The constructive and practical viewpoint of NLP makes its educational approach and activities more concrete. Though NLP is still a new approach it has a powerful impact in educational scenario with in a short time. Researchers outside the NLP community continue to validate the wisdom of the basic concepts of NLP and principles. Further empirical researches are required to validate the educational views of NLP to arrive at effective learning strategies. NLP offers the tools and techniques for educational excellence.

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MAPPING THE ACCESS TO AND USES OF MEDIA IN RELATION TO CERTAIN SELECT VARIABLES

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Abstract

Media is reshaping the lives of people today. The current penetration of media to the very basic structure of the society is unprecedented in human history. In this media-saturated environment, the integration of media into education is not only unavoidable but also desirable. Educational Media and Media-based Education are potential areas of educational research. In this backdrop, this paper presents a survey research, conducted on the Media Access and Use of the Higher Secondary level students in relation to certain select variables.

Keywords: Media Environment, Media in Education

"Research is the knowledge of consequences and dependence of one fact upon another."
- Thomas Hobbes

Media Environment: A Conceptual Framework

Learning is complex; it begins at birth and continues throughout life. In the last three decades, several strands of research have produced compelling evidence justifying a focus on the family with a particular emphasis on early years in order to raise literacy standards. Any policy aiming to improve literacy standards cannot be limited to formal educational settings, where children spend only a small proportion of their time. On the contrary, it needs to embrace the Home and Media Environment as a whole.

Media Environment is the access of various media of one form or another within the household. As the e-child of today is shaped by the Media Context, it is very important to study the Media Diffusion in the Home. Thus, the Media Environment denotes the distribution of Media across the households.

According to the Media Ecology Association, the term "media ecology" can be defined as "the study of media environments, the idea that technology and techniques, modes of information and codes of communication play a leading role in human affairs". Media ecology theory centers on the principles that technology not only profoundly influences society, it also controls virtually all walks of life. It is a study of how media and communication processes affect human perception and understanding. The term was first formally introduced by Neil Postman in 1968, while the concept of the theory was proposed by Marshall McLuhan in 1964. To strengthen this theory, McLuhan and Quentin Fiore claim that it is the media of the epoch that defines the essence of the society by presenting four epochs, inclusive of Tribal Era, Literate Era, Print Era and Electronic Era, which corresponds to the dominant mode of communication of the time respectively. McLuhan argues that media act as extensions of the human senses in each era, and communication technology is the primary cause of social change.

To understand how media effect large structural changes in human outlook, McLuhan classified media as either hot or cool. Hot media refers to a high-definition communication that demands little involvement from audience whereas cool media describes media that demands active involvement from audience. McLuhan with his son Eric McLuhan expanded the theory in 1988 by developing a way to look further into the effects of technology on society.

Media ecology is a contested term within media studies for it has different meanings

in European and North American contexts. The North American definition refers to an interdisciplinary field of media theory and media design involving the study of media environments.

Digital Natives of the 21st Century

Students live in a rapidly changing technological world surrounded with a society of technologies. ICT including hardware and personal digital devices, software, and systems that manage, store, process, create, produce and communicate information, has become an important part of students' life. Students of digital society strive to enrich themselves with the 21st century skills. These 21st century skills allow students to acquire new knowledge, learn new technologies, rapidly process information, make decisions and communicate in a global and society.

Jones and Fox (2009) in 'The Pew Report' characterizes the new generation of learners as digital natives. As a digital native, the student expects the learning environment to be highly to satisfy their needs. The National Policy on Information and Communication Technology (ICT) in School Education (2012) given by Department of School Education and Literacy, Ministry of Human Resource Development, Government of India has set the goal of preparing youth to participate creatively in the establishment and growth of a knowledge society leading to all round socio-economic development of the nation and to be geared for global competitiveness.

Significance of the Research Problem

Teachers often experience that most of the school going students are underperforming because of their Home Environment. The home and media environments should be conducive for academic achievement. Especially the media environment is very crucial and has definite and decisive roles in the academic achievement of the students. Any flaw in the media environment will be detrimental to the academic performance of the students. At the same time, the home and media environments give shades and lines to students and shape their life by giving creative and innovative flair to students. Hence, the researchers have undertaken to study the media environment in the light of the academic achievement of the higher secondary students.

Objectives of the Study

The objectives of the study are:

1. To study the Media Environment of Higher Secondary Students in terms of certain select variables.
2. To map the access to and uses of media in relation to certain select variables.
3. To offer suggestions and recommendations for policy making and implementation with regard to the Home and Media Environments for the improvement of the Academic Achievement of Higher Secondary Students.

No pre-conceived hypotheses were made for this exploratory investigation, which was hypothesis-generating and not hypothesis-testing.

Methodology

The present study is a descriptive research study in which information was collected without changing the background of the sample population and without any manipulations. In the present study, the sample consisted of 300 Boys and Girls students of Standard XI of schools of Kumbakonam Taluk. Stratified Random Sampling Technique was used. The investigator selected the above 300 students from 6 schools in Kumbakonam Taluk, which is representative of the students population with regard to the characteristics under investigation.

Media Environment Inventory, developed and validated by the investigators, was used for the present study.

These primarily collected data were analyzed using Descriptive Analysis (Percentage Frequency) and presented in Table 1.

Table 1: Responses to the Media Environment Inventory (MEI): Access and use of Media

Media	Access	Use	Time spent
	% having at home	% using	Average minutes per day spent by users
Screen Entertainment			
1. Television	100	99	
2. Satellite	40		120
3. Video	45	81	Put together
4. TV- linked Games machine	60	Computer games	
5. Home Theatre	05	64	
Music		Listening to music	
6. Radio	60	86	60
7. Walk-man	70	05	Put together
Communication			
8. Telephone	30	55	30
9. Mobile Phone	90	90	180
Print			
10. Books	40	56	15
11. Magazine	30	66	5
12. Newspapers	45	35	10
Information Technology			
13. Personal Computer	80	50	90
14. Internet	70	90	80

Qualitative Analysis of the Responses to the Media Environment Inventory (MEI)

A Qualitative Analysis of the responses to the Media Environment Inventory (MEI) reveals that television continues to dominate and retain its importance. Further, it is striking that by far the largest proportion of time is spent on watching television. Even the groups who watch least television - book lovers and low media users - watch TV on an average of around two hours per day. Moreover those who play computer games also spend considerable amounts of time watching television. Television's dominance rests heavily on the breadth of gratifications it offers. Television is also a 'transparent' technology, one which is thought of primarily in terms of content rather than as a technology or consumer good. Indeed, the hardware of familiar media (e.g. television or video, radio or wi-fi), are often confused: children 'see through them' to their contents and do not focus on the means of delivery. By contrast, more recent media (Internet, Email) are often exciting, glamorous technologies but they still lack a content to which many children and young people can relate.

- Nearly all households with higher secondary students have a television, one third have a TV-linked games machine, and nearly half have satellite television.
- Screen entertainment equipment is more expensive than all other types of media hardware with the exception of PCs, yet television sets are found in the majority.

Social Class and Media in the Home

The distribution of media in the home suggests a difference in middle-class and working-class media preferences. Working-class families are as or more likely to own screen entertainment media. Middle-class families are more likely to own most other media.

- 72% of working-class, compared with only 61% of middle-class, families have a TV-linked games machine.
- The Video is only slightly more common in middle-class families, satellite is slightly more common in working-class families.
- This picture for screen entertainment media contrasts with that for most other media. Middle-class families are more likely to have a telephone, a personal computer, a walkman, a mobile phone, books, a camcorder and the Internet.

Information Technology (PC, Internet, Email)

While screen entertainment media play a key role in higher secondary students' leisure, it is computer-based media which span home and work, education and leisure, and it is these which are now beginning to gain a significant place in higher secondary students' lives. For many students, 'computer' in everyday talk means not the PC but the games machine, making the primary association one of playing games. As the screen becomes ever more important, distinctions among media become blurred. While we have classified the TV-linked games machine above as screen entertainment - because that is how higher secondary students think of it and use it - they also think of it as a computer and this colours their reactions to PCs.

Access to IT at Home

Over three fourth (80%) of Higher Secondary Students have a PC/Multimedia in their home and as many as 70% of them have internet access. In families without a PC, parents are found to come under pressure to acquire one.

Use of IT at Home

Access to IT and Use

Even the students who have access to IT at home are found not using it, either because they do not wish to do so, or they are not allowed to do so, or because the equipment does not work.

- 80% live in households where there is a PC/Laptop, but only 50% report using a PC at/home.
- 70% have an Internet link at home, and 40% of them report they 'have never' used it.

Gender differences and Access and Use

While gender differences are found in personal IT provision, there are also gender differences in the use of IT. It is found that the girls' ambivalence to computers is not merely a matter of availability.

- Girls also spend less time with the PC when they do use it than boys. On an average they use the PC at home for 2 rather than 3 days a week, and for about 30 minutes per day less than boys.
- Video and computer games have been spectacularly successful with boys (79% play). Girls are less enthusiastic and only 49% ever play.

Print Media

It is an unfortunate finding that a 'print culture' per se does not exist at all. The place of books in young people's lives is changing, threatened both by IT as a source of information and television as a source of narrative.

Music

It is found that access to Music through Radio/Personal Stereo is near-universal, but uses and meanings are found to vary greatly. There is almost universal access reported to audio equipment of some kind in the home, the great majority who have such access make use of it, and listening to music takes up more time than any other medium except television. However, content wholly transcends the mode of delivery.

Music Vs Television Popular Media

In popularity, music is found second only to television. Like television but unlike all other media, music works well both in the foreground, as an intensely immersive experience, and in the background, as a pleasant backdrop for dull or routine tasks. Like television, music is also a medium

where content preferences are widely used to communicate identity, and it is as widely available in bedrooms/personal spaces as television.

Although 90% of students have mobile phone for communication, only 30% of their homes have a telephone. 45 % of these students with a land telephone available in the house say they do not ever use it.

Digital media and online communication have become a pervasive part of the everyday lives of the Higher Secondary Students. Social network sites, online games, video-sharing sites, and gadgets such as iPods and mobile phones are now well-established fixtures of youth culture; it can be hard to believe that just a decade ago these technologies were barely present in the lives of Indian children and teens. Today's youth may be engaging in negotiations over developing knowledge and identity, coming of age, and struggling for autonomy as did their predecessors, but they are doing this while the contexts for communication, friendship, play, and self-expression are being reconfigured through their engagement with new media. There is a digital generation that overthrows culture and knowledge and its members' practices are radically different from older generations' new media engagements. At the same time, the current youth adoption of digital media production and social media, Living and Learning with New Media are occurring in a unique historical moment, tied to long-term and systemic changes in sociability and culture. While the pace of technological change may seem dizzying, the underlying practices of sociability, learning, play, and self-expression are undergoing a slower evolution, growing out of resilient social structural conditions and cultural categories that youth inhabit in diverse ways in their everyday lives. The goal of the digital youth study was to document a point in this changing ecology by looking carefully at how both the commonalities and diversity in youth new media practice are part of a broader social and cultural ecology.

Suggestions and Recommendations

- Spreading awareness among the parents about the effect of home environment on the Academic Achievement is essential.
- The unbiased attitude towards the children is to be persuaded among the parents.
- Facilities in the schools are to be improved to make the students feel the school environment conducive.
- Counseling classes can be conducted for students.
- Modern technology like smart classroom with Audio visual aids can be provided for Government schools which will facilitate the learning of the students.
- Media environment is perceived to have negative relationship with their Academic Achievement and this is to be taken care of.

In order to improve the learning conditions at home, the authorities may not be able to do much in improving the conditions at home which depend mainly on the income and occupation of the parent. Hence the following suggestions for Departmental action are made:

- Voluntary social workers or professional social workers or welfare officers may be appointed for the purpose of influencing the parents to create at least a proper atmosphere in their homes and to take genuine interest in their children and their students.
- Sufficient number of properly supervised boarding schools or halls of residence are to be opened and pupils completely devoid of healthy home conditions should be admitted in them. This may help greatly in eliminating many of the students problems affecting their achievement in English.

Concluding Remarks: Contribution of the Study for Policy Making

Any policy aiming to improve academic achievement cannot be limited to formal educational settings, where students spend only a small proportion of their time. On the

contrary, it needs to embrace the family as a whole and include parents as partners in their children's education from the very beginning of their children's lives. It should aim to raise parents' awareness of the difference they can make and set up systems that offer constant encouragement and support according to individual requirements and needs. The present study is an earnest attempt in this direction, making a significant contribution for Policy Making and Implementation.

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ICT KNOWLEDGE OF TEACHER EDUCATORS AT BHARATHIDASAN UNIVERSITY

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Abstract

The information and communication society is a networked society. Teacher`s role is becoming more and more complex. ICT makes teaching more professional. Information and communication Technology (ICT) has a profound impact on society and on education. ICT is a supplementary tool which improves teaching and learning; transforms society, education and enhance knowledge. UNESCO defines ICT as, "the scientific, technological and engineering disciplines and management techniques used to handle transmit information with men and machines". ICT has ensured accessibility of digital information anywhere, anytime. ICT represents powerful tools for self-expression, media criticism and influence through media interaction and research. Knowledge and Skills of ICT have gained immense importance for today's teacher. The emergence of the knowledge-based society is changing the global status of education. Teacher Education is to assure the new generation teachers as well as current teachers are to be well prepared to use new learning methods, processes and materials with the ICT tools. In this background, this paper presents a survey, conducted to find out the level of knowledge of ICT among the teacher educators at Bharathidasan University.

Keywords: ICT Knowledge, Teacher Education, Teacher Educators

Introduction

Education is viewed as a basic human right. When technologies are deployed to improve global information access, the role of education will continue to grow and change. The advent of ICT allows learners to seek information and develop knowledge at any time and any place where access is available and unrestricted. ICT is an umbrella term that includes any communication device or application, encompassing radio, television, cellulose phones computer and network hardware software satellite system etc. It is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information. The use of technology in education is not only expected as a means of enhanced and extended instructional methods but also that of the learning process in this century. The right and appropriate knowledge of ICT in the field of academics provides both teachers and students various learning opportunities and with that improves their teaching and learning process.

"ICT provides an array of powerful tools that may help in transforming the present isolated, teacher-centered and text-bound class rooms into rich, student-focused, interactive knowledge environments" (UNESCO World Education Report, 1998). The new technologies challenge traditional conceptions of both teaching and learning by reconfiguring the teachers and learners gain access to knowledge, have the potential to transform teaching and learning process. ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form which enhances the teaching learning process. It enables self-paced learning. It facilitates the transaction between the teachers and learners and enhances teachers' ability and fostering interaction between the teacher and student.

Objectives of the study

The objectives of the present study are:

- To find out the level of ICT Knowledge of Teacher Educators and

- To evolve recommendations based on the findings for policy making

Hypothesis of the Study

The hypotheses of the study are as follows:

- The level of ICT knowledge of teacher educators is moderate.
- There is no significant difference in the level of ICT Knowledge of Teacher Educators with respect to the demographic variables such as gender and locality.
- There is no significant difference in the level of ICT Knowledge of Teacher Educators with respect of their discipline (Arts & Science) of study.

Methodology

For the present study the investigators have adopted the survey method. As many as 10 M.Phil. scholars were selected as the sample (4 females & 6 males) from the Department of Educational Technology, Bharathidasan University.

The ICT Knowledge Questionnaire with 15 items, developed by the investigators was used for data collection. The tool was given to subject experts for establishing the face validity before the final version. Since the sample is a small group Mann-Whitney U Test was used for analysis.

Hypothesis Testing

Table 1: ICT Knowledge of Teacher Educators based on Gender

Gender	N	Mean Rank	Sum of Ranks	Z	P Value
Male	6	4.50	27.00	-1.303	0 .193
Female	4	7.00	28.00		

It can be seen from the above table that the Z score 1.303 is significant at 0.05 level. It is understood that there is no significant difference between male and female teacher educators in their ICT Knowledge. Hence the null hypothesis is accepted.

Table 2: ICT Knowledge of Teacher Educators based on Locale

Locality	N	Mean Rank	Sum of Ranks	Z	P Value
Rural	4	6.12	24.50	-0.543	0.587
Urban	6	5.08	30.50		

It can be seen from the above table that the Z score 0.543 is significant at 0.05 level. It is understood that there is no significant difference between rural and urban teacher educators in their ICT Knowledge. Hence the null hypothesis is accepted.

Table 3: ICT Knowledge of teacher Educators based on discipline of study

Discipline of Study	N	Mean Rank	Sum of Ranks	Z	P Value
Arts	5	5.60	28.00	-0.106	0.915
Science	5	5.40	27.00		

It can be seen from the above table that the Z score 0.106 is significant at 0.05 level. It is understood that there is no significant difference between arts and science teacher educators regarding their ICT Knowledge. Hence null hypothesis accepted.

Findings

- Teacher educators have moderate level of ICT Knowledge.
- There is no significant difference between the male and female teacher educators in their ICT Knowledge.
- There is no significant difference between the rural and urban teacher educators in their ICT knowledge.
- There is no significant difference between the arts and science discipline teacher educators in their ICT knowledge.

Recommendations

Based on outcome of the above study, the following recommendations are made:

- The Teacher Educators must be provided with adequate ICT Knowledge through appropriate curricular and pedagogical interventions.
- Adequate ICT infrastructure and services should be created in the institutions to support enhance their ICT Knowledge.

Conclusion

ICT Knowledge will help the new generation teacher educators to use new innovative teaching methods, process and techniques in their classroom. It will also assist in their research works and for their professional preparation.

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E-GOVERNANCE IN HIGHER EDUCATION: MODELS, BENEFITS, IMPACT AND INITIATIVES

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Abstract

Electronic Governance (e-Governance) is the use of Information and Communication Technologies (ICT) for the planning, implementation, and monitoring of government programs, schemes, and activities. E-Governance is expected to help deliver cost-effective and easy-to-access citizen services, and improve processing of transactions both within the government, and between the government and other agencies.The three main target groups that can be distinguished in governance concepts are Government, citizens and businesses or interest groups,The implementation of information technology may increase the broad participation of the students in the process of achieving good education goals at all levels by providing the possibility of online discussion groups and by enhancing the fast development and effectiveness of the learning methods.e-Governanceinitiatives can give a better interface and opportunity to students, parents, teachers and administrative management.Educational institutions may havevarious requirements that include computerization and management of processes such asregistration, admission, student information, classes, time table, transport, attendance,library, salary and expenses, examinations, performance, grades, hostels, security andreports.It is possible only by introducing IT(Information Technology) inEducational Sector with e-governance as a security for maintaining standard.(Suklabaidya & Sen, 2012). In this context, this paper highlights the role, models, benefits, impact and initiatives of e-governance in education.

Keywords: E-Governance, Higher Education

Introduction

The term e-Governance or Digital Governance denotes governance practices in which Information and Communication Technology (ICT) play a vital role for providing and delivering governance services to the people. In the education sector this concept is being used for making better services and resources. e-Governance makes the work easier and complete it within a short time. IT has developed an integral part of life of the people in the world. The implementation of e governance in education has led to new broader innovations. The Information and Communication Technologies (ICT) are used for developing and improving the relationship between government, citizens, businesses and other government entities.

E-Governance is not only popular in India but also worldwide. To make working of government more efficient, responsive and transparent many developed and developing countries have taken some useful steps for the expansion of e-governance in their respective countries (Yadav and Singh, 2012).

E-Governance Models

E-Governance services can be shared between citizens, businessman, government and employees. The four models of e-governance are as:-

1. Government to Citizens (G2C)
2. Government to Government (G2G)
3. Government to Employees (G2E)
4. Government to Businessman (G2B)

Government to Citizens (G2C)

This model of e-governance refers to the government services which are shared by citizens. Here, citizens visit to the link of services that they want to use. This model strong the bond between government and its citizen. Type of services which are provided by this model includes:

- Payment of online bills such as electricity, water, telephone bills etc.
- Online registration of applications.
- Copies of land-record.
- Online filling of complaints.
- Availability of any kind of online information.

Government to Government (G2G)

This model refers to the services which are shared between the governments. There is lot of information that needs to be shared between various government agencies, department and organizations. These types of services or information are as:

- Sharing of information between police department of various state.
- Government document exchange which includes preparation, approval, distribution, and storage of all governmental documents is also done through e-governance.
- Most of the finance and budget work are also done through e-governance.

Government to Businessmen (G2B)

Through this model, bond between private sector and government increase and businessmen use to communicate. They share information through this model like:

- Collection of taxes.
- Rejection and approval of patent is also done by this model.
- Payment of all kind of bills and penalty.
- Sharing of all kind of information, rules and data.
- Complaints or any kind of dissatisfaction can be shown by this.

Government to Employees (G2E)

This model increases the transparency between government and its employee. Here, employee can keeps a check on the functioning and working of government and government can keeps on its employees. Employees can register all kind of working forms online. V. B. Singh(2012). Information that can be shared by this model:

- All kind of data submission(attendance record, employee record etc) from various government offices is done by this model
- Employee can file all kinds of complaints and dissatisfaction by this model.
- All kind of rule- regulation and information for employees can be shared by this.
- Employees can check their payment and working record.

e-Governance in Higher Education - Need and Significance

A good higher education system is necessary for inclusive development of a nation.The purpose of implementing e-governance is to enhance good governance which is generally characterized by participation, transparency and accountability, In addition, the transaction costscan be lowered and government services become more accessible.e-governance can facilitate in improving transparency, providing speedy information, dissemination, improving administrative efficiency and public services in all the aspects of education.(Alhomod & Shafi, 2012). e-Governance in education provides new ways of communicating to the students, new ways of imparting education and new ways of organizing and delivering information and services. The advancements in the information technologies, internet and the mobile communication provide opportunities to transform the relationship between administration and students in a new way,

Impact of e-Governance in Education

e-Governance can help in continuous monitoring, assessment and meaningful evaluation of the teacher and the pupil. It can create the transparency between the universities, colleges and students. After the implementation of e-governance one can improve thedelivery of services to students, faculty by providing services like enrollment, examination, result, feedback, requests for documents, requests for certificates, issuing admit cards and ID

cards, employment etc. The system provides timely alert to colleges through SMS / Emails. Applying e-governance in any education sector will enable effective monitoring of academic standards. Over the past decade, technology grants and donations from businesses, parents, and the administration have led to the increasing presence of computers and the Internet in educational institutions (Shrivastava *et al*., 1995)

Benefits of e-governance

The benefits of e-governance in an educational sector are improved proficiency, increase in transparency and accountability of educational administrative activities expedient and faster access to services, and lower costs for administrative facilities.

Benefits to University

- Centralized information access from anywhere
- Increase in student enrollment ratio.
- Provide quality e-services, e-participation,
- Increase transparency
- Innovative teaching tools
- Improved decision making, Private Public Participation
- Less corruption, less paper work

Benefits to Students

- Increase participation in education affairs
- Personalized login for each students
- Substantial saving in time cost & efforts
- Information & transaction services
- Job opportunities
- Social connectivity for collaboration
- Students can access virtual lectures & webinars.
- Students can solve their problems like-examination queries, result verification etc.
- Students can submit feedback to university.

Benefits to Colleges

- Easy Access of data
- Electronic data exchange with university
- Saving of hidden operational cost
- Instant statistical report generation
- Helpful for NAAC accreditation

Overall benefits for Educational Systems

- Long term impact on organization goals
- Improve education system
- Empowerment of faculties, students & encouragement of their participation in governance.

The possible areas of implementation of e governance in Educational Sector are:

e-Administration: It involves the use of ICT (In-formation and Communication Technology) in or-der to improve administration processes and the internal working of the departments within a Educational organization

e-Services: The main aim is to improve the delivery of services to students by providing interactive services. Some examples of interactive services are: requests for documents, requests for certificates, issuing admit cards and id cards.

e-Participation: It asks for greater and more active student , faculty and administration participation and involvement enabled by ICTs in the decision making process

Initiatives taken by Indian Government

Under the Government of India National E-Governance Plan (NeGP), the Mission Mode Project of e-Governance in School Education (MMP), Ministry of Human Resource Development has decided to implement the Parents Related Services in Phase -1 "Shaala Darpan" of the MMP in ICT enabled Government schools and Government-aided schools on a pilot mode in the State of Rajasthan, Tamil Nadu, Gujarat and Himachal Pradesh.

The Department of School Education & Literacy launched a National Repository of Open Education Resources (NROER). NROER is a collaborative platform that endeavors to bring together relevant and appropriate digital resources in multiple languages for the school system for all classes and subjects. The resources are

available in the form of concept maps, video, multimedia, learning objects, audio clips, talking books, photographs, diagrams and charts, articles, wiki pages and textbooks.

The Government of India has also taken a decision to provide access to a National Electronic Library (NEL) to its citizens including students and teachers in schools, colleges and universities. Most resources in NEL would be available in open access to every citizen of India without any restrictions. However, a few scholarly resources would be subscribed for students, researchers and faculty in colleges and universities and would be available to users in colleges and universities only. Most resources in NEL would be device-independent and can be accessed using a variety of devices including desktops, laptops, tablets, smart phones and other devices.

The State Government of Kerala has initiated the AHSHAYA Project in Kerala. This project involves setting up around 5000 multi-purpose Community Technology Centers called Akshaya e-Kendras across Kerala. Run by private entrepreneurs, each e-Kendra set up within 2-3 kilometers of every household, will cater to the requirements of around 1000-3000 families to make available the power of networking and connectivity to common man. Akshaya is a social and economic catalyst focusing on the various facets of e-learning, e-transaction, e-governance, information and communication.

Conclusion

E-governance initiates several programs and policies which promote the usage of ICT in education. It predicts that there are many benefits for both the students,learner and the teachers, including the promotion ofshared working space and resources, better access toinformation, the promotion of collaborative learning andradical new ways of teaching and learning. However, e-governance needs security for smooth information flow, best practice database andenhanced capacity for information analysis etc, Government should support by enacting favorable legislations and updated amendments for maintaining standards in the educationalprocess and improvements in the related field. It requires completely new infrastructure, procedures, policies and working skills for producing and collecting online information. With the advent of ICT, electronic governance is an emerging trend to re-invent the way the government works, becoming a new model of governance. Such a comprehensive and integrated system canalso enable authorities to analyze the performance of one of the best performing institutes andcompare it with other schools and colleges to identify the gaps.

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WEB 2.0 TECHNOLOGIES IN TEACHING AND LEARNING: USE AND PERCEPTION OF STUDENT TEACHERS

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Abstract

Web 2.0 refers to web applications that facilitate interactive information sharing, user-centered design and collaboration on the World Wide Web. Blogs, wikis, podcasts, social bookmarking and social networking sites are some examples of Web 2.0 applications. These new technologies have allowed students as well as the teachers to easily publish content online and to connect and network with people who share similar interest without regard to physical location. It has the potential to create more interactive and powerful learning environments in which learners become knowledge creators, producers, editors and evaluators. In this background, this paper presents the survey, conducted among the student teachers of Kerala on their use and perception of web 2.0 technologies for teaching and learning.

Keywords: Web 2.0 Technologies, Social Networking, Media Sharing, Student Teachers

Introduction

The speed of technological innovation is becoming ever more rapid and each wave of innovation presents teachers with opportunities and challenges. Innovation gives teachers/educators a chance to reflect on their practice and how the technology might be adapted to good educational effect. Preparing teachers to use technology effectively in the classroom is a central issue the field of education faces in the 21st century. Student teachers must be proficient in using technology for their productivity (e.g., presenting content) but also prepared to integrate technology effectively into instruction. And now it became a mandatory option for the student teachers to make use of latest technologies in the field of teaching and training process. 'Web 2.0' is an umbrella term for a host of recent internet applications such as social networking, wikis, virtual societies, blogging, etc. Web 2.0 marks a distinct break from the internet applications of the 1990s and early 2000s, facilitating 'interactive' rather than 'broadcast' forms of exchange, in which information is shared 'many-to-many' rather than being transmitted from one to many. Web 2.0 applications are built around the appropriation and sharing of content amongst communities of users, resulting in various forms of user-driven communication, collaboration and content creation and recreation. For example, Wikipedia is distinct from the Encyclopaedia Britannica Online because it is an open document that is created, updated, edited and refereed by its readers. Given the importance of creation, collaboration and communication to the use of these technologies, teachers have been quick to point out the potential of web 2.0 for supporting and enhancing teaching and learning.

Web 2.0 Technologies

Web 2.0 refers to "web applications that facilitate interactive information sharing, user-centered design and collaboration on the World Wide Web". They not only find information on the Internet, but also create and share content. Downes (2005) described the emergence of Web 2.0 as a shift "from being a medium, in which information was transmitted and consumed, into being a platform, in which content was created, shared, remixed, repurposed and passed along. He also argued that the emergence of Web 2.0 is not a technical revolution, but a social revolution that enables and encourages participation through open applications and services. Blogs, wikis, podcasting, social bookmarking and social networking sites are some examples of Web 2.0 applications. These new technologies

have allowed students as well as the teachers to easily publish content online and to connect and network with people who share similar interest without regard to physical location. In short, Web 2.0 could be characterized by openness, user participation, microcontent, knowledge sharing, social networking and collaboration.

Types of Web 2.0 technologies

Web 2.0 technologies are generally associated with a variety of meanings that include emphasis on user generated content, information sharing, collaborative efforts, new ways of interacting with Web-based applications as well as the use of the Web as a social platform for creating, repositioning and consuming content. The major web 2.0 technologies are social networks, blogs, micro-blogs, wikis, discussion boards, media sharing and RSS.

Social Networks: Social networks are defined as web-based services, platforms or websites that enable individuals to communicate, interact and share ideas, messages, comments, photos, videos or any other content with a network of friends on the site or with a much wider audience over the Internet. The purpose of social networking sites is to provide an online virtual community that not only promotes the individual, but also emphasizes the individual's relationships within this community. Some of the most popular social platforms are Facebook, LinkedIn, MySpace, Twitter,etc.

Wikis: Wikis are collaborative websites that anyone within a community of users can contribute to or edit. A Wiki can cover a specific topic or subject area. The largest and most popular wiki is Wikipedia, a user-contributed online encyclopedia currently hosting millions of articles in more than 200 languages.

Discussion Forums: A discussion forum or online forum, is a space in which participants can get engaged in an exchange of information about a particular topic. It provides a venue for questions and answers and is usually monitored by a moderator to keep the content appropriate.

Blogs: A Blog is a weblog or journal that allows users to share a running log of events and personal insights on a particular issue, event or topic with online audiences. Blogs are usually written and maintained by a single person and are updated on a regular basis with entries displayed in reverse chronological order

Media Sharing: Media sharing sites enable users to upload and share their multimedia content (photos, videos and audio) with others on the web. Other users can view and download these media files. Popular media sharing applications include YouTube, Dailymotion, Vimeo, Flickr, iTunes, Shutterfly and SlideShare.

Web 2.0 technologies in Teaching and Learning

The Web 2.0 culture encourages students to reuse and remix resources as well as create new knowledge. Students take an active role in learning, rather than passively receiving information from teachers. It has the potential to create more interactive and powerful learning environments in which learners become knowledge creators, producers, editors and evaluators. Also it is described as the evolution of online learning application from a "content-consumption tool, where learning is delivered," to a "content-authoring tool, where learning is created." With Web 2.0 and other emerging tools, "learning will continue to shift from the mastery of instructor-based content to problems to be solved and products to be created" and learning content will be "less static and more open for others to use, refine, distribute, and comment on". Web 2.0 technologies provide numerous opportunities for social interactions and collaboration among students, teachers, subject experts, professionals, as well as a host of others around the globe. They encourage and enable teachers, learners, and others to share ideas and collaborate in innovative ways. Also, these technologies

force us to rethink the way we teach and learn and to transform our education practices so that we can support more active and meaningful learning that engages students in "learning to be" as well as "learning about." As Brown and Adler (2008) noted, "Web 2.0 offers increasing opportunities for students to find and join communities of practice where they can "acquire both deep knowledge about a subject ("learning about") and the ability to participate in the practice of a field through productive inquiry and peer-based learning ("learning to be")". Furthermore, Web 2.0 technologies facilitate personalized learning and enable the creation of personal learning environments that consist of a set of interoperating applications and support learning in diverse contexts, including learning from formal education, workplace learning, and informal learning. In personal learning environments, individuals can take control of and manage their own learning, reuse and remix content according to their own needs and interests, and interact and collaborate with others in the process of learning. In this backdrop, the present study has been conducted with the major objective of assessing the extent of use and the level of perception of student teachers of web 2.0 technologies for teaching and learning.

Methodology

A descriptive survey method was carried out to see how the web 2.0 technologies enhance the learning of student teachers. The perception of student teachers was studied using a questionnaire. The first part of the questionnaire collects information related to the student's use of web 2.0 technologies and the second part gathers data about the perceptions of student teachers towards the use of these technologies for teaching and learning. As many as 110 student teachers were selected as the sample for the study by giving due representation to different optional subjects.

Data Analysis and Interpretation

The investigator adopted percentage analysis to interpret the data collected. Analysis of the collected data revealed that all the student teachers have an account in at least one social networking site. This finding is not actually surprising given that the curriculum they studied has a special focus on ICT enhanced teaching learning process.

Further from the Figure 1, it can be understood that the most popular social networks among the student teachers are Facebook (66%). LinkedIn (16%) and Twitter (14%), however, they are used on a lesser scale. The low percentage associated with both communities may be due to the fact that these online platforms are mainly business-oriented.

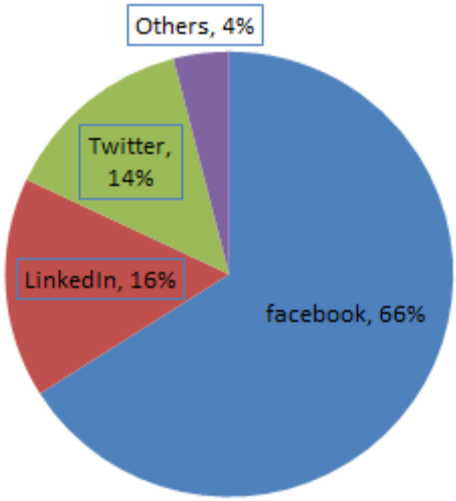

Figure 1

In the case of 'type of web 2.0 technologies used' by the student teachers, from the Figure 2 it is evident that the second most widely used range of Web 2.0 technologies among student teachers are blogs (98%). Blogs, which students can use to publish their own writings, discuss group assignments, peer review each other's work, collaborate on practicums and manage their assignment works. It is also seen that 45% of the student teachers are using YouTube as a media sharing technology in their preparations for teaching. In addition to social networks, blogs and YouTube, the study revealed that 15% of the student teachers also use discussion forums to share ideas, get feedback and benefit from the knowledge and experiences of classmates and those of other internet users.

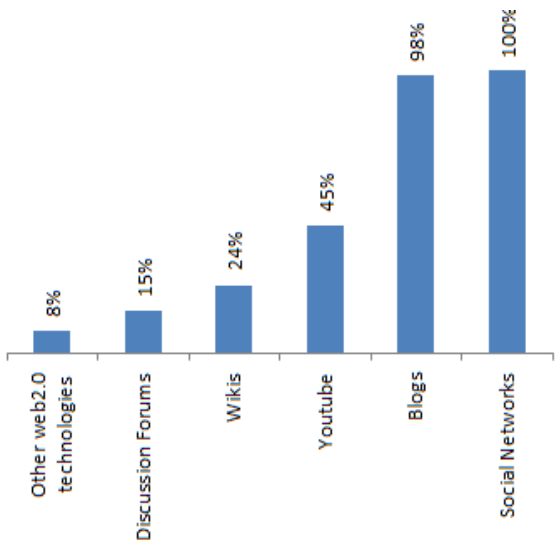

Figure 2

With regard to the students' contributions on Web 2.0 technologies, the present study revealed that 85% of the students are actively involved in creating educational content on the web (using tools like Blendspace) and thus actively participate in learning and sharing of experiences. In fact, students claimed to post learning materials and resources such as lesson plans, tutorials, tests, answers to exercises, as well as any other information that might be interesting to their peers. However, when students were asked whether Web 2.0 technologies could replace traditional teaching/learning. methods, 65% of the student teachers claimed that these online tools can actually be an alternative to classroom based education. The other major observations are given below:

i) Student teachers have the highest level of awareness (74%) in using different types of web 2.0 technologies in teaching and learning.

ii) Student teachers with science background perceive the application of web 2.0 technologies in teaching learning more positively than their Arts discipline counterparts.

Conclusion

All these findings clearly indicate that Web 2.0 technologies have positively impacted the learning and preparations of student teachers and changed the landscape of teaching. Though a lot of criticism has been levelled at these online tools and the negative effect they may have on the way students process and retain information, the educational advantages of these social platforms outweigh their drawbacks. Results of the study reveal that all students are immersed in these web-based applications and have an alternative to them for a variety of academic purposes. However, it has been found out that a significant proportion of the students actually use these online applications as educational tools that help them to broaden and deepen their knowledge in specific areas of studies.

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AUTHORS INDEX