EDUCATION AND TECHNOLOGY:
BOOMS AND FUTURISTIC IDEAS

Smitha K S
Dr. Sameer Babu M

In this 21st century, the term “technology” is an important concern in many fields including teaching and learning. This is because technology has become the knowledge transfer highway in most countries and accordingly, technology integration nowadays has gone through innovations and transformed our societies that has totally changed the way people think, work and live (Grabe, 2007). As part of this, schools and other educational institutions which are supposed to prepare students to live in “a knowledge society” need to consider ICT integration in their curriculum (Ghavifekr, Afshari&Amla Salleh, 2012). ICT integration in education generally means technology-based teaching and learning process that closely relates to the utilization of learning technologies in schools. Due to the fact that students are familiar with technology and they will learn better within technology-based environment, the issue of ICT integration in schools, specifically in the classroom is vital.

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Dr. Sameer Babu M., is an Assistant professor in the Department of Education in the University of Kerala, Thiruvananthapuram, India. He works on social intelligence, education of the deprived and marginalized, teaching and technological innovations in higher education, Pedagogy of MOOCs and E-tivities, access and possibilities for the visually challenged, aggression, victimization, goal orientation and cognitive psychology.

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PREFACE

In this 21st century, the term "technology" is an important concern in many fields including teaching and learning. This is because technology has become the knowledge transfer highway in most countries and accordingly, technology integration nowadays has gone through innovations and transformed our societies that has totally changed the way people think, work and live (Grabe, 2007). As part of this, schools and other educational institutions which are supposed to prepare students to live in "a knowledge society" need to consider ICT integration in their curriculum (Ghavifekr, Afshari & Amla Salleh, 2012). ICT integration in education generally means technology-based teaching and learning process that closely relates to the utilization of learning technologies in schools. Due to the fact that students are familiar with technology and they will learn better within technology-based environment, the issue of ICT integration in schools, specifically in the classroom is vital. This is because, the use of technology in education contributes a lot in the pedagogical aspects in which the application of ICT will lead to effective learning with the help and supports from ICT elements and components (Jamieson-Procter et al., 2013). It is right to say that almost all ranges of subjects' starts from mathematics, science, languages, arts and humanistic and other major fields can be learned more effectively through technology-based tools and equipment. In addition, ICT provides the help and complementary supports for both teachers and students where it involves effective learning with the help of the computers to serve the purpose of learning aids (Jorge et al., 2003).

In this context, Levine (1998) emphasizes the importance of having a plan that is based on real school needs and one that is realistic, achievable, and effective. The plan should be produced, not for the

sole purpose of putting technology in the classroom but to reflect the real needs of schools in order to make effective technology deployment and to produce enhanced learning environments. Moreover, effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyze and synthesize the information, and present it professionally to an authentic audience. The technology should become an integral part of how the classroom functions—as accessible as all other classroom tools. The focus in each lesson or unit is the curriculum outcome, not the technology (Clark and Sun, 1996; Means and Olsen, 1997; Williams, 2000). Technology based teaching models into the classroom can enhance student learning. It should be used to enrich the overall educational experiences. Students' outcomes on conventional achievement rise when technology based educational innovations are implemented. But this does not occur immediately, as teachers and learners must first master these new models of teaching (Azam, 2014). This book is an initiative for discussing such technology related engagements to facilitate the teaching-learning endeavor.

This is an edited volume by collecting the chapters from teachers, researchers and research scholars. That comprises wide varieties of areas and research that the readers will be benefitted of. The ideas and postulates put forwarded by the authors are not a collective opinion, but their own individual opinions and concerns. The editors are not responsible for any plagiarized content if any. As editors, we assume that the readers may like it and may get a different kind of learning experience while going through various chapters. We thank all the contributors for their valuable time for making this collection a reality. Thank you one and all!

Smitha K. S.
Dr. Sameer Babu M.

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LIST OF CONTRIBUTORS

Alarajani V. G., Research Scholar, Department of Education, University of Kerala.

Aria Mol A., Research Scholar, Department of Education, University of Kerala.

Bindusha K., Post-Doctoral Fellow, Department of Education, University of Kerala.

Chhaya Soni, Assistant Professor, Banaras Hindu University, Varanasi (UP).

Deepthi M. K., Research Scholar, Department of Education, University of Kerala.

Fathima Jaseena M. P. M., Assistant Professor, Farook Training College, University of Calicut.

Geetha Gopinath, Department of Education and Education Technology, University of Hyderabad.

Geetha Janet Vitus, Associate Professor, Department of Education, University of Kerala.

Indhu Pillai M., Research Scholar, Govt. College of Teacher Education, University of Kerala.

Jaya Jaise, DEAN Faculty of Education & Head of the Department. School of Pedagogical Sciences, MG University, Kottayam, Kerala.

Jaya Singh, Associate Professor, Department of Social Science, NCERT New Delhi.

Kunjummen T. Tharian, Assistant Professor, Department of Vocation, CMS College, Kottayam.

Linisha C. K., Research Scholar, Farook Training College, University of Calicut.

Malini G., Assistant Professor in Social Science, Iqbal Training College, Peringanmmala, University of Kerala.

Ms. Ramya S., Research Scholar, School of Pedagogical Science, M G University, Kottayam, Kerala**.**

Nisha K. V., Assistant Professor, Zainab College of Teacher Education, Cherkala, Kasaragod.

Pramod Thomas George, Research Scholar, School of Pedagogical Sciences, M G University, Kottayam, Kerala.

Rajeswari V. S., Research Scholar, Department of Education, University of Kerala.

Sarath Chandran R., Research Scholar, Department of Education, University of Kerala.

Shamna Rani A., Research Scholar, Department of Education, University of Kerala.

Shravan B. Raj, M.A Education, Department of Education and Education Technology, University of Hyderabad.

Smitha K. S., Research Scholar, Department of Education, University of Kerala.

Sreevidya Nair N., Assistant Professor in Education, N S S Training College, Pandalam.

Sumi S. S., Research Scholar, Department of Education, University of Kerala.

T. V. Thulasidharan, Professor and Former DEAN Faculty School of Pedagogical Science M G University, Kottayam, Kerala.

ABOUT THE EDITORS

Smitha K. S., is a Research Scholar in the Department of Education, University of Kerala, Thiruvananthapuram. She has a special interest in project oriented blended learning and she develops her thoughts in this line through her research study. She has potential strengths on research in the areas of E- Learning, flipping, and *E-content.*

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Distance Education, Evaluation and Technology

Dr. Chhaya Soni*

Abstract

India is a developing country where various development activities and programs are running for the development of population not only in economical way but also in social, cultural and in ethical ways. The development consists of ensuring all person of the society can take higher education. In this reference technology has a wide role and distance education is also kept to give higher education for such person, whose not can take education through general education. It is essential to see the appropriate processing of teaching-learning, distance education programs and achievement of students, it's all things is possible through one world, that is evaluation. Evaluation is a systematic investigation of a merit of a process and any work. This study focuses on the education in the present days, how is important to distance education and technology is a essential instrument in the field of education. Along with this, how to evaluate teaching-learning process and achievement of students through evaluation process and also discussed the concept of these term.

Keywords: Education, Distance education, Evaluation, Technology, Technology and evaluation.

"Education should instill sterling virtues, good intellect, truthfulness duty, discipline and devotion. That alone is true education which fosters these qualities, and a student should imbibe all these."
Sri Satya Sai Baba

*Assistant Professor, Banaras Hindu University, Varanasi (UP).

EDUCATION

Every person wants to explore our inner potential, capabilities and whatever feels. This is possible through one thing, which is education. Because education has a type of strength; with whom/this each person makes unique personalities. Education has a system that is called educational system and educational system have a three basic domains, like- Education, research and training. Whether: conventional or distance, formal or non-formal. It may be treated as a three-dimensional entity- as a system, as a phenomenon and as a subject area. When we are seeing that education found as a system then education as a system may be conceptualized by the fundamental assumptions, the emergence of new knowledge as a resources, the innovation of technology as a source, and the massification of higher education as a force. Education as a phenomenon is aimed at the harmonious development of an individual in particular.

We are living in the society that is human society, in general terms - an all-round perfection includes; the mental, material and moral development of individual. Education is a part of total social environment. It cannot be treated in isolation from the prevalent socio-economic culture. Education as a subject area is considered as a profession-based training or a discipline-based research. It is more relevant today because all advancement depends on education, like- skill based education advancement, higher business advancement and technology advancement etc. Development/exploration of education is depends of three main factors, these are: Education-mystification, technology-explosion and knowledge-globalization. These three most prominent factors that are going to dominate the future debate on educational exploration. The parameters of mass-based approaches, technology based improvisation and knowledge based aspiration are bound to influence the educational mode and methodology.

Education has a three level: 1.basic education 2. Secondary education and 3. Higher education. Higher education has always involved the exporting of knowledge and techniques from educational centers to the peripheries. Today's, with the advancement of technology in educational field/services, it is necessary to connected it with all education such as, basic education, secondary education, higher education, professional education, distance education.

DISTANCE EDUCATION

Now-a-days we are seeing that, most people not taken higher education due to various reasons. Distance mode education is a one way of taking education for such type of person. However, the open and distance learning mode of higher education generates a number of quality-related questions: how does one ensure the quality of the educational process used by the open universities and several other distance learning institutions for learning through distance education? What is the credibility level of their educational standards and levels? How is one to determine the worth and suitability of their educational policies in terms of the national needs? Are the educational provisions, programmes and pedagogies offered by these institutions academically flexible, professionally productive and operationally viable? These along with several other questions would need appropriate and adequate answers.

In this context, the growing phenomenon of distance learning is bound to strengthen the quality education because of the high expectations it generates. Such as- it serves the rapidly growing need of accessibility to higher education. It is stimulates cross-national educational interaction leading to greater flexibility of programmes and courses; it inspires students to study by themselves, motivates them for learning while earning, and prepares them for productive work in a global economy.

EVALUATION

Evaluation uses information based on the credible evidence generated through assessment to make judgments of relative value: the acceptability of the conditions described through evaluation. The statement "If you don't have any goals, you don't have anything to assess" expresses the close relationship between goals and effective assessment. It is goal achievement that effective assessment is generally designed to detect. An effective assessment program helps a college's or university's administrators and faculty members understand the outcomes – the results their efforts are producing and the specific ways in which these efforts are having their effects.

"Evaluation is the systematic assessment of the worth or merit of an object or an activity."

"Evaluation is the systematic investigation of merit or worth."

By using the word systematic, we are distinguishing this process from the multitude of evaluation acts in which we consciously or unconsciously engage. Systematic implies that evaluation in this context is a thoughtful, intentional and purposeful process. It is done for clear reasons and with explicit intent. Although the specific purpose of evaluation may vary from one setting to another. All good evaluations are deliberate and systematic.

Evaluation is simply "best estimates" of value provided by experienced and knowledgeable professionals. Other educators see evaluation as synonymous with research. From their perspective, evaluation is but one of a variety of forms of systematic inquiry. Still others believe that evaluation is essentially a political activity that is used to guide decision makers in their deliberations and actions.

Evaluation may be defined as 'any method used to understand the current knowledge that a student possesses. The idea of current knowledge implies that what a student knows is always changing and that we can make judgment about student achievement through comparison on over a period of time. Good evaluation techniques provide accurate estimates of student performance and enables teachers and decision-makers to make appropriate decisions.

The growing demand for quality, credibility and accountability are reinforcing the need for educational evaluation generally considered to be a broader view of curriculum evaluation other than the mode of student evaluation which is popularly known as the examination system for the award of degrees, diplomas, certificates etc.

The goal of educational evaluation is linked with a number of evaluation features: that the identified evaluation tools are applicable at each stage of the evaluation process in deciding whether and what to evaluate. That all steps have been visualized in designing the evaluation plan, implementing it and in reporting the results and findings; and that these steps are not only to monitor the progress of evaluation but also to guide the evaluation path along the way. Being teamwork, its essential feature is to provide a broad view of the work involved in quality assessment. For this, a few fundamental questions among others have to be explored: what value is to be considered as significant in results or findings of an educational evaluation? What particular evaluation criteria should be selected and adopted? Should the evaluation be competitive or comparative for accountability or should the evaluation

be geared to guide development or promote new insights into the educational phenomena?

Evaluation is an integral part of the developmental process of distance education. It provides continual feedback to assist in planning, and then producing some results. For example- in curriculum development of distance education, it addresses questions about validity of the course-contents, usability of various courses, appropriateness of media materials, staffing needs and other matters.

Three types of evaluation (summative, formative and illuminative) in distance education: it is known as formal evaluation, for development of content, right process of distance learning, and evaluate of getting knowledge of students through distance mode education. These are following:

1. **Formative evaluation-** is done to help staff improve the on-going work on development. formative evaluation is applicable during the process of course development. It is used with the purpose of improving and upgrading quality in terms of productivity, efficiency and effectiveness. Testing of study materials during the course development, experimental trials of projects, plan/schemes and programmes in order to rectify the weaknesses before adoption for operationalization and review of the monitoring data in order to remove short coming and decide priorities for improvement are some of the well-known examples of the formative evaluation, more relevant in respect of distance education.
2. **Summative evaluation-** enables in deciding whether the developed curriculum, refined by use of the formative evaluation process, should be adopted or not and its evaluation is essentially judgmental. It is used to examine the findings against the assessed needs of the relevant users. Summative evaluation in distance education is generally used for comparison of standards, parity and success of different approaches in achieving a particular goal or meeting a specific target. A unified and systemic evaluation approach is, therefore, highly warranted for which self-evaluation, self-regulation and self-improvement need to be the in-built features. The prime question, however in this context are: whether an educational system can design a systemic evaluation algorithm to meet the quality needs, expectations and aspirations?

3. **Illuminative evaluation-** In three types of evaluation illuminative evaluation is a new type of evaluation which came to be known as illuminative evaluation. It is considered to be more suitable for evaluation of educational programmes and the teaching learning pedagogies.

Illuminative evaluation involves three stages: 1. Observation stage 2. Inquiry stage

3. Explanation stage

1. **Observation stage**- in which the full range of variables affecting the outcome of an educational programme are investigated.
2. **Inquiry stage**- in which the emphasis changes from being knowledgeable to the focusing of questions to have a systematic understanding of the programme.
3. **Explanation stage**- in which general principles, patterns and effects of the programme are analyzed. Withixn this three stage framework of illuminative evaluation, an evaluation profile is compiled using data collected from observation, interviews, questionnaires, tests and documentary sources and eventually finalized.

DISTANCE EDUCATION EVALUATION

Evaluation in Distance education generally involves evaluation of the programmes of study, learning support, and student achievement and student service operated through the distance mode. It includes in its scope, the evaluation of the utility of its programmes/courses in terms of their productivity, flexibility and viability; effectively of the students' learning support through the level of learning experience gained by them; and efficiency of the institutional management in providing educational services to the learners. The aim is to strengthen the system in achieving its quality assurance goals, and to enable it to operate as an effective educational system.

In the context of education of this distance mode, usually a formal evaluation approach is adopted since the informal evaluation is implicit because of the very nature of the system as such. The formal evaluation approach comprises of a sequence of stages namely: identification of the areas of concern: objectives of the evaluation, feasibility and relevance of the evaluation, methodology for undertaking the evaluation study,

collection and analysis of data, information findings and preparation and submission of the evaluation reports. **formal evaluation is normally classifies as formative, summative and illuminative.**

Educational evaluation in distance education has a distinct development role also besides ensuring quality, accountability and credibility. A few parameters, in this connection, need to be kept in view. Distance education evaluation may focus on the student's profile-what is their educational background? What is the level of their experience with teaching materials, or with the academic support they receive, or with the educational services they encounter at various study centers? Indeed, these along with several other parameters can form the basis for distance education evaluation, namely, learners' profile including their academic performances; access to course components and learning effectiveness of media; impact of face-to-face teaching and academic counseling; development and distribution of course materials; and assessment of learners' assignment and output. These evaluation parameters are equally helpful in determining the extent of the coverage of evaluation scope, the resources available for evaluation work and the constraints under which the evaluation has to operate. An evaluation plan in distance education is expected to cover as many activities of the organizations as possible.

An evaluation approach in case of distance education has to match multiplicity of the **activities related to the three levels of evaluation: A.** informal self-regulatory or self-directed evaluation, **B.** non-formal self-introspection or self- improvement, and **C.** formal evaluation.

Evaluation Strategies for Distance Education

What can be the suitable evaluation strategies for distance education evaluation? Corresponding to the parameters of education evaluation, **three types of evaluation strategies are**: generally adopted for designing and carrying out the evaluation work in distance education. These are generally known as **A.** externally designed strategies, **B.** internally designed strategies, and **C.** mixed strategies. Generalized as external quality monitoring, an **externally designed strategy**-is used under the assumption that an external evaluator will bring objectivity to educational evaluation. **Internally designed strategies**-The internally designed strategies have the advantages such as continuity and comparability in educational evaluation. **mixed strategies**-The particular advantages of

having some form of mixed strategies depends on the type of the mix which may range from say, provision of design and activities carried out internally in coordination with external consultants occasionally brought in as additional resource for a specific purpose of evaluation. Management, faculties and support staff always need some form of feedback on their work to help their decision-making. In the long run, a core of work carried out internally is essential.

TECHNOLOGY

Modern technology offers educators a variety of new tools that can be used in the classroom. Technology can help teachers track and assess their students' -- as well as their own -- performance in the classroom. It can also be used to facilitate communication between students and teachers and to create digital records of student growth and development that can easily be passed along from grade to grade.

Improving Teaching

Teachers can use technology to make their own work more productive - teachers can use spreadsheets to track student work and also track their teaching plans. If a group of students is performing poorly in a particular area, this kind of record keeping can highlight areas that the teacher needs to focus on in their own teaching. These tools can also help administrators assess and improve teacher performance.

The development and implementation of ICT/technology forces today's universities and colleges to respond to societal trends that point to a transformation of our society into a so-called knowledge society. Present era of technology and technology applications place new demands on higher education as well as distance mode education establishments and hold important implications for their teaching and research functions, especially in light of the growing importance placed upon lifelong learning and upon more flexible forms of education delivery. The use of online learning in transnational education brings together, in an unfamiliar environment, students and educators whose experience of teaching and learning from very different cultural traditions. Educators who have taught international students in classrooms come to understand that students from different countries bring with them different experiences and expectations of teaching and learning.

The new technologies used in distance learning can provide students with far greater involvement in the process of learning. These interactive technologies also allow students the exercise of far greater control over that process than is possible in many traditional learning environments. This means that students must take more responsibility for, and be more active in their learning.

Technology has often been used to support formal communication patterns, rather than the informal and sometimes is intended to replace rather than support either. For example-Multimedia communications system cannot replace face-to-face contact any more than the telephone. Thoughtful design may, however, be used to appropriately support existing human communication patterns. For multimedia multi-user system such as this, the interface must include some form of social protocol which enables decisions about the nature and style of desired interaction to be taken. Many issues which will effectively delineate the shape of multimedia networking in the future remain as yet poorly understood and little explored. In some areas, however, there is more immediacy on concerns which are being raised by the substantial growth in network traffic and users, and the potential changes which can be perceived in the near future.

Evaluation through Technology

In each of our distance mode education courses, make all course on-campus courses, because this education includes all things, such as admission process, curriculum development, teaching-learning process, subject class (flexibility according to students), and evaluation process; all things completes through technology. All distance mode education courses utilize audio tapes, e-mail (to submit assignments, communicate between professor and students), internet (post syllabi, course materials of non-published documents, video presentation, power point presentation), telephone, computer conferencing (to visually explain or discuss a specific point of a lecture or a paper), and print-based material (handout materials of a class, etc.).

In this sense, technology have a wide potential to evaluate of distance education, its includes- evaluation of teaching-learning process of distance learning and achievement of students through distance mode learning. The type of maximum performance test that describes what a person has learned to do call an achievement test. In sense of teaching-learning

process teacher can upload the lecture online and students can learn according to our time. Then teacher see the how many students learn through this lecture, it is a one way of evaluate standard of lecture and teaching. In sense of evaluation of achievement of students; question paper upload in the system and time limit is also should be decided for taking exam of students through online, for this one software has been developed. After evaluate the answer script through online, students result and suggestion should be upload site of teacher.

CONCLUSION

To sum up, education is a main feature of the society because it is wider range of giving appropriate decision making, appropriate ideas, and bush up of personality; and higher education gives to understanding all aspect of life of a person. Whose person not taking higher education in a way of general, distance education is another way. Because distance education have a flexible process, evaluation of distance education with the help of technology. Online evaluation is major concern of distance education.

REFERENCES

- Bhatnagar & Bhatnagar, Dr. A.B. & Dr. A. (2011). Measurement & Evaluation [Tyranny of testing]. Meerut: R. Lall book depot
- Black, P., Harrison, C., Lee, C. Marshall, B. & William, D. (2003). Assessment for learning: Putting in into practice. Berkshire, England: Open University press.
- Broota, K.D. (2008). Experimental Design in Behavioral Research. New Delhi: New Age International (p) Limited, Publishers. House.
- Chaudhary, S.V.S. & Dey, Niradhar (2013). Assessment in ioen and distance learning (ODL): Achallenges open praxis, 5 (3)
- Narakhede, S.P. (2001). Challenges of Higher Education in India. Delhi: Sarup and Sons Publication.
- Peterson's Guide to distance learning programs (Princeton: university continuing education association, 1997).
- Rao & Harshitha, Dr. D.B. & D. (2004). Methods of teaching information technology. New Delhi: Discovery publishing house
- Sen, Dr. R. (2009). Higher education in 21st century. New Delhi: Crescent publishing corporation.
- Thorndike & Christ, R. M. & T.T. (2011).Measurement and evaluation in psychology and education. New Delhi: PHI Learning private limited. https://www.ats.edu www.scdl.net

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Relevance of E-Platform for Teaching Learning of Economics

Dr. Jaya Singh*

Abstract

The paper deals with the initiative taken by Government of India towards digitization of the school education. The paper further analyses the impact of digitization on the school education. The study is based on the secondary sources. The author has studied the impact of digitization by visiting the schools under the research study entitled 'professional development of PGT economics'. The author has visited the schools of Delhi, Punjab and Maharashtra. The data have been collected from both the Government and private aided school. The objective of the paper is to study the relevance of e-content for teaching learning of economics. Has the introduction of e-content arouse interest of the learners in the subject. Effort will also be made to find out whether the use of e-content enhances the interest of the learners. The paper has been divided into three sections where first section has introduction, second section highlights the use of internet for teaching learning of economics. Third section has challenges in the use of e-content. Last section has suggestion to promote the digitization of content among the school education.

***Keywords**:* E-platforms, E-content, Economics

INTRODUCTION

There is an urgent need for digitization of our economy for it will help our country to excel in different sectors. It will also provide fuel

*Associate Professor, Department of Social Science, NCERT New Delhi.

to accelerate the economic growth of our country. The digitization will help India to further trade with other countries and sell its goods in the global market. Looking at its importance the Government of India, too, has taken several measures to digitize the economy. Our country has a large scope for using ICTs as 940 million families watch television, 1.19 billion have mobile phones and 445.95 million people use internet (TRAI 2017) The digitization will help in generating automatic services which will ease our life, improve our efficiency and help in the growth of the country. For example, the digitization of the railway ticket save us from standing in the queue, thereby, time and energy conserved can be used for other productive work. The digitization of school education necessitates the development of e-content for the teaching learning of the subject

The paper deals with the initiative taken by Government of India towards digitization of the school education. The paper further analyses the impact of digitization on the school education. The study is based on the secondary sources. The author has studied the impact of digitization by visiting the schools under the research study entitled 'professional development of PGT economics. The author has visited the schools of Delhi, Punjab and Maharashtra. The data have been collected from both the Government and private aided school.

Objective

The objective of the paper is to study the relevance of e-content for teaching learning of economics. Has the introduction of e-content arouse interest of the learners in the subject. Effort will also be made to find out whether the use of e-content enhances the interest of the learners. The paper has been divided into three sections where first section has introduction, second section highlights the use of internet for teaching learning of economics. Third section has challenges in the use of e-content. Last section has suggestion to promote the digitization of content among the school education.

SECTION 1

INTRODUCTION

E content refers to the creation and delivery of content using electronic media. It substantiates teaching learning material available in the print media. It secures additional support material to the print media like textbooks,

newspaper, dictionary and so on. The use of technology in education can be explained as *systematic identification of the goals of education, taking into account nationwide needs (higher scalability for instance), the system capabilities and the learners needs and potential. It recognizes the diverse need of learners, the content in which learning takes place…,recognizes the immediate as well as future needs…, research into existing and new techniques, strategies and technologies for solving problems of education, enabling judicious and appropriate application of technology* (NCF 2005)

The classroom observation reveals that the teachers can use both offline and online mode of communicating while teaching in the class. The classroom therefore finds the use of offline mode of communication with the use of power point presentation (PPT), use CD and MS office. In addition there is also online mode of communication through the use of e-forums, e text, e journals, e-mail, whatsApp etc. It is a sophisticated mode of communicating the information with the use of various combinations of picture, text and audio. The combination of these requires merger of creativity with technology.

Need for E-Content

The new generations are undergoing radical change in the style of learning due to which they need to be moved beyond the textbook. The increasing use of internet have given them large exposure to the information in diverse forms. The creation of the content on e- platform necessitates the systematic planning for the generation of instructional designs. These are developed in a series of steps like identification of the goals, developing the content, analysis of the content and try out of the same among the peer group. This is followed by the modification or by the addition or deletion of the necessary content.

The development of e-content necessitates identification of the topic/ concept which needs elaboration for the learners. Relevant material is collected from various sources like textbooks, internet and so on. This is followed by discussion which leads to addition or deletion of the content. In recent time effort is made to develop interactive content for the learners. This necessitates addition of questions in various forms like multiple choice questions (MCQs), fill in the blanks, match the items on the left column with the right. It has been found that learner's participation is enhanced when e-content is presented in an interactive mode. The use of animation too appears interesting for the learners.

Its use has been found useful by both the teacher and the taught. There is visualization of the content which makes it interesting for the learners. Its use tends to mitigate the gap between have and have not and restores equality in the classroom. The learners from the different section of the society can access the information

Educational institutions particularly schools which are using e content for the delivery of lesson are appreciated by the learners. The teachers very often make the whats app group of students and provide various kinds of information related to homework and tests. The learners too submit their assignment on e-mail and receive the required feedback from the teachers. The teachers too feel comfortable for online material can be contextualized as per the need of the learners. They can easily update their material for the details relating to the topic are available on net.

SECTION II

USE OF E-CONTENT IN ECONOMICS

Economics is a popular subject among the three streams of learner i.e. humanities, science and commerce at the higher secondary stage. As per the recommendation of NCF 2005, the subject has been introduced to the learners from class VI. In the initial stage the effort is made to familiarize the learners about the basic of the subject. Theories are introduced to the learners at the higher secondary stage.

To make the subject interesting the subject teacher often makes use of digital tools like internet. Besides lectures, the learners can make use of e-content for understanding the concepts. One also finds the use of MOOCs (massive open online course) for the delivery of the lesson. Here modules are developed which explains the course content to the learners in an interactive manner. The transaction of the content with the use of e-content or MOOC play an important role in systemic issues like 'reach, equity and quality'.

The subject makes use of various tools like diagrams, mathematics and equations to make the subject interesting for the learners. The use of theories and its application in the real world tries to explain the role of learners in the nation building. It tends to arouse the learners towards the problems/issues faced by the country like poverty, unemployment, inflation and so on.

The teachers need to use different pedagogies to explain the subject. One such pedagogy is the use of the e-content which facilitate the teachers to use charts, diagrams and equations while teaching the subject. The use of such tools makes the subject analytical for the learners. The use of e-content can be helpful in bringing multiple perspectives before the learners. It also instill the skill of arguing logically with the reasoning.

In case of economics the topics like rural and urban economies are identified by the teachers for the development of e content. The scripts are developed and reviewed in the workshop mode. This is followed by adding the necessary audio video to the content. Here there is use of diagrams, charts, tables, images to explain the content. Questions have also been raised to ensure learner's participation when watching the content. It has been found that the use of e-content can be helpful in bringing multiple perspectives for the learners. Its use instills the skill of arguing the issues with the reasoning among the learners.

Discussion with the teachers revealed that the use of e-content has been helpful in promoting economic skills among the learners. In addition the learners also make use of wiki and blog to share their ideas with the peer group. Such sharing promotes critical skill among the learners. The learners find easy to comprehend the information for there is processing of information in a simplified way. The visualization of the content on e-platform fascinates the learners who would like to pursue the learning of the digital content.

SECTION III

CHALLENGES IN THE USE OF E-CONTENT

A survey was conducted where it was found that teachers are not trained in the digital literacy. Lack of training prevents the flow of information to the learners aspiring for quality education. The class has a large number of students who hardly get the attention of the teachers. Some of the teachers are hardly provided with any teaching aids in the classroom. In the absence of training there is low accessibility to the e-content in the teaching learning of economics. The subject is taught in a descriptive manner where there is minimal use of diagrams, mathematics and equation while understanding the subject.

There is a low penetration of internet in the rural areas which put the learners from these areas in a disadvantage positions. Some of the states like Bihar have poor connectivity of electricity which restricts the

use of digital mode of transmitting the information. Inability to possess personal computer, lack of photocopiers, scanners has led to digital divide between have and have notes. The use of e-content will reduce economic inequality existing between the learners from the marginalized groups.

SECTION IV

WHY E-RESOURCE

The use of e-content can save teacher's time which she can use for further updating her knowledge about the subject. Its advantage lies in benefitting not just one user at one go but benefits multiple users. The information too can be presented in a multiple ways like audio, video, animation etc. which is more impactful than in the print media.

The teachers too find it comfortable to use for it is easy to avail large amount of information as per the need of the class. Its use also helps in storing large amount of resources which can be accessed easily. The learners need not hunt for the material on their desk or in their rack. The storing of information when systematically done on e-platform helps in saving the space and makes its readily available to the users. Another important feature is the presence of search engine which instantly helps to locate the desired information. It also helps in locating the facility of cross search references. It promotes inclusive growth for the information can be accessed by the learners belonging to the marginalized group.

Economics being a popular subject is sought by large number of learners. In case the learners are not able to attend school, they can make use of online education available on the Swayam platform. This platform has been initiated by the Government to improve accessibility to large number of learners. The survey revealed that the schools have favourable impact on account of digitization of the content. At the elementary stage of education the use of animation holds the interest of learners. At the higher secondary stage its use tends to promote analytical skill among the learners while using the diagrams for understanding the theories.

The classroom observation revealed that the majority of the students feel excited to use multimedia for understanding the concepts. They are attracted by the audio- video and the images used on electronic platform for teaching learning of the subject. The teachers, too, admitted that engaging the class with the use of technology makes its interesting over the lecture method.

SUGGESTION

- To encourage the use of e-content in schools' effort should be made to increase the use of broadband, internet and mobile phones.
- The teachers can make use of audio-video in the classroom for teaching learning in the class
- Teachers can enroll themselves in the online course in economics so that they can pursue their lesson at their own leisure.
- Teachers along with the students can form blog where they share information related teaching learning of economics.
- Some of the good lessons developed by the teachers can be recorded and shared among the teachers through e-mail.
- One minute tests can be conducted on digital platform, Students can be asked to submit their projects on e- platform.

The teachers need to be provided with training in the use of e-content in the classroom. The institutions should develop expertise in developing and maintaining web platforms of the schools. There can be further encouragement to the sharing of e-content between the schools.

The draft new education policy aspires to educate the children who can contribute positively in the growth of the nation. The use of e-content is encouraged for it prefers to prepare the learners for 21st century skill. The post graduate teacher in economics, too, needs to be digitally literate to enable them to handle content on the e-platform. The effort towards training teachers in this field can help in effective transaction of the curriculum. Its use can optimise the learning outcome and add to the success of learners.

REFERENCES

- NCERT (1975) *The curriculum for the Ten Year School – A framework*, National Council of Educational Research and Training, New Delhi
- NCERT (2006) Economics-Textbook for class IX, New Delhi: National Council of Educational Research and Training, New Delhi
- NCERT (2007) Economics- Textbooks for class XII, New Delhi: National Council of Educational Research and Training, New Delhi
- NCF (2005) Position paper on educational technology, National Council of Educational Research and Training, New Delhi https://main.trai.gov.in/sites/default/files/Annual_Report_21022019.pdf

3

Pedagogic Assimilation of Moocs

Ms. Ramya S. and Prof. (Dr.) T. V. Thulasidharan***

Abstract

The rise of the MOOC (Massive Open Online Course) has been the cause of many debate within the world of higher education. This chapter will examine the development of MOOCs and how they have affected and been affected by pedagogy. The difference in pedagogical style and design between the xMOOCs and the cMOOCs will be examined. With this comes the question of whether connectivism is a pedagogy in its own right or merely a technologically enhanced version of Problem Based Learning (PBL) The chapter further discusses about how the effect of a shift in pedagogy within the sphere of MOOCs could change teaching methods in the classroom. Finally the chapter discusses about the scope and research gaps in this area. The way in which MOOCs are taught and how students learn from them is still evolving, whether the ideal MOOC is connectivist or teacher centric is yet to be seen.

Keywords: Pedagogy, Assimilation, MOOCs

INTRODUCTION

MOOC (Massive Open Online Courses) is a new concept of education for anyone, anywhere, anytime. It came up with numerous opportunities both for students as well as teachers. MOOC is pretty familiar to everyone in the world of e-learning. MOOC is a web-based

*Research Scholar, School of Pedagogical Science, M G University, Kottayam, Kerala.
**Professor and Former DEAN Faculty School of Pedagogical Science M G University, Kottayam, Kerala.

platform that provides opportunities of distance education to a number of students across the world with the best universities and institutions. MOOC began to see its emergence in 2012, and is believed to be the next big thing in distance education. MOOCs have communities that facilitate interactive sessions between the students and the teachers along with the course material and video lectures. MOOCs can be free, or can be charged on the basis of subscription or a one time charge. The majority of the top courses come from two platforms: Coursera and edX. MOOCs cannot be considered as technology. They are new means to acquire knowledge, via pedagogy, facilitated through technology, namely LMS (Learning Management System) and other social and collaborative tools.

MOOCs are:

Massive – can attract hundreds of thousands of participants.

Open – connected to three aspects of openness: free to access; liberty (such as freedom of speech); free transference of knowledge and ideas between participants (Marginson, 2012).

Online –Course material is accessible over the Internet although there is often a central site designated to the course other web-based sources are often created by participants (Fini, 2009).

Courses–MOOCs are usually defined as courses and follow traditional course patterns in that they have start and finish dates (Koller, 2012).

MOOCS AND PEDAGOGY

MOOCs has certainly changed the traditional approach to teaching and the pedagogy is shifting towards a user centric approach. If a course is open to massive learners free of cost in online mode then it normally qualifies as a MOOC. MOOC has got its root in the concept of connectivism and thus together called as c MOOC. Based on the theory of connectivism (Yeager, Hurley Dasgupta, & Bliss, 2013). The key concept behind cMOOCs is networking, in the sense that learners may go anywhere to locate sources of information. The other form of MOOCs is xMOOCs. According to Rodriguez (2012) xMOOCs are regular university courses converted to MOOC format and as such are more structured and follow more widely known pedagogies. These course designs are mainly influenced by cognitive- behaviourism and some social constructivism (Bali, 2014).cMOOCs are meant for meta

cognitively mature learners who can learn and study in the same peer group in a collaborative manner, without direct involvement of the instructor. On the other hand xMOOCs are mainly instructed with the help of an instructor through video lectures followed by reading materials, discussion forums, quizzes, peer grading exercises, and exams.

The MOOC, whether it is an xMOOC or a cMOOC, has altered the field of e-learning. The connectivist learning theory has provoked conversations and debate as to the nature of pedagogy for education centred in Web 2.0. However whilst there is the drive for e-learning, education online for a digital age, there is still offline learning. With the changing pedagogical methods of the MOOC effecting online learning, it is also possible to see their effects in the offline classroom. A key area of change within the offline classroom is the notion of the flipped classroom (Parry, 2012). This is where students watch lectures in their own time and engage in practical work during face-to-face time with lecturers. This allows for students to test their learning with guidance from a lecturer, so any misunderstandings of theory can be addressed before they become imbedded in the learner's concept. Research shows evidence that students studying under the flipped classroom model show a significant improvement over their traditional classroom counter parts (Pierce, & Fox, 2012).

Only time will tell if those with the power to decide continue with the teacher-centric, passive learning model of the xMOOC, or if they embrace the student-centric, collaborative cMOOC.

Current studies suggest that teachers are more in favour of the xMOOC, despite their high work load, whereas students seem to find cMOOC more rewarding despite frustration at the lack of guidance from the course convenors. The differences between teachers' and students' choice of xMOOC or cMOOC could potentially become clearer and better defined as the MOOC phenomenon develops.

The core of educational reforms and New Education Policy demands traditional educational setups to be open, flexible, and learner centric. Open education is built on the belief that everyone should have the freedom to use, customise, improve and redistribute educational resources without constraint. (Cape Town Open Education Declaration, 2008).

Openness and flexibility in learning cannot be imagined without ICT and its intervention in the form of e-learning applications, because in open learning, individuals take responsibility for what they learn,

how quickly they learn, where they learn and when they have their learning assessed (UNESCO, n.d.).

Along with National Mission on Education through ICT(NMEICT), National Programme on Technology Enhanced Learning(NPTEL) a group of 7 IITs and IISc developed e-content in 23 Disciplines numbering 933 Courses. Consortium of Educational Communication (CEC) has completed the development of e-content in 29 Undergraduate subjects and shall further be completing e-content in 58 Subjects in four quadrants. UGC has completed e-content in 77 Post Graduate subjects. (MHRD Guidelines for Development and Implementation of MOOCs).

MOOC is a platform for teaching through video materials, lecture notes, assignments and quizzes, which are usually online and provide self evaluation in regular intervals during learning.

Statistics regarding the MOOCs since March 2014 till April 2019

Completed courses: 1300;

Enrolments across courses: 6335382

Number of exam registrations: 627866 (https://nptel.ac.in/noc/).

Palak, & Walls (2009) found that teachers use technology to support their teaching strategies and hardly to foster student - centered learning. The contextual factors influence the e-Learning theories and practices, which must be understood by the developers and users. The context is multifaceted which includes community, culture & technology have become critical when understanding and implementing ICTs in education.

e-Learning keeps people at the top of the world. e-Learning helps to use technology in new and powerful ways to develop enthusiastic, skilled learners and keep them updated and operating in top form. Though e-Learning has some disadvantages in terms of inconveniences in installation and cost effectiveness, implementation of the same at Teacher Education level would serve a lot for the student community, who are the pillars of the next generation. Ezhilrajan (2013).

Research proves that whatever is the perception of a user about the MOOCs and e-Learning environment, the same is reflected through his/her attitude toward using educational technologies for teaching and learning purposes (Qamar, et al., 2011).

Gunawardana (2005) stated that computer-literacy is an imperative precondition for learners to benefit from technology-based learning. MOOC can only build on a set of basic computer literacy skills. The most effective way to make MOOC a successful experience is to keep

it as simple as possible. This is true from a technological as well as pedagogical perspective. The researcher also highlights that studies in e-Learning have shown that most programs are likely to succeed with the constant involvement and feedback of the facilitator which in turn acts as the most powerful support for the learner. (Kumar, 2011)

Study conducted by Manjul (2009) titled e-Learning for Indian Higher Education: The "Complete Solution Approach" analyzes what India has achieved so far, and what else India need to do to make e-Learning a major success. The researcher emphasized that a successful e-Learning project requires a holistic and complete solution. There are various building blocks for a successful e-Learning project and these include feedback process, stakeholder alignment process, quality control process, student support process, Communication process and Measurement/ Evaluation Process.

MOOCS OVERSEAS PROGRAM

The term MOOC was coined by Dave Cormier (2008) of the University of Prince Edward Island. George Siemens of Athabasca University and Stephen Downes of the National Research Council are the other well known contributors in this field. Other E-learning platforms include — Khan Academy, Peer-to-Peer University (P2PU), Udemy, and ALISON — which are viewed as similar to MOOCs and work outside the university system or emphasize individual self-paced lessons. A few of these are, WizIQ (India and USA): IIT Delhi, India offers this course through this platform which requires registration and fees to study courses offered by them,Open2Study, Coursera, edX, and udemy.

Coursera is the topmost provider of MOOCs. Coursera was launched with an intention to make courses available for students or anybody who wants to learn, by offering them online. It offers online courses ranging from the sciences to Humanities, Social Sciences and even Digital Marketing, and Designing. Coursera is considered to be the top most provider of MOOCs with over 2000+ courses to offer.

MOOC PROGRAM IN INDIA

For creation and development of MOOC courses in different subjects and disciplines, MHRD guidelines have notified eight National coordinators in India, University Grants Commission (for non technology P.G. Courses), NPTEL (for technical/ engineering U.G. & P.G. courses), Consortium for Educational Communication (for non technology U.G. courses), IGNOU (for diploma and certificate courses), NCERT (for NCERT based 9th to 12th classes), NIOS(for open education based 9th to 12th classes), IIM Bangalore (for management programmes), National Institute of Technical Teachers' Training and Research (NITTTR), Chennai, (for teacher training programmes). (SWAYAM, 2017)

A new portal for MOOCs named 'Study Webs of Active-Learning for Young Aspiring Minds', SWAYAM is an IT based platform developed and made functional by the Ministry of Human Resource Development of Government of India for the purpose of offering online learning courses on the MOOCs platform. SWAYAM is an integrated platform that provides e-content for various subject disciplines. SWAYAM, is said to present students with an opportunity to study anything from a list of more than 2000 courses out of which more than 200 courses are currently available for registration (CEMCA,2016). Audio-visual media, illustrations, research and case studies with self-assessment are few of the mediums chosen to approach the study of these courses. These courses shall pave the way for bridging the digital gap in the country.

FUTURE AND SCOPE OF MOOC

Digitalization is a must now, but many nations are unable to provide even the basic necessities to enroll for MOOCs thereby limiting the spread of MOOCs. It is not certain that all MOOCs provide degrees, certificates or diplomas which limits the number of candidates that enroll for these courses. Despite of few limitations relating to MOOC we can say that MOOCs are not a technology they are a new means to acquire knowledge, using pedagogy, made available through technology, mainly the ones available through LMS (Learning Management System)and other social and collaborative tools. MOOCs evolve not only through the available technologies but also at a human pace, through the movement of a changing pedagogy.

RESEARCH GAP

Indian Government is emphasizing on e-Learning and bucketing so much of resources to accelerate the pace of implementation of programs to cater educational needs of the vast population of the country through

e-Learning. The market of e-Learning in India is also predicted to be massive. In spite of all these factors there exist immense hurdles in India to impart education through e-Learning.

As explored by the detailed investigation of the available literature relating to this chapter, it was found that not much studies have been undertaken to cater the enrolment and retention problem faced by MOOC e- learning programmes by researchers and experts across the globe. The author could not come across any noticeable work relating to e-Learning in Higher Education in Indian context. Furthermore very little work has been done by earlier researchers regarding critical success factors for MOOCS in higher education sector specifically for India. Similarly, not much research focusing on identification of a suitable model for successful implementation of MOOCs in higher education in India has been undertaken.

CONCLUSION

The upheaval of e-learning that MOOCs have caused, is beginning to revolutionise the present day classroom. Classrooms are becoming more active with the focus on hands on learning experiences shared with the lecturer and the class. MOOCs of both subtypes are playing their own part to define the way in which learning is changing. xMOOCs favoured by the large MOOC providers deliver courses to an increasingly wide audience, and cMOOCs assist the potential development of pedagogies dedicated to the digital age. The MOOC is no doubt causing a buzz in the world of education, whether this buzz will allow the MOOC experiment to grow further until it is as common an educative tool as books, blackboards, pens and paper, time alone can tell.

REFERENCES

- Bali, M. (2014). MOOC pedagogy : gleaning good practice from existing MOOCs. *Journal of Online Learning and Teaching*,10 (1) 44-56. Retrieved from http://jolt.merlot.org/vol10no1/bali_0314.pdf
- Cape Town Open Education Declaration (2008). *Cape Town Open Education Declaration: Unlocking the promise of open educational resources*. Retrieved from http://www.capetowndeclaration.org/read-the-declaration.
- CEMCA. (2016). MHRD, India fine tuning SWAYAM Platform for MOOCs. CEMCA newsletter 2 (3). Retrieved from http:// cemca.org,in Fini, A. (2009). The Technological Dimension of a Massive Open Online Course: The Case of the CCK08 Course Tools. Vol. 10, pg.1-26.

- Koller, D. (2012). 'What we're learning from online education'. Retrieved March 3rd,2013, from: http://www.ted.com/talks/daphne_koller_what_we_re_learning_from_online_education.htm
- Kumar, R. S. (2011). A study of problems and prospects of e-learning in India. Doctoral dissertation, University of Devi Ahilya Viswavidyalaya, Indore.
- Manjul Sahay, (2009), E-Learning for Indian Higher education: The "Complete Solution Approach", Retrieved from http://www.ten.us.com/resources
- Marginson S.(2012). Yes, MOOC is the global higher education game changer. Retrieved from http://www.universityworldnews.com/article.php?story=2012080915084470. University World News, July, 31st.
- Massive Open Online Courses: An initiative under National Mission on Education through Information Communication Technology (NME- ICT) Programme, Guidelines for development and implementation of MOOCs.
- MHRD.(2015). Annual report 2014-2015. Department of Higher Education, MHRD, Retrievedfromhttp://mhrd.gov.in/sites/upload_files/mhrd/files/documents- reports/part1.pdf.
- Palak, D., & Walls, R. T. (2009). Teachers' Beliefs and Technology Practices: A Mixed- Methods Approach. *Journal of Research on Technology in Education*, 41, 417-441.
- Parry, M. (2012). 5 Ways That edX Could Change Education. Chron. High. Educ. 59, B6-B7.
- Ezhilrajan, K. (July 2013), Implementing E-Learning in Teacher Education –Issues and
- Problems, ICT in Education International Electronic Journal | Volume 1, Issue 1 Pierce, R. & Fox, J. (2012). Vodcasts and Active-Learning Exercises in a "Flipped Classroom"
- Model of a Renal Pharmacotherapy Module. Amer. J.Pharm. Educ. 76, 1-5.
- Qamar, A. Q., Allah, N., & Najeebullah, K., (2011), Prediction of the problems, user- satisfaction and prospects of e-Learning in HEIs of KPK, Pakistan, *International Journal of Science and Technology Education Research*, 2(2), 91-98.
- Rodriguez, B. C., & Armellini, A., (2016). Are MOOCs pedagogically innovative? *Journal of Interactive Online Learning*, 14 (1), 17-28.
- SWAYAM. (2017). Guidelines for developing online courses for SWAYAM. Retrieved from http://swayam.gov.in
- UNESCO (n.d.) Distance vs Open Learning. Retrieved from http://portal.unesco.org. https://nptel.ac.in/noc/dated 25.09.2019
- Yeager,C., Hurley, D. B., & Bliss, C. A., (2013).cMOOCs and Global Learning: An Authentic Alternative. *Journal of Asynchronous Learning Networks*, 17 (2), 133-147.
- Retrieved from http://files.eric.ed.gov/fulltext/EJ1018269.pdf.

4

E-Resources: The New Innovation-Types, Advantages and Challenges

Shravan B. Raj* and Dr. Geetha Gopinath**

Abstract

The beginning of the twenty first century has witnessed a growing competition to deliver new digital information services to millions of users. The electronic media has provided many possibilities and opportunities for providing faster and quicker access to information at the global level. Electronic resources on the internet manifest themselves in numerous flavours and categories. Although most of them emulate the traditional publishing while others are revolutionary in their design and approach. While present trend to imitate and emulate the traditional models of scholarly communication may continue for sometime, eventually the capabilities added by the new media would be used in more innovative ways. This chapter focus on the use of electronic resources, its new innovations and the user's awareness of the different types of e-resources, advantages and challenges.

Keywords: E-resources, Virtual Libraries.

INTRODUCTION

Bill Gates reads over 50 books a year on a wide range of subjects but he feels that in the present world the trend is changing and one book, the text book is going to become redundant in time. He believes

*M.A Education, Department of Education and Education Technology, University of Hyderabad.

**Department of Education and Education Technology, University of Hyderabad.

that as software is developing, online learning will become a more effective tool which students can and will access. The tools that are available digitally can make education more efficient, effective and less costly. According to him, "There is never been a better time to be alive if you're curious. When I wanted to learn something outside of school as a kid, cracking open my World Book encyclopaedia was the best I could do. Today all you have to do is go online." Bill Gates, accessed online 2019.

Highlighting the importance of information and communication technologies, UNESCO (1996) observed:".... as tools for the education of children and adolescents, the new technologies offer an unprecedented opportunity to satisfy increasingly widespread and diversified demand, while maintaining quality. The possibilities they open up, along with their advantages for teaching are vast. Computers and multimedia systems, for instance, make it possible to design individual learning paths along which each pupil can move at his or her own pace; they also make it easier for teachers to organise acquisition in mixed ability classes."

The twenty first century has witnessed a growing competition to deliver new digital information services to millions of users. More and more entrepreneurs are entering the domain of providers of services that link up the student and other user to information at a scale as never before such that the knowledge of the technologies of information and communication is becoming imperative for the student and teacher. The current globalization is making the world a global village and it is making viable the exchange of information. Society cannot ignore the impact of these changes as they are the fundamental support systems of a complicated but efficient process. This new resource has provided many diverse and interactive possibilities and opportunities for providing faster and quicker access to information at the global level.

One of the greatest impacts on the current world stage at every level is the availability of academic resources. Education from the basic to the most elaborate and skilled level of higher avenues of learning have proliferated to all strata of society and is opening up the creative and innovative capacities of all races as never before. Information systems have grown exponentially in the last five decades to meet the demands of quality education for all. This growth of higher education is

impressive challenging and presents all the opportunities for equitable and fair growth. Thus there has been considerable quantitative increase in students' enrolment, number of teachers, colleges, universities and research degrees as also qualitative deliveries of learning material and availability of resources. These new technologies are what we generally term as 'E-resources.'

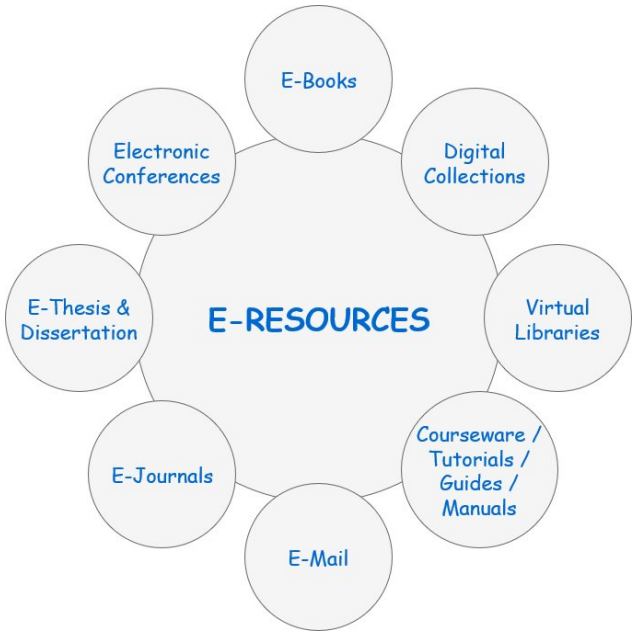
WHAT IS AN E-RESOURCE?

E-Resource or 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, tape, via internet and so on. Over the past few years, a numbers of techniques and related standards have been developed which allow documents to be created and distributed in electronic form making E-resources an inseparable part of the educational system. The place of e-resources in higher education, its potential for enabling growth is immense. It has innovated the

higher education system making it more productive and efficient. In the teaching-learning process, first, the e-resources can be used to stimulate learners to learn actively and independently in a self-directed way and in collaboration with others. Secondly, teaching materials (e-books, e-journals, online database, etc.) are easily accessible to the students online providing better and greater variety of material. Thirdly, it encourages the democratization of education, that is, access to education for all. The universalisation of these systems make it possible for every student (able/disabled, male/female, national/international etc.) to have access to education, from anywhere (home, hostel, college, library, etc.), any time (24 hours/day and seven days/week). Easy and effective communication between teacher-student and student-student on taught/learned content is readily available. Most importantly, instructional content can be easily accessed by a teacher through e-resources providing the teacher opportunities for sophisticated repertoire of teaching strategies (Go, 2000; Kirschner and Woperies, 2003). The relevance of e-resource for teaching is not exhaustive. The teacher's ability to innovate and the student's access to these along with initiative for application will determine how efficiently e-resources can be made effective to enhance the teaching/learning process.

TYPES OF E-RESOURCES

The Internet is a heterogeneous channel with vast educational resources. These resources include: e-books, e-journals, e-mail, inter-linked hypertext documents, online help centres, expert's view, file transfer protocol and so on. Each of these resources has its own set of rules, but they relate to one another in several ways (Monereo et al., 2000). Also we can categorise the e-resources into two: 1) Digital Communications, which includes E-Mails, Listservs, Blogs, Message Boards, Social networking sites, Online tutorials, Online classroom instruction sites and so on.. 2)Digital Collections, including Internet websites, Online image collections, Online audio collections (i.e. iTunes), Online video collections (i.e. YouTube), Online electronic book collections, Online periodical articles collections, Online documents (i.e. PDF files), Wikis (i.e. Wikipedia) etc. and Online finding Aids consists of Indexes, Search Engines, Databases etc.



E-BOOKS

An e-book is the electronic version of a book covering its full contents (text, tables, diagrams, illustrations, etc.). An e-book collection is usually set up in an e-database, which supports full-text searching within and across titles, advanced search and bookmark functions. Users can view full text of e-books in Hypertext Mark up Language (Standardized system for marking text files to achieve font, colour, graphic and hyperlink effects), Hypertext Transfer Protocol (Http) or PDF (Portable Document Format) format online. E-books are usually read on dedicated e-book readers or tablets using e-reader applications. Personal computer and many smart phones can also be used to read e- books.

ELECTRONIC CONFERENCES

Technological developments on the Internet in the early 1990s created an environment which was suitable for holding an electronic conference. In 1994, the electronic means for holding online conferences was set up. The World-Wide Web provided a robust environment for

presenting scientific information. The web permits a document to contain text, figures and links to other materials. This facility enables a wide array of information to be presented at conferences online. In November 1994, the first Electronic Computational Chemistry Conference (ECCC-1) was held.

Electronic Conferences, variably known as electronic forums, electronic usergroup, listservs, and discussion groups are important resources for researchers and scholars in every discipline. New scholars in particular get an opportunity to discover what topics are being discussed in their field, to learn who are involved in these discussions, and to make them known within their discipline by their own contributions.

E-JOURNALS

With the advent of the internet, researchers and academics have recognized the capabilities of the information and communication technologies as efficient means to share results and to get around barriers by full transfer of intellectual property rights from the author to the publisher; it is also a means of improving the slow turn-over of traditional publishing (Correia and Neto, 2006).

An electronic journal is a periodical publication which is published in electronic format, usually on the Internet. An e-journal is a journal available online or offline containing research papers, review articles, scholarly communications etc. It is useful in higher education.Electronic journals relatively provide efficient access to information and thus they are easier to distribute to library patrons than traditional print. In the financial stringent environment of higher education system, electronic journals have become a medium which is cheaper than the traditional printed journals (Ellis and Oldman, 2005). According to Rowley (2006) electronic journals take two different forms: journals that are published in print form, available in digital form and electronic journals which do not necessarily need a publisher, and which can be managed by an editor and the scholarly community. Both types may have a significant impact on scholarly communication and in the way knowledge is created and disseminated.

ONLINE DATABASES

The most effective way to provide access to electronic books/ journals in University libraries is through subscription to online databases

which can be accessed through the internet. Online databases are a collection of electronic information sources (e-journals/e-books) by publishers from various fields and disciplines (Afolabi, 2007). Some ofthese databases are provided free of charge to libraries in developing countries by their publishers or vendors: these include NARI, http://www.healthinnternetwork.org/scipub.php and AGORA:http://www.aginnternetwork.org/en/. Others require subscription fee such as emerald database, http:/www.emeraldinsight.com and Blackwelsynergy:http://www.blackwell-synergy.com.

Access to these databases provide researchers and students with thousands of scholarly articles in their fields of specialization or research (Fatoki, 2004). For students to utilize the growing range of electronic resources they must acquire and practice the skills necessary to exploit them (Okello-Obura, 2010).

COURSEWARE/TUTORIALS/GUIDES/MANUALS

These are web-based educational tutorials or guides called online courseware that provide higher degree of interactivity, flexibility and benefit of self-pace to the users. The courseware available on the internet varies to a great extent, in terms of their coverage and quality, from provision of basic lecture notes and lecture support material to integrated and highly interactive tutorial packages. The online courseware's are in the forefront of technological, multimedia and instructional innovation, designed to provide computer-based training to users over the internet. Some of these courseware's are comprehensive resource kits focused on developing practical skills that can be applied immediately. They are amongst the electronic resources created exclusively for the web, imbibing all features and facilities offered by the new technology. The courseware are proliferating the web as strong contenders for distance education. Institutions of higher learning, especially distance and continuing education departments are actively supporting and contributing to the development and implementation of computer-assisted instructions and multimedia courseware.

ELECTRONIC MAIL (E-MAIL)

This is an instantaneous electronic message from a sender to the recipient. It is the most used application on the internet. Another variant of the e-mail is to provide a list through which a subscriber

receives and participates in a group discussion through the e-mail. Each user has a mail box address to which messages are sent (Griffith, 2002; UCB Library; 2004c&d, University Libraries, 2003;Steinger, 2001). The e-mail is relevant for communication between teachers and students, peers (teacher-teacher, student-student), and with parents. This is the most widely used tool of communication that serves written communication.

ELECTRONIC THESES AND DISSERTATIONS

Theses submitted to the universities as requirement for the award of PhD degree constitute a useful source of information for the new and ongoing research. A thesis contains records of an original contribution to knowledge. Although a large number of doctoral theses are submitted to every university each year, they are not being used to their fullest potential because most libraries keep them in closed-access collections.

Doctoral theses submitted to universities and academic institutions are originally created in digital format using word processing software packages like MSWord, LaTex, Word Perfect, word Pro, etc. These documents are highly valuable tools especially in digital format that qualify to be an important component of a digital library. Several universities and institutions have already implemented electronic submission of doctoral dissertations under the overall umbrella of an international digital library initiative called "Networked Digital Library of Theses and Dissertations (NDLTD)".

DIGITAL COLLECTIONS (IMAGES, AUDIO, VIDEO)

The Internet and web technology is a suitable substrate for multimedia websites including information in the form of text, images, sounds and movies. The web hosts a rich collection of sounds and images, many of which can be used for commercial as well as personal purposes.

THE WORLD WIDE WEB (WWW)

The World Wide Web (www, W3) is an information system of interlinked hypertext documents that are accessed via the internet. It has also commonly become known simply as the Web. The WWW incorporates almost every protocol available on the internet (e-mail, FTP, Telnet, Usenet, etc.). The web provides opportunities for retrieving

text documents, viewing images, animation, and video, listening to sound, speaking and hearing voices, provided one's computer has the capacity and software (UCB library, 2004a&d; University Libraries, 2003). The web relies on hypertext as its means of information retrieval. Hypertext is a document that connects to other documents, that is, the ability to have web pages containing links, which are areas on pages or button or graphic which can be clicked to retrieve another file unto the user's computer.

Hypertext files can be retrieved and searched through a special protocol known as HyperText Transfer Protocol (HTTP) which simplifies the writing of addresses, which are searched on the internet and called up for viewing (Griffith, 2002; UCB Library, 2004d; University Libraries, 2003). The WWW documents are viewed using InternetBrowsers, which are software programmes that allow an Internet user to view documents. Examples are Microsoft Internet Explorer (IE), the most popular and prevalent in our environment, Netscape, Lynx (text only documents), Mosaic, Macweb, NetCruiser, and so forth. They translate HTML encoded files into sounds, text, image, sound and other web features (Griffith, 2003; UCB Library, 2003d)

VIRTUAL LIBRARIES

The term "Virtual Library" or "library without wall" usually refers to the Meta resources or subject portals that extend virtual accessibility of digital collections from several diverse sources without the users even knowing where the resource actually resides. A virtual library could potentially be enormous, linking huge collections from all around the globe, or it could be very small, consisting of a few hundred links to digital resources maintained by an individual.

A virtual library also known as a Digital Library or an electronic Library may be defined as the online facility provided by a conventional library to read books and access other facilities or it may mean a website which offers links to various sites with a large store of information in a catalogued or archived form. The term is more often used to refer in a collective manner to the entire number of online books and other literary material related to any subject available on the Internet.

Virtual libraries can be very useful and very diverse in what they contain. The options for what they can include are virtually endless, and become more and more boundless as technology advances. Some

of the content of virtual libraries may include, but certainly is not limited to CD-ROM, Internet subscriptions, lists of annotated web links, internal work products, proprietary databases and even web spiders or push technology that deliver targeted research to the user.

ADVANTAGES OF ELECTRONIC RESOURCES

A number of studies in diverse fields have highlighted the use of E-resources. These include the fields of education such as in medicine, regular college subjects, engineering, research in similar fields and even in the smart class rooms of schools. These studies(e.g. Day and Bartle, 1998;OkelloObura and Magara, 2008) have highlighted the effects of the use of this technology on students' academic performance and efficacy of the teaching methodology. The common outcome of these studies is that e-resources if used in an efficacious manner can have a positive effect on students' performance. The findings of most studies have shown that the use of the e-resourceshave transformed the field of education and has provided many beneficial opportunities for students and teachers to find and use different resources that are available world-wide. Some of the advantages identified by these studies include the following:

EASY ACCESS

User accessibility is one of the main advantages of E-resources. They can access the desired material within minutes, or even seconds, on their desktops, or other device provided equipment is available. Large collections of material or even the most insignificant material can be searched and retrieved simultaneously and instantly. Databases are updated regularly and there is an active dissemination of information by alerting the readers at their equipment about the new electronic resource that are accepted into the database. This means that e-resources allow intelligent full-text retrieval based on past use and interests as also updated databases.

HELPFUL IN CONDUCTING RESEARCH

The e-resource is a powerful tool for assisting students and educators involved in conducting research. It is a laborious task to go to a library and search through a card catalogue by hand. It can be an inefficient and time consuming task compared to searching for the same information

on a computer. Many institutions offer online library systems which allow students to find information on books using lab computers. It is also possible to access databases of scholarly presentations online.

DATA/ FILE STORAGE THROUGH CLOUD COMPUTING

Cloud computing offers the possibility of outsourcing IT requirements to suppliers on the internet. A professional approach is able to take full advantage of the opportunities offered. It enables procuring cloud services and involves a culture change in the way ICT is provided and exploited within research, teaching- learning and the management of universities. Sourcing from the cloud is one way of meeting short-term peaks in demand for computing requirements, individual software applications, or larger and long-term support and processing services.

The most obvious example of cloud services, now widely exploited by many higher education institutions, is the provision of e-mail, particularly for students. Many colleges and universities also use Web 2.0 tools such as YouTube and wikis for disseminating information and blogs for communicating remotely, usually within closed communities such as a student class or research team. All of these tools facilitate collaboration.

Speed

High speed and efficiency are the benefits of publishing and distributing electronically. Authoring and publishing systems can be integrated easily by computer-readable text. Also, electronic transmission, especially in the review process, saves valuable time.

Linkages

Linkages are one of the most innovative methods to increase mobility in the use of e-resources. These can be enabled by hypertext and hypermedia formats among sections within electronic resources. E-mail contacts would be easier among users, publishers and suppliers. Users have more creative ways to have their information queries answered.

Costs

The e-resources are published electronically rather than in paper and no new costs are introduced. These enable the dissemination of information without the destruction of forests and nature as also reach a

wider community in seconds rather than the whole process of printing and distribution.

Multimedia

Innovative ways of presenting research results can be supported by an electronic page layout. Interactive three-dimensional models, motion video and sound are a few possibilities. Commenting on the advantages of electronic resources, Dadzie (2007) writes that electronic resources are invaluable research tools that complement the print-based resources in a traditional library setting. Their advantages include:

- Access to information that might be restricted to the user due to geographical location or finances.
- Access to more current information
- Provision of extensive links to additional resources related contents.

This rapid emergence and development of electronic information technologies therefore makes it possible to envision radically different ways of organizing the collection of information and provision of services the library has traditionally provided. While conventional libraries approach a crisis point in financing collection development, these new technologies offer possible ways to mitigate costs and revolutionize ways to access information. Navjyoti (2007) also finds that speedy publication and availability on the desktop are the key advantages that attract research scholars.

DISADVANTAGES OF ELECTRONIC RESOURCES

Besides the benefits of e-resources use, a number of publications have shown the adverse impact of e-resources on university and college students, such as discomfiture in reading on the screen, problems in internet access and speed, poor infrastructure, lack of sufficient skills to use the e-resources, and perceptional change resulting from right to use rather than physical possession (Chauhan, 2004) etc. Some of the adverse impact are discussed as follow:

Plagiarism

The abundance of e-resources on the internet do encourage students to copy out others work to be presented as theirs. These resources are free and downloadable. Even though they are easily acquired, the continuity of availability of such resource would be an important issue.

Lack of reliability and quality of information

Not every information on the Internet is useful for educational purposes. At times information comes from unknown and sometimes unreliable sources. The e-resources on the internet are sometimes not regulated or monitored, for there is no quality control. (Monereo et al., 2000; Paris, 2003).

Quality control issues with online information

Part of what makes the issue of information overload so problematic is that not all of the information on the internet is of high quality, and there is no quality control mechanism to help parcel out the reliable from unreliable information. Many papers that have not been peer reviewed or gone through some other vetting process are now out in the public domain. This results in the need for scholars to sort through and figure out what is quality information on their own.

Overload of information

The overload of information could result in frustration as the users may not have the mind or the stamina to go through and sieve information. There is a large amount of material on the internet and users could become overwhelmed and frozen preventing proper use.

Financial Constraints

It has to be admitted that the cost of equipment like lap tops, desk tops, scanners, printers, boosters, etc. could be prohibitive The infrastructure required for displaying, storing or printing electronic resources are expensive. Downloading and printing are also costly. This could result in an increase in economic and ecological costs which may be detrimental to the common person..

Social Constraints

As electronic technology increases, its interface with other auxiliary systems is increasing. Such interface can take a long time to master. Electronic searching using search engines and key words, downloading and printing replace the traditional activities of physically browsing, scanning and photocopying. These somewhat intricate steps to accomplish the previously simple or habitual tasks could become

difficult for users even if they are knowledgeable due to the lack of control over the website, connections, range etc. In addition, people read up to 25 to 30 percent more slowly on a computer screen than on paper.

Technological Constraints

Despite the advantages of e-resources, the academic community can be divided into 'haves' and 'have-nots.' There are limits to the ability of people to access equipment and the network. Sometimes, the service providers are unable to provide enough speed. In addition, the aspects of graphics and animations have a long way to go in developing.

CONCLUSION

E-resources and their use is challenging and enabling. Their selection, acquisition, preservation, maintenance and management is a science by itself needing proper training and experience. These resources come with many advantages giving solution to many professional problems like solution to space problems, providing remote access, convenience in use, increased readership with improved services, leading to more opportunities for productive research output and academic excellence within short time. Recent studies have also proved that in researchers' opinion, improved access to e-resources have positively influenced their research activities by helping them to keep up-to-date and with minimal use of time.The e-resources available in different formats help and support the faculty to carry out teaching and research in an efficient and quick manner. This is possible because e-copies are available anytime and anywhere. The present age is rightly characterized as the age of information. The fact that information is a key resource for economic, socio-cultural and political development of a nation is a grounded reality.

One other important area of interest is that the electronic resources represent new systems that have ushered in a variety of possibilities that can help library information management systems in an efficient and effective acquisition, organization and dissemination of information. E-resources are being increasingly used in library and information centres in a variety of ways. Multimedia systems have shown great potential for libraries. The network of information have enabled the learner and researcher to go beyond time and space. By virtue of using a variety

of electronic resources and its tools and techniques, academic libraries are now able to generate various kinds of information products and services.In fact, the act of presentation of information and retrieval are so much more efficient and available. The innovations of the electronic media have opened up permutations of possibilities that are becoming the backbone of society and literacy is now getting a wider definition. Beyond reading and writing literacy in the present world is also to be able to use electronic media for everyday living.

REFERENCES

- Aggarwal, J. C. (2009). Essentials of Educational Technology, 2E. Vikas Publishing House Pvt.
- Anjana. (2016). USE OF E-RESOURCES IN HIGHER EDUCATION: ADVANTAGES AND CONCERNS. International Journal of Advanced Research, 4(12), 2476– 2481. https://doi.org/10.21474/IJAR01/2672
- Bhatt, D. P. (2012). Educational technology. New Delhi: APH Publishing.
- Bill Gates, accessed online 2019. https://www.cnbc.com accessed online 2019.
- Shodhganga.inflibnet.ac.in. (2019). [online] Available at: https://shodhganga.inflibnet.ac.in/bitstream/10603/120460/7/07_chapter%202.pdf [Accessed 16 Oct. 2019].
- Gallagher, M. (2017). Educational technology for teaching and learning. New York, NY: Larsen & Keller.
- UNESCO (1996), INDIRA GANDHI NATIONAL CENTRE FOR THE ARTS JANPATH, NEW DELHI – 110 001, www.ignca.gov.in https://shodhganga.inflibnet.ac.in/bitstream/10603/120460/7/07_chapter%202.pdf. http://www.journalijar.com/uploads/866_IJAR-13580.pdf.

5

E-Resources

Kunjummen T. Tharian*

Abstract

The rapid advancement of information and communication technology (ICT) has brought a revolutionary change in the information scenario giving rise to a number of options to handle varied information sources conveniently and effortlessly as a result of which e-resources have become the most sought after modern library's reserves in satisfying varied needs of students, teachers, and researchers with maximum risk and time. E-resources are increasingly important to all aspects of education-from teaching and learning, this chapter clearly explains concept and types of e-resources, relevance of e-resources, impacts and issues in present scenario.

***Keywords**:* E-resources

INTRODUCTION

The digitization of information in print media has brought a new concept altogether in all the fields of human life and this is marked as the 'information era'. An electronic resource is defined as a resource which requires computer access or any electronic product that delivers a collection of data, be it 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. These are more useful due to inherent capabilities for manipulation and searching, providing information access

*Assistant Professor, Department of Vocation, CMS College, Kottayam.

is cheaper to acquiring information resources, savings in storage and maintenance etc. and sometimes the electronic form is the only alternative.

The developments in scientific publishing and the pricing policies of publishers posed new challenges and opportunities for academic libraries in purchasing and managing the serials within their restricted budget. The library and information services of the 21st century is fast changing. With the rapid development of electronic publishing, libraries are not only acquiring reading materials such as printed books and journals but also arranging for providing access to various learning resources in electronic form.

The web resources and the use of web as a tool is changing the way users live and learn. While in the early phase, the World Wide Web was mainly used for push type applications to provide information and resources to users, the development of Web 2.0 and the spread of open sources and shared use concept have focused on user generated content and applications for sharing. This has led to the rapid development and popularity of electronic resources. E-Resources are occupying a significant portion of the global literature. They refer to information sources in electronic form. The different types of e-resources are, E-books, E-journals, Databases, CDs/DVDs, E-conference proceedings, E-Reports, E-Maps, E-Pictures/Photographs, E-Manuscripts, E-Theses, E-Newspaper, Internet/Websites-Listservs, Newsgroups, Subject Gateways, USENET, FAQs etc. These may be delivered on CD-ROM / DVD, over the Internet and so on. Providing access to e-resources is a service to help library users to find e-Databases, e-Journals, e-Magazines, e-Books/ e-Audio/ e-Images, Data/ GIS, Digital Library Projects, Electronic Exhibitions, e-Subject Guide, e-newsletters, E-conferences proceedings and Web search tools on a range of topic.

The electronic books are helpful because of their easy portability and its feature of incorporating more than one book in a single hand held device. The published materials are also available on open access platform. This helps the poorer also to get the information required free of cost and bridge the digital divide. They need not worry for licensing and usage of the information.

According to Dr.S.R. Ranganathan, in his fifth law Library is a growing organism. Library is not a store house of books; it is a knowledge Centre. Every reader visits the library with the intention to get the solution for his problem. Library should fulfil the needs of user community. The development of information technology and the dissemination of Web

environments have a dramatic effect on the user behaviours in information usage. The workflows from acquisitions to user services and the life cycle of electronic resources is quite different from that of print resources since it is characterized by access without holding the physical objects. As libraries build ever-larger collections of electronic resources, finding ways to manage them efficiently becomes a major challenge.

The number of electronic journals, citation databases, and full-text aggregations held by most libraries has grown rapidly. Managing these electronic resources involves providing the library's user with convenient ways to find and access them and providing library staff with the tools to keep track of them. Most of the Library resources in the recent past are being made available in electronic formats such as e-journals, e-books, databases, etc.

Libraries are moving from print to e-resources either subscribing individually or through consortia because of its advantages over print resources. Recent studies show that users prefer e-journals than the print. As licensing electronic resources has greatly increased in recent years, libraries have struggled to control this information in paper files, integrated library systems, separate databases stored on local computers or network.

NEED OF E-RESOURCES

E-Resources enable the librarian to provide better service to the user community. The few considerable points are mentioned bellow:

- To get access to an information source by the more than one user.
- E-Resources can be searched quickly.
- These can be found easily by the user.
- These resources can be stored in huge amount.
- Amount of time spent on the E-Resources use.
- Analyses the purpose of using e-resources by respondent
- Know different types of e-resources commonly used by respondents
- To collect, store, organize information in digital form.
- To promote efficient delivery of information economically to all the users.
- To encourage co-operative efforts to save and share the investments in research resources,
- Computing and communication network.

ADVANTAGES OF E-RESOURCES

- The contents of pages and/or the full text of journals can be easily found out and articles related to any certain subject can be easily searched.
- Journal articles are on your desktop; you don't have to be in the Library.
- It can be very easy to email articles to yourself or download them for printing.
- The article that you want to read will always be available, even when the Library is closed.
- Hypertext links allow you to move to different sections within individual journals or articles and can link you to related resources on the Internet.
- Journals can include more images and audio-visual material.
- Journals can be interactive you can e-mail the author or editor with your comments.

DISADVANTAGES OF E-RESOURCES

- Difficulty in reading.
- Highly expensive resource.
- Needed High Infrastructure.
- Needed User Training to access.
- Excessive Printing of documents.

Types of E-Resources

SL. No.	Type of E-Resources	Description
1.	E-Books	E-books is the many formats competing for prime time, including Adobe PDF, Microsoft Reader, E-reader, Mob pocket Reader, EPUB, Kindle and iPad.
2.	E-Journal	An e-journal is very important part of every library collection. E-journals are one application of information technology.

SL. No.	Type of E-Resources	Description
3.	E-Newspaper	An E-newspaper is also known as online newspaper or web newspaper that exists on the World Wide Web or internet.
4.	E-Magazine	An E-Magazine is very important part of every library collection. E-Magazines are one application of information technology.
5.	Indexing and Abstracting Databases	These are the reference sources which provide bibliographic information about journal including abstracts of the articles.
6.	Full text database	Presently, there are different types of databases available on the network. They are either free or with charges. E-databases is an organized collection of information of a particular subject or multidisciplinary subject areas, information within e-databases can be searched and retrieved electronically.
7.	Reference database	These are many Dictionaries, Almanacs, and Encyclopaedias, which are available on internet in electronic format.
8.	Statistical database	These databases contain the numerical data useful for the mass community.
9.	Image collection	Due to adventure of E-Images facility these types of databases are developed
10.	Multimedia products	These types of databases include audios, videos, images, etc.

SL. No.	Type of E-Resources	Description
11.	E-Thesis	These databases are contained with PhD thesis and Dissertation published through e-format.
12.	E-Clipping	The main objective of e-clipping is retrospective search and comprehensive analysis of new items.
13.	E-Patents	E-patents is the exclusive right granted by the government to make use of an invention for a specific period of time.

IMPACT OF E-RESOURCES ON LIBRARY AND INFORMATION SERVICES

The Internet e-resources is transforming the library system and as well the way in which we view information sources. It has made simple and speedy purchase of information sources like books, journals and electronic publications. Many publishers catalogue tools like 'Books in prints' as well as forms for ordering documents are available on the internet. The librarians need quick access to books, journals and electronic publications. Internet access is the simple and efficient method for access and updating the documentation and interface of catalogue of all libraries. The request for Inter Library Loan (ILL) can be sent via e-mail and the photocopies may be sent by post fax, via e-mail after scanning the documents.

The development of information technology and the dissemination of Web environments have a dramatic effect on the user behaviours in information usage. The workflows from acquisitions to user services and the life cycle of electronic resources is quite different from that of print resources since it is characterized by access without holding the physical objects. As libraries build ever-larger collections of electronic resources, finding ways to manage them efficiently becomes a major challenge. The number of electronic journals, citation databases, and full-text aggregations held by most libraries has grown rapidly. Managing these electronic resources involves providing the library's user with convenient ways to find and access them and providing library staff with the tools to keep track of them.

Most of the Library resources in the recent past are being made available in electronic formats such as e-journals, e-books, databases, etc. Libraries are moving from print to e-resources either subscribing individually or through consortia because of it advantages over print resources. Recent studies show that users prefer e-journals than the print. As licensing electronic resources has greatly increased in recent years, libraries have struggled to control this information in paper files, integrated library systems, separate databases stored on local computers or network.

ISSUES OF E-RESOURCES

- **Licensing:** E-Resources need the license from the published to the library for making use of it.
- **IPR:** E-Resources can be easily copied and forwarded to the another person so librarian should be alert about IPR(Intellectual Property Rights)
- **Standards of metadata:** There are standards for metadata description like MARC21but the available e-resources in the market are not standardizing by MARC21.
- **Low budget:** Libraries are non-profit organization so they cannot purchase and afford the Costly electronic resources.
- **Skill manpower:** To handle the electronic collection the proper skills are required among the Staff but libraries are lacking of skill manpower.
- **Lack of infrastructure:** Electronic collection is supported by Information and Communication Technology components.

CONCLUSION

The implementation of e-resources proves accurate to the old age standard that 'Every human should get information at e-resource which is helpful to ensure exhaustive and pinpointed information'. The e-resources provide themselves various search options to the user and library manage. Using of e-resources enable the library to save space of library and time of the users. E-resources are useful for libraries as well as each and every users of the society who are starving to get a variety of information through the globe. The Developments in the information

and Communication Technology services are available in the present made wonderful changes in the library operations. Its advantages are for technocrats, usage of the electronic products improve the knowledge of user. E-mails and RSS alerts carry the information for the individual to become aware of the user. Enhancement in Infrastructure like high speed network, wi-fi in the campus, LAN portals at various rights to use points in the campus and also in departments can be prepared to improve the practice effectively.

REFERENCES

- **A**bbas Khan, A. A., Minhaj F. & Ayesha, S. (2007), E-resources: E-books and E-journals in E- libraries: Problems and perspectives, Ed. By Ramiah, Sankara Reddy and Hemant Kumar. Allied, New Delhi.
- **B**arman Badan, (2012), Library and Information Science: UGC NET guide, DVS Publishers, Guwahati. 125-126.
- **B**hat, Ishwar. (2009). Increasing the Discovery and use of e-resources in University Libraries. 7th International CALIBER-2009.
- **G**anski, Kate L. (2008). An Evaluation of the Accessibility of E-resources from Theological Library Websites. Theological Librarianship: An Online Journal of the American Theological Library Association, 1 (1). 38-45.
- **G**irish Kumar H., Vasant R. & Praveen J.K., (2005), Use of electronic resources by research scholars in CFTRI, Mysore: A study. ILA Bulletin, 41(3), 16-20.

6

E-Content for Effective Teaching and Learning in Self Paced Learning

Pramod Thomas George* and Prof. (Dr.) Jaya Jaise**

ABSTRACT

Progressive developmental strides in ICT has contributed vested to the organizing and managing of learning and assessment in learning. Students, teachers, educational administrators and every stakeholder in education have been benefitted by the integration of ICT in education. Rests of this are going to deal with these issues at a greater strength. Application of ICT in Education has precedence of developments through educational technology. In the present day, ICT has all the strength of erstwhile, even the field of educational technology has renamed itself as ICT. In this sense, ICT includes both traditional as well as modern educational technology so called advanced learning platforms. Today the entire world is moving fast towards digitization and the eager to learn new things using new technologies. The evolution of computers especially the internet has affected all spheres of our life. Ten to fifteen years back we used to spend our time in the library for information in books, magazines and journals. Now a day one can go for the information in the web sites. Well trained teachers with required knowledge, skills and commitment can develop scientific and critical thinking, promote tolerance and develop cultural and social values in them. Innovative

*Research Scholar, School of Pedagogical Sciences, M G University, Kottayam, Kerala.
**DEAN Faculty of Education & Head of the Department. School of Pedagogical Sciences, MG University, Kottayam, Kerala.

technologies will make it possible to achieve these by providing new ways to teachers. Hence, as teachers it is important to meet these new challenges by continuously acquiring new knowledge and skills to discharge our duties effectively.

Keywords: Influence, benefitted, strength, trained teachers and innovative

INTRODUCTION

E-content simply means Electronic content. E-content is a combination of text, audio, video images, animations with visual effects. E-content are technology based and it serves as an aid to learning. Electronic content as Digital content is defined by those involved in creating, providing and distributing information as the digitalized content, which is viewed onscreen and not on paper (Albina and Benjamin 2013). E-content includes the delivery of content via all forms of electronic media including the internet, audio/visual aids, interactive TV and CD ROM. E-content satisfies conditions like minimization of the distance, cost effectiveness, user friendliness and adaptability to local conditions (Sexena, 2011). E-content is the digital information delivered over network based electronic devices i.e. symbols that can be utilized and interpreted during the communication processes, which allow them to share visions and influence each other's knowledge as well as attitude of behavior (Buchholz and Ansgar, 2005).

NATURE OF E-CONTENT

E-content should essentially be didactic in nature. The term 'didactic' refers to contents such as self-instructional material, audio and video that conveys some moral fact of learning. In virtual education, the self instructional materials are essentially didactic in nature. According to Selinge (2004), "e-content should be seen as a tool to improve the understanding, engagement and motivation of learners; to provide a safe environment for them to experiment and explore their conjectures; and to test their understanding using novel assessment methodologies based on trail and improvement; simulations and manipulation of model". The didactic nature of e-content seems to fulfill this condition while the learner reading the didactic content builds an understanding and then assesses that understanding. E-content can also be utilized as reusable learning object.

Bandda, S.O., 2006. Development of Modern ICT and internet system Abuja : Pan of Press.

Importance of e-Content Development

Ministry of HRD, Government of India has introduced several e-Content development programmes like National Programme on Technology Education Learning (NPTEL) by offering free online video lectures in engineering, science and humanity courses. NPTEL is an open courseware initiative collaboratively started by seven Indian Institutes of Technology (IIT) and Indian Institutes of Science (IISc). The objective of this programme is to enhance the quality of engineering education in the country by developing more than 200 curricula-based video and web courses. Enhance Edu of IIIT Hyderabad is offering teacher training programmes for engineering college faculty by giving importance to electronic content for the Indian society.

A certificate programme in Information Technology for engineering college students is also being offered to make them industry ready in the form of using Learning By Doing (LBD) methods. The National Mission on Education through ICT is another MHRD initiative that concentrates on developing hands on workshop and remote learning on electronic stream called 'Virtual Labs". It's objective is to cater to both post graduate and under graduate students who do not have sufficient infrastructure lab facilities in the colleges, by participating in these online hands-on workshops. Another example of IGNOU is its online courses for distance learners which provide high quality experiment that inspired many other education institutions to deliver online courses in electronic form for students. The advantage of keeping content on Internet is that it helps the user to access the information whenever and wherever it is wanted.

Benefits of e-Content

Increasingly, organizations are adopting e-Content as the main delivery method to train employees. At the same time, educational institutions are moving toward the use of the internet for delivery, both on campus and at a distance mode. For the instructor, tutoring can be done at anytime and from anywhere. Online materials can be updated, and learners are able to see the changes at once. When learners are able to access materials on the internet, it is easier for instructors to direct them to appropriate information based on their needs.

- **Multi access:** Despite teacher, student or tutor, the accessibility of information is made available 24 x 7 days on websites. The challenge part is that the access of information by users for which project implementers have to update the websites continuously. Adoption of technology in eLearning not only helps the individual but also benefit multiple users at the same time.
- **Speed:** In electronic resources, the use of the search feature has contributed to quicker and faster locating and extracting of the required page. Integration of information from one to many and, cross search reference between different publications has become very easy.
- **Functional:** Starting with content page to index page with prominent links will ease user navigation skills. e-Resource will also allow user to identify the publication with a single mouse click.
- **eContent:** e-Resources can contain a vast amount of information but more importantly the material can consist of mixed media, i.e. images, video, audio and animation which cannot be replicated in print.
- **Storage:** With the increasing storage capacities and multi variant devices, the ability to store and retrieve large amounts of information has become simple and transparent. Various storage devices like Servers, CD-ROMs, Pen Drives, Hard Disks and Internet Bandwidth are improving their capacities to handle substantial amount of content over the web.

STRATEGIES SUITED FOR E-CONTENT

Saxena (2011) suggested the following strategies for the development of e-content.

(1) Learning by doing and learning by investigation

Learning by doing refers to the capability of learners to improve their understanding by regularly repeating the same type of action by applying some innovation from their end. The learning by investigation refers to process of acquiring knowledge by inquiring into a matter through formal procedure of discovery.

(2) Learning by using themes

The word thematic refers to "relating to" or "constituting" a topic of discourse. This is helpful in arousing the interest of the learner. The teacher can build a theme around a topic that is to be taught.

(3) Learning by testing /evaluation

The way of providing education has changed but the way in which assessment is conducted hasn't changed. There is a need to look at student evaluation differently from the point of view of educational outcomes. Evaluation of student must be multi-level and support continuous improvement of methodology to achieve the learning objectives.

(4) Learning by simulation

Simulate means to imitate. A simulation is a representation of a model of a specific / real or imagined object, system or phenomenon. Most e-content enables to be repeated. Symbolic representations can be constructed that approximate the look and feel of the real or the imagined environment (Merrill *et al,* 1922). The understanding of certain aspects of astronomy, chemistry, physics, biology, geography, economics, commerce and mathematics can often be enhanced through the use of corresponding representation model.

(5) Learning by Role-playing

Role play enables learners to get involved with the problem. It arouses their interest. In a role playing situation, the learners are supposed to translate their knowledge into action by creating a strategy. This transforms their learning into a challenge. This enhances the chances of their learning as well as their evolving of innovative ideas to find solutions to the problems that come in their way.

INSTRUCTIONAL INTERVENTIONS

The practice of creating instructional experiences is solely to make the acquisition of knowledge and skill more efficient, effective and appealing. The process broadly consists of determining the current status of learner understanding, defining the end goal of the instructional material and creating some 'intervention' to assist the transition. The most common and popular model used for creating instructional materials is the ADDIE model, the abbreviation representing the five phases involved viz. analyze, design, develop, implement and evaluate. This cycle can be repeated until the exact model is arrived. Instructional objectives should be specified and delivered. This model is very simple

and requires a resource rich environment is for making teaching and learning effective. Since educational resources are mostly copy righted there is a movement to produce learning resources with no or very less copy right restrictions. Dick, Carey & Carey method can be a beneficial way here.

FORMS OF E-CONTENT

There are two forms of E-Content, they are SLO and Module.

SLO -Short Learning Objects (SLO) is a new way of thinking about learning content. They are much smaller units of learning, typically ranging from two to three minutes. It may be a description about an item, equipment, a concept, a process, an activity, etc.

MODULES-E-Learning modules are larger independent structural experiences, containing objectives, learning activities and assessment. In other words, it is a comprehensive package which contains a lesson. It contains lecture modules with inbuilt visuals, text, quiz, FAQs, assignments, glossary, case studies, references, discussion and download. The output is deployable on the web or CDs.

STEPS INVOLVED IN THE PROCESS OF E-CONTENT DEVELOPMENT

The following steps have to be taken in the process of E-Content development:

Step 1: Writing the Script

Step 2: Making required corrections (grammar, spelling, consistency, meaning, factual items, names, etc.)

Step 3: Collecting all visuals and pictures needed.

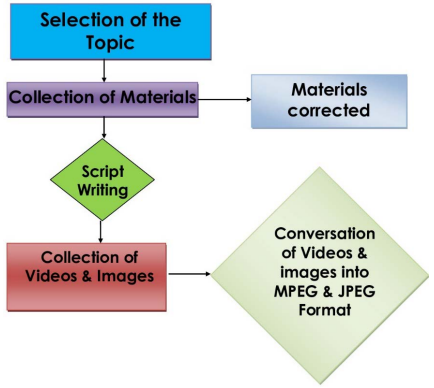
Step 4: Preparing a story board (show details line by line in three columns)

Step 5: Video Shooting (Practice for Camera)

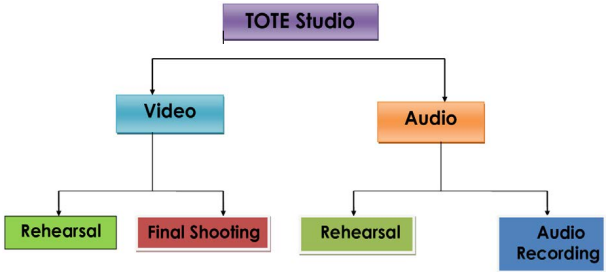
Step 6: Editing the Video

FLOW CHARTS: Flow charts have been prepared for the process of developing E-Content. The E-content module was developed at Bharathidasan University, Trichy, Tamil Nadu with the help of the technicians. The flow charts are divided into four types, they are, Pre-production Process, Shooting and Recording Process, Editing Process and Post-production Process.

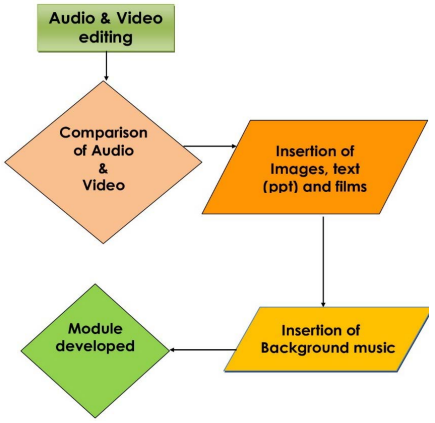
1. Pre Production Process



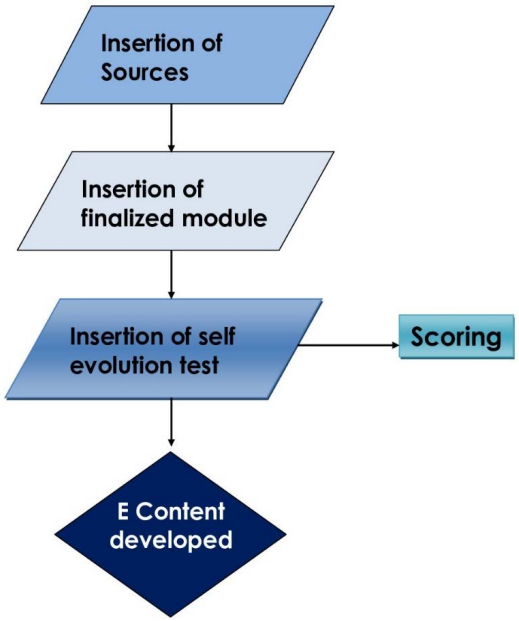
2. Shooting and Recording Process



3. Editing Process



4. Post – Production Process



STAGES OF E-CONTENT DESIGN PROCESS

Unfortunately, existing materials cannot be automatically transformed into e-content materials by just making them available from a website. A systematic and a scientific approach is needed to develop quality content. The e-content should follow appropriate instructional design methodology in order to assure meeting of learning objectives and expected outcomes. The effort spent in content preparation should be re-usable across various learning management systems. All the e-content materials should focuses on (a) **Cognitive perspective** that emphases on the cognitive processes involved in learning as well as how the brain works; (b) **Emotional perspective** that gravities on the emotional aspects of learning, like motivation, engagement, fun, etc.; (c) **Behavioural perspective** highlights the skills and behavioural outcomes of the learning process, role playing, settings of job and (d) **Contextual perspective** that concentrate on the environmental and social aspects which can stimulate learning. The e-content development aspects comprise of six stages described as follows (Nachimuthu, 2012).

The Analysis Phase:
- It is the most important stage as it identifies our current situation comprise of subject experts, target audience and their skills, objectives, budget of the e-content, delivery methods and its constraints with due dates.

The Design Phase:
- This stage involves the complete design of the learning solution. It helps to planning of an e-content preparation. The issues like use of relevant software; required skills; creative and innovative interactions of subject contents like texts, pictures, videos and suitable animations are addressed.

The Development Phase:
- It concerns the actual production of the e-content design. It helps to create the e-content by mixing of texts, audio, video, animations, references, blogs, links, and MCQs (multiple choice questions) with some programming specifications like home, exit, next etc.

The Testing phase:
- It helps to administer the e-content in the actual educational field. In this phase, the spelling mistakes, content errors, clarity of pictures, relevant videos, appropriate audios, timing of animations, and hyperlinks are tested.

The Implementation Phase:
- It helps to administer the e-content to the target audience. This phase explains how to install and how to use it and their difficulties experienced while using e-content. It checks the product accuracy and quality maintenance.

The Evaluation Phase:
- It helps to satisfy the e-content and its effectiveness. This phase considers feedback from both learners and instructors. After the feedback reactions, the econtent is designed again as post-production for effective delivery of e-content.

SELF LEARNING PACKAGE

A self- learning package is a document containing all that is necessary for a student attain one or more educational objectives independently of the teacher. Using these packages, the student can take over a large part of his training, while the teacher remains available when needed. The following self learning package can be used in e-content for effective teaching andlearning in self paced learning.

1. E-Resources

Pictures, photos, audios, videos, demonstrations, animations and graphics etc can be included based on the interest of the investigator or producer. The main thing is that the learner should accessible and the knowledge should be worthfull in nature that can induce once interest

to learn. These things should be kept in mind while preparing a perfect content based on the learners level of understanding.

2. Text format

Text font selection is the main area of concern regarding the E-content presentation while developing a package. The preferred font may be taken as Times new roman, Bookman old style, San serif and Serif etc. The visionary and style of the font can also form an important aspect during development.

3. Video

Avoid ambiguity while preparation, casual, providing enough space between words and sentences, correct pronunciation for the words, relevantness, modulation, voice pitch corrections, clarity in visual presentation mode etc should be done for perfection.

4. Image, photo and picture

Quality items should be selected while downloading. High resolution formats are fairly preferred and pixels should be high rated so that magnification or zooming will be done at learning leads to usefulness among learners.

5. Script writing

The Scrip writing is an art. It reveals the interest of the investigator and it will help the developer too, for a successful development of a package. Specific sentence, highly relevant with simple meaning is accepted. Being a writer, one should not include his/her higher level language to complete the work. Script should be easy to read and the learner should not have difficulty in understanding its meaning. Higher level of language style or tough words should not be used anywhere else. Most important is that the script should be written according to the level of learner's class precision is highly required. It should be like an actual classroom practice environment.

6. Perfect Module

Dynamic nature should create interest, interactive, well organized effective integration of multimedia components, hypertext and

hypermedia functionality should be checked with easy navigation functionality. Well planned, simple in language style, avoid jargons, general instruction should be neat and clear, avoid complex sentences and it should be crisp. Without comma's having long sentences should be avoided, need motivation in between, things should be conveyed from known to unknown.

7. Performance gap

This is an important area while dealing with developing an instructional design. This lies between the actual performance and the desired performance. The module effectiveness can be identified here.

8. Graphics, Audio and Video-Creating and Editing

There are several audio, video and graphic creators and editors available online. Some are free and some are proprietary. Format Factory 2.96 has wide range of handy functionality in individual media editing and format conversion as a single software. Video, image and audio transformation have differences in their nature. It can change videos to (.mp4,. avi,. 3gp,. rmvb,. gif,. vob,. mov,. flv, and. swf), audios to (.mp3,. wma,. flac,. aac,. mmf,. amr,. m4a,. ogg,. mp2,. wav,. wave pack) and pictures to (.jpg,. png,. ico,. bmp,. gif and. tif). It also has video and audio joiner, mux file creator,ROM device/DVD/CD/ISO maker etc

- **We video** is a video creator and editor that allows to edit and make video in an easy and intuitive way. It allows controlling the video sections easily in areas like the transition, fast and slow motion, adding effects etc.
- **Magisto** is a video editor that can help to make video in just a few steps. Upload the video, choose one of the premade editing styles, add a sound track, and add a title and the video will be ready for download or for sharing.
- **Draw Pad** is a graphics editor and is easy-to-use image composition and manipulation program for all types of graphic design projects. One can make sketches and paintings on your computer create logos, banner ads or billboards, draw diagrams, icons and other web graphics Photo Shop is well known and widely used graphic editing software. It helps in image editing and drawing. One of

the important features of Photo Shop is a layer style that allows you to create graphics quickly with ease.

- **My Paint** is a graphics editor that can be easily used by teachers and students for digital painting. It enables people to create quick sketches and also complex artistic drawings on their computers.
- **Inkscape** is free, open source vector drawing and editing tool. It is a useful tool in doing line art. Inkscape can be used in all major computer operating systems like Linux, Mac and Windows. It can be imported and exported to many major file formats.
- **GIMP** is a robust image editor. It is well known open source software available as completely free. It is a good alternative to Adobe Photo Shop and has most of the characteristics of Photo Shop. It has the features like powerful painting tools, layers and channel support, multiple undo/redo, editable text layers etc.
- **Wave Pad** This is audio an editing software. This is a full featured professional audio and music editor for Windows and Mac. It lets you record and edits music, voice and other audio recordings. When editing audio files, cut copy and paste parts of recordings and then add effects like echo, amplification and noise reduction. Wave Pad works as a wav or mp3 editor.
- **Audacity** is free open source audio editing software. It is an easy to use multi track audio editor and recorder for Windows, Mac, GNU/Linux and so many other operating systems. Using audacity you can record live audio and also computer playback on the windows, vista, etc. It can convert tapes and records into digital recordings or CDs. Change in the speed and pitch of a recording. Numerous effects can also be given to the audio material.
- **Video Pad** is a powerful and easy-to-use video editor that lets you import videos, add music and effects, then burn to DVD. One can edit video from any camcorder Capture video from a DV camcorder, webcam, or import most the video file format. More than 50 visual and transition effects are available to add a professional touch to your video.
- **Open shot** is a free, simple to use open source video editor for Linux. It is a user friendly software, everyone can use and get great results. Open shot can take peoples' videos, photos and music files.

It helps to create the film as one feel like, can easily add sub-titles and transitions.

- **DVD, You Tube**, and many other formats. Open shot integrates well with two other open source programs that are 'Inkscape' and the 'Blender 3D' animation program. It supports many video, audio and image formats. Audio mixing and editing is possible in Open shot.
- **Concept mapping** Digital concept mapping tools are another versatile tool for creating e-content in visual form. There are both online and offline concept mapping tools and these are some time referred as mind mapping tool. Teachers can easily create concept map on various topics, also they get a chance to edit it, link it to the websites, and add graphics.

CONCLUSION

A systematic and scientific approach is needed to develop quality content. Instructional design is the teaching device that makes instruction as well as instructional material more engaging, effective and efficient. There are three learning theories (cognitivism, constructivism and behaviourism) supports the instructional design as backbone. Cognitivism envisages the organization of content, storing and retrieving of the content. Constructivism supports the learner centred holistic approach in learning. Behaviourism stresses in reinforcement and retention, transfer of knowledge in e-content development. As in the case with most innovations, one can't understand the real impact until people are actively exploring e-content. Even though most students are already using e-content and many faculties have received proposals from publishers to distribute their content. The sooner a campus establishes a process for supporting its community's exploration of different models of e-content, the sooner it will be able to help positively influence the e-Content market place and also address the largest priorities of higher education today, learning in new effective ways while simultaneously lowering the cost of education.

REFERENCES

- Alessi SM, Trollip SR. *Multimedia for learning: methods and development (3rd ed)*. Needham Heights, MS: Allyn & Bacon, 2001.
- Bandele, S.O., 2006). *Development of Modern ICT and internet system*; Abuja: Panof press.

- Buchholz Andrea, Zerfass Ansgar. *E-Content in Europe*: Dimensions of an Emerging Field. MFG Baden-Wurttemberg, Germany, 2005.
- Dick Carey, Carey. *The systematic design of instruction* (6th ed.) Needham Heights, MS: Allyn & Bacon, 2005.
- Greer M. *ID project management*: Tools and techniques for instructional designers and developers,1992.
- Harshitha, D. & Rao, D.B. (2004). Methods of Teaching Information Technology, New Delhi : Discovery publishing house.
- Heo H. The trends and future directions in educational information and media research in Korea. Journal of educational information and media research. 2006; 12(2):189- 212.
- Johassen, D.H., (2004). Handbook of Research on Educational Communication & Technology. Mahwah: IEA publications
- Kozma RB. Technology, innovation and educational change: A global perspective. Eugene, OR: International Society for Technology in Education, 2003.
- Meysun Hamdi, Thair Hamtini M. *Designing an Effective e-Content Development Framework for the Enhancement of Learning Programming*. International Journal of Emerging Technologies in Learning. 2016; 11(4). ISSN: 1863-0383
- MOE, HRD, KERIS. *Adapting Education to the Information Age*: White Paper. Seoul: KERIS, 2006.
- Ray, A.K. & Acharya, T.(2009). *Information Technology principles and Application*s, New Delhi: PHI Learning Private Limited
- Seels B, Richey RC. *Instructional technology*: T*he definition and domains of the field.* Washington, DC: Association for Educational Communication and technology, 1994.
- Smaldino SE, Lowther D, Russell JD. *Instructional technology and media for learning*. Upper Saddle River, NJ: Pearson, 2007.
- Trucano M. *Knowledge maps: ICT in education*. Washington, DC: info Dev, Retrieved. 2005; 2:2007.from http://www.Infodev.org/en/publication.8.html.
- Vallikkad, S. (2009). Information Communication Technology for Teacher Education, New Delhi : Kanishka Publishers.

7

New Arena of Knowledge Through- 3C3R Model of Collaborative Problem Based Learning

Linisha C. K.* and Dr. Fathima Jaseena M. P. M.**

Abstract

Teaching is a complex enterprise that requires solving intricate problems and issues in numerous facets of learning and teaching. Problem-based learning(PBL)provides generative contexts for prospective and certified teachers to work together in small collaborative groups. PBL is a learner-centered pedagogical approach that affords learners (including prospective and certified teachers) opportunities to engage in goal-directed inquiry. Learners work collaboratively with others as they analyse complex and ill-defined problems. Learners also work independently to collect information they then bring back to the group as they resume their collective problem solving and subsequent reflection on both the issue at hand and the group's functioning. PBL's goals consist of conceptual and pedagogical content knowledge construction, collaboration, and self directed, lifelong learning. This chapter introduces 3C3R model of collaborative problem based learning. The 3C3R model comprises two classes of components: core components and processing components. Core components—including content, context, and connection—support content and conceptual learning, while processing components—consisting of researching, reasoning,

*Research Scholar, Farook Training College, University of Calicut.
**Assistant Professor, Farook Training College, University of Calicut.

and reflecting—concern students' cognitive processes and problem-solving skills. This chapter discusses the model in terms of its theoretical basis, essentials elements and its importance.

Keywords: PBL,3C3R model

INTRODUCTION

Modern scientific technological world brings tremendous modifications in the teaching learning process. Technology plays an important role in the spectrum of human resource development and assist as in improving academic standards, qualities of education. The conventional teaching methods do not meet up to the intellectual, psychological and emotional needs of the students and are insufficient to solve real life problems. So, the methods of teaching need a radical change and it should be more student-centered. Modern instructional strategies provide divergent thinking that facilitates better learning and longer retention. Problem based learning is a student-centered strategy in which student collaboratively solves problems and reflects on their experience. It is a paradigm shift from teacher centered pedagogy to student centered pedagogy. Problem based learning evolved as a new way of teaching and learning, promoting and encouraging self-directedness, creativity and collaboration between the students. In collaborative groups problem act as a learning tool for students, enable to construct their knowledge and improve problem solving skill. The success of an intervention depends not only up on its theoretical soundness but also on proper implementation that reflects the guidelines derived from its theoretical conception. Problem based learning has a potential to prepare students for future preparation. Problem based approaches to learning have a long History of experience-based education. Psychological theories suggest that by having students learn through experience of solving problems, they can learn both content and thinking strategies.

PROBLEM BASED LEARNING

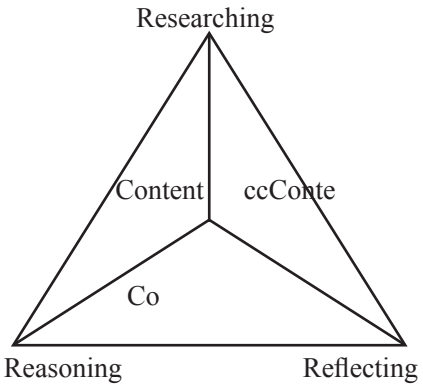
Problem-based learning (PBL) as a teaching strategy and curricular design began over thirty years ago at McMaster University Medical School in Hamilton, Canada. Using problems based on actual clinical cases as focal points in a medical program evolved after years of medical faculty and student frustration with the traditional lectures and

challenging clinical experiences. Imparting and absorbing the immense amount of content inherent in a medical education was becoming more unrealistic and improbable. The medical curriculum shifted from a faculty-centered approach to student-centered, interdisciplinary process. Problem based learning is an instructional and curricular learner – centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem. Critical to success of the approach is the selection of ill-structured problems (often interdisciplinary) and a tutor who guides the learning process and conducts a thorough debriefing at the conclusion of the learning experience, Savery (2006)

3C3R MODEL

One prominent concept for designing PBL learning setting will be presented 3C3R model of Hung (2006) defined as "a frame work for content, context and connection (3C) which are interlinked through learner activities such as Researching, Reasoning and Reflecting (3R)". Hung designed (2006) a framework for designing a problem spaces in a Problem Based Learning context. Hung's model splits in to three structural element as content, context and connection. The second one is the Three process element Researching, Reasoning and Reflecting solution of an ill structured problem. The core components of the 3C3R model—content, context, and connection—are primarily concerned with the issues of appropriateness and sufficiency of content knowledge, knowledge contextualization, and knowledge integration. Content In reviewing PBL research of the past.

This model is represented with the help of a triangle which is given below.



The inner segment of the triangle describes the content of the problem, context of the problem, and connection of the problem with relevant theories, subject and other problem. The outer corner of the triangle describe which data, models and concept need to be researched by the students, what, how they should reasoned how they should reflect the learning process and learning outcome.

ESSENTIAL ELEMENTS OF THE DESIGN

1. Students must take responsibility for their own learning.
2. The problem simulations used in problem-based learning must be loosely-structured and allow for free inquiry.
3. Learning should be integrated from a wide range of disciplines or subjects.
4. Collaboration is essential.
5. What students learn must be applied back to the problem with re-analysis and resolution.
6. A closing analysis of what has been learned from working with the problem and a discussion of what concepts and principles have been learned is essential.
7. Self and peer assessment should be carried out at the completion of each problem and at the end of every curricular unit.
8. The activities carried out in problem-based learning must be those valued in the real world.
9. Problem-based learning must be the pedagogical base in the curriculum and not part of a didactic curriculum.

Importance of this model

Through this model students identify, analyze and resolve learning issues by using knowledge from previous experience and learning. This frame for designing collaborative problem based learning enhances mastery and retention of the contents and greater ability to generalize the principle learned to a wide variety of situations. It would enhance high quality decisions and solution to the problem. This model influencing students to view a problem from different perspectives and reformulate it in a ways that allow the emergence of new orientation of the problem. It would increase the number and quality of student's ideas,

feeling of stimulations and enjoyment and originality of expression in problem solving. This result greater enjoyment of the process and more imaginative solution of the problem. Collaborative problem-based learning helps student to develop cognitive flexibility, practicing problem solving skill as generic skill. It enhances self-directed learning which requires high metacognitive ability, practicing collaborative skills and communication skills. It also enhances intrinsic motivation of student. These characteristic features highlight the advantages this model.

STUDIES RELATED TO COLLABORATIVE PROBLEM BASED LEARNING

Yun Jo An (2006) presented a research study on Collaborative Problem Based learning in online environment. This study examined three graduate level online courses that utilized collaborative PBL, considering each course as a case. Beyond describing what happened in each case, this study identified what worked and did not work in Collaborative Problem Based learning and explored how the collaborative PBL could be improved by collecting both descriptive and evaluative data.

Orhan, Akinoglue and Ruban, Ozkardes (2007) conducted a study on "Effect of Problem based active learning in science education on student's academic achievement, attitude and concept learning". The study concluded that the implementation of problem based active Learning model had positively affected student's academic achievement and their attitude towards the science course. It was also found that the application of problem based Active Learning Model affects students conceptual development positively and keeps their misconceptions at the lowest level.

Bayat Sahar and Tarmizi, Rohuni Ahmad (2012) presented a research study in "Collaborative problem based learning in mathematics- A cognitive load perspective". This study examined the effect of problem based learning on educational statistics course. Comparing student's performance based on two tests showed that there was significant difference between the mean performance of the PBL and that of conventional group – indicating PBL efficacy.

Manfred Muhlfelder, Sivachandran. Chandrasekaran (2015) presented a study on Collaborative Problem Based learning in Distance and Mobile education. They introduced 3C3R Model for designing collaborative problem based learning. They found that, due to limited communication in a distance/mobile education program, didactic elements that require student collaboration must be carefully defined

and built into the learning process. Students will need some time to get to know each other and to develop cohesion and team spirit.

CONCLUSION

Collaborative problem based learning help students to accept others viewpoint, and suggestions. By practicing learner centered approach students can adjust with any situation of their life. It also promotes social interaction and thus social values are developed. Collaborative problem based learning provides a socially organizing and a well-managed learning environment. Which ensures an all-round development of child in both cognitively and affectively. It is better that our school curriculum may provide adequate opportunity to transfer skill habits and attitudes from class room to outside. 3C3R frame work provides a good designing for collaborative problem based learning. 3C3R frame work is a new learning strategy in the field of education. It provide group learning environment for learners. This frame work helps in the area of curriculum developers, educational planners and content designers to design new learner centered approach. Thus it provides an eye opener in the educational scenario of School Environment. This innovation creates something new from the existing one with the aim of novelty and newness in the mind of younger learners.

REFERENCES

- Andersen, P. A., & Guerrero, L. K. (Eds.). (1998). Handbook of communication and emotion: Research, theory, application and contexts. San Diego: Academic Press.
- Barell John (2006) Problem – Based Learning an Inquiry Approach – Thousand Oaks, CA Corwin A – SAGE Publication.
- Boud, D. & Feletti, G. (1999). The Challenge of Problem-Based Learning, Ed.), London: Kogan Page. problem based learning, "v.l n.l pp-9-20
- Datta, Shrivastava, (1985); "Science and Society", Vikas Publication House,
- Dennis coon – John –O Initerer (2007) Introduction to Psychology – New Delhi CENGAGE learning.
- John. W – Santrock (2006) (10th Ed) Lifespan education – New York M.C Graw Hill.
- Savery John (2006) overview of Problem –based learning. Definitions and Distinction, 'Interdisciplinary Tournal of Boud, D. & Feletti, G. (1999). The Challenge of Problem-Based Learning.
- Peter, M.(1996) Computer Science Education NY: Association for computer machinery.

8

Accommodation for Technology into English Language Classrooms for 21st Century Learners –Role of Teacher as a Techno Pedagogue

Dr. Sreevidya Nair N.*

ABSTRACT

Techno-pedagogical skills are the ways to make accessible and affordable quality education to all. This hybrid skill facilitates to enhance linguistic abilities, to sketch specific pedagogy with advance study materials, to design multi-grade instruction. In higher education, techno-pedagogical skills facing some challenges such as ; destitute infrastructure of ICT, scarce competence on English language and online content, calamity, and lack of incentives and awareness of teachers, evils on research and development, hitch of using software, limited techno-pedagogical resources, lack of co-ordination among the departments, frequent power outages and fluctuations. This paper aims to highlight the role of using modern technology in teaching English.

Keywords: Techno pedagogue, Computer Assisted Instruction, Computer Assisted Language Learning.

INTRODUCTION

"Pedagogy," simply, is a craft, art or skill. Techno-pedagogy refers to the teaching techniques implicit in the learning environment. A technology pedagogue is an individual whose experience in electronic

*Assistant Professor in Education, N S S Training College, Pandalam.

teaching methods and its philosophy is based on the use of technology. In fact, technology pedagogy is a two-way process, one focusing on human needs and aspirations and one concentrating on technology and its potential. A techno-pedagogue can see how the online environment, its interfaces and tools support learning in various ways are designed, produced and even implemented. The Techno pedagogue interacts with engineers, designers and practitioners and executives who deal with them quickly and effectively.

There are three key components at the heart of good instructional education: information, pedagogy and technologies. The connection between and between them is always vigilant. There are wide variations in the essence and usefulness of the integration of educational technology in the partnership with and between those three components. These three knowledge bases (content, pedagogy, and technology) form the core of the frame work of technology, pedagogy, and knowledge of content (TPACK).

CONTENT KNOWLEDGE(CK)

Content Knowledge (CK) refers to the knowledge of the topic to be studied or instructed by the author. The topic to be discussed in science or history during middle school is distinct from the issue to be presented in an academic art appreciation course or a doctoral thesis on astrophysics. It is important for the students to know the content. These understanding would include knowledge of ideas, assumptions, theories, logical constructs, knowledge of facts and evidence, and evidence-based mechanisms and solutions to such knowledge formation. Of example, this would include understanding of scientific theories and assumptions, the scientific methods and evidence-based analysis in the sense of research. In art, this knowledge would include art history knowledge, famous paintings, sculptures, writers, and their historical contexts, as well as knowledge of artistic and psychological appraisal theories.

PEDAGOGICAL KNOWLEDGE (PK)

This refers to the profound knowledge of the teacher about the teaching and learning processes and activities, or procedures. We include overarching educational goals, principles, and objectives. This standardized knowledge aspect is related to understanding how students

are learning, general management techniques in the classroom, as well as lesson planning and student evaluation.

TECHNOLOGICAL KNOWLEDGE (TK)

In some ways of thinking and dealing with computers, tools, and products, technical expertise may be known as skill. This requires identifying information technology that is broad enough to allow it to be used efficiently at work and in daily life, knowing that information technology can help achieve a goal, and being able to adapt to improvements in IT.

PEDAGOGICAL CONTENT KNOWLEDGE(PCK)

It is compatible with and similar to the principle of pedagogical awareness which applies in specific content to the teaching by the Schulman. The conceptualization of PCK by Schulman revolves around the idea of the subject being translated into instruction. PCK covers the core business of teaching training, appraisal, and tracking, such as learning-encouraging conditions, and the connections between curriculum, examination, and pedagogy.

TECHNOLOGICAL CONTENT KNOWLEDGE (TCK)

It applies to knowledge how technology and the material affect and limit each other. Teachers need to learn more than the subject they're studying; they need to have a deep understanding of how different technologies can enhance the subject matter. Teachers need to understand which technologies are best suited to tackle the learning of subjects in their contexts and how the curriculum defines or perhaps even enhances the system or vice versa.

TECHNOLOGICAL PEDAGOGICAL KNOWLEDGE (TPK)

It applies to an appreciation of how teaching and learning will shift in particular ways as different strategies are used. It includes knowing the pedagogical requirements and limitations of a variety of technical devices, as they apply to pedagogical structures and techniques that are disciplinarily and developmentally appropriate.

TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK)

TPACK varies from the interpretation of all three principles, and is focused on truly meaningful and fundamentally professional training in development. Instead, TPACK is the basis for effective technology

teaching, including an appreciation of the representation of concepts using software, pedagogical approaches that use technology constructively to teach content, knowledge of what makes concept difficult or easy to learn, and how technology can help to solve some of the problems students encounter; knowledge of prior knowledge of students.

SOME INTERACTIVE TECHNIQUES FOR AN ENGLISH CLASSROOM

The English classroom can be livelier with some interactive techniques using technological devices. A techno pedagogue can well be a skillful practitioner in it if she or he makes use of such devices in the classroom.

Computer Assisted Instruction (CAI)

Computer Assisted Instruction (CAI) is an immersive educational technique that uses a computer for discuss the teaching material and track the learning process. CAI makes use of a combination of text, graphics, sound and video to facilitate the learning process. In the lab, the machine has many functions, and can be used to support a pupil in all aspects of the program. Here the computer is used as a tool for instruction facilitation and enhancement. For present subjects, CAI programs use lectures, training and exercise, simulation and problem-solving methods to test the comprehension of the students.

CAI provides

- Text or multimedia content
- Multiple choice questions
- Problems
- Immediate feedback
- Notes on wrong responses
- Summarize students' performance
- Exercise for practice
- Worksheets and texts

Types of CAI in English classroom

- Drill and practice
- Tutorial

- Games
- Simulation
- Discovery
- Problem solving

Computer Based Instruction (CBI)

Computer Based Instruction (CBI) is any program where the students interact with a computer as a key element in the learning process. Although the term is used to describe a number of different methodologies and curricula for instruction, a teacher is almost always included in the student activity preparation and supervision. Students perform exercises and view papers on a computer screen, instead of receiving information from written material or lecture from a teacher. The change from traditional teaching has far-reaching consequences for future schooling.

Computer Assisted Language Learning (CALL)

Computer Assisted Language Learning (CALL) is a teaching and learning approach that incorporates, improves and measures learning material using computer-based resources such as the Internet. Typically, we expect a great dimension of interactivity. It also involves the quest for software to research for language teaching and learning. Except for self-study purposes, CALL is meant to supplement and not replace face-to-face instruction in the language.

Techniques used in CALL

- Software
- Internet based

Software: To this purpose, programs which are used in a CALL setting may be specifically designed or updated for foreign or second language training. Resources throughout language acquisition are primarily tutorials. These are usually drill programs which consist of a brief introduction and a series of questions that the learner will answer, and then some sort of input will be provided by the machine. Authoring programs allow a teacher of learn some or all of the subject, and to prepare some or all of the learning curricula. Some examples of such systems include Cloze Master, Multitester, and Choice Master.

The structure is preprogrammed with these, and the instructor places the contents in.

Internet based: The World Wide Web, published in 1992, reached the general public until 1993, opening new avenues via CALL. Internet activities vary widely from online software models to computer-mediated communication to applications incorporating those two elements. CMC comes asynchronous (email & forums) and synchronous (text & voice chat) in two respects. With these, the learners will be able to communicate to many as well as share audio and video files, one by one. CMC had the greatest impact on language education, because of all this. CALL is one of many tools and techniques that can help the students to improve their language skills. The new technology has improved the flexibility, innovation, productivity and collaboration of learners in language education.

Examples for CALL activities

- Multiple choice /true or false quizzes
- Matching
- Crossword puzzle
- Games
- Simulations
- Gap filling exercise/cloze
- Web quests/searching
- Writing & word processing

DEVELOPMENT OF CALL FROM THE PEDAGOGICAL PERSPECTIVE

Structural /Behaviouristic CALL(1960-1970s)

- **View of language:** Structural (formal structural system)
- **English Teaching Paradigm:** Grammar Translation and Audio lingual
- **Principal use of computers:** Drill & practice
- **Principal Objective:** Accuracy

Communicative/ Cognitive CALL(1980s -1990s)

- **View of language:** Cognitive (a mentally constructed system)
- **English Teaching Paradigm:** Communicative Language Teaching

- **Principal use of computers:** Communicative exercises
- **Principal Objective:** Fluency

Integrative / Sociocognitive / Socioconstructive CALL (1990s –present)

- **View of language:** Socio cognitive(developed in social interaction through discourse communities)
- **English Teaching Paradigm:** Content based
- **Principal use of computers:** Authentic discourse(to perform real life tasks)
- **Principal Objective:**Agency(the satisfying power to take meaningful action and see the results of our decisions and choices).

USE OF PODCASTS IN ENGLISH LANGUAGE LEARNING

Podcasts are technical instruments that help students develop different listening skills in the English language. Podcasts in English are an excellent way of learning English quickly. Students will listen to them everywhere-at their office or on the move. The English language podcasts will help students develop their listening skills and skills easily with a little commitment. Another downside is that podcasts often have transcripts (a written audio version). It means students can listen and read at the same time, or show a transcript when they are overwhelmed with another aspect of the interview.

Some podcasts for learners of English

- Englishclass101.com
- TED audio podcasts
- Podcastsinenglish.com
- IELTSpodcast.com
- Downtobusinessenglish.com
- This American Life.
- Scientific American Podcast: 60-Second Science.
- Freakonomics Radio.
- Here's the Thing.

- NPR.
- Stuff You Should Know.
- The Nerdist.
- Entrepreneur on Fire.

CONCLUSION

It has been said that for teaching and learning in the 21st century today, one cannot "TEACH" without "TECH". Classroom environments have changed and empowered to such an extent that in some instances, they are no longer familiar. Learning is increasingly borderless and instruction equally seamless. Technology has allowed learners to grow into experts in differing contexts and for differing audiences. While the impact of technology is already altering traditional conceptions of teaching and learning it is argued that its use can over-shadow sound language instruction. In the wake of tremendous innovation with the use of technology for classroom instruction, this chapter seeks to discuss and how the inclusion of technology into English classroom must be mediated with a careful hand and what all can be done by a teacher handling English for incorporating technology into the classroom for the meaningful development of English language among the students.

REFERENCES

- bbc.co.uk
- http://gurukulamofcommerceeducation.blogspot.com
- Podcastsinenglish.com
- Tickoo, M.L.(1996). English in Asian Bilingual Education: From Hatred to Harmony. *Journal of Multilingual and Multicultural Development*, 17, 2-4.
- Williams, C.O.(1988). *An evaluation of delayed speech interactive approach for second language acquisition*.(PhD Dissertation).Dissertation Abstracts International, 50:5, 1-88, 1209-A.
- www.ccsenet.org/journal.html.
- www.elsevier.com/locate/lindif.

9

Moodle: an Open Source Learning Management System for Education

Dr. Nisha K. V.*

ABSTRACT

The implementation of the Information and Communication Technology in education with e-learning management system allows improving effectiveness of education. Learning Management System (LMS) is one of the recent techniques that make use of information communication and electronic media in education and it allows better cooperation among learners and teachers. Modular Object Oriented Dynamic Learning Environment (MOODLE) is one of such LMS that provides an interactive e-learning environment and promotes social constructivist pedagogy. MOODLE is a free, open source, user-friendly learning management system which can greatly help teachers to flexibly manage and edit their teaching materials, access students assignment easily, and significantly promote synchronous and asynchronous communication between students and teachers. This paper mainly discusses LMS, MOODLE, functional, philosophical and pedagogical consideration, general features and its structure.

***Keywords**:* MOODLE, LMS, ICT

INTRODUCTION

Societies of today have been recognized as information societies due to the impact of Information and Communication Technologies (ICT). ICT is a diverse set of technological tools and resources used to

*Assistant Professor, Zainab College of Teacher Education, Cherkala, Kasaragod.

communicate and to create, disseminate, store and manage information. It is becoming more central to the infrastructure of all types of educational institutions and it makes curriculum implementation learner centred with a self learning environment. The NCERT's National Curriculum Framework (NCF 2005) has acknowledged that Educational Technology and ICT are significant tools to achieve constructivist learning in the new generation classrooms.

Using ICT in Education offers wide opportunities for educational development and students can collaborate on meaningful activities with their classmates. Effective technology can also reinforce and enrich student's learning in an interactive environment, which encourages the creativity through e-learning applications in different modes like visualization, simulation and modeling (Repnik & Grubelnik, 2010). With the involvement of ICT in education, a lot of new methodologies are added to the process of education. E learning is one of the important methodologies that make use of information communication and electronic media in education. These applications allow teachers to provide the students with material of different sorts, as well as to interact with them in real-time.

LEARNING MANAGEMENT SYSTEM (LMS)

E-learning platforms are most commonly referred to as Learning Management Systems (LMS) or Course Management Systems (CMS) or as virtual learning environments. Learning Management Systems are one of the most recent adoptions of technology in the teaching learning process. Earlier these were used in the area of distance education but now they are finding their way into campus based courses in higher education and now are moving into schools. The advantage of LMS for students is that, it helps to learn the subject according to their own capacity. Time and place is not so important, everybody with internet can arrive at knowledge, can share the knowledge with interactive environment. It helps the students for interactive learning and engaging better with the courses than traditional methods of delivery.

LMS software packages may be either commercial software that must be purchased or free open-source software. Widely used commercial LMSs include Blackboard or Web CT and Atutor, Moodle, OLAT, and Drupal are the examples of open source LMS. Modular Object Oriented Dynamic Learning Environment (MOODLE) is one of the most

user-friendly and flexible open source courseware products available. It is the most popular software because of several features it offers (Barge & Londheb, 2014). MOODLE integrates several modules which allow creation, organization, delivery, communication, collaboration and assessment activities. The MOODLE platform is used throughout the world and it seems that the integration of such platforms deserves special attention and should be included in educational settings (Lopes, 2011).

MOODLE

MOODLE was originally developed by Martin Dougiamas to help teachers to build courseware that was pedagogically sound and could be easily shared. It is a software package designed to create quality online courses and manage learner outcomes. One of the reasons for MOODLE's popularity in education is that the program has been developed as "Open Source Software" under the GNU General Public License and there is no purchase price for its use. All the functions and content of MOODLE are accessed through a standard web browser, and operation is relatively easy. MOODLE is built on the popular LAMP (Linux, Apache, MySQL and PHP) stack, and was developed first for Linux but has also been tested on Windows XP/2000/2003 (WAMP), Solaris 10 (Sparc and x64), Mac OS X, and Netware 6 operating systems. The first version of MOODLE was released on 20 August 2002.

MOODLE focuses on giving educators the best tools to manage and promote learning and allows teachers to organise, manage and deliver course materials. In a functional perspective, it has easily configurable features, allowing the creation of student assessment processes as well as managing their tasks with their timetable (Itmazi, Megías, Paderewski & Gutiérrez, 2005) besides offering a wide variety of complementary tools to support the teaching and learning process. MOODLE provides an e-learning platform that has different environments for learners with dynamic, interactive, nonlinear access to a wide range of information (text, graphics, animation and videos) as well as to self-directed learning in online communication (Sadhukhan, 2016). It, allows the integration of a wide range of resources, from chats and forums to online booklets, a variety of questions, collection of problems and exercises, lecture notes; including any kind of text-based or HTML formatted documents, multimedia resources such as graphics, video or audio (e.g., MP3 files) and PowerPoint, or Flash-based animations (Jones,2003).

It is a very interactive platform for teaching, learning and assessment which offers features like free availability, flexibility, less technical difficulties to install and configure service. It allows the exchange of information among users through mechanisms of synchronous and asynchronous communication.

Functionality

MOODLE's main screen is essentially a classroom information portal with customizable blocks such as calendar, login, and news. The centerpiece of this screen is a list of courses that have been created and are available, arranged into categories. An individual course is an organized collection of resources and activities. A course author assembles the course material and format. The course can be organized on a time line with specific enrollment dates and fixed deadlines for assignments or it can be organized as a series of topics that can be covered in any order according to the student's chosen pace. In addition to the lesson, calendaring, assignment, and quiz capabilities, MOODLE incorporates a variety of modules that support this approach, including wikis, forums, and chat. For the course facilitator, who may or may not be the course author, there are administrative functions including student enrollment, assignments, and grading. In a functional perspective, it has easily configurable features, allowing the creation of student assessment processes as well as managing their tasks with their time table (Itmazi, Megias, Paderewski & Gutierrez, 2005), besides offering a wide variety of complementary tools to support the teaching and learning process.

Design Philosophy

The design and development of MOODLE is guided by a particular philosophy of learning, a way of thinking that referred to in short as social constructivist pedagogy, which is based on the active contribution and collaboration of the students (Brandl, 2005). Social constructivism extends constructivism into a social group constructing things for one another, collaboratively creating a small culture of shared artifacts with shared meanings. (http://MOODLE.org). The design of learning activities included collaboration, cooperation, multiple perspectives, real world examples, scaffolding, self reflection, multiple representations of ideas and social negotiation. And the assessment elements of learning consisted of instructor assessment, collaborative assessment and self-assessment.

Pedagogical Considerations

MOODLE has pedagogical advantages since it was built in accordance with the teaching approach which emphasizes the construction of knowledge through active and interactive learning. The design of MOODLE is based on socio-constructivist pedagogy, which advocate for active contribution and collaboration of the students. It has several pedagogical advantages since it emphasizes the construction of knowledge through active and interactive learning, and it provides multi-sensory learning experience through multimedia incorporation. It involves constructing one's own knowledge from one's own experiences. MOODLE helps teachers manage regular teaching activities and it provides students with environments for collaborative knowledge construction.

GENERAL FEATURES OF MOODLE PLATFORM

MOODLE has several features considered typical of an e-learning platform and can be used in many types of environments such as in education, training and development. It helps educators to create their own private website filled with dynamic courses that extend learning any time anywhere. The general features are given below,

Modern, easy to use interface: Easy to navigate on both desktop and mobile devices

Collaborative tools and activities: Work and learn together in forums, wikis, glossaries, databases activities, and much more activities using collaborative tools

All in one calendar: MOODLE calendar helps to follow course deadlines, group meetings and other personal events

Simple and intuitive text editor: Format text and conveniently add media and images with an editor

Notifications: When enabled, users can receive automatic alerts on new assignments and deadlines, forum posts and also send private messages to one another

Track progress: Educators and learners can track progress and completion with an array of options for tracking individual activities or resources

The MOODLE platform has three levels of use with respect to use and access; they are administrator (the manager of the platform), teacher and the student. These roles and their functions are represented in the table.1

Table-1: Role and function in MOODLE Platform

ROLE	FUNCTION
Administrator	Manage the whole environment
Teacher	Generate events, courses or subjects according to the thematic areas defined.
Student	Get access and interacts with a specific event and participates in the subjects they are subscribed

STRUCTURE OF MOODLE PLATFORM

The heart of MOODLE is courses that contain activities and resources. MOODLE has an extensible modular architecture that includes tools for presenting content (Resources modules), for students performing activities (Activity modules) and for teachers monitoring students (Administration modules).

Resources Module

Supports a range of different resource types that allows to include almost any kind of digital content into the courses: a Text page (a simple page written using plain text), a Web page (making use of MOODLE 's WYSIWYG editor), a link to an external website, an uploaded file (doc, pdf, ppt, flash, etc.), a directory (zip). Details of Resource modules in MOODLE Platform is presented in Table.2

Table-2: Resource modules in MOODLE Platform

Sl No	Resource Modules	Features
1.	Add File : Upload a file (Word Document/ PowerPoint)	All are distribution tool. Used to give task. Information transfer only.
2.	Add Folder : Upload a group of files	
3.	Add Page: Create a webpage.	
4.	Add book : Create a series of web pages	
5.	Add URL : Link to a web page	

Activity modules: There are a number of interactive learning activity modules that can be added to the course.

Content delivery: Using Lessons and SCORM activities. Key words can be added to Glossaries

Communication and collaboration tools: Chats and Forums for conversational activities and Choices to gain group feedback. Adding Wikis to the courses is an excellent way to allow students to work together on a single piece.

Work submission by students and marked by teachers: Using Assignments or Workshops. Automatic marking can be achieved by using Quizzes.

The details of Activity modules in the MOODLE platform is presented in Table.3

Table-3: Activity modules in the MOODLE platform.

SL No	Activity Modules	Features	
		Communication & interaction	Collaboration & Co-creation of content
1.	Wiki: Used to enable collaborative page creation.	Used in brain storming, planning, collaborative writing	Students can collaborate & explore topics, discuss them and write together
2.	Glossary: Used for learning activities that present information	Students can read others' entries &comment or rate	students can collect reviews, resources etc.
3.	Database: Allows students to collect, share & search created artifacts	Students can read others entries &comment or rate	Students can share information and files in searchable way. Create joint collections
4.	Survey: Used to gather data from students about teaching of the course	Allow communication from student to teacher only	An individual activity
5.	Feedback: Used to gather data from students on any topic.	Allow communication from student to teacher only	No collaboration. It is an individual activity

SL No	Activity Modules	Features	
		Communication & interaction	**Collaboration & Co-creation of content**
6.	Choice: Used for student decision making, voting and topic selection.	There is no communication	No co-creation of content
7.	Quiz: Used to assess learning-formative or summative.	No interaction. It is an individual activity	No co-creation of content
8.	Lesson: Used for presenting branched information or testing	An individual activity	No collaboration and co-creation of content
9.	Assignment: Used to collect, assess & provide feedback on assignments	Limited interaction between teacher & students	Does not allow group assignments
10.	Workshop : Used to collect, assess & generate peer review of student work	Allows for feedback but overall limited interaction	Does not allow group assignments.
11.	SCORM: Used to present content, media and assess retention.	Is an individual activity	No co-creation of content
12.	Chat : Hold real-time text chat discussions with class	Hold database small group review sessions	Students can collaborate, explore topics, discuss them &write together

SL No	Activity Modules	Features	
		Communication & interaction	**Collaboration & Co-creation of content**
13.	Forum: Used for many types of learning activities	Interact as a class or in group	Students can collaborate, explore topics, discuss them &write together
14.	External Tool: Used to connect to a third party learning activity	If the tool provides options for interaction & communication	If the tool is a collaborative environment.

Administration Module: The course administration block allows teachers to edit course settings, manage course participants, view the course grade book, create custom grading scales and access the teacher forum. The links in the course administration block are only available to teachers of that course.

WHY MOODLE?

MOODLE platform is widely used worldwide by universities, communities, schools, instructors and teachers. Many advantages of this platform includes,

- It creates an on line learning environment.
- Free and easy to use
- It can be run on window and Mac operating systems and on Linux
- Easy to implement
- Promote collaboration and communication
- Consists of a variety of learning features
- Can be accessed anywhere with internet connection
- Students are able to interact with one another including the instructor just like a face to face class.
- MOODLE also offers many features that contribute to teach students according to their learning needs
- Always support pupils' efficient and effective learning
- More opportunities for independent, self-directed learning

- Electronic communication enables pupils to become part of a community of learners
- Information resources enable pupils to find information and thus to develop their knowledge and understanding of any topic
- The availability of animated simulations, video, and sound can extend the strategies of teachers when illustrating and explaining topics

MOODLE ENABLED INSTRUCTION

Many of the mechanics of classroom operation such as assignments, scheduling, and quizzes can be easily set up through simple resource based courses in the MOODLE platform. MOODLE has a broad variety of additional modular features and a relatively quick learning curve, helping educators easily and effectively develop full online classes, either in advance or as the course is being taught. This versatility allows MOODLE to be used in a variety of ways depending on the needs and capabilities of the school from simple classroom management to pure e-learning or a blended combination of the two, with e-learning content and utilities extending to on-site classroom learning. Additionally, subscription-based media libraries, external web links, and other commercial software products can potentially be integrated into MOODLE courses. Because MOODLE provides utilities to easily backup, exchange, and restore course components, some anticipate that MOODLE's growth in education could bring resource and course sharing by teachers as well. Teachers can also do professional development and lesson planning from home, and where students have Internet access at home MOODLE provides a way to make the school-to-home connection, as reflected in MOODLE's frequent use in one-to-one computing initiatives.

According to Underhill (2013), MOODLE platform in the classroom promotes,

- **Collaboration-** MOODLE has many features that encourage collaboration and social interactions while learning. Forums can be easily setup and monitored, assignments can be posted, shared, and commented on by peers. MOODLE also has a feature called 'Groups' that can be used to create smaller collaboration units within a class.

- **Responsibility for learning (Active Role) -**Encourage active learning**.** With the use of MOODLE, students are expected to take an active role in their learning. They are able to track progress, see missing assignments, and review past work. Student engagement is enhanced when students navigate their way through lessons, quizzes and assignments.
- **Cooperative Learning-** Avoid isolation and promote Collaboration**.** MOODLE allows for students to work cooperatively even when not sharing the same physical space. Tools such as the chat, forum, and wiki encourage interaction and collaboration among peers.

CONCLUSION

The introduction of open source software MOODLE provides a low-cost e-learning platform in education. It is free and designed by using sound pedagogical principle, to help educators to create effective online learning communities. Hence, it is widely used worldwide by universities, communities, schools, instructors and teachers. Students are able to interact with one another including the instructor just like a face to face class. MOODLE features contribute to teach students according to their learning needs and always support pupils' efficient and effective learning. MOODLE provides more opportunities for independent, self-directed learning and also enables pupils to become part of a community of learners. It is a gateway for teachers to organize, manage and deliver course materials. Teachers can also provide students with a great amount of resources that usually they cannot show in the classroom due to lack of time. It enhances teaching by taking advantage of the internet without replacing the need for the teacher and encourages more active learning, and supports better group interaction.

REFERENCES

- Barge, P., & Londhe, B.R. (2014). From teaching, learning to assessment: MOODLE experience at B' school in India. *Procedia Economics and Finance, 11*, 857-865. doi:10.1016/ S2212-5671(14)00249-4
- Brandl, K. (2005). Are you ready to "Moodle"?. *Language Learning & Technology*, *9*(2), 16-23. Retrieved from http://llt.msu.edu/vol9num2/review1/default.html.

- Itmazi, J. A., Megías, M.G., Paderewski, P., & Gutiérrez, F. (2005). A comparison and evaluation of open source learning management systems. *IADIS International Conference on Applied Computing*, 80-86.
- Jones, R.G. (2003). Emerging technologies- Blogs and Wikis: Environments for on-line collaboration. *Language Learning & Technology, 7*(2), 12-16.
- Lopes, A. P. (2011) Teaching with Moodle in higher education. In *5th International Technology, Education and Development Conference Proceedings* (pp. 970-976). Retrieved from http://hdl.handle.net/10400.22/622.
- Moodle - Open-source learning platform. (2015). *Moodledocs*. Retrieved from https://docs.moodle.org/35/en/Main_page
- NCERT. (2005). *National Curriculum Frame Work*. New Delhi: NCERT. Retrieved from www.ncert.nic.in/rightside/links/pdf/ framework/ english/nf2005.pdf.
- Repnik, R., & Grubelnik, V. (2010). E-learning materials for 3rd grade of primary school-physics. *International Journal of Emerging Technologies in Learning (IJET), 5*(2), 43.
- Sadhukhan, B. (2016). Innovative teaching methodology with Moodle-based E-learning environment. Retrieved from http://www.tict.edu.in/index.php?option=com_content&view=article&id=220:innovative-teaching-methodology-with-moodle-based-e-learning-environment &catid=50&Itemid=323.
- Underhill, D. (2013). *Moodle and constructivism*. Retrieved from http://etec.ctlt.ubc.ca/510wiki/Moodle_and_Constructivism

10

Harmonize Technology into Maslows Hierarchy of Needs

Indhu Pillai M.*

Abstract

In a curriculum whether these needs are being met in their schools, educators can evaluate how well they are applying Maslow's hierarchy to their teaching learning process. For the effective teaching learning process communication should be effective. For the ease of communication inside the classroom now a days teachers are using the support of technology. Presently the teachers are making use of the wide range of technologies such as video conferencing, computers/ laptops, digital cameras, online tutoring, Moodle's, multimedia packages, e contents development and digital libraries are incorporated in their teaching. The present-day students who are sitting before us are born in this technological world, if the teacher's lags beyond the students in using these technologies, the students have no curiosity in sitting in our conventional classroom situation. The presence of technology prepares the students for lifelong learning and enhances their quality of education. This paper is an attempt to how well technology can be incorporated in the Maslow's Hierarchy of learning.

***Keywords**:* Maslow's hierarchy, Maslow's Models of Teaching

INTRODUCTION

Humanism is the school of thought in which human interest and values are of primary importance. The main profounder of this school of

*Research Scholar, Govt. College of Teacher Education, University of Kerala.

psychology are Allport, Henry Murray, Carl Rogers, Abrham Maslow. The theories of Abrham Maslow highlight human strength and the fulfillment of human potential. Maslow proposed a hierarchy of five innate needs that activate and direct human behavior. They are the Physiological Needs, Safety Needs, Love and belongings needs, Esteem Needs, Self- actualization Needs. Maslow explained that these needs can be affected by learning, social expectation and fear of disapproval. Even though we get equipped with these needs at birth, the actions we use to satisfy them are acquired hence it is subjected to variation from one person to another. The needs are arranged in descending order from lower needs to higher needs. Higher needs can be satisfied only if the lower needs are fully satisfied in an individual's life. Maslow has arranged the hierarchical order of needs from physiological to self-actualization.

The physiological needs include the food, health and sleep. Although the physiological needs are lower order, it should be satisfied then only one can think about the safety needs. Safety needs are mainly concerned with security. The safety need is of great importance for students who are afraid of controlling their environment. The parents as well as the teachers should develop courage in their children to face the challenges of the society. The belongings needs are for making relationship with members of the society and getting acceptance from the society. The esteem needs are divided into two categories: (1) Self- esteem, Self- respect, Self -regards and Self - evaluation (2) Relating to respect from others: Reputation, Status, Social Success, and Fame. Once we feel loved and have a sense of belonging, we may find ourselves driven by two forms of the need for esteem. The highest need in the hierarchical system proposed by Maslow, is Self-actualization. It means to fulfill one's individual nature in all aspects, being at what one can be.

TACKLING TECHNOLOGY INTO MASLOW'S HIERARCHY OF NEEDS – A NEED FOR PRESENT SCENARIO

The dilemma is that twenty first century learners are being taught by twentieth century teachers using nineteenth century curriculum with eighteenth century techniques. In order to overcome this it is high time to incorporate technology into humanistic approach of Maslow's Hierarchy of needs.

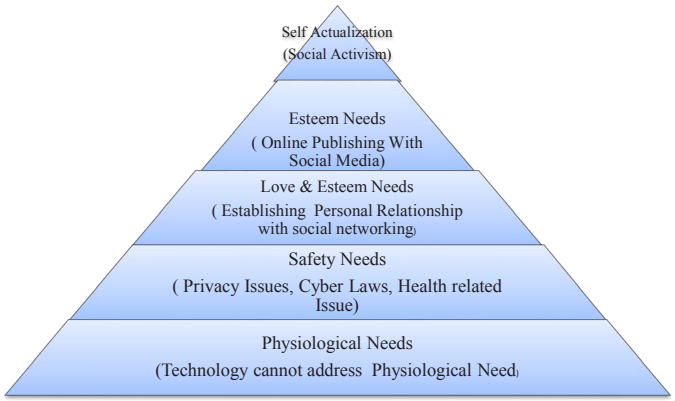
Technology cannot focus on the physiological need such as air, food, drink, shelter, warmth, sleep**.** The present day students who are sitting before us are born in this technological world. For the effective use of technology one must requires awareness about the risk and benefits. In order to satisfy the safety needs one must be aware about the cyber laws, cyber theft, privacy policy, online safety, phishing encryption, cyberbullying prevention etc. The teachers should take pioneer step in making the students aware about all these. It is now a need of the society hence can be made a part of the curriculum. So it should be continuously taught and emphasized. The safety needs also include the health related issues that are going to accumulate as result of using these modern technologies.

With the introduction of technology it is of prime concern that belongings needs become dominant. Accessibility with like-minded individuals becomes easier for this social media plays an important role. Better and fast communication, social interaction, sharing of thoughts, suggestions on one views etc can be shared on a technological platform. Facilitating the students with the time, resources and tips for developing their own personal phase increases their opportunity to extend a sense of belonging. The learners can interact with eminent personalities around the world, tutor and be tutored, become a part of the formal and informal learning groups, can be active members of twitter chats, face book, what sups and hangouts, bloggers. There by students get ambient opportunity to make relationships. But being in a virtual world and creating belonging needs will sometimes affect the emotional level.

By esteem needs we mean the acceptance from others there by accomplishing the sense of valued by themselves. With the help of social platform the students can exchange their idea others hence amazing opportunity for creative idea. By making use of these technologies students get a wide scope of acceptance worldwide that their predecessors couldn't get. The students are living in a world of information abundance with the introduction of technology cognitive needs, aesthetic needs are satisfied.

Self-actualization need is the ability of the student to apply what they have learned and help the learner to achieve the full potential of their life and thereby enabling a successful community. The teachers can use the social networking and technology to enhance the capability

of their children which in turn, helps learners to gain feelings of self-actualization.



FORESEEING TECHNOLOGY BASED MASLOW'S HIERARCHY OF NEEDS TO MOTIVATE CHILDREN

The advocates who propose for the pros of introducing technology in the classroom debates that technology prompts all type of learners and thinkers. Today's learners are more interested in playing with mobile phones, tablets and laptops hence it is high time to integrate technology with pedagogy. This makes the students more active and full participation of students in the teaching learning process. There are a number of resources in technology which enhances education and make learning more effective and game oriented. In this digital world and technology is a life skill. With the introduction of technology boom of knowledge and information is available in easier and quicker way to students. So the teacher's mastery on knowledge is questioned. If their arise any doubts from the part of the learner now a days the students will go after Google guru. Hence it's a fact that teachers are replaced by technology. The literature review supports that technology helps to improve the retention scale. By hosting the technology into the classroom it is a huge support for students with special needs. Consequently technology supports inclusive education as well. In the traditional classroom situation teachers are just information givers but in the modern situation role of teacher is that of a coacher, guide, mentor, friend and philosopher.

TRANSFORMING THE CLASSROOM THROUGH TECHNOLOGY INTEGRATED MASLOW'S MODELS OF TEACHING

The selection of a pedagogical design depends on the nature of the learning situation, subject, and students to be taught. The teacher act as a mediator between knowledge of the subject and knowledge of the pedagogy. Various technology integrated pedagogical design are now a days getting popularized which include TPACK (Technology, Pedagogical and Content Knowledge), ASSIM model, SAMR(Substitution, Augmentation, Modification, Redefinition) model, TIM (Technology Integrated Matrix) model, Maslow's model are some among them. The Maslow's model in the classroom can be practiced in the classroom, using social media to engage students, creating website, creating blogs, through Online learning, blended classrooms, project based activities incorporating technology, learning with mobiles, web based projects. In the Maslow's model role of teacher changes from knowledge provider to that of a facilitator. The role of the student changes from the passive listeners to that of active participants. Thus the classroom become inquiry based, problem solving, creative, activity oriented, collaborative, cooperative and skill based. In the technology integration there are four levels which include Sparse, Basic, Comfortable and Seamless.

CONCLUSION

Technology has got both advantages and disadvantages when used in the curriculum. The students can move towards the self-actualization need only when he / she is satisfied by the lower needs. In the present stage the modern educators accepted the need of integrating technology into the Hierarchy of needs. Technology in hierarchy of need has the ability to open up a new world of experiences and knowledge to students and educators. But it should be kept in mind that technology is just a tool.

REFERENCES

- Delaney, M., Delaney, M., & Cdw. (2011, November 01). *Training Teachers to Integrate*
- *Technology*.Retrievedfrom https://edtechmagazine.com/k12/article/2011/11/training- teachers-integrate-technology

- Wahba, A., & Bridgewell, L.(1976). Maslow Reconsidered: A review of research on the need Hierarchy Theory, *Journal of Personality and Social Psychology,* 5, 212-240.
- Maslow, Abraham.(1954). *Motivation and Personality*. Harper Publishers, New York, P: 236.
- Maslow, Abraham.(1943). A theory of human motivation, *Psychological Review, Vol.6*, P: 370-396., http://psychclassics.yorku.ca/Maslow/motivation.htm.
- https://www. edutopia.org/topic/classroom- technology https:// usergeneratededucation. wordpress. com/ 2014/03/12/ addressing- maslows-hierachy-of-needs-with-technology/https://www.teachhub.com/benefits-technology-classroom

11

Webquest as an Instructional tool for Secondary School Teachers

Dr. Bindusha K.*

Abstract

In this technological era we live in, the educative scenario is changing rapidly and significantly due to the incorporation of the Internet. Therefore, education should pay special attention to society needs considering the information and communication technologies (TICs) essentially in the teaching process in order to make students ready for this changing society. Classroom teachers are assuming more and more responsibility for meeting the needs of students from a larger number of diverse backgrounds and with increasingly diverse special needs. This paper focuses on the structural aspects of webquest. A deep description of its implication in education and role of pre- service teachers in webquest development were discussed.

Keywords: Webquest

INTRODUCTION

For most students, especially those who are intellectually and creatively gifted, a classroom without technology can be a painful exercise of recitation goes to the encyclopedia, write down the relevant facts, and organize the facts into a paper or memorization listen, take notes, and retrieve the information for an end of the unit test. Although note-taking, research, and writing are highly relevant skills, gifted students excel at pushing those boundaries and attacking learning from a different angle. Enter the WebQuest. Bernie Dodge, one of the creators of the WebQuest

*Post-Doctoral Fellow, Department of Education, University of Kerala.

model, defines a WebQuest as "an inquiry oriented activity in which some or all of the information that learners interact with comes from resources on the Internet" (Dodge, 1995, 2). Simply put, WebQuests, when properly constructed, are activities, usually authentic in nature, that require the student to use Internet-based resources to deepen their understanding and stretch their thinking around just about any topic imaginable. Usually, the content chosen is related to the regular curriculum and is perfect for situations in which the teacher wants "to help students use newly acquired knowledge to construct meaning on a complex topic" (March, 2000, p. 55). For gifted children, this perfect blend allows the student to go beyond the bounds of normal classroom instruction by examining the core curriculum in greater depth. "It's preferable," March adds, "that students do this in a way that fosters cooperative work and [tests] ideas in a real world context (p. 55).

WEBQUEST

A rationale for differentiated instruction through WebQuests comes from theory, research, and education l common sense. Specifically, today's classrooms are becoming more academically diverse in most regions of the United States (and elsewhere). Many if not most classroom contain students representing both genders and multiple cultures, frequently include students who do not speak English as a first language, and generally contain students with arrange of exceptionalities and markedly different experiential backgrounds. These students almost certainly work at differing readiness levels, have varying interests, and learn in different ways. Considering today's diverse classrooms, it is unlikely that a teacher will be consistently able to develop "one size fits all" learning experiences that are in the zone of proximal development (optimum degree of difficulty for learning) of all students in a particular class unless they expand their thinking and approaches to classroom instruction.

A **WebQuest** is an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web.[1] These can be created using various programs, including a simple word processing document that includes links to website

- The WebQuestinstructional design is based on constructivist principles and is sometimes referred to as inquiry-based learning. The constructivist approach emphasises the role of students as primary agents of learning

- Learners engaged in WebQuests find, analyse, classify, synthesize and evaluate information they source on the Internet, and integrate new concepts into established knowledge structures.

Structural Parts of a Webquest

A webquest consists of the following structural properties:

- An introduction which sets the context, orients students by providing some background information and captures their interest.
- A task, which describes the final product that has to be completed by the end of the webquest process.
- The process, which outlines specific steps learners should follow to complete the assigned task.
- A list of resources mainly from the Internet for learners to find relevant information for the completion of the assigned task.
- Evaluation charts for students to measure their performance.
- A conclusion which sums up and reminds learners about what they have learned and more importantly it encourages them to extend the experience to other domains

THEORETICAL BASE OF WEBQUESTS

Dr. Berniew Dodge, professor of Educational Technology at San Diego State University, developed and named the concept of WebQuests while teaching a class for pre-service teachers in the spring of 1995. He wanted to give his student teachers a format for online lessons that would make the best use of student time while fostering higher-level thinking skills in all students. Soon after, Tom March (1998), working at Sand Diego as a fellow funded by Pacific Bell, developed the first fully developed WebQuest as a part of PacBell's Knowledge Network. They are based on constructivism (theory focused on students' acquisition of knowledge through discovery and evaluation of information and the formulation of their own meaning (Dede& Sprague, 1999) and stem from Universal Design for Learning (UDL- the generation of learning materials that are accessible to everyone). They also incorporate cooperative and collaborative learning

Essentially, WebQuests are tools, and not educational theories, so they can be used virtually in any classroom with appropriate computer access. They are inquiry-oriented activities in which most

of the information is drawn from the web and are designed to use learners' time well, focus on using information rather than looking for it, and support learners' thinking at the levels of analysis, synthesis and evaluation(Dodge,2001).Similarly, WebQuests allow teachers to provide multiple levels of assistance to all students by meeting two of the Individuals with Disabilities Education Act (IDEA) requirements which include providing accommodations and providing access to the general education curriculum. Specifically, use scaffolding by breaking the task into meaningful chunks- a much needed practice for struggling students.

Practical Implications

WebQuests provide good instructional practice by

- Providing structure and guidance for the students and teacher. Objectives, instructions and assessment criteria are explicitly stated.
- Focusing student attention on the provided resources, rather than having students search for them. Seamlessly integrating technology into the curriculum
- Providing authentic tasks that motivates students to explore provided online information.
- Encouraging cooperative student activities and scaffolding that promotes critical thinking, creativity, and deeper understanding of the material.
- Providing rich opportunities for alternative assessment
- Providing a way to use the Internet in Education.
- Tapping into Theories of Multiple Intelligences

Similarly, WebQuests accommodate all students through the following:

- Aesthetics
- Larger font size
- Dark background with light text
- More pictures
- Reduced amounts of text
- Appropriate reading levels
- Guided Notes

- Guided Research
- Use of Authentic Documents
- Cooperative Groups
- Multiple Means of Presenting Information
- Multiple Representations of Materials

Webquests use several strategies to increase student motivation. First, Webquests use a central question that needs to be answered. Students are able to consider the question to be one that is real to them and not one that comes from the classroom teacher. Thus, they are likely to to be motivated when they realize the end result of their work will satisfy their own curiosity and not one related to their classroom teacher. The reward becomes intrinsic. Secondly, Webquests use real, authentic resources and materials to work with- resources (computers) that are used by the students on a daily basis at home. When students use resources that they are familiar with and use frequently, they are motivated to continue the task because they feel confident and competent with the materials. Lastly, when each student takes on an individual role in a WebQuest, their team relies and depends on them for their expertise- this again is likely to cultivate motivation.

WEBQUEST IN EDUCATION

Webquests can be a valuable addition to a collaborative classroom. One of the goals is to increase critical thinking by employing higher levels of Bloom's Taxonomy and Webb's Depth of Knowledge. This is a goal of the American educational system's Common Core and many new American state standards for public education. Since most webquests are done in small collaborative groups, they can foster cooperative learning and collaborative activities. Students will often be assigned roles, allowing them to role play in different positions, and learn how to deal with conflict within the group.

Webquests can be a versatile tool for teaching students. They can be used to introduce new knowledge, to deepen knowledge, or to allow students to test hypotheses as part of a final interaction with knowledge. The integration of computers and the Internet also increase students' competency with technology. By having specific task lists, students can stay on task. By having specific sources of information, students can focus on using resources to answer questions rather than vetting resources to use which is a different skill altogether.

In inclusive classrooms (classrooms that have students of varying exceptionalities interacting such as learning disabled, language impaired, or giftedness) tasks can be differentiated to a skill level or collaborative groups for the same level of task. A skill level may have students with learning disabilities working on a basic task to meet the minimum standard of learning skills and gifted students pushing their task to the higher end of the learning skill. More commonly, groups are composed of learners of all skill levels and completing the same level of task. This is typically easier because the teacher is only creating one webquest, but can cause less student interaction from lower students and less learning from higher students. In 1995, Dodge and March presented WebQuests to the educational community. WebQuests allowed educators to see how the Internet could be used in classrooms for inquiry-based teaching and learning. When working with WebQuests, learners take newly-acquired information and transform the information into authentic learning.

Scaffolding in WebQuests allows students to learn in a different way they are been doing traditionally (Dodge, 2001). March (2003) mentions cognitive science researchers like Bransford (1999) and reveals that "research in cognitive psychology tells us that if we want novices to perform at more expert levels, we need to examine how experts go about their work and then prompt novices through a similar process," and that "scaffolding positively affects student achievement". Scaffolding creates a "temporary framework to support student performance beyond their capacities" while completing a WebQuest (March, 2003).

Dodge (2001) states that WebQuests allow learners to have a structure to their learning that allows them to "act more skilled than they really are" and allows the "bar of what students can produce to be raised". Scaffolding learning makes learners work with new approaches with the help needed to succeed in these attempts.

WebQuests can help students to acquire, and transform knowledge using constructivist learning and high-level, critical thinking in the classroom. Kundu and Bain (2006) describe how WebQuests can be used to facilitate learning in a constructivist manner as WebQuests facilitate learners to take an active role in their learning. Constructivist learning methods allow for learning to be an "organic process" in which "meaningful learning occurs through reflection and resolution of cognitive conflict" (Kundu & Bain, 2006). Constructivist methods permit students to have multiple solutions, think reflectively, and make

authentic connections between learning and the real world (Kundu & Bain, 2006). They also state that "WebQuests themselves are authentic" and "participants work cooperatively and collaboratively to produce knowledge".

On the other hand, critical thinking also have an instructional purpose in the WebQuests as:

(1) Disciplined, self-directed thinking which exemplifies the perfections of thinking appropriate to a particular mode or domain of thinking.

(2) Thinking that displays mastery of intellectual skills and abilities

(3) The art of thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, or more defensible. (Paul, 1995 in Vidoni & Maddux, 2002, p. 104).

WebQuests emerge as an example of a powerful means for supporting the principles of constructivism (Matusevich, 1995, Dodge, 1997, Vidoni & Maddux, 2003, Godwin-Jones, 2004, March, 2008) in language teaching.

WebQuests tend to be student-centered with teachers scaffolding the students through the learning process. In other words, they "foster cooperative learning through guided discovery" (Godwin-Jones, 2004:10). WebQuests are usually "group activities with an end goal of creating a document that collects, summarizes and synthesizes the information gathered" (Godwin-Jones, 2004:9, Vidoni and Maddux, 2002).

A WebQuest is developed around an authentic topic relevant for students' everyday life. We can find some papers describing the successful implementation of WebQuests in a particular classroom (Vidoni & Maddux, 2003, MacGregor & Lou, 2006, Ikpeze & Boyd, 2007, Manning & Carpenter, 2008). Otherwise, very few articles are available that discuss the implementation of WebQuests in teaching EFL (Koenraad, 2002, Prapinwong, 2008).

The role of teachers in the design of webquests

Teachers need

- To use high quality authentic and interesting web resources.
- To orchestrate both the resources and the pupils.
- To secure access to a computer lab

LIMITATIONS OF WEBQUESTS

- WebQuests are only one tool in a teacher's toolboxes. They are not appropriate to every learning goal. In particular, they are weak in teaching factual total recall, simple procedures, and definitions
- WebQuests also usually require good reading skills, so are not appropriate to the youngest classrooms or to students with language and reading difficulties without accommodations. One might ask an adult to assist with the reading or use screen-reading technologies, such as Voice Over or Jaws
- To take care of the class dynamics by creating the groups collaboratively with students in terms of their linguistic competences and electronic literacies.
- To make students understand how important it is to be accountable individually and within the groups.
- To choose an engaging topic.

CONCLUSION

WebQuests are used to reach the best use of learner's time, knowledge acquisition and integration and extending knowledge. When working with a WebQuest, learners have to cope with a significant amount of new information and made sense of it (Dodge, 1998). WebQuests help students in working on both critical-thinking and analysis skills. Based on ideas of inquiry and constructivism, WebQuests involve cooperative learning as students work in groups. The results of its impression in the classroom demonstrated that WebQuest is an important tool of stimulus for the teachers, a suitable teaching and learning method and a way for integrating Internet in learning. One of the greatest achievements of the WebQuest implementation was obtained in pupils' motivation and cooperative work.

According to March (2003) the best way to get attention and relevance in a WebQuest is to choose an engaging topic, attractive for students. The task should be related to the topic and meaningful for the learner. it should be a task in which the student are involved in understanding or solving a real problem.

REFERENCES

- Carvalho, A. A. A. (2007). Guest Editor's Introduction. Interactive Educational Multimedia,15.
- Dodge, B. (1995, 1997). Some Thoughts About Webquests. Retrieved November, 28, 2014.
- Dodge,B.(1997). Some thoughts about WebQuests. [http://webquest.sdsu.edu/about_webquests.html]
- Dodge, B. (1998). Building blocks of a WebQuest. Retrieved from: http://www.internet4classrooms.com/buildingblocks.htm
- Dodge, B. (2001). FOCUS: Five rules for writing a great WebQuest. Learning and leading with technology, 28(8), 6-9.
- Dodge, B., (2002). WebquestTaskonomy: A Taxonomy of Tasks. Retrieved November, 28, 2014.
- Godwin-Jones, R. (2005). "Emerging technologies: messaging, gaming, peer-to-peersharing. Language learning strategies & tools for the millennial generation". Language Learning and Technology 9 (1): 17-22.
- Ikpeze, C.H., and B.F. Boyd. (2007). "Web-based inquiry learning: facilitating thoughtful literacy with WebQuests". The Reading Teacher 60 (7): 644-654.
- Koenraad, T. (2002). "TalenQuests: WebQuests for modern languages". CALL Conference. [http://www.feo.hvu.nl/koen2]
- Kundu, R., & Bain, C. (2006).Webquests: Utilizing technology in a constructivist manner to facilitate meaningful preservice learning. Art Education, 6-11.
- Laborda, J., G. (2009). Using Webquestsfor oral communication in English as a foreign language for Tourism Studies, Educational Technology and Society, 12(1): 258-270.
- March, T. (2003). What WebQuestsare (really). Retrieved November, 28, 2014. March, T. (2005). The new www: Whatever, whenever, wherever. Educational Leadership, 63(4), 14.
- Muñoz, R. (29th Maiy 2015). El Gobierno promete Internet de 100 megas para 16.500 escuelasen 2016. El País. Economía. Retrieved from: http://economia.elpais.com/economia/2015/03/30/actualidad/1427714627_161901.html Mutka, K., Punie, Y. and Redecker, C. (2008). Digital Competence for Lifelong Learning.
- Retrieved from: ftp://ftp.jrc.es/pub/EURdoc/EURdoc/JRC48708.TN.pdf Pérez Torres, M.I. (2005). Diseño de Webquests para la Enseñanza/ Aprendizaje del Inglés como Lengua Extranjera: Aplicaciones en la Adquisición de Vocabulario y la Destreza
- Lectora. Granada: Servicios Editoriales de la Universidad de Granada.

- Pérez, I. (2005). A model of WebQuests for teaching and learning an L2. Eurocall. Retrieved from: http://www.isabelperez.com/webquest/taller/l2/english/handout_wq_l2_en.pdf
- Pérez, I. (2006). Diseño de WebQuests para la Enseñanza/Aprendizaje del Inglés como Lengua Extranjera: Aplicaciones en la Adquisición de Vocabulario y la Destreza Lectora (Tesi doctoral, Universidad de Granada).
- Piaget, J. (1972). The Psychology of the Child. New York: Basic Books. Prapinwong, M. (2008). Constructivist language learning through WebQuests in EFL context: an exploratory study. Doctoral dissertation, Indiana University.
- Prensky, M. (2001). Digital Natives, Digital Immigrants. On the Horizon (MCB University Press), 9(5), 1-6. Retrieved from: http://www.marcprensky.com/writing/Prensky%20- %20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf
- Sim, H. H., Lee, C. K. E., Chang, C. H., &Kho, E. M. (2004). Exploring the use of WebQuestsin the learning of social studies content. Teaching and Learning,25(2), 223- 232.
- Vidoni, K. L., & Maddux, C. L. (2002). WebQuests: Can they be used to improve critical thinking skills in students? Computers in Schools, 19(1/2), 101-117.

12

Blended Learning: An Innovative Pedagogic Practice

Deepthi M. K.*

Abstract

In recent times, teaching and learning methods have a direct impact on students' learning experiences. Blended learning is a combination of face-to-face and online delivery methods which influences students' perceptions on the learning environments to a great extent. Learning analytics is a growing trend at all levels of education. The objective of the paper is to models of blended learning, role of teachers, and advantages and disadvantages of blended learning.

Keywords: Blended Learning, Models of Blended Learning

INTRODUCTION

The terms "blended learning," "hybrid learning," "technology-mediated instruction," "web-enhanced instruction," and "mixed-mode instruction" are often used interchangeably in research literature. Blended learning is a combination of offline (face-to-face, traditional learning) and online learning in a way that the one compliments the other. Blended learning is a formal education program in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace. While students still attend «brick-and-mortar» schools with a teacher present, face-to-face classroom methods are combined with computer-mediated activities. Blended learning is also used in professional development and training settings.

*Research Scholar, Department of Education, University of Kerala.

Blended learning has three primary components:

- In-person classroom activities facilitated by a trained educator.
- Online learning materials, often including pre-recorded lectures given by that same instructor.
- Structured independent study time guided by the material in the lectures and skills developed during the classroom experience.

Two key principles commonly associated with blended learning (which are the "secrets" to its success):

- Students who can share information and work with other students directly in a collaborative setting have a more enriched learning experience, and
- Collaboration between students can be improved upon if group activities rely on information gathered from online resources or lessons.

It's also been suggested that students who complete online coursework followed by interactive, face-to-face class activities have richer educational experiences.

MODELS OF BLENDED LEARNING

The majority of blended-learning programs resemble one of four models:

- Rotation model
  - Station Rotation
  - Lab Rotation
  - Flipped Classroom, and
  - Individual Rotation.
- Flex model
- A La Carte model, and
- Enriched Virtual model.

1. **Rotation model** — a course or subject in which students rotate on a fixed schedule or at the teacher's discretion between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments. The students learn mostly on the brick-and-mortar campus, except for any homework assignments.

   (a) Station Rotation — a course or subject in which students experience the Rotation model within a contained classroom or group of classrooms. The Station Rotation model differs from the Individual Rotation model because students rotate through all of the stations, not only those on their custom schedules.

   (b) Lab Rotation — a course or subject in which students rotate to a computer lab for the online-learning station.

   (c) Flipped Classroom — a course or subject in which students participate in online learning off-site in place of traditional homework and then attend the brick-and-mortar school for face-to-face, teacher-guided practice or projects. The primary delivery of content and instruction is online, which differentiates a Flipped Classroom from students who are merely doing homework practice online at night.

   (d) Individual Rotation — a course or subject in which each student has an individualized playlist and does not necessarily rotate to each available station or modality. An algorithm or teacher(s) sets individual student schedules.

2. **Flex model** — a course or subject in which online learning is the backbone of student learning, even if it directs students to offline activities at times. Students move on an individually customized, fluid schedule among learning modalities. The teacher of record is on-site, and students learn mostly on the brick-and-mortar campus, except for any homework assignments. The teacher of record or other adults provide face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring. Some implementations have substantial face-to-face support, whereas others have minimal support. For example, some Flex models may have face-to-face certified teachers who supplement the online learning on a daily basis, whereas others may provide little face-to-face enrichment. Still others may have different staffing combinations. These variations are useful modifiers to describe a particular Flex model.

3. **A La Carte model** — a course that a student takes entirely online to accompany other experiences that the student is having at a brick-and-mortar school or learning center. The teacher of record for the A La Carte course is the online teacher. Students may take the A La Carte course either on the brick-and-mortar campus or o□-site. This differs from full-time online learning because it is not a whole-school experience. Students take some courses A La Carte and others face-to-face at a brick-and-mortar campus.
4. **Enriched Virtual model** — a course or subject in which students have required face-to-face learning sessions with their teacher of record and then are free to complete their remaining coursework remote from the face-to-face teacher. Online learning is the backbone of student learning when the students are located remotely. The same person generally serves as both the online and face-to-face teacher. Many Enriched Virtual programs began as full-time online schools and then developed blended programs to provide students with brick-and-mortar school experiences. The Enriched Virtual model differs from the Flipped Classroom because in Enriched Virtual programs, students seldom meet face-to-face with their teachers every weekday. It differs from a fully online course because face-to-face learning sessions are more than optional office hours or social events; they are required.

Key components of Blended Learning

- **S**elf-paced e-learning
- Face to face learning
- Mobile learning
- Social learning
- Virtual Classroom learning

Digital tools to support blended learning

Some of the digital tools that can be used to support learning and teaching in a blended environment.

- Blogs :
- Discussion boards

- Live Internet streaming
- Web/video conferencing:
- Mind mapping:
- Screen capture/recording:
- Open education resources:

Role of Teacher

In some situations, the move to blended learning has inspired educators to redefine traditional roles. The word "**facilitator**" has emerged as an alternative to "teacher," bringing with it a slightly different focus. The facilitator places an emphasis on empowering students with the skills and knowledge required to make the most of the online material and independent study time, guiding students toward the most meaningful experience possible. Facilitators focus on four key areas:

- Development of online and offline course content.
- Facilitation of communication with and among students, including the pedagogy of communicating content online without the contextual clues students would get in person.
- Guiding the learning experience of individual students, and customizing material wherever possible to strengthen the learning experience.
- Assessment and grading, not unlike the expectations for teachers within the traditional framework.

BENEFITS AND DISADVANTAGES OF BLENDED LEARNING

1. Improves efficiency

Blended learning allows teachers to use a combination of digital instruction and one-on-one face time to improve efficiency in the classroom. When students use adaptive learning technologies to work on their comprehension of new concepts, teachers can use the additional class time to give struggling students the individualized attention that they need. Rather than playing to the lowest common denominator – as they would in a traditional classroom – teachers can now streamline their instruction to help all students reach their full potential.

2. Saves money

Education can be extremely expensive. From continually reordering textbooks so they're up to date to having school supplies on hand, the costs add up. Blended learning can help school districts save money by allowing students to bring their own technology devices to class to take full advantage of the adaptive learning software. The use of e-textbooks, which can also be accessed on computers, tablets and e-readers, may also help drive down costs.

3. Personalizes learning

Blended learning is able to personalize education in a way that a more traditional classroom setup simply cannot. When teachers stand in front of a sea of desks and educate students about a new concept, kids of varying academic skill levels are not able to take extra time or work ahead as they may need. Blended learning allows students to work at their own pace, making sure they fully understand new concepts before moving on.

4. Better student data

Software used with blended learning programs is able to collect student data that measures academic progress. In this way, teachers can clearly see the areas in which each individual student is excelling, and where he or she may need a little more guidance, and act accordingly.

5. Common Core State Standards

Digital fluency is a goal of the Common Core State Standards, and states working to implement the new academic guidelines will need to make sure that technology is integrated into a variety of subject areas. Blended learning can easily accomplish this task.

- Less expensive to deliver, affordable and saves time
- Flexibility in terms of availability- anytime anywhere. In other words, e-learning enables the student to access the materials from anywhere at any time.
- Access to global resources and materials that meet students' level of knowledge and interest.
- Self-pacing for slow or quick learners reduces stress and increases satisfaction and retention.

- E-learning allows more affective interaction between the learners and their instructors through the use of emails, discussion boards and chat room.
- Learners have the ability to track their progress.
- Learners can also learn through a variety of activities that apply to many different learning styles that learners have.
- It helps the learners develop knowledge of using the latest technologies and the Internet.
- The e-learning could improve the quality of teaching and learning as it supports the face-to-face teaching approaches.

Disadvantages

These might include little or no "in-person" contact with the faculty member, feelings of isolations, a difficult learning curve in how to navigate within the system, problems with the technology, the need for the student to be actively involved in learning, and increased lead-time required for feedback regarding assignments. There are also different aspects, especially in the developing countries, such as providing the required funds to purchase new technology, lack of adequate e-learning strategies, training for staff members and most importantly the student resistance to use the e-learning systems.

- Lack of a firm framework to encourage students to learn.
- A high level of self-discipline or self-direct is required, learners with low motivation or bad study habits may fall behind.
- Absence of a learning atmosphere in e-learning systems.
- The distance-learning format minimizes the level of contact, e-learning lacks interpersonal and direct interaction among students and teachers.
- When compared to the face-to-face learning, the learning process is less efficient.

CONCLUSION

Implementing blended learning needs a full dedication on the part of educational authorities and managements of educational institutes. It needs a well-planned design that include all from individuals top to bottom of the educational hierarchy. To conclude it can be said

that blended learning is to some extent is the solution to problems prevailing in our educational system. If implemented in a well-planned, organised way with right type of attitudes it can become the future of our educational system. It is in our own benefit that steps for adapting blended learning are soon initiated.

REFERENCES

- Bach, S., Haynes, P., & Smith, J. L. (2006). ***Online Learning and Teaching in Higher Education***. Buckingham, UK: Open University Press.
- Banados, E. (2006***).*** A Blended-Learning Pedagogical Model for Teaching and Learning EFL Successfully Through an Online Interactive Multimedia Environment. *CALICO Journal*, 23(3), 533-550.
- Bijeikienė, V., Rašinskienė, S., & Zutkienė, L. (2011). Teachers' attitudes towards the use of blended learning in general English classroom. ***Studies About Languages***, 18, 122- 127.
- Blake, R. J. (2008). ***Brave new digital classroom: Technology and foreign language learning.*** Washington, D.C.: Georgetown University Press.
- Comas-Quinn, A. (2011). ***Learning to teach online or learning to become an online teacher: An exploration of teachers' experiences in a blended learning course.*** ReCALL, 23(3), 218-232.
- Compton, L. (2009). ***Preparing language teachers to teach language online: A look at skills, roles, and responsibilities.*** Computer Assisted Language Learning, 22(1),73-99.
- Finley, L., & Hartman, D. (2004). Institutional change and resistance: A teacher preparatory faculty and technology integration. *Journal of Technology and Teacher Education*, 12(3), 319-327.
- Grgurović, M. (2010). ***Technology-enhanced blended language learning in an ESL class: A description of a model and an application of the diffusion of Innovations theory***. Unpublished doctoral dissertation, Iowa State University.
- Grgurović, M. (2011). Blended learning in an ESL Class: A case study. *CALICO Journal*, 29 (1),100-117.
- Hughes, J. (2005). **The role of teacher knowledge and learning experience in forming technology integrated pedagogy**. *Journal of Technology and Teacher Education*, 13(2), 277-289.
- Jonassen, D. H., Howland, J., Moore, J., & Marra, R. M. (2003). ***Learning to solve problems with technology: A constructivist perspective*** (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.
- Hampel, R., & Stickler, U. (2005). ***New skills for new classrooms: Training tutors to teach languages online.*** Computer Assisted Language Learning, (4), 311-326.

- MacDonald, J. (2008). ***Blended learning and online tutoring: A good practice guide***. Aldershot, UK: Gower.
- Motteram, G. (2006). Blended education and the transformation of teachers: a long-term case study in postgraduate UK education. *British Journal of Educational Technology*, 37(1), 17-30.
- Murday, K., Ushida, E., & Chenoweth, N. A. (2008). ***Learners' and teachers' perspectives on language online.*** Computer Assisted Language Learning, (2), 125-142.
- Neumeier, P. (2005). ***A closer look at blended learning: Parameters for designing a blended learning environment for language teaching and learning***. ReCALL 17(2), 163–178.
- Picciano, A. (2009***).*** Blending with purpose: The multimodal model. *Journal of Asynchronous Learning Networks,* 13(1), 7-18.
- Sharma, P. (2010). ***Blended Learning***. ELT Journal, 64(4), 456-458.
- Sharma, P., & Barret, B. (2007). ***Blended learning: Using technology in a beyond the language classroom***. Thailand: Macmillan Publishers Limited.
- Sugar, W., Crawley, F., & Fine, B. (2004). ***Examining teachers' decisions to adopt new technology***. Educational Technology and Society, 7(4), 201-213.
- Ricento, T., & Hornberger. N. (1996). ***Unpeeling the onion: Language planning and policy and the ELT professional***. TESOL Quarterly, 30(3), 401-427.
- Tayebinik,M., & Puteh, M. (2012). ***Blended learning or e-learning?*** IMACST, 3(1), 103-110.
- Hew, Khe Foon, & Cheung, Wing Sum.(2011) ***Using Blended Learning: Evidence Based Practices***. Singapore: Springer Verlag.
- Picciano, Anthony, G. Dziuban, Charles D., & Graham, Charles, R.(2014) ***Blended Learning: Research Perspectives***, New York: University Press.
- Bersin, Josh (2004), ***The Blended Learning Book: Best Practices, Proven Methodologies, and Lessons Learned***. San Francisco: Pfeiffer.
- ***Internet Sources***
- www.skillsoft.com/assets/white-papers/blended_learning_strategies_wp.pdf
- https://www.uws.edu.au/data/assets/pdf.../Fundamentals_of_Blended_Learning.pdf
- www.christenseninstitute.org/**blended-learning**-definitions-and-**models**/
- www.skillsoft.com/assets/whitepapers/blended_learning_strategies_wp.pdf

13

E-Learning : An Effective Pedagogical Practice

*Alarajani V. G.**

Abstract

The use of information technologies is a common feature of teaching methods, which include e-learning. Through e- learning, teaching and learning process became accessible from anywhere, at any age and time. Virtual contact between the teacher and the student is in many cases far more convenient for both of them. Training and e-learning courses are very popular. They are carried out not only in school or academic environment but also in the business one. E-learning is used as a tool to support learning process, and its use may allow easy management of materials, creating flexible educational methods. This study investigates the effectiveness of using e-learning in teaching and learning process. In educational institutions, the issue of utilizing modern information and communication technologies for teaching and learning is very important.

***Keyword**:* ICT, e-learning, Higher education, Multimedia Technologies

INTRODUCTION

Technologies have made significant changes in almost all the sphere of life including the education. With the rapid progress in technology and the advancement in learning systems e-learning is now embraced by the masses. The introduction of computers was the basis of this revolution and with the passage of time, as we get hooked to Smartphone, tablets

*Research Scholar, Department of Education, University of Kerala.

etc; these devices now have an important place in the classrooms for learning. Books are gradually getting replaced by electronic educational materials like optical disc or pen drives. Knowledge can also be shared via the Internet, which is accessible 24/7 anywhere anytime. It offers wide options and covers all the educational fields. The students are no longer passive consumers of the educational programs and services, but active participants in the educational process. Their skills and competencies to work effectively with digital technologies are prerequisite for successful and responsible solving and presentation of scientific problems and cases. The development of new technologies and the use of e-learning in teaching and learning are of great benefit for integrating digital technology into the educational environment can increase the efficiency and the quality of the education system.

CONCEPT OF E-LEARNING

The Internet has become one of the vital ways to make available resources for research and learning for both teachers and students to share and acquire information (Richard and Haya 2009). Technology-based e-learning encompasses the use of the internet and other important technologies to produce materials for learning, teach learners, and also regulate courses in an organization (Fry, 2001).

A learning system based on formalized teaching but with the help of electronic resources is known as e-learning. While teaching can be based in or out of the classrooms, the use of computers and the internet forms the major components of e-learning. E-learning can also be termed as a network enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times. It has drifted the method of learning imparted to the students. The aim of using e-learning is to improve the quality of the learning experience for students, and learning quality ranks poorly in relation to most of them. E-learning is imparting and facilitating knowledge on media, electronic devices like that on the internet, CD-ROMs, DVDs and streaming media etc.

Features of e-learning

- Develops knowledge of the internet that will help learners throughout their future.
- Allow students to select the learning material.

- Convenient for students to access any time, any place.
- Fosters self paced learning
- Accommodated different learning styles and enhance learning through a variety of activities.

Advantages of e-learning

- **Convenience**: 24/7 access from any online computer; accommodates busy schedules; no commuting.
- **Enhanced Learning**: Increased depth of understanding and retention of course content; more meaningful discussions; emphasis on writing skills, technology skills, and life skills like time management, independence, and self-discipline.
- **Interaction**: Increased student-to-teacher and student-to-student interaction and discussion; a more student-centered learning environment; less passive listening and more active learning; a greater sense of connectedness, synergy.
- **Innovative Teaching**: Student-centered approaches; increased variety and creativity of learning activities; address different learning styles; changes and improvements can translate to on-ground courses as well.
- **Improved Administration**: Time to examine student work more thoroughly; ability to document and record online interactions; ability to manage grading online.
- **Savings**: Accommodate more students; increased student satisfaction, higher retention and fewer repeats.

BENEFITS OF E-LEARNING TO STUDENT

Today's learners want relevant, mobile, self-paced, and personalized content. This need is fulfilled with the online mode of learning; here, students can learn at their own comfort and requirement. E- Learning has been an invaluable support for learners around the world. Earlier the access to knowledge was not accessible to all. Students with economic constraints, geographical boundaries or physical disabilities had scarce opportunities in the academic province. The modern learning method fetches a refreshed version of knowledge accessible at convenience and shared with millions of people from different boroughs. It's an

ecstatic learning period for scholars far and wide. E-learning also offers greater collaboration and global opportunities to the learners.

- e-learning provides faster learning at reduced costs
- help students to achieve high academic standards
- clear accountability for all participants in the learning process
- Unlike traditional learning, if any lessons have been missed, it can always have in online.
- Lectures can be taken any number of times
- Online learning accommodates everyone's needs.

Benefits for the instructor

E-learning has become an invaluable resource to educators and classroom teachers, harnessing a new model of knowledge sharing wherein students possess the tools to learn at their own pace. This student-focused approach is unique in that students now share in their educational direction, maximizing both teaching resources and time. E-learning offers significant benefits for educators. E-learning solutions provide much-needed effectiveness for teachers, allowing them to maximize the potential for individual learning curves and styles within the classroom. Many online learning solutions account for self-paced learning and allow students and teachers to work together to meet scheduled targets.

- Convenient for the instructors to access any time anywhere.
- Sets a framework for content delivery.
- It is very useful than text based distance education.
- Lectures can be taken at any time and any number of times.
- E-Learning allows teachers a higher degree of coverage to deliver the content regularly. This ensures consistency in learning.
- E-Learning is cost-effective as this method quick and easy. Long training period, infrastructure, stationary, travel expense etc is reduced.

TYPES OF E-LEARNING

There are diverse ways of classifying the types of e-learning. According to Algahtani (2011), there have been some classifications

based on the extent of their engagement in education. Some classifications are also based on the timing of interaction. Algahtani (2011) divided e-learning into two basic types, consisting of computer-based and the internet based e-learning.

According to Algahtani (2011), the computer-based learning comprises the use of a full range of hardware and software generally that are available for the use of Information and Communication Technology and also each component can be used in either of two ways: computer managed instruction and computer-assisted-learning. In computer assisted- learning, to him, computers are used instead of the traditional methods by providing interactive software as a support tool within the class or as a tool for self-learning outside the class. In the computer-managed instruction, however, computers are employed for the purpose of storing and retrieving information to aid in the management of education.

The internet-based learning according to Almosa (2001) is a further improvement of the computer-based learning, and it makes the content available on the internet, with the readiness of links to related knowledge sources, for examples e-mail services and references which could be used by learners at any time and place as well as the availability or absence of teachers or instructors (Almosa, 2001).

IMPORTANCE OF E-LEARNING IN EDUCATION

E-learning is important in education because it can improve the quality of learning experience and extend the reach of every lecturer and tutor. It is equally important to take forward the concept of non-electronic teaching with the help of books and lectures, but the importance and effectiveness of technology-based learning cannot be taken lightly or ignored completely. It is believed that the human brain can easily remember and relate to what is seen and heard via moving pictures or videos. It has also been found that visuals, apart from holding the attention of the student, are also retained by the brain for longer periods. Various sectors, including agriculture, medicine, education, services, business, and government setups are adapting to the concept of E-learning which helps in the progress of a nation. E-learning can support learning by offering differentiated learning, particularly for those who need support in literacy, numeracy and ICT. It offers a wide range of tools to enable teachers and learners to be innovative,

creative and resourceful in all learning activities. Teachers and learners can easily customize digital learning resources to suite pace and level, appropriate to any learning style and ability. The internet can bring learners, teachers, specialist communities, experts, practitioners and interest groups together to share ideas and good practice. It can provide an individualized learning experience for all learners, including those who are disabled exceptionally gifted, have special curriculum or learning needs or who are remote or away from their usual place of learning..

Courses using electronic networks make certain demands on the students who study them. Inevitably, using a networked computer as a study tool involves basic ICT (Information and Communication Technology) skills which need to be mastered, and this eventually leads to a familiarity with the relevant hardware and software tools. Beyond this, students need to learn how to use the computer as a study tool. They may need to accommodate screen based study, with its limitations on flexibility, and the implications for time management; in addition to learning how to manage files effectively. The importance of using e-learning in higher education is to create an environment which learners in higher education become more advance, make the significant differences, and increase the tendency to create a Virtual Learning Environment (VLE).

USE OF E-LEARNING IN HIGHER EDUCATION

E-Learning can also be seen as a promising way for improving the quality of higher education and effectiveness of learning. It can give increased flexibility of learning experience to student, enhances access to information resources for more students; the potential to drive innovative and effective ways of learning and teaching at very low marginal cost among the teachers and learners. E – Learning could also lead to the enhancement of quality in higher education by leading to innovative pedagogical methods, new ways of learning and interacting by the easy sharing of the new practices among learners and teachers communities, as well as by more transparency and easier comparison and cross fertilization of materials and methods.

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remember and relate to what is seen and heard via moving pictures or videos. It has also been found that visuals, apart from holding the attention of the student, are also retained by the brain for longer periods. Various sectors, including agriculture, medicine, education, services, business, and government setups are adapting to the concept of E-learning which helps in the progress of a nation.

E-Learning is relatively new emerging technology that spans the universities and other institutions. It concentrates on utilizing Knowledge of teachers in a way that academic courses can be delivered anywhere and anytime. According to Love and Fry (2006), colleges, universities, and other institutions of higher learning are in a race to advance online course capability in a speedily enveloping cyber education market. E-learning, has come to be more and more important in Deepali Pande et al, International Journal of Computer Science and Mobile Computing, Vol.5 Issue.2, February- 2016, pg. 274-280 © 2016, IJCSMC All Rights Reserved 276 institutions of higher education. The introduction and expansion of a range of e-Learning tools has been initiating several changes in higher education institutions, particularly when it comes to their educational delivery and support processes (Dublin, 2003).

There are also different ways of employing the technique of e-learning in education. Algahtani, (2011), in his evaluation of E-learning effectiveness and experience in Saudi Arabia, discovered three distinct models of using e-learning in education including the "adjunct, blended e-Learning and online". The three ways of using e-Learning technologies as discovered by Algahtani (2011) are described below. The "adjunct e-Learning is the situation which e-Learning is employed as an assistant in the traditional classroom providing relative independence to the learners or students (Algahtani, 2011). In the blended e-Learning, Algahtani (2011) and Zeitoun (2008) explained that, in this way of using eLearning, the delivery of course materials and explanations is shared between traditional learning method and e-learning method in the classroom setting. The third one which is the online is devoid of the traditional learning participation or classroom participation.

E-LEARNING TOOLS IN INSTRUCTIONAL PROCESS

Web log

A weblog, sometimes written as weblog, is a website that consist of a series of entries arranged in reverse chronological order, often

updated on frequently with new information about particular topics. The information can be written by the site owner, gleaned from other Websites or other sources or contributed by users. The term "blog" is a mingling of the words web and log. Blogs provide comments or news on a particular subject, some function as more personal online diaries. The modern blog evolved from the online diary, where people would keep a running account of their personal lives. There web blogs, such as Word Press, Movable Type, blogger or Live Journal, or on regular web hosting services, such as Dream Host.

Teachers can use blogs to publish assignments, resources, and keep students up to date on class events, due dates, and content being covered. Teachers can also use blogs to help students› master content and improve their writing skills. Promotes autonomous learning by providing opportunities for students to take more control of their learning. It motivates students to become better readers and writers and encourages the use of the Internet and the Web among students (and teachers).

Social bookmarking

Social bookmarking is a web-based service to add, annotate, edit and share Internet bookmarks. The Social bookmarking sites are a popular way to store, classify, share and search links through the practice of folksonomies techniques on the Internet. In a social bookmarking system, users store lists of Internet resources that they find useful.

Social bookmarking is highly useful for educators since it allows specific categorization of websites and other web resources for easy access and sharing. The basic premise of social bookmarking is user created tags or categories in which websites are then placed.

Wiki

Wikipedia is a free, open content online encyclopedia created through the collaborative effort of a community of users known as Wikipedia's. A wiki is a website that allows visitors to add, remove, edit and change content, without the need for registration. It also allows for linking among any number of pages. It provides free information in many languages on many subjects.

It helps to reduce the time of the person. In the modern education, new technologies, method of teaching, learning material, learning

resources and content were introduced. Wikipedia helps the learner to understanding the new techniques. The learner can grasp the distance education through Wikipedia.

RSS feeds

RSS is a web feed formats used to publish frequently updated digital content, such as blogs, news feeds or podcasts, etc. Users of RSS content use software programs called "feed readers" or "feed aggregators". The user subscribes to a feed by entering a link to the feed into the reader program. RSS feed data is presented to users using software called a news aggregator. This aggregator can be built into a website, installed on a desktop, computer or installed on a mobile device. Users subscribe to feeds either by entering a feed's URI into the reader or by clicking on the browser's feed icon The RSS reader checks the user's feeds regularly for new information and can automatically download it, if that function is enabled.

Podcasting

Podcasting is a fusion of two words: iPod, Apple's popular digital music player, and broadcasting. Podcasts are basically digital audio programs that can be subscribed to and downloaded by listeners by RSS (Really Simple Syndication). It can be accessed on an array of digital audio devices, like Mp3 players, desktop computer, laptops, mobiles etc. Creating podcast allows students to develop several important skills such as researching, writing, speaking effectively, solving problems, managing time, grabbing attention and improving their vocabulary.

Podcasting offers the opportunity for teachers to easily broadcast engaging audio content, which students can then listen to at any time and wherever they are. Podcasts can easily be used in Schools, universities or colleges to engage students, and improve your teaching and learning practice.

Instant Messaging

An instant messaging application allows one to communicate with another person over a network in relative privacy. There are many options like Gtalk, Skype, Meetro, ICQ, Yahoo! Messenger, MSN Messenger and AOL for instant messaging.

Text messaging appears to be the preferred mode of communication for students with respect to communicating with both peers and instructors. It is concluded that both text and instant messaging are useful and viable tools for augmenting student›s communication among peers and faculty in higher education.

Text chat

Internet Relay Chat (IRC) and other online chat technologies allow users to join chat rooms and communicate with many people at once, publicly. Users may join a pre-existing chat room or create a chat room about any topic. Whether you are in another person's chat room, or one you've created yourself, are generally free to invite others online to join you. This facilitates both one-to-one communication and many-to-many interaction.

Internet forums

Internet forums are also known as online forums, discussion boards or message boards. They enable users of a website to interact with each other by exchanging tips and discussing topics related to a certain theme. Learning through online forums is an important learning strategy for students to improve their language skills. Online discussions have the potential to improve students› critical thinking and problem solving skills, decision-making ability, and written communication skills and contribute to students› ability to organize and analyze information.

CONCLUSION

E -learning brings a new quality to academic education. In the 21st century, people have to learn more than ever before. Especially for global organizations, live classroom-based training is becoming too costly and cumbersome. When the students use e-learning, they creating an environment in which learners can explore, manipulate, and experiment. In developed 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. E-learning can be highly beneficial to both students and institutions if properly implemented.

REFERENCES

- Alkhateeb, F., AlMaghayreh, E., Aljawarneh S., Muhsin Z., Nsour, A. E-learning Tools & Technologies in Education: A Perspective.
- Andersson, A. (2008). Seven Major Challenges for e-learning in Developing Countries: Case Study.
- Boulton, H. (2008). Managing e-learning: What are the Real Implications for schools? *The Electronic journal of E-learning,* Volume 6 issue 1, pp.11.
- Deepali Pande,(2016). International Journal of Computer Science and Mobile Computing, 5 (2), 274-280.
- Elango, R. Gudep, V.K. and Selvam, M. (2008). Quality of e-learning: An analysis based on e-learners perception of e-learning. *The electronic journal of e- learning*,6(1),31-44.
- Govindasamy, T. (2002). Successful implementation of e-learning: Pedagogical considerations, The Internet and Higher Education.4,pp. 287-299.8.
- Hameed, S. (2008).Effective e-learning integration with traditional learning in a blended Learning environment. European and Mediterranean conference on information system, (25-26).
- Holmes, B. & Gardner, J. (2006). E-Learning: Concepts and Practice, London: SAGE publications.
- Keller, C.,& Cernerud, L. (2002). Students' perception of e-learning in university education. Learning, Media and Technology, 27(1), 55-67.
- Love, N. & Fry, N. (2006). "Accounting Students' Perceptions of a Virtual Learning Environment".
- Milani, M. (2007). Cultural Impact on Online Education Quality Perception, *The Electronic Journal of e-learning,*6 (2):149-160.
- Online Pedagogy and Best Practices (http://teachvu.vu.msu.edu/public/pedagogy/online_ped_best_pract/)
- Richard, H., & Haya, A. (2009). Examining student decision to adopt web 2.0 technologies: Theory and empirical tests. Journal of computing in Higher education, 2(30),183-198.
- Roseberg, J.M. (2001). E-learning: Strategies for Delivering Knowledge in the Digital Age. McGraw Hill: New York.

14

Web Technology Shaping the 21st Century Classrooms

Aria Mol A.* and Dr. Geetha Janet Vitus**

ABSTRACT

The education which happens to be the most important factor of development is under increasing pressure to use new technologies to prepare our future generations for the knowledge and skills which they need in future years. Technology is continuing to affect the academic transactions involving teaching, learning, research, extension activities in the universities, colleges, and other institutions. There is now widespread recognition that such technologies present opportunities to change the way in which student learning can be organized. It can be said that the availability of such devices has the potential to change the traditional dynamics and patterns of the learning environment. This is so because modern educational technology provides capabilities for responding to new demands that traditional classroom education cannot meet adequately (Wang, 2009). There is no doubt that web technology plays a vital role in the teaching –learning process. Technology provides teachers and students with access to variety of educational resources that inspire creativity, critical thinking, communication and collaboration. We live in a world of almost unlimited streams of profound information, difficult choices and enormous opportunity. Teachers can create a 21st century context for learning by taking students out into the

*Research Scholar, Department of Education, University of Kerala.
**Associate Professor, Department of Education, University of Kerala.

world, by bringing the world into the classroom, and by creating opportunities for students to collaboratively interact with each other.

Keywords: Web Technology, Creativity, Critical thinking, Communication, Collaboration

INTRODUCTION

Information and communication technology (ICT) is a force that has changed many aspects of the way we live. The impact of ICT across the past two or three decades has been enormous in every field such as medicine, tourism, travel, business, law, banking, engineering and architecture. Information and communication technologies (ICT) have become commonplace entities in all aspects of life. Across the past twenty years the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavor within business and governance. Within education, ICT has begun to have a presence especially web technology in education lends itself to more student-centered learning settings. With the world moving rapidly into digital media and information, the role of web technology in education is becoming more and more important and this importance will continue to grow and develop in the 21 st century. It has been shown that in comparison to traditional classrooms, technology supported classrooms have the potential to improve instructions (Idayavani & Shanthi, 2003). It has been argued that the availability of such devices has the potential to change the traditional dynamics and patterns of the learning environment. As students and teachers gain access to higher bandwidths, more direct forms of communication and access to sharable resources, the capability to support these quality learning settings will continue to grow.

THE 21ST CENTURY CLASSROOM

There are many new technologies being used in classrooms today some of them are social networking, online teaching, class blogs and wikis, podcasting, interactive whiteboards, and mobile devices. There are many ways in which we can benefit from the new technologies being developed today. In actual classroom situations, the integration of these technology tools creates a dynamic learning environment where students are active participants in the learning process (Mouli and Saroja, 2003). Some technologies which are used in classrooms are:-

1. **Video and Podcasting** – One of the most widely adopted internet technologies for use in instructional settings is video streaming. There is an abundance of lectures, how-to videos, and supporting materials available in the form of web-based video tools like You Tube, Teacher Tube. Video learning has always appealed to students since it closely mirrors the traditional classroom teaching style. Video lectures allowed students to learn subject syllabi at their own pace and dedicate time spent in class towards interactions. This will continue to be a trend in the future where students will have access to rich and interactive content, that will be useful for both formal training as well as performance enhancement. Podcasting has also been used to provide similar offerings of audio materials through popular sites like iTunes. A podcast is an episodic series of digital audio which a user can download to listen.
2. **Presentation Tools** – This category is vast and rich. There are hundreds of tools on the Internet that can be used to create and share presentations, from simple PowerPoint slide players like slide share to multimedia timeline tools like OneTrueMedia . These tools can be used to support classroom teaching or distance learning, or for student reports and presentations.
3. **Collaboration & Brainstorming Tools** – This is another wide-ranging category, including thought-organizing tools like mind map and bubbl.us, and collaborative tools like web based interactive whiteboards and Google Documents. Wikis and virtual worlds, are some other tools also serve as collaboration tools. The modern classrooms often come equipped with interactive whiteboards. Interactive whiteboards are innovative method of communication which consists of two pieces of technology used together. One part is the projector, which can attach to a laptop, computer, or tablet to show the screen to the whole class. The other part is the interactive whiteboard onto which the image is projected. The whiteboard is also an incredibly powerful collaboration tool. We can write over and interact with the projection using a stylus-type tool.
4. **Blogs & Blogging** –A blog is an online diary or journal located on a website. The content of a blog typically includes text, pictures, videos, animated GIFs and even scans from old physical offline

diaries or journals and other hard copy documents. Educators should be aware of sites like Blogger and Word Press, where users can quickly and easily create their own blogs for free.

5. **Wikis** – The use of Wikis in educational settings is growing every day. Sites like Wet paint and others allow users to create free wiki web sites and are a great way to get started with using wikis for educational applications.
6. **Social Networking** – All educators should have a basic understanding of sites like Facebook, twitter and MySpace and how they are used. This doesn›t mean they need accounts on these sites, but they should understand what they are and how they are being used. Educators should also be aware of the professional social networking site LinkedIn.
7. **Virtual Worlds** –A virtual world is a computer-based simulated environment which may be populated by many users who can create a personal avatar, and simultaneously and independently explore the virtual world, participate in its activities and communicate with others. These avatars can be textual, two or three-dimensional graphical representations, or live video avatars with auditory and touch sensations
8. **Drones** -Many schools are investing in drones for teachers to use with their students. Taking a drone up into the air, students can see footage of their school and city from a bird's eye view. This opens up their minds to notions of spatial reasoning and re-enforces the concept of object permanence.
9. **Virtual Reality**- It is the use of computers to create a simulated environment. Smartphone are now being optimized to provide users with a VR experience which can open a child's mind up to the possibilities of a world from multiple points of view. They leave the experience with a better grasp of how the many systems of the world.
10. **Tablets**-Students today are basically trained from birth to interact with technology through touch. Touch screen technology has revolutionized the way we interact so it makes sense that these devices would be used for educational purposes, as well. In many schools and classrooms, we will find a set of tablets, which are small, touch-screen, based portable computers that students can use to practice skills and sometimes even create. The software programmes provides all the required web links to the resources necessary as per the syllabus, materials for study, self-assessment tests, videos of lectures, FAQs, interaction facilities with co-students, feed-back from peers on their reports, teacher assessments, etc. There are a huge number of educational apps that schools can load onto these tablets to facilitate learning. Another exciting use for tablets is through various websites that interface with both the tablets and an interactive whiteboard. There are many creative and engaging ways to use tablets that are only a web search away.

11. **Multimedia**: Multimedia is the mixing a variety of communicative media and the art of using more than one medium for communication. It is the science of computer-controlled mixing of text, images, audio, video, graphics, animation, etc. into dense and rich mass media which we call as multimedia. Multimedia integrated classroom permits collaborative learning and multilevel interaction among all students and their teacher. As students increase their participation, their skill levels increase; to create documents in a variety of formats viz., PPTs, Reports, Charts and Tables, Newsletters, Short Films, etc., the classroom environment enables the teacher to make learning student-centered.
11. **Open educational resources**-Open digital education resources have commonly been used in distance learning courses. They consist of freely accessible media for learning, teaching and research purposes. They are licensed to be revised and disseminated freely by teachers among students. This allows the latter to gain access to an extensive arrive of study material that is otherwise restricted indigenously. Open educational resources also facilitate the creation of a flexible environment where teachers can customize educational content for individual sessions or classroom sittings. This is applicable for typical curricular subjects like mathematics, sciences and languages, as well as business and fine arts.

Furthermore, modern educational trends in our country suggest that using information and communication technologies in teaching various school subjects have helped to attain the educational objectives as set in the curriculum. These technologies have led to the development of tools which have supplemented the teaching learning process in the classrooms and have improved the effectiveness of the teacher (Millen, 2004).

PROS OF USING WEB TECHNOLOGY IN THE CLASSROOM

1. Use of the technology has extended the scope of opportunities for many learners to enroll in courses offered by external institutions rather than those situated locally. The communications capabilities of modern technologies provide the freedom of choice provided by programs that can be accessed at any place are also supporting the delivery of programs with units and courses from a variety of institutions,
2. Through online technologies learners are free to participate in learning activities when time permits and these freedoms have greatly increased the opportunities for many students to participate in formal programs.
3. The wide variety of technologies that support learning are able to provide asynchronous supports for learning so that the need for real-time participation can be avoided while the advantages of communication and collaboration with other learners is retained.
4. As well as learning at any time, teachers are also finding the capabilities of teaching at any time to be opportunistic and able to be used to advantage. The continued and increased use of ICTs in education in years to come, will serve to increase the temporal and geographical opportunities that are currently experienced.
5. The addition of technology into the classroom help transform the classroom experience from a classic teacher centered one into a student-centered experience – with students taking a more active role in their learning. In a student-centered classroom, the teacher becomes more of a guide as the students engage with and tackle the day's lesson. And there is nothing better than seeing students fully engaged. The ideal classroom environment would be one that is student centered and includes a carefully selected blend of instructional technologies with face-to-face communication
6. Technology provides teachers and students with access to a variety of educational resources that inspire creativity, critical thinking, communication, and collaboration
7. It promotes inclusion and the development of digital literacy skills.
8. It extends learning beyond the text and beyond the classroom walls.

9. It ultimately exposes students and teachers to new online global communities. This in turn promotes a global awareness, which is an essential component to a 21st century education.
10. Finally, it is of paramount important that in school, students use tools that will best prepare them for their future academic and professional experiences. This includes a blend of new technology and old technology. It provides teachers opportunities to educate students on digital citizenship and the new challenges to academic integrity.

Successful integration requires time, customization, experimentation, and support. While there are many schools successfully integrating technology into their classrooms, there is an even larger number of schools that are faced with obstacles impeding this process. Schools struggle with finding meaningful, ongoing professional development experiences for their faculty regarding technology integration.

Current professional development opportunities tend to be highly inefficient when groups of teachers with dissimilar skills and backgrounds are learning new technologies together. Teachers sometimes struggle to see the personal, immediate benefit and can disengage from the material. Even the most meaningful conferences and workshops don't provide the managed follow-up to ensure that the newly acquired skills, strategies, and approaches are being developed and shared with the school community. Including technology into the classroom adds an extra layer of complexity to classroom management. Devices can quickly become a major distraction and not a meaningful learning tool

Lastly, a major obstacle for teachers and students is unreliable technology. Even the best prepared lesson can collapse when there are technical issues. The typical teacher population in most schools includes novice, intermediate and advanced technology users. Placement into each category is based on a teacher's ability to integrate technology into their classroom. The advancements in technology put pressure on teachers to adapt new teaching styles and techniques. Enriching classroom experience with new programs and tools for students is onset of this paradigm shift. Using these tools with students can support more meaningful and active learning. Teachers should be patient about to see the results of the improvements in students' technological and academic skills.

CONCLUSION

Technology in the classroom is undoubtedly a wonderful thing which should be integrated properly. Technology is influencing and supporting what is being taught and learned in schools and also support changes to the way students are learning in this era. ICT applications provide many options and choices that will make the pre-service teachers innovative and creative. Web technology enables the students to be technologically-oriented, globally competitive and a wide-ranged learner.. Web technology provide many options and choices and many institutions are now creating competitive edges for themselves through the choices they are offering students. These choices extend from when students can choose to learn to where they learn.

REFERENCE

- Dvorak, John C & Dvorak Predicts (1994): An Insider's Look at the Computer Industry, New York: McGraw Hill.
- Idayavani, D., & Shanthi, S (2003). Impact of video assisted instructions in schools. The Educational Review 46 (7).
- Millen, J. W. (2004). Factor affecting the implementation and use of technology in teaching biology course in Florida's community colleges. Ph. D. Dissertation. Curtin University of Technology, Australia.
- Poobrasert. (2009*)*. Effectiveness of a Multimedia support system in teaching/learning in comparison with the traditional print based learning method. *Journal of educational Multimedia and Hypermedia, 8NL*, 71-90. Publication Journal Articles; Reports- Research
- Prensky, M. (2007) *How to teach with technology*: keeping both teachers and students comfortable in an era of exponential change in Emerging Technologies for Learning 2:40-47.technology/web-two-technologies-and-impact-on-society- information- technology- essay.
- Wang, T. (2009). The Transformational Promise of Information and Communications Technologies (ICTs) for the Professional Education of Architects. Educational Technology & Society, 12 (3), 206–213.

15

Moocs: A Platform for Distance Learning

Rajeswari V. S.* and Shamna Rani A.*

Abstract

A Massive Open Online Course (MOOC) is a web-based platform which provides unlimited number of students worldwide with a chance of distance education with the best institutions in the world (Sharangpani, 2016). It provides learners worldwide access to a wide range of online educational opportunities at zero or low fees and act as an interactive user forum to support community interactions among students, professors, and teaching assistants (Jung and Lee, 2018; Phan et al., 2016; Zhou, 2016). MOOC reinforces "education for all" concept – democratization of teaching- which means that student can access the courses with no charges (Belanger & Thornton, 2013).This chapter discuss the significance of MOOC platform for distance learning and distinct types of MOOCs. Popular MOOCs platforms in India and their key features were also enlightened in this chapter.

Keywords: MOOcs, Distance Learning, cMOOC, xMOOC, sMOOC, SWAYAM

INTRODUCTION

E-learning has become a mainstream provision in most higher education institutions, but is still not included as part of many internal and external quality assurance systems. Clearly e-learning should be integrated into quality systems, as it contributes to the quality of education by increased accessibility, flexibility, interactivity and personalization

*Research Scholar, Department of Education, University of Kerala.
**Research Scholar, Department of Education, University of Kerala.

(Singh, 2018). The term 'MOOC' is generally attributed to David Cormier, and was used by both Siemens and Cormier to describe an online course with large enrolments that was open not only in terms of enrolment, but also in terms of content, design, points of access, ways of application, and definitions of success (Weller, Siemens, & Cormier, 2012,Arya,2017).A Massive Open Online Course (MOOC) is a web-based platform which provides unlimited number of students worldwide with a chance of distance education with the best institutions in the world (Sharangpani, 2016). It provides learners worldwide access to a wide range of online educational opportunities at zero or low fees and act as an interactive user forum to support community interactions among students, professors, and teaching assistants (Jung and Lee, 2018; Phan et al., 2016; Zhou, 2016). Some experts term the MOOC as a disruptive technology i.e. the technology which demolishes the traditional structure of pedagogy and creates a new platform of learning something that fundamentally and changes the way we do things (Conole, 2013 & Christensen 1997), others call it a 'revolutionary supplement" in the diet of 'traditional pedagogy(Arya,2017). Cormier articulated a serviceable short definition of the concept in a Hangout with Jay Cross, George Siemens, Stephen Downes, and others, entitled "Business and MOOCs", (as cited in Stevens,2013; Saadatdoost et al., 2014) elaborating on each part of the acronym:

Massive – about scale

- Relies on increased chance of interaction from a critical mass of participants
- Massive allows knowledge to derive more from participants, and less from top down

Open – not just free, but

- Open access
- Open syllabus, flexibly allows participants to drive their own learning

Online – this is essential

- Internet introduces abundance
- Completely different playing field from one based on scarcity

Course –

- Has structure
- Cohesion based in experience of facilitators

Now-a-days MOOCs are available in various forms such as short to long courses with specializations or as in the form of online degrees (Shah, 2018a). In a MOOC course every learner is provided with a detailed syllabus, readings & video lectures related to the topic, centralized and distributed open space discussion forums for the learners and different self assessment methods for the learners to check their progress (Siemens, 2012; Pappano, 2012). This Web-based delivery approach gives learners much flexibility and greater autonomy in their learning process, and this makes MOOCs particularly appealing to learners, who recognise the need for continuous learning for personal or professional development, but are facing time and space limitations (Yen & Meng, 2018).

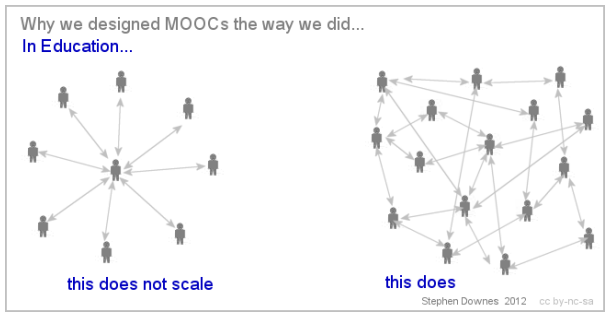
The Research Context

Related studies and views pertaining to MOOCs, which form the basis for the present topic and its various aspects, are delineated here. MOOCs are not isolated from other developments in the field of open and distance learning or educational technology. It is strongly tied to other developments in the field and has the potential to support lifelong learning, eliminate barriers in the learning process, provide equality of opportunity in education, and ensures the liberalization of knowledge. As educational technologies, instructional design and online learning and content delivery platforms keep evolving, more learners with more needs and motives are drawn to taking online courses (Kurt, 2018). MOOCs build on the dynamic engagement of hundreds to thousands of students who self-organise their involvement according to learning skills, objectives, previous knowledge, and their shared interests (McAuley et al., 2010). Pappano (2012) stresses that the future of learning is the use of MOOCs, since these courses are taught by world-renowned professors and can provide a great deal of participation and interaction compared with traditional learning system. Moreover, since each course aims to cover educational material as determined by its author or designer, learners have the opportunity to choose the course which meets his/her needs and desires, with no need to join or enrol in the

traditional classes (Treves, 2013; López-Sieben et al., 2014). According to the Community of Inquiry (Garrison, Anderson, & Archer, 2010) model, interaction in online courses manifests in at least three modes: student-content; student-instructor, and student-student. Anders (2015) concludes that "hybrid MOOCs can provide supportive environments in which participants develop the experience and confidence necessary to be successful in more open and distributed learning contexts" (p. 56). Kurt (2018) stresses that the online courses should shift its focus from content delivery to personalized learning experiences that meet diverse student needs like accreditation, affordability, access etc.

DIFFERENT TYPES OF MOOCS

As MOOCs developed with time, multiple conceptions of the platform seem to have emerged. Mostly two different types can be differentiated: those that emphasize a connectivist philosophy, cMOOCs (Yeager, Hurley-Dasgupta, & Bliss, 2013; Wenqiang, 2012), and those that resemble more traditional based on behaviourism and cognitivism, xMOOCs (Daniel, 2012; Yousef et al., 2015) were developed integrating new features to their composition. cMOOC attempt to connect learners to each other to answer questions or collaborate on joint projects. cMOOCs are based on the idea that the knowledge is in the network, and that one person doesn't need to know everything, but needs to know the person who knows to get access to the information when appropriate. Also, learning should be transparent and open, so learning artefact's created as a part of a course should be openly available online, and, as much as possible, openly licensed using Creative Commons licensing (Plourde & Trimble, 2013). The following diagram from Downes (2012) explains why cMOOC are able to scale.



Here the course facilitator lays out a cohesive structure for what is to be learned but, in Siemens's (2004) words, does not walk the path for the participants, expecting them to follow in well-worn footsteps. The facilitator instead encourages the participants to confront chaos and then find their own pathways through the material.

xMOOCs have a much more traditional course structure. They are characterized by a specified aim of completing the course obtaining certain knowledge certification of the subject matter. They are presented typically with a clearly specified syllabus of recorded lectures and self-test problems (MOOC, 2011). It includes video mini-lectures, followed by short self-graded exercises that could be completed by students at their own pace, and discussion boards. Now we are in the post-MOOC era. The sMOOC (Social Massive Open Online Course) is among the latest proposals. The initial "s" stands for two terms: social and seamless (Camarero-Cano & Cantillo-Valero, 2016). These sMOOCs are "social" because they encourage interaction in learning, thus following the track of Collaborative MOOCs; and "seamless" because they are constantly accessible. The latter implies yet another important feature, the courses' ubiquity, which makes access possible anywhere, anytime and through any devise.

ADVANTAGES OF MOOCS

The MOOCs became widely spread nowadays for countless reasons; openness for the public, no financial, geographical and cultural barriers, and improving the social domain through interaction between the students. MOOC has become an extension of e-learning in term of accessibility and flexibility. Bonk, Lee, Reeves and Reynolds (2015) have described it as having its roots in two major developments. First one is open education and has become manifest through the open universities around the world. The second development is online education, came up with the use of new media and technologies. MOOC reinforces "education for all" concept – democratization of teaching- which means that student can access the courses with no charges (Belanger & Thornton, 2013). Gulatee and Nilsook (2016) indicated that MOOC has a distinctive feature meet students' expectation like subject matter taught are freely offered, brings new teaching strategies, methods and technique like informal learning which could meet student' learning preferences. Other benefits offered are,

compensation of experts, instant feedback, introducing new teaching strategies (Griffiths et al., 2015). Students become experts in the use of modern technology, and their computer and language skills improve gradually. And they show interest in taking another MOOC course in the future (Nigh, Pytash, Ferdig & Merchant, 2015). MOOC helps in increasing students' learning motivation. Subject matter taught was freely offered, MOOC brings with it new teaching strategies, methods and technique like informal learning which could meet student learning preferences are the significant features and benefits of MOOC as educational platform (Gulatee & Nilsook, 2016; Seimens, Gašević, & Dawson, 2015; Aljaraideh, 2019). MOOC reinforces both of self-paced and self- directed learning (Aljaraideh, 2019).

MOOCS PLATFORM IN INDIA

The Human Resource Development Ministry of India acknowledged the importance of MOOC by mentioning that the ministry intend to leverage the broadband network by embracing the 'Massive Open Online Courses' (MOOC) programme in a big way. "We want to embrace MOOC in a big way to increase the number of literates in the country. Institutions must become creators of knowledge, goal of the ministry is to see that universities and institutions lead the innovation agenda and be the catalyst for the process in the economy," it said. The ministry is stressing a lot on the usage of technology enhanced learning by funding an E-learning portal at www.nptel.iitm.ac.in. This "National Programme on Technology Enhanced Learning" (NPTEL) is a joint venture between Indian Institute of Science (IISC), Bangalore and Indian Institutes of Technology (IITs) largely on engineering subjects along with few resources on social sciences. "Indian government has taken numerous steps to support the open education. The objective to prove open resources in the form of e books, repositories, libraries etc. Therefore, developing their own platform by government to offer online courses, presently only few main institutes have initiate to support such steps"(Singh,2018). Some of the Institutes are given below

1. NPTEL (National Program on Technology Enhanced Learning)

NPTEL was a joint activity of the seven IITs (Indian Institute of Technology) and IISc (Indian Institute of Science Bangalore).This programme was initiated and funded by MHRD, started in 2003.

And through this activity, it offer online courses and accreditation in different topics related to engineering and science. From Jan- April 2018, 226 courses are offered for online in two sessions i.e. morning and afternoon. It also initiates the NOC (NPTEL Online Certification) with cooperation of Google and NASSCOM (National Association of Software and Services Companies)

2. MooKIT

IIT Kanpur offering MOOCS from department of computer science with latest telecommunication tools to meet the learners need and is also well known for its distinction in education and research. At present MooKIT has been running eighteen plus courses and having registered learner more than 1,20,000. Main features of MooKIT are i) Flexibility in varying bandwidth, choose the delivery mode as per available bandwidth i.e. audio, video or phone. And also suitable for those regions were cost of bandwidth is high because the content can save or download on local server. ii) Discussions in depth and interactions in details. iii) Cost effective course, offer/ join more than one online course.

3. IITBombayX

Begin in 2014, is a non-benefit activity developed by IIT Bombay, to provide MOOCs for people from different environment dedicated towards improving understanding of learning, and delivering better educational experiences. Currently, IITBombayX offers courses only in English. However, in future, some courses under Skill MOOCs may be offered in some Indian regional languages as well. To become foremost resources for learners it functions on some principles and goals.

4. SWAYAM: (Study Web of Active Learning by Young and Aspiring Minds)

SWAYAM programme initiated by MHRD (Ministry of Human Resource Development) and AICTE (All India Council for Technical Education) started in 2016 with the support of Microsoft covering different discipline i.e. diploma, school level, graduate, post graduate, law, skilful and other courses keenly able to introduce eighty thousand hours and almost two thousand courses for study. Courses provided

via SWAYAM are accessible free of cost to learners, however, learners need a certificate are required to register themselves and completing the course successfully are required to pay a small amount of fee. At the conclusion of individual course there will be an appraisal for the learners through which the grade or marks granted in favour of learners may carry to the academic document of the learners.

CONCLUSION

In context to India, main problem is that without extensive use of ICT tools the development would be implausible. India is diversity country in language, culture and learning habit, varies from place to place, so to meet the expectation of diverse learner, the paucity of appropriate telecommunication infrastructure outside of urban settings is perhaps the most physical challenge of MOOCs. The utmost challenge for MOOCs is that it does not have fool proof system to check and valid the advancement of learners and also how to unite the course credits with the present educational framework. MOOCs are helpful as they give an available method to individuals to increase new information skills and knowledge. However, the nature of MOOCs makes assessing their quality and effectiveness difficult. MOOCs have no established evaluation criteria. The dearth of validated assessment criteria and the variety of learning objectives makes these courses difficult to evaluate.

REFERENCE

- Anders, A. (2015). Theories and applications of massive online open courses (MOOCs): The case for hybrid design. *The International Review of Research in Open and Distributed Learning, 16*(6).
- Arya, U. (2017). The Rise of MOOCs (Massive Open Online Courses) and Other Similar Online Courses Variants –Analysis of Textual Incidences in Cyberspace. Journal of Content, Community & Communication, Vol. 6 Year 3, June - 2017 pp.26-35.
- Aljaraideh, Y. (2019). Massive Open Online Learning (MOOC) Benefits and Challenges: A Case Study in Jordanian Context. *International Journal of Instruction, 12*(4), 65-78. https://doi.org/10.29333/iji.2019.1245a
- Belanger, Y., & Thornton, J. (2013). Bioelectricity: A quantitative approach Duke University's first MOOC. Retrieved from https://dukespace.lib.duke.edu/dspace/bitstream/ handle/10161/6216/Duke_Bioelectricity_MOOC_Fall2012.pdf?utm_campaign=elearningindustry.com&utm_source=/good-bad-ugly-side-ofcorporate-mooc&utm_medium=link

- Bonk, C. J., Lee, M. M., Reeves, T. C., & Reynolds, T. H. (Eds.). (2015). *MOOCs and open education around the world*. Routledge.
- Camarero-Cano, L., & Cantillo-Valero, C. (2016). La evaluación de los aprendizajes en los sMOOC. Estudio de caso en el Proyecto Europeo ECO. R*evista Mediterránea de*
- *Comunicación, 7*(2), 21-35. http://doi.org/10.14198/MEDCOM2016.7.2.2
- Christensen, C. M. (1997). The innovator's dilemma: When new technologies cause great firms to fail. Boston, MA: Harvard Business School Press.
- Conole, G. (2013). MOOCs as disruptive technologies: Strategies for enhancing the learner experience and quality of MOOCs. [Preprint]. Retrieved from
- http://eprints.rclis.org/19388/
- Daniel, J. (2012). Making sense of MOOCs: Musings in a maze of myth, paradox and possibility. *Journal of Interactive Media in Education, 3,* 1-20. https://doi.org/10.5334/2012-18
- Downes, S. (2012). A true history of the MOOC. Stephen's Web. Retrieved from http://www.downes.ca/presentation/300
- Griffiths, R., Mulhern, C., Spies, R., & Chingos, M. (2015). Adopting MOOCs on campus: A collaborative effort to test MOOCs on campuses of the university system of Maryland. *Online Learning, 19*(2). https://eric.ed.gov/?id=EJ1062937.
- Gulatee, Y., & Nilsook, P. (2016). MOOC's barriers and enables. *Intern. J. of Inform. and Education Technology, 6*(10), 826-830. http:// doi.org/10.7763/IJIET.2016.V6.800.
- López-Sieben, M., Peris-Ortiz, M., & Gómez, J. A. (2014). Lessons learned through massive open online courses. In M. Peris-Ortiz, F. Garrigós-Simón, & I. Gil Pechuán (Eds.),
- McAuley, A., Stewart, B., Cormier, D., & Siemens, G. (2010). In the Open: The MOOC model for digital practice. SSHRC Application. *Knowledge Synthesis for the Digital Economy*. *Innovation and Teaching Technologies* (pp. 11-21). Cham: Springer.
- Nigh, J., Pytash, K., Ferdig, R., & Merchant, W. (2015). Investigating the potential of MOOCs in K-12 teaching and learning environments. *J. of On. Lean. Res., 1*(1), 85-106.
- Pappano, L. (2012). *The year of the MOOC. The New York Times, 2*(12).
- Phan, T., McNeil, S. G., & Robin, B. R. (2016). Students' patterns of engagement and course performance in a massive open online course. *Computers & Education*, *95*, 36–44. doi:10.1016/j.compedu.2015.11.015
- Plourde, M., & Trimble, T. (2013). *Exploring independent learning through open courses*. Retrieved from https://sites.google.com/a/udel.edu/mooc-perspective/

- Sharangapani, I. (2016 August 24). *All about MOOCs in India and abroad*. Retrieved from http://www.indiaeducation.net/online-education/all-about-moocs-massive-open-online-courses-india-abroad.html
- Singh, R. (2018). MOOCS: Future and Changing Trends With Reference To India. International Journal of Innovative Knowledge Concepts.pp-63-68. Vol. 6, Issue 5, DOI 11.25835/IJIK-34 www.doie.org
- Siemens, G. *MOOCs are really a platform* [Web log post]. http://www.elearnspace.org/blog/2012/07/25/moocs-are-really-a-platform/ (accessed on 20 October 2019).
- Seimens, G., Gašević, D., & Dawson, S. (2015). *Preparing for the digital university: A review of the history and current state of distance, blended and online learning*. Retrieved from http:// linkresearchlab.org/PreparingDigitalUniversity.pdf.
- Siemens, G. (2012). MOOCs are really a platform. In *Elearnspace Blog, July 25, 2012*. Retrieved from http://www.elearnspace.org/blog/2012/07/25/moocs-are-really-a- platform/
- Treves, R. (2013). Flipped Learning, MOOCs and Learning Analytics: Lessons learnt from a Web Map Design course redesign. *AGU Fall Meeting Abstracts*.
- Yen Chaw, L., and Meng Tang, C., 2019. Driving High Inclination to Complete Massive Open Online Courses (MOOCs): Motivation and Engagement Factors for Learners. *The Electronic Journal of e-Learning, 17*(2), pp. 118- 130, available online at www.ejel.org
- Jung, Y. and Lee, J., 2018. Learning engagement and persistence in massive open online courses (MOOCs). *Computers & Education, 122*, pp.9-22.
- Kurt, S. «Massive open online courses (MOOCs), Definitions,» in *Educational Technology*, May 19, 2018. Retrieved from https://educationaltechnology.net/massive-open- online-courses-moocs-definitions/
- Shah, D. (2018a). A product at every price: A review of MOOC stats and trends in 2017. *Class Central*. https://www.class-central.com/report/moocs-stats-and-trends-2017/
- Saadatdoost, R., Sim, A. T. H., Mittal, N., Jafarkarimi, H., & Hee, J. M. (2014). A netnography study of MOOC community. *PACIS 2014 Proceedings, 116*.
- Stevens, V. (2013). What's with the MOOCs? *Teaching English as a Second or Foreign Language, 16* (4).
- Siemens, G. (2004). Connectivism: A learning theory for the digital age. *Elearnspace* Retrieved from http://www.elearnspace.org/Articles/connectivism.htm.
- Wenqiang, F. (2012). Connectivist MOOC and Its learning support. *Journal of Distance Education, 3*, 31-36. (https://goo.gl/QXbz22).

- Yeager, C., Hurley-Dasgupta, B., & Bliss, C. (2013). cMOOCs and global learning: An authentic alternative. J*ournal of Asynchronous Learning Networks, 17*(2), 133-147. (https://goo.gl/7tikfy).
- Yousef, A.M.F., Chatti, M.A., Wosnitza, M., & Schroeder, U. (2015). A cluster analysis of MOOC stakeholder perspectives. *RUSC, 12*(1),74-90.https://doi.org/10.7238/rusc.v12i1.2253
- Zhou, M.M. (2016). Chinese university students' acceptance of MOOCs: A self-determination perspective. *Computers & Education*, *92*, pp.194-203.

16

Integration of ICT for the Transformation of Science Education in School level

Sarath Chandran R.* and Dr. Geetha Janet Vitus**

Abstract

Information and communication technology (ICT) has become, within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. Presently the formal school education system follows ICT integration and every knowledge areas incorporated with technology. Likewise science education also integrated with ICT and it helps to enhance the creative thinking and critical thinking in children. Creative thinking is one of the most important skills in children can acquire and develop whilst in their early years. Creative thinking can be used within a number of learning context to enrich the acquisition of knowledge and skills. Crucially, without the ability to think in a creative manner, children would be unimaginative and lacking in the necessary transferable skills to engage in personal and professional life. Creative people have been the focus of a great deal in scientific research also. Hence this paper discusses the Integration of ICT for the Transformation of science education in school level

Keywords: Information and Communication Technology, science education

*Research Scholar, Department of Education, University of Kerala.
**Associate Professor, Department of Education, University of Kerala.

INTRODUCTION

Science education is an integral part of education which plays a major role in formal education system especially in this technological era. The main aim of science education is that to develop critical thinking, creative thinking and problem solving for day to day life. Science education programs will be designed to enable the learner to acquire problem solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of daily life. Every effort will be made to extend science education to the vast members who have reminded outside the pale of formal education.

ICT plays a main role in the transformation of educational sector in 21st century. Information and communication technology leads the formal school education into a new path through the enhancement of cognitive abilities of children especially in the sense of scientific creativity. It also helped to improve the quality of school education through the learner centered education. The potential of each technology varies according to how it is used. ICT can support pupil-centered inquiry-based learning, can trigger enthusiasm and motivation for learning, and enable pupils to learn at their own pace.

IMPACT OF ICT IN FORMAL SCHOOL EDUCATION

Information technology plays a critical role in using technology to communicate. Now a day's Information and communication technology (ICT) is act as a catalyst for educational transformation and social and national progress through the improvement of quality of education. Improving the quality of education is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways such as by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, ICTs are also transformational tools which when used appropriately, can promote the shift to a learner-centered environment. ICTs such as videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. The teachers strongly felt that the visual aural combination if integrated judiciously with the textbook and syllabus, can work wonders in getting across abstract concepts and logics to the children in a short span of time (Yushau, B. et. al. 2005).

Moreover ICT promotes the following abilities of students such as Intellectual qualities through higher order thinking, problem solving, creativity etc. and it facilitate learner centered environment in schools especially for students with special needs through the use of graphical illustrations. ICT also assures an interactive learning platform for students rather than a curriculum transaction. In addition technological involvement helps the students to empower ICT skills and awareness.

ICT AND SCIENCE EDUCATION

To implement "standards" in science education at the school stage, there may be ramifications on the science curriculum involving the following pre-requisite pillars of science teaching- learning:

(*i*) Science is doing

(*ii*) Hands on experiences

(*iii*) Minds on experiences

(*iv*) Development of specific skills which may include observation, inquiry, experimentation and inference

(*v*) Scientific knowledge and its exposure

(*vi*) A vision of a scientifically literate society

To develop and implement the national standard of science at the school level, there needs to be a continuing dialogue among students, teachers, parents, curriculum developers, policy makers and science experts at the higher learning institutes.

The development of national science standards may be derived from the vision envisaged regarding the status of science education in the national Policy of Education, 1986 and it says "science education will be strengthened so as to develop in the child well-defined abilities and values such as the spirit of inquiry, creativity, objectivity, the courage to question and an aesthetic sensibility"(Kalra, R.M., 2008).

The role of ICT in education is not homogeneous; ICT currently provides a growing range of tools to manipulate digital data, as well as access to the vast range and variety of content which underpins the information age, only some of which is designed to support learning. In order to harness the power of these technologies to serve science education it is necessary first to identify the precise objectives of that education and then to match appropriate use of the technologies to the achievement of those objectives. Pupils can use ICT in science lessons in

order to look up ideas and information, to perform scientific procedures or experiments, to study natural phenomena through simulations, to process and analyze data and to practice skills and procedures (Yieng, L. P. & Saat, R. M., 2013).

Many research findings suggest that ICT in secondary science, particularly in the form of simulations or animations of processes, provides a range of affordances for learning science (Webb, M., & Cox, M., 2004). Computer science software allows pupils to visualize and understand phenomena that cannot be easily observed or allows pupils in constructing and interpreting graphs (e.g., of speed over time). For example, research has shown that through using simulations, pupils gained understanding of physical phenomena involving interacting variables, enabled pupils to perform at higher cognitive levels and promoted conceptual change (Nikolopoulou, K., 2000). Cox and Nikolopoulou (1997) showed that computer based data analysis software helped 13-14 year old pupils to perform a range of intellectually advanced or complex data analysis tasks, such as classifying data according to different criteria. Ünlü and Dökme (2015) reported that pupils stated as more enjoyable and interesting those science lessons which combined computer simulations with lab activities. Webb (2008) argued that science teachers need to learn how to relate the affordances of specific ICT applications for science education, such as modeling, simulations and data logging devices, to pupils 'alternative conceptions of specific science concepts in order to be able to incorporate the ICT applications in concrete learning activities.

Various studies emphasized that when ICT is used in science lessons there are various factors that impact on pupils' learning such as, the type of the software, the pedagogical practices, classroom interactions (e.g., collaborative learning), pupils' ICT competence and the teachers' beliefs, skills, knowledge, competencies (technological, pedagogic) and confidence.

CONCLUSION

Information and Communication Technology plays a major role in human activities in everyday living in order to cope and adapt to the demand of the environment. If the vision of science education is to bring socio-economic development, the role of ICT in science education cannot be over – emphasized. In the world over, it is generally

agreed that development could only be meaningful if and when it is science and technology driven. With the actualization of the vision and prospects of ICT has the following implication on science education (Abdullahi, H., 2014). In short, ICT enhance the cognitive abilities of a learner such as scientific thinking, scientific attitude, scientific aptitude, critical thinking and creative thinking and improve the quality of learning environment also. ICT became a very powerful tool for the effective curricular transaction especially in science education and it facilitates a collaborative learning platform also.

REFERENCES

- Abdullahi, H. (2014). The role of ICT in teaching science education in schools. *International Letters of Social and Humanistic Sciences,* 19, 217-223.
- Amabile, T.M.(1996). Creativity in context update to the social psychology of creativity. Boulder, Co: west view press.
- Antink Mayer, A., and Lederman, N.G. (2015). Creative cognition in secondary science: An exploration of divergent thinking in science among adolescents. *International journal of science education,* 31 (10), 1547-1563.
- Cordes C., Miller E. (2000). "Fool's gold: A critical look at computers in childhood".
- Cox, M., & Nikolopoulou, K. (1997). What information handling skills are promoted by the use of data analysis software? *Education and Information Technologies*, 2 (2), 105-120.
- Hu,W, and Adey, P. (2002). A Scientific creativity test for secondary school students. *International Journal of science education,* 24 (4), 389-403.
- Kalra, R.M. (2008). Science Eduction for teacher trainees and In-service teachers. PHI Learning private limited, New Delhi.
- Liang, J.C. (2002). Exploring scientific creativity of eleventh grade students in Taiwan. Ph.D. diss., University of Taiwan.
- Nikolopoulou, K. (2000). Development of pupils'classification skills in science lessons: an intervention of computer use. Journal of Science Education and Technology, 9(2), 141-148.
- Ünlü, Z.-K., & Dökme, İ. (2015). 7th grade students 'views on combining the use of computer simulations and Laboratory activities in science teaching. Procedia – Social and Behavioral Sciences, 191, 1173-1177.
- Webb, M. (2008). Impact of IT on science education. In International Handbook of Information Technology in primary and secondary education, 133-148. Springer: N.Y.

- Webb, M., & Cox, M. (2004). A review of pedagogy related to Information and Communications Technology. Technology, Pedagogy and Education, 13(3), 235-286.
- Yieng, L. P. & Saat, R. M. (2013). Use of Information and Communications Technology (ICT) In Malaysian science teaching: A microanalysis of TIMSS 2011. Procedia – Social and Behavioral Sciences, 103, 1271-1278.
- Yushau, B. et. al. (2005). The role of technology in fostering creativity in the teaching and learning of mathematics. Pythagoras, 62, 12-22.

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Virtual Reality and the Recent Modalities of Teaching Learning in Virtual Environment

Sumi S. S.* and Dr. Geetha Janet Vitus**

Abstract

Educational technology is an inclusive term for both the material tools and the theoretical foundations for supporting learning and teaching. In the era of digital devices, we have an opportunity to enable better learning with technology. Virtual Reality (VR) seems to be the natural next step for the evolution of education. Virtual reality is applicable in many fields: education, fashion, the military, healthcare, and business among others. It helps many people comprehend matters much easily and get to experience living it in reality. The paper gives us a detailed outlook of the space of virtual reality and the recent modalities of teaching learning in virtual environment. This is an attempt to give an overview of the current state of environment-related vr, with an emphasis on live vr experiences. The technology, art and business of vr are evolving rapidly. The various fields of VR are discussed to get a better view through this paper. The next development based on virtual reality is improved reality. Virtual reality system has the potential to make a difference, to guild learners to new knowledge, to motivate and encourage at every level of education.

Keywords: Educational technology, Virtual Reality and Recent Modalities.

*Research Scholar, Department of Education, University of Kerala.
**Associate Professor, Department of Education, University of Kerala.

INTRODUCTION

Education is the base for a thriving society, and the transfer of knowledge has been a top priority for civilizations since the very beginning. People are constantly looking for ways to make knowledge transfer more easily, more quickly, and more effectively. In the era of digital devices, we have an opportunity to enable better learning with technology. Virtual Reality (VR) seems to be the natural next step for the evolution of education.

Educational technology is an inclusive term for both the material tools and the theoretical foundations for supporting learning and teaching. Educational technology is not restricted to high technology but is anything that enhances classroom learning in the utilization of blended, face to face, or online learning. In the past two decades, technological and social changes have mutually affected each other more rapidly than in the past. These swift changes have necessarily impacted on education in the classroom and on how teachers develop professionally. Since teachers represent crucial actors in the educational process, technological and social transformations have compelled researchers to understand the effects of these changes on the professional development of teachers and to investigate ways of enhancing interactions among teachers to promote further changes in their Professional Content Knowledge (PCK).

Learning through virtual environments has been the subject of recent research on distance education. Sakshaug (2000) reports that research on mathematics education at a distance parallels the development of telecommunication technologies and that the research literature in this area has two important moments. At first, studies paid attention to how students learn mathematics in virtual environments. Later, researchers focused on how students learn mathematics when technology is a learning tool and when students work independent of interactions with teachers. According to Sakshaug, research ought to contribute effectively to the teaching-learning process in distance education in mathematics. She proposes that researchers should attend to how students learn in virtual environments, when technology is used as a mediator of distance interactions between teachers and students.

While growing up, we have often used our senses so as to familiarize ourselves with our surroundings. They have helped us grow to know and have a firm perception of our environment. We often find it easy to make our way to different places with the help of our senses. Our

whole understanding or knowledge of the environment and reality is mainly an incorporation of sensory or physical information. We present our senses with made up information hence our perception of our environment and reality changes with response to it. However, we can get to live our reality rather than just have a mere perception of it. Through virtual reality, we are able to explore our environment and reality virtually. Virtual reality presents our senses with a computer or the technologically generated virtual environment, which we get to explore in some manner. It enables us to live the moment rather than just feel or perceive it. Additionally, virtual reality enables us to have a clear and comprehensive view of our surroundings.

Virtual reality is applicable in many fields: education, fashion, the military, healthcare, and business among others. It helps many people comprehend matters much easily and get to experience living it in reality. Moreover, it entices some people to take risks so as to get to enjoy the experience. Virtual reality plays a significant role in the education sector. It makes it easier for students to comprehend what they are being taught and also allows them to live the reality. Virtual reality opens up many opportunities in the educational system. An educational technologist is someone who is trained in the field of educational technology. Educational technologists try to analyse, design, develop, implement, and evaluate process and tools to enhance learning.

Modern electronic educational technology is an important part of the society today. Educational technology encompasses e-learning, instructional technology, information and communication technology (ICT) in education, EduTech, learning technology, multimedia learning, technology-enhanced learning (TEL), computer-based instruction (CBI), computer managed instruction, computer-based training (CBT), computer-assisted instruction or computer-aided instruction (CAI), internet-based training (IBT), flexible learning, web-based training (WBT), online education, digital educational collaboration, distributed learning, computer-mediated communication, cyber-learning, and multi-modal instruction, virtual education, personal learning environments, networked learning, virtual learning environments (VLE) m-learning, global learning and digital education which are also called learning platforms.

Each of these numerous terms has had its advocates, who point up potential distinctive features. However, many terms and concepts in educational technology have been defined numerously. m-learning

emphasizes mobility, which allows for altered timing, location, accessibility and context of learning; nevertheless, its purpose and conceptual principles are those of educational technology.

In practice, as technology has advanced, the particular "narrowly defined" terminological aspect that was initially emphasized by name has blended into the general field of educational technology. Initially, "virtual learning" as narrowly defined in a semantic sense implied entering an environmental simulation within a virtual world, for example in treating posttraumatic stress disorder (PTSD). In practice, a «virtual education course» refers to any instructional course in which all, or at least a significant portion, is delivered by the Internet.

"Virtual" is used in that broader way to describe a course that is not taught in a classroom face-to-face but through a substitute mode that can conceptually be associated "virtually" with classroom teaching, which means that people do not have to go to the physical classroom to learn. Accordingly, virtual education refers to a form of distance learning in which course content is delivered by various methods such as course management applications, multimedia resources, and videoconferencing. Virtual education and simulated learning opportunities, such as games or dissections, offer opportunities for students to connect classroom content to authentic situations.

Educational content, pervasively embedded in objects, is all around the learner, who may not even be conscious of the learning process. The combination of adaptive learning, using an individualized interface and materials, which accommodate to an individual, who thus receives personally differentiated instruction, with global access to digital resources and learning opportunities in a range of places and at various times, has been termed smart learning. Smart learning is a component of the smart city concept.

In 2001, Marc Rosenberg suggested the definition of eLearning: "The use of internet technologies to deliver a broad range of solutions that enhance knowledge and performance". However e-learning is more than the use of internet technologies. In 2003 another definition was proposed by Derek Stockley. "E-learning involves the use of a computer or electronic device in some way to provide training, educational or learning material". One of the recent definitions of eLearning is: "Learning in which some content or activity is delivered via computers in any way, sometimes to the learning of content from the internet and sometimes to using a virtual learning environment (VLE)".

It is applicable in different professional fields, virtual reality plays a significant role in medical education. It has applied much influence on medicine as a discipline due to the outstanding uniqueness. Virtual reality in medical education engaged interactive learning experiences for medical students. Currently, instead of the traditional learning experience which involved theoretical ways and means, medical students are currently being given the ultimate experience by learning through interactive means. Interactive in this case simply means that they get to engage with people's bodies in virtual reality and they also get the experience of first-hand measures in an almost real world. For example, students could use the VR technology to learn about man's anatomy. VR makes it easier for one to take apart the muscles of the body without exactly touching any tissues.

E-LEARNING MODALITIES

There are a number of e-Learning modalities, almost all of which may be used throughout in all the educational field especially medical, dental, nursing or any other health related undergraduate curriculum.

Asynchronous audio or video

Teachers can post audio (podcast as mp3 files) or video files (vodcast). These files are automatically sent to a subscriber's computer or mobile hand held device like smart phones. There needs to be a centrally placed distributor called pod catcher which is responsible for sending the files to the subscribers or the students.

Blended Learning

Online or computer based learning with face to face teaching is called blended learning. The goal of blended learning is to provide the most efficient and effective instruction experience by combining different delivery modalities.

Chat / Video Conference

Chat can be in the form of text-only, audio or audio and video like Skype. Chats can include or be supervised by teacher or it can be among students only for the group discussions for online collaboration.

Computer-aided Learning (Courseware)

These are either online or most commonly media based textual, pictorial, video or interactive exercises with self-assessment questions and immediate feedback.

Computer Based Tests

Instead of having scenarios like A-type, MCQs can have audio, video or flash animations to improve their validity. Tests can be given with time limit and attempt restrictions. It's a very important tool especially for formative individualized feedback to students.

Educational online games / experiences

There is a large collection of online educational games, they allow students to interact and receive feedback from the game or activities.

ePBL

A case is created and distributed through email or Virtual Learning Environment. Students interact with each other and with a facilitator via chat room, forum, email or whiteboard. The facilitator may take the role of the traditional facilitator or role-play the characters in the case.

ePortfolio

The learner builds and maintains a digital repository of his activities and achievements online, which they can use to demonstrate competence and reflects on their learning.

Online collaboration (Wikis, Blogs and Interactive Whiteboards)

Students work collaboratively without restriction of time and space. There are many tools to enable group collaboration online, including wikis, blogs, Google Drive, interactive whiteboards. Teachers facilitate and answer questions but usually don't actively participate in collaborative assignments.

Online Discussions Forums

Discussions can be started on a specific topic by a student or faculty member and others can reply to the issue posted. There are various options for how to structure these, for example conversation topics

can either be assigned or open. Another type of discussion forum is Question and Answer in which teacher asked a question and student have to post first their answer before they can see other students response. It is possible to keep participation restricted for students or students and teachers. In many postgraduate courses, discussion forums are used as collaborative learning activities.

Repository and Hypertext

Teachers can post readings or links to readings on a public or secure website. Readings can be in the form of html pages, PDFs, Word documents or PowerPoint etc. Hypertext can be in the form of online books, webpages of organized and interrelated materials, to random collection of text with links to pages all over the world.

Synchronous audio or video

This could be an online broadcasting of a traditional lecture or seminar, but can also be a collective viewing of a presentation like SlideShare with chat. Different paid and free solutions are available easily.

Virtual classrooms

A virtual reality space or Second Life can be used to resemble a traditional real life classroom. Students and teachers create avatars and login online simultaneously in the virtual space. The teacher can then lead a usual lecture or small group discussion or an entirely new, multimedia event can be created for more learning engagement.

Virtual learning Environments (VLE)

These are frameworks into which learning material with different activities are inbuilt. In VLE teaching and administrative tools are available in a single system. The activities present in a typical VLE are forums, chats, lessons, wikis, blogs, assignments and quizzes etc. All VLE can incorporate third party modules with SCORM packages. VLE are either open source as Moodle, Sakai or commercial as Blackboard, WebCT.

Pros and cons of e-Learning for institutions

An institute needs to have a clear understanding of the e-learning modalities available and then select the one that suits its needs and

matches its resources, what suits one institute or what is common may not always fit one's another's needs. It needs to be sure why it wants an e-learning modality, what benefits it will get and what it will have to invest in order to make the venture useful educationally.

Most of the modalities mentioned above are finance-intensive they require heavy investment, but the long term results would be worthwhile. The institute will need to recruit qualified and preferably experienced faculty members and related computer systems. Such personnel will have to train faculty and students in how to use the system; faculty and student orientation and development are a must for all stakeholders to understand and use the system efficiently and effectively. This faculty development process must be on-going and not a once-a-year event. It is highly advisable to start with the simplest platform webinars or online lectures so that the faculty and the students get accustomed to using innovative computer-based technology for routine academic and administrative work.

IMPORTANCE OF VIRTUAL REALITY IN EDUCATION AND TRAINING

We can see the digital revolution in education. Tools are available to efficiently use them and implement VR creation to show to the students. The concept of Virtual Reality in Education is gaining success, and it is applied to wide range of activities in different subjects. VR in education and training not only gives an immersive experience to the students but also adds fun to the learning sessions. Students engagement increased. This also leads to higher levels of participation. We are always looking for ways to make the transfer of knowledge easy and quick. Digital devices and technology are giving better opportunities for knowledge transfer.

Virtual Reality is being used to enhance the learning and engagement of the students. VR effectively transforms how the content delivered. As the students immersed in the topic, they can fully understand it. Practical experiences allow students to understand the working of things, but this can be expensive. But a small, inexpensive VR device can act as a science lab. VR experiences remain in the memory of the students for long. VR is used not only for content consumption but can be an excellent tool for content creation. Give easy to use VR tools to students and boost their creativity.

VIRTUAL REALITY IS BEING USED IN EDUCATION

We have been hearing a lot over the past few years about how virtual reality has the potential to transform the way we learn and teach,

from providing in-depth knowledge and helping us understand complex subjects to facilitating language immersion and virtual trips. Virtual Reality technology should be an amazing tool for learning and teaching, the reality is that it's been slow to take off in educational settings, in large part due to the fact that it's still so costly to implement. Some of the most notable examples are given below of how virtual reality is already being used by schools and learning institutions around the world.

Virtual field trips

Virtual field trips have become one of the most popular applications of VR technology for learning, and many schools have begun using Google Expeditions to transport students to faraway and even inaccessible parts of the planet. The Google Expedition app is free to download on IOS or Android and teachers can invest in some of the low-cost cardboard headsets that can be attached to a smartphone. With these simple headsets, students can actively explore anything.

Language immersion

One of the best ways to learn a new language is through full immersion, as this requires students to listen to and speak the language they're learning all day, every day. Since most of us can't afford to jet off to another country for weeks or even months at a time, virtual immersion is the next best thing. Virtual reality simulations can trick the brain into thinking the experiences are real, and a number of new language learning apps that use VR are now being developed. The app allows learners to connect with people from all over the world and practise their language skills while playing games and interacting with other students in a virtual world.

Skills training

Virtual reality simulations can also help students learn practical skills, and one of the biggest benefits to training people in this way is that students can learn from realistic scenarios without the risk of practicing an unfamiliar skill in an uncontrolled real-life situation. An experiment carried out by Google's Daydream labs found that people who got VR training learned faster and better than those who were merely shown video tutorials. The interactive learning experiment was

aimed at teaching coffee making, and students were either shown a YouTube tutorial on how to pull espresso shots or allowed to practice it in VR. After training for as long as they liked, the students from both groups were asked to make coffee in the real world. Sure enough, the students who learned with VR made fewer mistakes and were quicker at pulling the espresso shots than those who watched the video tutorials.

Philosophical theories

Even philosophical theories can be brought to life with virtual reality. The Sevenoaks School in the United Kingdom recently started using VR headsets in its philosophy lessons as a way to introduce students to French philosopher Rene Descartes' dream argument. Meditations on First Philosophy is one of the most influential philosophical texts ever written, and begins with the claim that dreams and waking life can have the same content. With the VR headsets students are able to see just how immersive a simulation can feel and experience first hand the possibility that life is nothing more than a simulation.

Distance learning

Virtual reality technology also has huge potential in the distance learning industry, and a recent study from Penn State University researchers showed that VR technology can improve learning outcomes for online students. Stanford School of Business is already offering a certificate program delivered entirely through VR, and at the University of British Columbia Law School, students are enjoying virtual reality lectures using a VR social application called VR Chat. The application provides virtual online chat spaces where students with a VR headset can project themselves and interact with lecturers and other students.

Improved collaboration

Virtual reality technology has the potential to greatly enhance collaboration between teachers and students, both in distance learning and classroom-based teaching. Research shows that virtual and augmented reality simulations increase student motivation and improve collaboration and knowledge construction. One study conducted in a virtual world called Second Life allowed teachers to design, create and use collaborative activities to introduce exchange students to Chinese language and culture

before they went abroad. The students showed improvements in key areas including reduced embarrassment when practicing their language skills and better social interactions between students.

Game – based learning

Virtual reality will likely completely change the way games can be used for learning. Game-based learning works in increases engagement and motivation, and virtual reality can take this to the next level. Although virtual reality games are not the only source of fun and engagement in class, they can make a substantial difference. A lot can be accomplished in a virtual environment that would not be possible in real life. Also it is memorable – the visual and kinaesthetic experiences in virtual worlds contribute to our ability to learn."

Virtual campus visits

Technology is changing the way students select universities and many schools have now started virtual reality campus tours as a way to connect with applicants on a wider scale. These campus 'visits' allow students to see what it would be like to attend universities in other cities and countries even if they can't visit in person.

REAL USES OF VIRTUAL REALITY IN EDUCATION

Virtual Reality (VR) has entered the world of education through the big door creating new resources to teach and learn. Students absorb information much better if they enter a 3D environment that makes everything more fun, exciting and enjoyable. Virtual reality allows you to explore, travel without leaving the classroom, visit what you want to learn without moving, have a greater professional orientation and much more.

- One of the most interesting uses of virtual reality in the educational environment is in **telerobotics**, which involves managing robots from a distance. In class, children can learn to programme a robot to perform certain tasks and use virtual reality to experience the actions of this robot in first person.
- Students can **witness what happened in history** in the first person, go deep into the human body and experience new learning experiences from a different point of view. They will see everything much better than through explanations and images.

- With virtual reality, students will be able to **travel in time and space**. They can go anywhere we want them to see, return to the past or reveal the mysteries of the future. Without limits, without big expenses.
- Making trips to developing countries through immersive education brings students closer to other communities, fostering their **values, kindness and empathy** with others.
- Students can also use virtual reality to learn about the careers that may be of their interest, to have a better **professional orientation** that allows them to better decide their future.
- Being able to visualize what they are learning from a **different point of view**, in a three dimensions view, allows them to **better enjoy their learning time**.
- In order for all this to be possible, many educational applications have been created that can immerse use in new worlds inside our classroom. The best of all is that there is so much to discover and to create that we will soon learn new applications of virtual reality in education, and they will be very exciting.
- Virtual reality enables learning to be carried out experimentally by pretending the reality and the environment. Students get to comprehend what they are taught much easily by living it.
- It offers a substitute to students who have learning challenges. There are some students who find it difficult to understand what they are being taught and might easily give up on their studies. However, virtual reality offers them an alternative to simplify the difficulty in comprehending what they are taught thus help boost up their overall grades eventually.
- Introduces students to rather difficult concepts which are easily demonstrated through absorbed experiences. There some concepts which educators find it hard to elaborate much further on. This makes it hard for the students to understand. However, virtual reality enables them to understand the concept much easily by since they get to virtually live it.
- According to experts at Custom Essay Order, VR helps students experience different professions first hand. While being taught different concepts such as how and why profits and losses are

incurred, how to manage your money, and teaching among other subjects, students get to see how the lives of people with different professions are.

- Sanctions high-impact educational experiences to students. The education system of today does not differ from that of long ago. Teaching methods or techniques have not transformed for over decades. With VR, the educational system highly seems to advance or improve.
- Induces students to take risks. Many students find the urge to try out new discoveries they come along in order to enjoy the experience while living it.
- Introducing virtual reality in the educational system will not only enable students to comprehend easily what they find difficulty in understanding but also allow them to participate actively in class. Virtual reality seeks to serve a lot of uses in the educational sector and other fields.

BENEFITS OF VIRTUAL REALITY IN EDUCATION

- Virtual Reality in Education offers many benefits. With virtual reality becoming increasingly accessible, usage of VR in teaching and learning is increasing.
- More and more creators are blending VR in the production of educational content.
- Virtual Reality or 360-degree videos work as personal field trips to the students.
- While watching the videos, the students transported to a place or places that would be inaccessible otherwise. They can explore the depths of oceans, heights of mountains or go into the crests of the earth.
- They can explore the distant planets feel what it is in space etc. More complex subjects can be understood easily with the help of VR.
- It enables students to interact actively with each other. Through the experience of living a reality, students get to share their different opinions of the encounter. This helps them learn from one another by sharing their views.

- It presents composite information in a simple and accessible way to students which makes the learning process fun and enjoyable.
- Additionally, virtual reality allows students to live the reality or feel the content of their studies rather than just learn it.
- It helps students stay focused in class and avoid being distracted. VR makes students concentrate and put their focus on what they are learning. This keeps them away from easily being distracted.
- Virtual reality helps students discover how the software can be used in other fields such as medicine, entertainment, and fashion among others.
- VR assists students with learning and knowledge retention. The technology software allows students to explore and move around their classrooms while learning.
- Virtual reality can be used to enhance student learning and engagement. VR education can transform the way of educational content is delivered, it works on the premise of creating a virtual world real or imagined and allows users not only see it but also interact with it. Being immersed in what you're learning motivates you to fully understand it. It'll require less cognitive load to process the information.

Better sense of place

- When students read about something, they often want to experience it. With VR, they aren't limited to word descriptions or book illustrations, they can explore the topic and see how things are put together.
- Thanks to the feeling of presence VR provides, students can learn about a subject by living it. It's easy to forget that VR experiences aren't real a body actually believes it's in a new place. This feeling engages the mind in a way that is remarkable.
- Such technologies are expensive and almost impossible to scale. They are also limited in the number of things they can do.

Learning by doing

- It's a well-known fact that people learn best by doing however, if you inspect modern education, you'll see how little learning actually happens by doing. Students are focused on reading instructions rather than using them in practice.

- VR in education provides an experience anchor to the instruction. With VR education, learners are inspired to discover for themselves. Students have an opportunity to learn by doing rather than passively reading.

Emotional reaction

- Visceral reactions to what we are experiencing are fundamental to forming memories. VR in education makes it easy to engage students the whole time, making experiences memorable.

Develop creativity

- Having virtual reality in education is useful not only for content consumption, but it's also great for content creation. By giving students powerful tools such as Tilt Brush, you help them boost their creativity.

Visual learning

- A lot of people are visual learners. VR is really helpful for this group of learners. Instead of reading about things, students actually see the things they're learning about. Being able to visualize complex functions or mechanisms makes them easier to comprehend.

PRACTICAL USAGE OF VIRTUAL REALITY IN EDUCATION

- Virtual reality is revolutionizing the education field. The present hot topic is the practical applicability of VR in education.
- Specific practical applications of VR can see in the market. An object of study can explore from all the sides with a virtual tour created with images and text.
- VR will be more immersive when it comes to teaching the basics of science. The solar system can be understood better when tools such as VR interactive games are used.
- One of the significant problems for students with Mathematics is to understand the basics. Virtual Reality can be used to bridge that gap by presenting immersive visualization with VR.

- For example, virtual objects are used to represent algebraic problems so that it becomes easy for the students to understand and remember.
- It considered that VR would be beneficial for the students of science, social and history. There are also stop factors that slow down VR including the lack of good quality VR content.

VIRTUAL REALITY EDUCATION SOFTWARE AND HARDWARE

- There are different sides to Virtual Reality – the development of software content and hardware. More and more affordable head-attached displays are now available in the market.
- Samsung Gear, Google, and Sony Headsets, Oculus Rift are some of the hardware devices available. There is also need to upgrade the PC hardware to run VR applications.
- Teachers believe that VR improves the teaching in classrooms. They expect that Virtual Reality is going to be commonplace in educational institutions in the coming few years.
- VR could prove to be advantageous for institutions such as medical school. Mobile VR is the most accessible now. But there is an only limited number of VR apps on the market. Finally, the goal of virtual reality in education is to make the process of studying and learning active and exciting.

DEFECTS OF USING VIRTUAL REALITY IN EDUCATION

- Though the usage of virtual reality in education and training used extensively, it cannot be said that there are no disadvantages in this. This type of teaching lacks personal human communication and interpersonal connections.
- In the traditional classroom, questions can be asked, answers are received but using VR headset is a different experience. There will not be any flexibility which can prove to be a disadvantage for the students.
- Something may go wrong with the devices or tools, and learning activity will or stopped. There is another significant danger which is that the students might get addicted to the virtual world.

VIRTUAL REALITY GIVE INSPIRATION TO STUDENTS

Immersive

Designers should strive to create the feeling that users are in an experience. For example, if you develop a history app, make history come alive for students.

Easy to use

Eliminate the need to have special skills to interact with a VR application.

Meaningful

Meaning is really important for students. You can't create a good VR learning experience without a good story. That's why it so important to advance the art of storytelling. Stories quite simply provide the best vehicle for delivering messages that are not only heard and understood, but that also inspire and elicit action.

Adaptable

As Albert Einstein once said, "I never teach my pupils, I only attempt to provide the conditions in which they can learn." VR experiences should allow students to explore at their own pace. The app should provide complete control over the level of difficulty. Designers should establish how students learn and then use this knowledge to design VR products that allow effective learning.

Measurable

Each educational tool should provide measured impact. Teachers should be able to track the metrics of education so they can measure the resulting knowledge of a subject. When designing experiences for VR education, it's essential to choose appropriate metrics and make it clear what criteria will be used to measure success and failure.

CREATING A NEW ROLE FOR TEACHERS WITH VIRTUAL REALITY EDUCATION

The transition from similarity teaching practices to digital ones is going to change what teaching looks like. The role of a teacher will change from content delivery to content facilitation. Teachers will be

focused on creating conditions for exploring, rather than providing ready-made knowledge.

Our changing understanding of immersive experiences

It's clear we are in the early stages of VR and it's going to keep changing. However, technology will continue to push boundaries of how immersive VR can become. We're even going to see advancements in eye tracking and body tracking in coming years. What we consider an immersive experience today will be considered table stakes in the not-too-distant future.

Making VR accessible

VR has a high price point that is a significant barrier for many users. If we analyze the success of Google Expeditions, it's clear that Google was able to reach this many students because the hardware was really accessible. To make VR education accessible to a majority of users, it's important to focus on creating VR experiences for devices users already have and repurpose them into powerful tools for education.

OPEN NEW HORIZONS WITH VIRTUAL REALITY EDUCATION

Virtual reality in education is on the horizon, and without a doubt, it will change the world as we know it. Twenty-first century classrooms will be technologically advanced places of learning, with VR technology significantly increasing students' engagement and learning. VR experiences will inspire a whole new generation of young and bright students, ready to innovate and change the world. At the same time, the next big thing in education no longer depend on on technology, but rather on a teacher's decision to push forward and adopt these technologies inside the classroom. The global goal should be to make knowledge available, accessible, and affordable for everyone on the planet.

In a country, now increasingly relying on self-generated electricity, employing computer-based learning systems needs careful consideration for judicious and maximal use. To stay in-line with educational development within and outside the country, health education related institutes need to understand the benefits and limitations of such learning systems. Starting from simple and moving on to more sophisticated

systems, will boost the process of learning and student motivation, equip the faculty with enhanced skills in the use of computer-based education and assist the administration in efficient educational management.

With the advancement and improvement of teaching methods, students find it easy and fun to learn. Successful students are always rewarded for their hard work whereas failures are at times punished. However, with virtual reality technology, gamification of some educational aspects can help to package learning in a way that appeals to a majority of students. This will not only inspire many students but also motivate them to learn.

CONCLUSION

Virtual Reality technology also helps to foster social integration among students. With VR, students of varying needs will be brought together. In conclusion, virtual reality helps to expand or increase your thinking or imagination. It can lead to experiencing new and exciting discoveries which have an influence on our day to day lives. Moreover, it is indeed beneficial in the educational system. It enables students to easily grasp what they try to understand when being taught by their educators; teachers, lecturers or professors. Virtual reality is applicable in the educational field since it simplifies the learning process for students by bringing their virtual environment to reality.

REFERENCES

- Boulos, M., Maramba, I., and Wheeler, S. (2006). Wikis, blogs and podcasts: a new generation of Web-based tools for virtual collaborative clinical practice and education. BMC Med Educ.
- Freasier, B., Collins, G., and Newitt, P. (2003). A web-based interactive homework quiz and tutorial package to motivate undergraduate chemistry students and improve learning. J Chem Educat, 80(11):1344.
- Gros, B. (2007). Digital games in education: The design of games-based learning environments. J Res Tech Educ, 40(1):23.
- Harper, K.C., Chen, K., and Yen, D. C. (2004). Distance learning, virtual classrooms, and teaching pedagogy in the Internet environment. Tech Soc. 26(4):585–98.
- Hiltz, S.R. (1997). Impacts of college-level courses via Asynchronous Learning Networks: Some Preliminary Results, JAsyn Lear Netw.
- Hirzallah N. (2007). An authoring tool for as-in-class E-Lectures in E-Learning systems. Am J Appl Sci, 4(9):686–692.

- King, S., Greidanus, E., Carbonaro, M., Drummond, J., Boechler, P., and Kahlke, R. (2010). Synchronous Problem-Based e-Learning (ePBL) in Interprofessional Health Science Education, J Interac Online Learn. 9(2):133–50.
- Mazzolini, M., and Maddison, S. (2007). When to jump in: The role of the instructor in online discussion forums, Comp Educ. 49(2):193–213.
- Rosenberg, H., Grad, H. A., and Matear, D.W. (2003). The effectiveness of computer-aided, self-instructional programs in dental education: a systematic review of the literature, J Dent Educ. 67(5):524–32.
- Rosenberg, M. J. (2001). e-Learning strategies for delivering knowledge in the digital age, New York: McGraw-Hill.
- Rovai, A.P., and Jordan, H. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses, Int Rev Res Open Dis Lear. 5(2) Article 5.2.
- Sakshaug, L. (2000). Research on Distance Education: Implications for Learning Mathematics. Focus on Learning Problems in Mathematics, 3-4 (22), 111-124.
- Swanwick, T.(2010). Understanding Medical Education: Evidence, Theory and Practice. Oxford: Wiley-Blackwell and ASME (Association for the Study of Medical Education), Google Scholar.
- Tosh, D., and Werdmuller, B. (2004). ePortfolios and weblogs: one vision for ePortfolio development, ePortfolios and weblogs. 2:1–9.
- Wang, S.K., and Hsu, H.Y. (2008). Use of the Webinar Tool (Elluminate) to Support Training: The Effects of Webinar-Learning Implementation from Student-Trainers' Perspective, J Interac Online Learn.7(3):175–94.

18

The Role of Gamification for Teaching in Social Science Classroom

Malini G.*

Abstract

This paper aims to describe the role of gamification for teaching in social science classroom. The gamification of learning is an educational approach to motivate students to learn by using video game design and game elements in learning environments. The goal of gamification is to maximize enjoyment and engagement through capturing the interest of learners and inspiring them to continue learning. Gamification initiatives in learning contexts acknowledge that large numbers of school-aged children play video games, which shapes their identity as people and as learners. Gamification is providing opportunities in the classroom environment are a way to acknowledge students' reality, and to acknowledge that this reality affects who they are as learners. Gamification for teaching in social science classroom promote human values of social justice, trust, mutual respect, freedom, respect towards diversity etc to the students and improve their social science learning and achievement.

Keywords: Gamification, Social Science Teaching

INTRODUCTIONW

Modern human beings have a shorter attention span than goldfish: ours is, on average, below eight seconds while the little fish can focus for nine seconds. These decreasing attention levels are driven by people's

*Assistant Professor in Social Science, Iqbal Training College, Peringanmmala, University of Kerala.

constant use of technology. Some research studies found that people's dependence on digital stimulation has become so high that 67% of men and 25% of women would prefer to experience an electric shock rather than doing nothing for 15 minutes. So children are no different. They occupy a hyper stimulating world and find it difficult to sit through a 40 minute lesson or focus on a single task. Many schools and universities are now turning to the very technology that can be such a distraction. One of the avenues they are exploring is gamification - integrating games and their principles into learning.

Gamification is understood as the application of concepts and dynamics that are, strictly speaking, play-based, in order to stimulate the teaching–learning process and make it more attractive so that students can work on specific curriculum content. It is about making knowledge more entertaining and motivating than it would be if it were presented in a traditional lesson. Through the implementation of game mechanics, the users (students, in this case) become involved, key skills are developed, such as technological literacy, and there is greater motivation towards the content being taught. Another characteristic of gamification is that it allows players to develop their analytical and multitasking skills, as well as their use of creativity and imagination.

Schools are starting to realise that merely putting devices in pupils' hands won't magically restore their attention during lessons. Children need new teaching methods to accompany these new devices. To this end, some schools are turning to gamification. Gamification normally involves game-like elements such as leaderboards, levels and badges. These are underpinned by storylines and delivered using creative and appealing aesthetics. Leaderboards rank participants, while levels typically give the player additional benefits. Badges are symbols of achievement.

In recent years, the changes experienced since the creation of modern education field have generated new educational formulas geared towards active and dynamic learning designs and teaching methods that are student-centred and linked to the availability and use of technologies that can be integrated into the classroom. In the school level education implemented smart classrooms and provide technological knowledge to the students. Some teachers and education policies interested in introducing innovative strategies have not hesitated to add video games to the long list of possible tools and resources

GAMIFICATION AND ICT

According to Kapp (2012), "Gamification is using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems". It is a method used to create a meaningful and motivating experience through the integration of mechanical play in non-recreational environments and applications. Thus, game-based learning refers to the use of games to enhance the learning experience, while maintaining a balance between content and gaming and its application in the real world. With the introduction of gaming, the methodology was renamed digital game-based learning (Prensky 2001).

Revuelta and Guerra (2012) provide a list of educational learning processes that favour the inclusion in classrooms of the game: a motivating and flattering performance element, the use of edutainment, the acquisition of or use of skills for problem solving, socialization and cooperation, increased concentration, personal autonomy, close teacher-student relationship, a multi-area and multi-tasking tool, the ability to interact, the assimilation and interconnection of content, the development of values, the simulation of situations, improved decision-making, and immediate feedback. The gamification's goal is to maximize enjoyment and engagement through capturing the interest of learners and inspiring them to continue learning.

Gamification, broadly defined, is the process of defining the elements which comprise games that make those games fun and motivate players to continue playing, and using those same elements in a non-game context to influence behavior. Within games and other digital media, students experience opportunities for autonomy, competence and relatedness, and these affordances are what they have come to expect from such environments. Providing these same opportunities in the classroom environment is a way to acknowledge students› reality, and to acknowledge that this reality affects who they are as learners. Incorporating elements from games into classroom scenarios is a way to provide students with opportunities to act autonomously, to display competence, and to learn in relationship to others. Game elements are a familiar language that children speak, and an additional channel through which teachers can communicate with their students.

The gamification of learning is an educational approach to motivate students to learn by using video game design and game elements in learning environments. There are no doubt attention should be given to the richness offered by the technologies as promoters of gamified learning processes into both formal and non-formal educational settings. For this reason, it is important for the activities designed to be accessible from any device (tablet, mobile phone). Within the context of gamification, ICTs also provide audio-visual support; they help teachers in the teaching process and provide them with multimedia resources that capture students' attention and interest. Furthermore, the digital format is not foreign to students because technologies form part of their more immediate social environment. When technologies are used, there is greater student involvement. It is also worth mentioning the role of ICTs as a way of automating processes to put gaming elements into practice, such as controlling the allocation of points, league tables, and changes of level.

Cobo & Moravec underscore the role of technology in developing imagination, creativity, and capacity for innovation. They point out that a gamification project must use technological systems that help students think, go beyond what they know, establish relationships, and find alternative ways to achieve results. Trujillo points out that gamification and ICTs change the meaning of games and the role of computers. In this way, when technologies are used within the school context, students are able to find codes they already know thanks to their social practices outside the classroom and apply them in the usual manner to the task of learning. The virtues of combining gamification and ICTs to promote greater involvement and satisfaction during learning through digital-based active and gamified methodologies are therefore emphasised.

SOCIAL SCIENCE TEACHING

The teaching-learning of social science in schools is one such area, among others, that has focused on memorization of facts (in history), of phenomena (in Geography) and of structures and systems (in Civics), rather than developing a holistic understanding of the world and the people that inhabit that world, and their inter-relationship. The aims of teaching in social science are to develop a critical thinking ability in the learners, who are able to appreciate the inherent and natural diversity

in society. The learners need to be able to look at varied perspectives, critically think and reflect on the same, form their individual opinions and also respect the existence of a variety of opinions. They should be able to generate ideas and also put them to rigorous test through debates, discussions etc., in the process leading to the growth and development of the entire society.

The teacher herself is convinced of the role of education in building a wholesome, well-rounded personality in an individual, who is not afraid to think, analyze and question, she can then ensure the nurturing of such spirit in the students she interacts with. The most prerequisite is for her to understand that textbooks are not the only form and means of gaining knowledge, but are only one of the means. She can then reduce her dependence on the textbooks and use various other innovative and engaging means of conducting her sessions. Taking the specific case of teaching of social sciences, for example, teaching of history may not be limited to only imparting some facts to the students that cannot be disputed or questioned, and expecting the students to memorize these.

The teachers in the classroom environment may have to administer either of the two types of curricula. In the first case, the curriculum may be based on the traditional understanding of teaching-learning as facilitating rote memorization of absolutely established facts that cannot be questioned. In the second case, the curriculum may be designed to facilitate a holistic learning experience among children, instill in them critical thinking abilities and a deep sense and spirit of enquiry and promote human values of social justice, trust, mutual respect, freedom, respect towards diversity etc especially through social science teaching. It is pretty clear that in the second case, the curriculum itself would be a very able guide for the teachers on the path to achieve the desired aims of teaching-learning.

The need for social science teaching for citizen participation requires, as a consequence, the promotion of learning aimed at understanding the social reality, and relevant social problems or socially active issues. This precise inclusion of cooperative-collaborative work and planning that facilitates the critical analysis of information and the formulation of new questions in educational contexts.

The social sciences are often seen as easy, probably because they deal with issues and processes that surround us all the time, and on which we have ideas and positions. They are about people our wealth, our problems

and our values. Yet, this apparent simplicity is deceptive. Teaching the complexities of human beings is not easy. Indian educationists have always had a wide vision of the purpose of education. Most policy documents have emphasized a cultural role for the social sciences, over and above the mundaneness of vocational knowledge. Social sciences are, after all, the most practical, dealing with affairs that everybody participates in, and best learnt by doing rather than reading. There is a consensus about the fact that the decline of the social sciences can only spell danger for the quality of public life in our country.

GAMIFICATION IN SOCIAL SCIENCE CLASSROOM

In the social science classroom gamification is the gradual construction of learning by the students when they interact with novel, rich, and diverse environments. This can be added the development of compromise and autonomy through overcoming challenges and skill acquisition, and superior thinking and coordination skills. Activities gamified with technology also promote the stimulation of certain affective factors such as the development of student interaction and social skills. In this respect, the participating students recognise, in the gamification of historical–social content, the development of three types of skills (communication, social, and technological), and of other cognitive processes (empathy and creative thinking during problem-solving). Gamification is making its way into the classroom as a way to engage students and create interest in History.

Van Eck (2006) sets out three aspects to the use of this approach in the classroom: a) the use of commercial titles—motivating and attractive games that can be used for educational purposes, but which require trained teachers and curriculum planning so as not to lose sight of the pedagogical approach; b) the so-called ‘serious game’—those specially developed to educate, train and inform (Michael and Chen 2006); c) games built by the students themselves that therefore develop problem-solving skills, programming and game design. Gertrudix and Gertrudix (2013) statement, gamification is the process integration in educational activities mediated by technology. Despite the differences between concepts, we agree with Kapp’s (2012) statement, “when you get right down to it, the goals of both are relatively the same. Serious games and gamification both are trying to solve a problem, motivate, and promote learning and using game-based thinking and techniques”.

Gamification is the idea that can take video game concepts and apply t to the classroom instruction. This could mean actually use games and simulations or it could mean begin to re-structure social science lesson and unit designs using gaming concepts. The following gaming concepts are using for designing a social science unit in gamification for teaching.

Students get to modify the learning environment and make individual choices.

Differentiated Instruction allows for students to research using a variety of tools and develop a variety of final products.

Students become the experts.

Teachers provide an engaging problem or over-arching question and allow students to find the answer on their own. This is instead of just giving kids the answers and asking them to memorize them.

Creativity and problem solving skills are encouraged.

The unit problem or question is the key. It has to be hard enough but not too hard. For example – prove the following statement true or false and find the solution for the problems based statements.

Students receive immediate feedback.

Teacher will need to constantly monitor progress. This doesn't mean grading. This means that providing information in a way so that leads to the desired end result.

There's always an answer / always a way to "win."

This relates back to the idea of differentiating the learning. Game designers call it "flow" and most current games will automatically adjust the difficulty level based on how the player is doing. If a player is struggling, the game will make the current task easier. If a player is having lots of success, the game will make the task more difficult. Teachers need to do the same thing with students.

"Cheating" is supported.

Almost all games provide cheat codes, walkthroughs and in-game help. This is not seen as cheating by players in the same way that

teachers define academic cheating. So during learning, you need to provide scaffolding – this might be giving more time to finish things, suggesting different tools or web sites and even designing activities that encourage student / groups to share information.

Trial and error works best.

Teachers know how powerful mistakes can be in the learning process. So we need to provide opportunities for failure. Never grade first attempts require 1st and 2nd drafts of work and design problems and questions that can't be Googled.

Learning is almost always better in groups.

Teachers need to connect kids with other kids and adults. This could be permanent groups throughout the life of the unit, temporary teams to solve problems, hooking kids up with adult experts, using technology to join your kids with someone else's kids or simply asking kids to reflect with a partner after an interactive lecture.

Gamification is slowly proving its classroom mettle. Some research suggests that, if it's properly applied, gamification can improve attendance, enhance understanding of content, encourage engagement and ultimately improve academic performance. Students were recognised for meeting learning objectives, displaying academic progress, collaborating around activities and socialising with peers. They were awarded badges and points, which opened up opportunities for real-world benefits: marks, privileges like choosing their own project teams, and even letters of recommendation.

Gamification techniques can provide interesting avenues to motivate student learning. For starters, students had to invest more time in the learning through gamification than they might ordinarily. To stay ahead of the game, they had to keep up with their peers. Those who simply couldn't keep up fell out of the game, which made it harder to re-engage them. Some students also gave up because they weren't receiving rewards frequently enough for their liking.

Teachers, too, must invest a lot of time in running the game - never mind the demands of the traditional course. Gamifying a classroom requires a significant investment in time and sometimes money. Also found that there was a need to ensure a balance between competition - something gamified courses encourage - and helping develop socially cohesive students. This requires care from the teachers, who must

ensure that collaborative tasks and social skills like empathy and mutual respect are rewarded within the game.

There are several free tools available to help teachers implement gamification in the classroom. Kahoot!, for instance allows teachers to run gamified quizzes where students participate with their own devices and are placed on a leaderboard that the whole classroom can see. Open badge platforms like Credly allow teachers to issue their students with badges, while platforms like Class craft allow teachers to use role play scenarios in their lessons. Gamification could, quite literally, be a game changer in the classroom if implemented correctly. As a teacher should be try gamification for the teaching in social science classroom and it provide interest and encouragement to student learning and helps to them improve their achievement in social science.

CONCLUSION

The use of game mechanics and dynamics, directed towards educating students on the social science contents, is a new way to reach a student that knows the message, but needs to internalise it. Teaching actions confirm that these strategies are able to strengthen the positive attitudes of participants, training students to think critically about social science contents. The use of gamification in formative contexts for teaching social science does therefore appear to promote actions aimed at reducing certain social problems, generating changes and educating future citizens and promote human values of social justice, trust, mutual respect, freedom, respect towards diversity etc. The optimum reception of games and the processes of gamification are useful strategies in the teaching–learning of social science contents throughout the various stages of education. The diagnostic nature of these results seeks to encourage teachers who are making curriculum decisions to implement specific teaching actions generally geared towards the use of gamification in the teaching of social science contents related to history, geography, civics, political science and economics.

REFERENCES

- Burke, B. (2012). Gamification 2020: what is the future of gamification?. Standford: Gartnet; Deterding S. Meaningful play: Getting gamification right [Internet]. [Video file].[Cited 21 Nov 2018]. Retrieved from: https://www.youtube.com/watch?v=7ZGCPap7GkY

- Dwivedi, N. (2016). Education Article in The New Learn: The Teacher's role in innovative social science teaching.
- Gamson, W., A.(2000). SIMSOC: Simulated Society, Participant's Manual: Fifth Edition. New York, NY: The Free Press.
- Kapp, K. (2012). Games, Gamification, and the quest for learner engagement. Training and Development.
- Kapp, K., Latham, W., & Latham, F., H. (2016). Integrated learning for ERP success: a learning requirements planning approach. Florida: CRC Press.
- Kumar, B. & Khurana, P. (2012). Gamification in education-learn computer programming with fun. *International Journal of Computers and Distributed Systems*.
- Marcos, L., Navarrete, J., & Domínguez, A., (2014) An empirical study comparing gamification and social networking on e-learning.
- Prensky, M. (2001). Digital game-based learning. McGraw-Hill, New York Renaud, C., & Wagoner, B.(2011). The gamification of learning. Principal Leadership.
- Werbach, K., & Hunter, D. (2012). For the Win: How Game Thinking Can Revolutionize Your Business. Philadelphia: Wharton Digital Press.
- Zichermann,G. (2018). Rethinking elections with gamification: huffington post. [Internet].
- [cited 20 Nov 2018]. Retrieved from:https://www.huffingtonpost.com/gabe- zichermann/improve- voter-turn- out_b_2127459.html

19

Blended Learning as an Effective Classroom Strategy

Smitha K. S.*

Abstract

Blended learning is an intentional integration of traditional and online learning in order to provide educational opportunities that maximise the benefits of each mode of delivery and thus effectively facilitate student learning. Blended learning is a potential outcome of advanced technology-based learning system. The charm of blended learning approach lies in the adaptation of technology aided learning methods in addition to the existing traditional based learning. With the introduction of technology, the overall learning as well as teaching experience is considerably enhanced by covering negative aspects of the traditional approach. The importance of blended classrooms in this context becomes clear. In a hyper-connected world, both physical and virtual learning spaces matter. Educators must catch up with this trend and help students succeed through an effective blended learning approach. In this chapter also tries to explain how blended learning is effective in classroom.

Keywords : Blended Learning, Models of Blended Learning, Levels of Blended Learning.

INTRODUCTION

The teaching and learning environment is embracing a number of innovations and some of these involve the use of technology through blended learning. This innovative pedagogical approach has been

*Research Scholar, Department of Education, University of Kerala.

embraced rapidly though it goes through a process. The introduction of blended learning (combination of face-to-face and online teaching and learning) initiatives is part of these innovations but its uptake, especially in the developing world faces challenges for it to be an effective innovation in teaching and learning. Blended learning effectiveness has quite a number of underlying factors that pose challenges. One big challenge is about how users can successfully use the technology and ensuring participants' commitment given the individual learner characteristics and encounters with technology (Hofmann, 2014). Hofmann adds that users getting into difficulties with technology may result into abandoning the learning and eventual failure of technological applications. In a report by Oxford Group (2013), some learners (16%) had negative attitudes to blended learning while 26% were concerned that learners would not complete study in blended learning. Learners are important partners in any learning process and therefore, their backgrounds and characteristics affect their ability to effectively carry on with learning and being in blended learning, the design tools to be used may impinge on the effectiveness in their learning.

The current era is characterized by rapid changes resulting from scientific and technological advances, including information technology. Keeping up with these changes is necessary in the education system to cope with problems that may arise from them, such as the large volume of information and increase in the number of learners, coupled with teacher shortages. These changes in science and technology ushered in many new teaching and learning methods, such as e-learning and blended learning (BL) particularly in research and self-development areas and a revolution in information technology, which has virtually turned the world into a global village. The former led to a greater need for learners to engage in multivendor environments, and the latter, for people to share experiences with others. e-Learning is defined as learning that is provided electronically through the internet, an internal network (intranet, or multimedia, such as CDs or DVDs) (Bosman,2002). It is considered among the most modern learning methods and has been associated with many advantages. Among these advantages are its ability to resolve the problem of knowledge explosion and growing demand for education (Abadi,2002); address the problem of overcrowded lecture halls, if used as a means for distance learning; and provide opportunities for acceptance of diversity in education. For example,

e-learning allows workers to be trained, educated, and rehabilitated without leaving their businesses while also teaching their housewives, thus contributing to increasing the literacy rate. e-Learning enables job interviews to be conducted and live debates to be available online and provides quickly updated information, simulation and animation programs, interactive exercises, and practical applications, which are consistent with a learner's needs and follow his/her pace while reducing training costs (accommodation, travel, and books).Moreover, it improves the retention of and access to information in a timely manner and unifies content and information for all users. Finally, it improves collaboration and interactivity between students and reduces their feelings of embarrassment in front of colleagues when making errors, BL is a modern educational strategy that has replaced e-learning gradually in most educational institutions. According to Salama (2005), BL is a logical and scientifically acceptable alternative to e-learning, has higher yields, is less expensive, and incorporates more sophisticated types of learning. Similarly, Garrison and Kanuka (2004) argued that BL is a term that explains the various attempts made by teachers to incorporate the element of technology into the traditional classroom setting, because of the e□ciency this arrangement brings. BL aims at interactive learning, resulting in the blending or mixing of a teacher's role in a traditional classroom with that in the virtual one. The technology applied in BL is often intended to generate optimal performances by students. According to Graham (2006), BL systems are intended to promote learning by facilitating the integration of visual cues and educational concepts. The use of virtual environments acts to capture the attention of the audience involved while augmenting interactions between subject parties. BL combines forms of direct and indirect online learning and usually involves the internet and intranet, while indirect learning occurs simultaneously within traditional classes.

Valiathan (2002) suggested that other components applied in BLare, among others, email, simulations, web-based tests, and FAQ. Three main models, namely, skill-driven, attitude driven, and competency-driven models, can be applied in BL. All models entail the overview of the topics to be covered. They also involve the announcement of the initiatives that will be engaged in the delivery of learning concepts during class sessions. An example of this type of blending would be an education program that provides study materials and research resources

directly on the internet, whereas teacher and classroom training sessions provide intermediate basic education. BL also aims at using modern technology in teaching without abandoning the usual educational situation and classroom attendance. It focuses on direct interaction in the classroom through the use of modern communication mechanisms, such as computers, networks, and internet portals. In the assessment of the influence of BL on interactions between students and teachers, So and Brush (2008) established that the social presence o□ered in the environment encourages questions and hence provides a medium through which clarifications can be made in a timely and e□cient manner. Such learning can be described as a way to organize information, attitudes, and educational experiences that are provided for the learners through multimedia offered by modern or information technologies. This type of learning is characterized by its ability to reduce time, e□ort, and cost, through the delivery of information to learners as quickly as possible and in a way that enables management and control of the educational process, the measurement and evaluation of learners' performance, and the improvement of the overall level of educational attainment while providing an attractive learning environment (Shomali,2007). Blended learning is defined as learning using di□erent means connected together to teach a particular substance. These methods may include a combination of direct lecturing in the auditorium, online communication, and self-learning.

Blended Learning is defined and implemented in multiple ways. It is defined as a hybrid of classroom and online learning without the complete loss of face-to-face contact. Blended Learning programme is considered as flexible learning strategy because it combines e-learning and conventional teaching methods. This method is considered as innovative teaching strategy where the teacher and learner interact effectively. In this programme teacher combines EDMODO learning platform to deliver the content through technology enhanced learning and the conventional classroom activities are included in the learning platform. The learning activities like discussion, debate, videoconferencing and brainstorming will improve the reflection practices for students. Teacher should not simply use technology to show that they know to use it without relevance to the content. Teacher should analyze the need and importance of the technology to a particular content and appropriately integrate that to the classroom then it will be enhancing students learning experience.

Therefore both the conventional method of teaching and technology enhanced learning are facing limitation so it is good to combine both the methods which leads to Blended Learning programme.

FEATURES OF BLENDED LEARNING PROGRAMME

Blended Learning Programme is an innovative teaching method to combine the conventional classroom and technology use where students are actively engaged. Because of the following characteristics Blended Learning Programme is used.

- It combines conventional method with technology enhanced learning.
- It add new emerging open online resources and free tools.
- It also combines many teaching methods like team teaching, discussion, demonstration, project and case study methods.

These learning activities engage students and increases their motivation level. Blended Learning Programme gives learners and teachers an environment to learn and teach more effectively. Learners can select the best activities to suit their own pace, learning style and level, as well as time and place. Learners can be more independent and self-reliant in their own learning.

MODELS OF BLENDED LEARNING PROGRAMME

Blended Learning Programme means blending many teaching method to many people. It can be implemented using wide range of models. Six models of Blended Learning Programme are:

1. Face-to-face driver model
2. Rotation model
3. Flex model
4. Online lab Model
5. Self-blend model
6. Online driver model

Successful learning depends on the model which was used by the teacher according to the nature of content and knowledge of the students. The teacher was given more freedom to use any model according to place and pace. The diagrammatic representation of six models of Blended Learning Programme is given in fig.1

- Face-to-face driver model

  In face –to- face driver model teacher uses different methods of teaching in
  conventional classroom. Students learn according to their own pace.

- Rotation model

  In rotation model students rotate between different situations such face-to face classroom and online learning platform on a fixed schedule.

Models of Blended Learning Programme

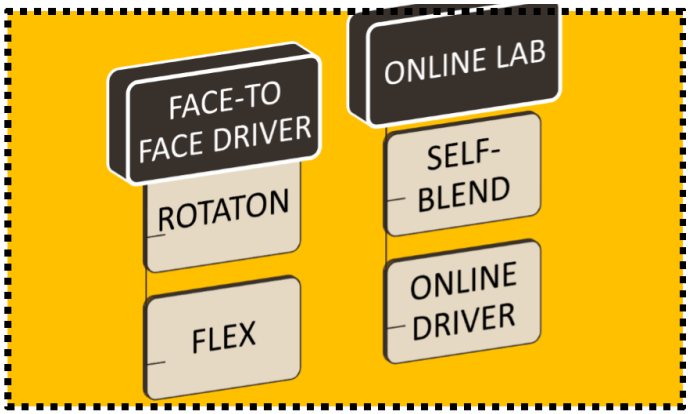

Figure 1

- Flex model

  In this method material is primarily delivered through online platform. Teachers provide only support and guidance. It is totally self-learning as students learn independently and practice new concepts in digital environment.

- Online lab Model

  In online lab method course is completely designed in the platform and students should complete their course in computer lab.

- Self-blend model

  Self – blend model gives students the opportunity to take classes beyond what is already offered at their institution. They should

attend traditional classes and also select to supplement their learning through online course offered remotely.

- Online driver model

  In this model students work at remote place and material is primarily delivered through online platform. Students are given opportunity to interact with teacher in online platform if they have doubt.

LEVELS OF BLENDED LEARNING

Blended Learning can occur at different levels such as the student activity level, course level, program level and institutional level (Graham, 2004). Students at different levels of their university studies need a teacher to support their learning activities, but in all levels the teacher should soon draw back and emphasize student's self-regulation in learning. Blended learning can be classified into four levels. They are :

Component level

This depends on the combination between several information transfer media and the learning content to form a whole which consists of several separated components that differ according to the learners' nature and available tradition or electronic learning resources.

Integrated level

It is integration among different elements of the electronic learning based upon the internet. Each component supports other components and evaluation is one of these integrated components to measure the learners' ability to perform the assigned learning tasks.

Collaborative level

It is based on blend between the teacher and the co-operative learning groups in the conventional classroom or the collaborative learning groups on the internet.

Expansive level

The blend between traditional classroom learning and offline electronic learning resources (email, electronic documents, programs and books) (Al Fiky, 2011).

LEARNING ACTIVITIES FOR BLENDED LEARNING PROGRAMME

In Blended Learning Programme learning takes place mostly in the form of group activities and enables learners to be active, engage and develop knowledge and skill. By this learning activities students are motivated to learn in a meaningful learning environment. All the learning activities are effectively integrated with conventional face to-face session and technology enhanced online learning platform.

The different learning activities are described in below.

Audio visual presentation

Audio visual presentation motivate the students and clarify the concepts and ideas using different teaching material like CD, DVD, embedded audio files, interactive videos, microphones, power point presentation and videoconferencing tools.

Brainstorming

It is a problem solving technique which involves generating ideas and sharing concepts in a short time. It is often used in face-to-face classroom. In online platform it is used as group activity.

Case studies

Case study method focus on one particular situation to explore problem and develop solution. This method makes the student to actively engage in learning process. The best case studies are based on the real situations and life experiences.

Debates

It is a useful method of enabling learners and engaging them in an active discussion situation. This method allows learners to explore opposing sides of an argument.

Demonstration

It is a useful approach often used as skill development programme. It allows the learner to perform demonstration themselves. It attracts and holds attention and provides opportunity for the learner to perform after the classroom teaching.

Discussion groups

Discussions are usually focused around a specific activity or current theme and the teacher's role is to stat the discussion and provide learning materials. Discussion may be for whole group or for small group.

Problem based learning

In this method a problem is triggered among students and allow then to react towards it. The teacher creates a problem situations or allow them to discuss on real life problems this will encourage the learners to apply their knowledge to get solution for a complex problem.

Project groups

This method encourage co-operative learning, individuals work on their own task, share ideas and feedback. This enable individual to develop team work virtual communication skill.

Quizzes

In this activity student's work through a series of questions, it is used as an assessment activity. It is highly motivating activity which arouse interest and excitement to the learners.

Reflective practices

In this activity individuals or small groups reflect on their learning experience. It is used as an assessment activity for improving learner's performance and motivation.

Virtual visitors or guest speaker

Teacher invites an experienced practitioner or expertise to visit the group either in classroom or as a virtual visitor. By this activity the learners explore the concept in different perspectives.

The blended learning approach has been selected, as a potential solution to reduce duplication, in particular situations where the number of students is small in one or both class sections. Blended learning, for the purposes of this article, is defined as "a combination of face-to-face and videoconference learning, complemented with the use of Moodle as a learning management system." There is one important qualifier to this definition in that at least one of the learning types must be a

physical class-based type, regardless of level of formality, or there is a course schedule or face to-face interaction outside the physical classroom. At the same time, at least one other learning type must be of the e-learning variety (likewise regardless of formality, schedules, or interaction outside the classroom). This is to ensure that blended learning remains a combination of a form of traditional learning and a form of e-learning that are designed to complement each other and promote learning and application-learned behaviour (Singh, 2003). Student satisfaction is therefore, a key factor in the success of blended learning programs. Student satisfaction results from a combination of factors, and in this study a model is proposed by aggregation of these factors into six groups: instructor, technology, class management, interaction, instruction, and learning management system.

The blended learning environment integrates the advantages of e-learning with some advantageous aspects of the traditional method, such as face-to-face interaction (Finn & Bucceri, 2006). Its goal is to provide the most efficient and effective instruction experience by combining delivery modalities (Sen, 2011). Blended learning is described by Thorne (2003) as "a way of meeting the challenges of tailoring learning and development to the needs of individuals by integrating the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning." Blended learning provides a flexible platform which helps in addressing the diversity seen in students' learning styles and needs via the integration of interactive online techniques with more traditional teaching strategies (Garrison & Kanuka, 2004; Holley & Dobson, 2008).

WHAT YOU NEED TO BUILD AN EFFECTIVE BLENDED LEARNING CLASSROOM?

As online learning takes over education, a new approach to K12 learning is emerging in classrooms across the world. Blended learning integrates face-to-face instruction with digital education to give rise to a powerful learning experience. It calls for a significant departure from the two individual methods and constitutes a fundamental re-orientation of teaching practices.

Blended learning offers immense advantages to students – they stand to benefit from the structured practices of the classroom while learning at their own pace, owing to the adaptive and

personalized nature of online learning. Educators must then focus on developing blended learning courses that can effectively merge these two techniques to create informative and interactive learning environments. Building an effective blended learning classroom requires careful planning and preparation. The following best practices are helpful in creating a successful blended classroom environment(Agrawal, 2017).

1. A Comprehensive Learning Management System

A comprehensive Learning Management System (LMS) is a prerequisite for creating an immersive learning environment. It should serve as a central repository of information –course material, assignments, web resources, etc.– open for access and use to all students.It also acts as a simple system to assess student progress through assignments, etc. A good LMS offers flexibility, ease of use, and unhindered accessibility. It should also make it easy for both students and educators to access, streamline, and track course-related information.

2. A Well-Defined Course Outline

At the very outset, teachers must prepare a definite course outline to guide learners – they must lay out course content and structure and the tools to be employed for instruction. The course outline should include course resources, objectives, assignment details, assessments, and their grading percentage. Teachers must also clearly define the parts of the material that would be covered online and those that would form part of classroom meetings. They must also clearly state hardware and software requirements. A well-defined course outline helps students keep track of their learning, a necessity in a course that promotes independent learning. The teacher can use the outline to keep track of course progress and pace.

A suitable assessment strategy will help teachers identify improvement areas and work on them to achieve improved learning outcomes. Educators must also plan suitable assessment strategies to create a holistic blended learning program. Determining the optimal strategy to test learning outcomes and tracking course progress is essential – they have the option of conducting online quizzes, in-class objective or subjective assignments, classroom discussions etc.

3. Clear Learning Objectives

Teachers must identify and define clear learning objectives to help students understand what they can expect from a course. An effective blended learning classroom mandates a definite understanding of course goals before educators start creating content. The objectives serve as a roadmap, helping everyone understand where learning is headed and the topics that need to be covered to successfully achieve course objectives.

There should be adequate clarity in establishing how to 'blend' online with the established methods of teaching. To determine course objectives, teachers must identify the skills that the learners should develop during the course; the information to be included; and the types of training tools and activities that form part of the course.

4. Consistent Aesthetics

Imagine a Learning Management System with constantly shifting elements and changing layouts. Not only would this result in a great deal of confusion, it would also obstruct smooth learning. Thus, consistent aesthetics imperative to bringing about focus and concentration in students.

The basic structure and layout of the LMS should be consistent with adequate visual and graphic elements to aid understanding. There should be uniformity in terms of the format of videos, assignments, games, etc., helping learners navigate through the course material without getting confused. This goes on to boost the overall readability and student engagement.

5. Good Communication

Effective communication between the teacher and students needs to be established to achieve improved learning outcomes in a blended learning program. There should be an adequate exchange of queries and feedback with regular classroom discussions. Teachers can provide their contact information and encourage students to communicate in case of queries and concerns to establish a favourable rapport. Toward the end of a course, they can also engage learners in live or online surveys, evaluations, and opinions on the quality of the course and its delivery.

Providing regular and constructive feedback is an important element of effective communication. By opening up lines of communication, teachers can indicate the availability of a perennial support system.

6. A Well-Trained Teacher

A blended learning course necessitates the proper teacher training to facilitate optimal learning. They must understand student needs and accordingly design courses. Effective blended-learning professional training must include instructional approaches that are based on understanding student perspectives. By encouraging teachers to experience blended learning as learners, they receive the first-hand experience that's required to create relevant and interactive content for students.

Since blended classrooms can be difficult to plan and manage, teachers must also be trained in management strategies tailored for such classrooms. They must be well-versed with the technology required to execute blended learning, and thus need training on software and hardware management as well (Agrawal,2017).

ADVANTAGES OF BLENDED LEARNING

Blended learning integrates online and offline learning activities and resources to reduce in-class seat time for students in a face-to-face environment which make it a tremendous advantage for a university. It can help the university management to enhance under-enrolled programs, complete faculty teaching loads, and improve cost effectiveness. Blended learning facilitates students with a unique flexible learning experience, because they can access and engage with their educational program from anywhere and at any time. The participants did not need to be on the campus to actively engage in their studies (Sznigir,2019).

Following is the list of advantages of using blended learning technique in an education system:

- Blended learning environment provides many resources of learning to learner which enhanced learner's confidence and competency.
- Quick feedback to learner which will help them in their learning process.
- Remove the constraints of traditional training and learners decide where and when they do their training

- Learners more responsible for their training and help them be self-motivated.
- Blended learning provide Collaborative activities among teacher and students through interactive session which will helps to improve the students level of satisfaction and Improved academic performance.
- Provide access to everyone who needs training by providing it in different ways.

Advantages of blended learning for teachers

Blended learning has many advantages both for teachers and students. The process of sharing and acquiring knowledge is much more personalized and designed according to the needs of the classroom.

- Blended learning offers flexibility in terms of availability. Teachers are able to share via eLearning the materials from anywhere at any time.
- Teachers who often struggle with budgets can take advantage of technology that makes teaching less expensive to deliver, more affordable and it simply saves time.
- Teachers have access to global resources and materials that meet the students' level of knowledge and interest.
- E-learning allows more effective interactions between the learners and their instructors through the use of emails, discussion boards, and chat room.
- Teachers can track students' progress by using educational technology.
- Educators take the most of the time spent in classrooms since students visit them prepared to work or
- Teachers are able to receive more honest and deeper feedback via educational technology channels.
- Motivate hard to reach students.
- Building more individualized professional development plans.

Benefits of Blended Learning for Students

The mix of traditional and modern learning environments brings even more advantages to students educational experience. Blended

learning provides with a multitude of real-world skills, that directly translate into life skills (Sznigir,2019).

1. Developing research skills by retrieving information from databases and eLearning platforms.
2. Technology increases a student's interest, when EdTech is present in the classroom, learners are more likely to be involved in and excited about the subjects they are studying.
3. Students are focused for longer because of the engagement and interaction with the interactive resources, then they would be with books or paper resources.
4. Learning at students' own pace, according to their needs, and studying styles.
5. The use of eLearning materials increases student's learning autonomy. Students set suitable goals and manage their own learning.
6. Introducing blended learning helps to develop a 'self-driving force' in students. They become more responsible and develop self-motivating systems.
7. Blended learning enables students to increase their computer literacy skills which are crucial in our modern, technology-focused society.

CONCLUSION

The mix of teaching methods is no longer an option for classrooms. Educators need to take the most from face-to-face instruction and online learning opportunities. Blended learning brings many benefits both for students and teachers. It gives individualization, flexibility, and a greater chance for students' success since it offers the ability to learn at their own pace. Undoubtedly blended learning will play a more prominent role in the future. The upcoming generation that grows up in the reality full of technology will require modern educational technology and e-learning solutions. Blended learning supports more flexible, interactive, efficient, accessible, and varied learning experience for both teacher and their students. The charm of blended learning approach lies in the adaptation of technology aided learning methods in addition to the existing traditional based learning. Assessment is a very vital tool for determining the student's

knowledge for the subject they enrolled at any levels of education. Blended learning techniques provide teaches to delivered the lecture as well as assess student learning using creative and innovative methods. Concluded that blended learning a well thought out combination of both in person and online instruction -means both an important step forward in education and a valuable new way to prepare students for success.

REFERENCES

- Abadi, M. (2002). "E-learning and traditional education: what is the di erence?," *Al Maerefah*, 36(91), 18–23.
- Agrawal, U. (2017, October 27). Elements of An Effective Blended Learning Classroom. Retrieved from https://elearningindustry.com
- Bosman, K. (2002). Simulation-basede-learning, SyracuseUniversity, ASTD Presentation, Syracuse, NY, USA, Retrieved from http://home.stny.rr.com/bosman/ide600presentation.html.
- Finn, A. & Bucceri, M.(2006). A case study approach to blended learning, retrieved November 2019 from http://www.centra.com/downlod/whitepapers/CaseStudy_BlendedLearning.pdf
- Garrison, D. R.,& Kanuka, H.(2004)."Blended learning: uncovering its transformative potential in higher," *The Internet and Higher Education*, 7(2), 95–105. Retrieved from https://doi.org/10.1155/2018/7425924
- Graham, C. R. (2006). Blended learning systems: Definition, current trends and future directions. In C. J. Bonk & C.R. Graham(eds), Handbook of blended learning: Global Perspectives, local designs. San Francisco, CA: Pfeiffer Publishing, 120-135.
- Hofmann, J.(2014). Blended Learning Instructional Design: A Modern Approach. Insynctraining(online) Retrieved from http://www.insynctraining. com December, 2019.
- Holley, D., & Dobson, C. (2008). Encouraging student engagement in a blended learning environment: The use of contemporary learning spaces. Learning, Media and Technology, 33(2), 139-150.DOI: 10.1080/17439880802097683
- Kintu, M.J., Zhu, C. & Kagambe, E. (2017). Blended learning effectiveness: the relationship between student characteristics, design features and outcomes. *Int J Educ Technol High Educ* 14(7). https://doi.org/10.1186/s41239-017-0043-4
- Naaj, M., Nachouki, M. & Ankit, A. (2012). Evaluating student satisfaction with blended learning in a gender-segregated environment. *Journal of Information Technology Education Research, 11(1*), 185–200.

- Rahman, N. A., Hussein, N., & Aluwi, A. H.(2015). ―Satisfaction on Blended Learning in a Public Higher Education Institution: What Factors Matter?‖ *Procedia — Social and Behavioural Sciences,* 211, 768-775. DOI 10.1016/j.sbspro.2015.11.107
- Salama, H. (2005). Blended learning: Natural Evolution for E-learning, E-learning Forum, Retrieved fromhttp://www.elearning.edu.sa/forum/attachment.php.attachmentid635&d118206521.
- Sen, T.(2011). Application of blended and traditional class teaching approach in higher education and the student learning experience. *International Journal of Innovation, Management and Technology, 2(2),* 107-109.
- Shomali, Q. (2007).“Blended learning: a seminar to ensure the quality of education and academic accreditation,” in Proceedings of Sixth Conference of the Deans of the Faculties of Arts in the Universities Members in the Association of Arab Universities, Jinan University, Guangzhou, China.
- Singh, H.(2003). Building Effective Blended Learning Programs. *Educational Technology,43(6),*51-54. Retrieved from http://www.researchgate.net
- Sznigir, M. (2019, April 10). BLENDED LEARNING: MODELS, BENEFITS, AND HOW TO START . Retrieved from blog.showme.com
- Thorne, K. (2003). *Blended learning: How to integrate online and traditional learning*. London: Kogan
- Valiathan, E.(2002). Blended Learning Models. Retrieved from www.learningcircuits.com/2002/aug2002/valiathan.html

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