

ONLINE LEARNING AND e-PEDAGOGY

A Digital Approach to Social Science Teaching and Learning

Editor: Dr. Sivadasan P.



(English)

ONLINE LEARNING AND e-PEDAGOGY
A Digital Approach to Social Science
Teaching and Learning

Pedagogical Science

e-UGC HRDC University of Calicut

Chief Editor

Dr. M. A. Joseph

Editor

Dr. Sivadasan P.

Published by

UGC HRDC University of Calicut

Malappuram, Kerala

In association with

Sahithya Pravarthaka Co-operative Society Ltd. No. 2458

Kottayam, Kerala

Email: spesktm@gmail.com

Price ₹ 700.00

Cover Design

Vinod Kumar C. S.

First Published November 2019

Printed at

Romanson Print House, Thiruvananthapuram

ISBN 978-93-88992-62-6

978000031735

Sales Department

National Book Stall

Thiruvananthapuram-Kollam-Alappuzha-Thiruvalla

Kottayam -Thodupuzha-Ernakulam (Marine Drive)-Irinjalakkuda

Thrissur-Palakkadu-Kozhikkodu-Kalpatta-Kannur

www.nationalbookstall.com

ROLE OF MULTIMEDIA IN HIGHER EDUCATION

Sathyavathi M

Assistant Professor in Economics,
S.V.TBhattathirippad College, Mannampatta

Abstract

In the current scenario of educational institutions, Multimedia can have potential roles in enhancing learning. Multimedia is a melody sung in harmony with multi-channel and multi-modal bits of knowledge and creation. Its ultimate role is to inform, educate and/or entertain all. The interactive nature of multimedia provides the room to enhance traditional “chalk-and-talk” method of teaching with more flexibility to learners to adapt to individual learning strategy. The paper starts by defining multimedia followed by discussion about its characteristics, components, its theoretical background and pedagogical strengths. Then a summary is given about role of multimedia in higher education for providing supporting teaching material, as well as platforms for the concept of “anytime-anywhere learning”.

Keywords: Multimedia, higher education.

INTRODUCTION

Multimedia, as product and application, can have potential roles in enhancing learning. Certainly multimedia resources are increasingly embraced in elementary and secondary education. On the contrary, multimedia in higher education has not been met with enthusiasm. Such as instructors’ attitudes, unawareness of its importance and relevancy, lack of training and administration are some factors contribute resistance of multimedia uses. To advance the use of multimedia technology, faculty should be convinced of its importance, relevancy and practicality. More important, not engaging with this new way of thinking about instructional technology is a

mistake because it is the collective responsibility of all institutions to shape the future of how this new medium can help faculty and students (and therefore colleges and universities) achieve their educational goals. However, technology alone cannot improve teaching and learning. According to Mergendoller (2000) technology use must be grounded firmly in curriculum goals, incorporated in a sound instructional process and deeply integrated with subject-matter content. Therefore, there is a need for a technique within which learners can meet their needs: their need to learn how to think, their need to develop their ideas and apply what they learn to solve problems. (Dawood 2018).

The typical undergraduate student of today is accustomed to receiving information on a daily basis in a variety of formats, i.e. multimedia channels. This can present a challenge to educators wishing to engage students in the classroom while still providing required content in order to enhance learning outcomes. Although technological tools purporting to aid in the delivery of educational content are expanding at an ever-increasing rate, supporting research of their effectiveness has been limited and scattered. In order to assist educators in choosing from the myriad of multimedia options available, (krippel.etal,2010) The paper starts by defining multimedia followed by discussion about its characteristics, components, its theoretical background and pedagogical strengths. Then a summary will be given about role of multimedia in higher education for providing supporting teaching material, as well as platforms for the concept of “anytime-anywhere learning”.

WHAT IS MULTIMEDIA?

The term multimedia was coined by singer and artist Bob Goldstein to promote the July 1966 opening of his “LightWorks at L’Oursin” show at Southampton, Long Island. The word ‘Multimedia’ is a combination of two words, ‘Multi’ and ‘Media’. Multi means many and media means material through which something can be transmitted or send. Multimedia combined all the media elements like text and graphics to make the information more effective and attractive. So, it means that computer information can be represented through audio, video, and animation in addition to traditional media (i.e., text, graphics/drawings, images). It is the field concerned

with the computer controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally. (shakya,2018). It uses multiple form of information content and information processing. It is very user-friendly. It doesn't take much energy out of the user, in the sense that you can sit and watch the presentation, you can read the text and hear the audio. It uses a lot of the user's senses, for example, hearing, seeing and talking. It can be used for a wide variety of audiences, ranging from one person to a whole group. "Multimedia is characterized by the presence of text, pictures, sound, animation and video; some or all of which are organized into some coherent program" (Phillips, 1997).

CHARACTERISTICS OF A MULTIMEDIA SYSTEM

A Multimedia system has four basic characteristics:

6. Multimedia systems must be computer controlled.
7. Multimedia systems are integrated.
8. The information they handle must be represented digitally.
9. The interface to the final presentation of media is usually interactive.

COMPONENTS OF MULTIMEDIA

The various components of multimedia are text, audio, graphics, video and animation. All these components work together to represent information in an effective and easy manner.

Text: Text is the most common medium of representing the information. In multimedia, text is mostly use for titles, headlines, menu etc. The most commonly used software for viewing text files are Microsoft Word, Notepad, Word pad etc.

Audio: In multimedia audio means related with recording, playing etc. Audio is an important components of multimedia because this component increase the understandability and improves the clarity of the concept. Audio includes speech, music etc.

Graphics: Every multimedia presentation is based on graphics. The use of graphics in multimedia makes the concept more effective and pre-

sentable. The commonly used software for viewing graphics are windows Picture, Internet Explorer etc. The commonly used graphics editing software is Adobe Photoshop through which graphics can be edited easily and can be make effective and attractive.

Video: Video means moving pictures with sound. It is the best way to communicate with each other. In multimedia it is used to makes the information more presentable and it saves a large amount of time.

Animation: In computer animation is used to make changes to the images so that the sequence of the images appears to be moving pictures. An animated sequence shows a number of frames per second to produce an effect of motion in the user's eye.

MAYER'S COGNITIVE THEORY OF MULTIMEDIA LEARNING

Richard E. Mayer developed the Cognitive Theory of Multimedia Learning to explain how multimedia learning works and how we can best use it. He published his theory in a chapter of the same title in The Cambridge Handbook of Multimedia Learning.

Two Channels and How They Work

The first step to understanding why multimedia learning can be so powerful is understanding how the brain processes information. Mayer explains that the brain takes in information and processes it in multiple channels, based on how that information is presented. The first channel is for visually represented material and the second is for auditory represented material. When a learner is presented visual information, including pictures, videos, charts, or printed words, all of that information goes into the visual channel and is processed there. Auditory information includes spoken words in a narration and other non-verbal sounds, and these are processed by the brain separately from the visual. As a learner is learning, the new material first gets logged in their sensory memory. For a brief moment, the image is captured in its entirety, or the spoken words are logged in their entirety. After that initial moment, the learner must begin to work with the information in order to process it and learn. This happens in the working memory.

With two separate channels, the learner is able to work with more information because the varying presentations of material are processed differently. In working memory, the learner can choose relevant images to remember and work with, and they can choose relevant words to remember and work with. Each of these sets of information are processed and organized into models that help the reader understand and remember the information. While in the working memory, the information remains separate and the learner generates two models. Finally, the learner integrates the visual model and the auditory model together with their prior knowledge and experiences. Once all the material has been combined in a functional way, the new knowledge can move into long-term memory. Multimedia instruction helps students learn more deeply because it takes advantage of these two separate channels and allows the student to go through the process of making multiple models to really understand the material that is presented to them.

MULTIMEDIA AND ITS PEDAGOGICAL STRENGTHS

Multimedia facilitates mastering basic skills of a student by means of drill and practice. It helps in problem solving by means of learning by doing, understanding abstract concepts, provide enhanced access for teachers and students in remote locations, facilitate individualized and cooperative learning, helps in management and administration of classroom activities and learning content, and simulate real life problem handling environments. Multimedia Technology is used and experimented by various educational institutions of all levels all over the world in their own designed modes. According to research, a benefit of multimedia learning is that it takes advantage of the brain's ability to make connections between verbal and visual representations of content, leading to a deeper understanding, which in turn supports the transfer of learning to other situations.

ROLE OF MULTIMEDIA IN HIGHER EDUCATION

Multimedia can increase the sensory stimuli of students by the integration of sound, image, text, and animation, and make the teaching and learning process become figurative, three-dimensional, and, thus, it improves

students' interest, attention, and learning efficiency. Complementary advantages between teaching materials and media improve the teaching environment and optimize the teaching structure. Teachers can use the network multimedia courseware assisted teaching. Classroom teaching based on multimedia courseware means that students learn in the multimedia environment. Teachers use multimedia courseware to guide students to learn to live. The development of multimedia network technology has provided a broad field for English teaching and created an open, pluralistic, and authentic language learning environment for learners. Therefore, the application of multimedia in higher education is of great significance. (ZHAO, 2015)

According to Boyle (1997, p.19) multimedia has four major areas in learning and teaching: information dissemination and retrieval, tools and composition support, simulations and vicarious experience, and structured skill and knowledge acquisition. Najjar examined a wide variety of empirical studies that looked at the effectiveness of multimedia on learning. He concludes that empirical studies support the idea that multimedia may help people learn. Multimedia that encourages the information to be processed referentially, building dual coded verbal and pictorial cognitive representations, seems to improve learning. For example, relevant, supportive illustrations improved the learning of textual stories. Multimedia also seems to be more effective for helping learners with low prior knowledge or aptitude in the domain being learned. (Dawood, 2018)

Multimedia complements the learner-centered active learning process in that students are no longer simply consumers of multimedia products but become actively involved in its production—they are designers. Students are highly motivated by the permission to design various ways in which they can demonstrate their newly constructed knowledge by applying their creative skills. (Dawood, 2018) Multimedia has enormous potential to impart flexible, multi-modal, life-long education to heterogeneous learners. The Multi-disciplinary nature of multimedia makes it increasingly popular among people from diverse domains (Mallik et al, 2012).

The marriage of content and multimedia technology results in interactive multimedia materials which can be delivered to the students in teacher-centered, student-centered, or hybrid teaching and learning modes. (Hilal, 2015) Sousa, 2017 conducted a case study on the effect of multimedia

use on the teaching and learning of Social Sciences at tertiary level. The aim of the research reported in this article was to establish which multimedia combinations are best for the teaching and learning of Social Sciences content. The results of the study indicate that when using various multimedia combinations, the unique nature of Social Sciences can be addressed effectively.

The impact of using multimedia on students' academic achievement in the College of Education at King Saud University which proves that using multimedia in education is an effective means of reaching a better learning. (Aloraini, 2012). There are some advantages in teaching English using multimedia as a technique in teaching process in the classroom. Through the media the teacher could give more opportunity to students to express their opinions and enjoy during the course. The highly presence and motivation also bring positive aspects to students so that they can improve their skills. (Joshi, 2012)

The problem of institutions for producing graduates who are creative, can think critically and analytically, and are able to solve problems. Multimedia-oriented projects can be used alternatively as an innovative and effective tool in a problem-based learning environment for the acquisition of problem-solving skills. (Neo, 2001) Multimedia learning occurs when a learner builds a mental representation from words and pictures that have been presented. For purposes of research program, multimedia instructional messages are presentations of material using words and pictures that are intended to foster learning. The pictures can be static graphics such as photos, drawings, maps, charts, figures, and tables or dynamic graphics such as video or animation. Multimedia learning occurs if one constructs a mental representation of the lightning system based on the words and pictures in the multimedia instructional message. In this case, one must build a cause-and-effect model of how a change in one part of the system causes a principle-based change in another part, and so on. (Mayer, 2002)

The dramatic growth of multimedia creates new opportunities for engaging college students. Like the use of textbooks, the use of educational multimedia fosters teaching strategies, where the teacher's role is not just that of information provider but the one of guide, supporter and facilitator. (Incedayý 2018) Further Multimedia also enhances students understand-

ing, improves retention and helps to better problem solving transfer (Mayer, 1997). Learning with multimedia can decrease the study time spent on learnt materials up to 60% over traditional classroom method (Najjar 1996). Reinhardt (1995) argues that 80% of understanding comes from visualization (from the use of animation, video, laserdiscs, CD-ROM books, and hypermedia) and much less from hearing although retention rate is higher for the latter.

When multimedia tools supporting Art study, boys and girls showed better results as compared to the traditional method of teaching. Multimedia not only supports in Art classes, but it also supports all subjects. (Aravind.etal) Multimedia presentations are engaging because they are multimodal, which means multimedia can stimulate more than one sense at a time, and in doing so may be more attention getting and attention holding (Jonasson, 1996:185).

All these highlights that the role and importance of multimedia in classroom teaching of higher education. It enlarges the amount of classroom information, enrich teaching content, enhance interactivity between teacher and student, increase teachers' personal competence and capacity for information and enhancement of students' interest, motivation and participation.

CONCLUSION

Multimedia is a woven combination of text, audio, video, images and animation. Multimedia systems finds a wide variety of applications in different areas such as education, entertainment etc. Its tools can offer a stimulating and interactive environment. With the help of it, it can invoke creativity in both teacher and students so that they can apply it in order to teach or learn. Learning also become much more easier with the help of multimedia. Multimedia can help improve our educational system.

References

1. Al hamdani Dawood "Roles and Importance of Multimedia in Higher Education", Research gate, 2018
2. Lightbody Gaye, McCullagh Paul, Weeks Chris, "The Supporting Role Of Emerging Multimedia Technologies In Higher Education", Higher Education Academy

Subject Centre for Information and Computer Sciences, 2006, pp-49-54.

3. Malik S, Agarwal A, "Use of Multimedia as a New Educational Technology Tool-A Study" *International Journal of Information and Education Technology*, Vol. 2, No. 5, October 2012, 468-471

4. Incedayı Necdet, "The Impact of Using Multimedia Technologies on Students Academic Achievement in the Bakirköy Final College", *International Journal of Humanities Social Sciences and Education (IJHSSE)* Volume 5, Issue 1, January 2018, pp 40-47

5. Li Jing, Kang Muiyun, "Using Multimedia to Promote Teaching Effectiveness in the Classroom of China", *International Conference on on Soft Computing in Information Communication Technology (SCICT 2014)*, Published by Atlantis Press, 2014, pp-242-244.

6. Hui Zhao Chun, Fu Liu, "The Use of Multimedia in Higher Special Education", *US-China Education Review A*, August 2015, Vol. 5, No. 8, 568-571

7. Joshi A. Multimedia: A Technique in Teaching Process in the Classrooms. *Curr World Environ* 2012;7(1):33-36. *Curr World Environ* 2012;7;23-32.

8. Aloraini Sara, "The impact of using multimedia on students' academic achievement in the College of Education at King Saud University", *Journal of King Saud University - Languages and Translation* Volume 24, Issue 2, July 2012, Pages 75-82

9. Sousa Luiza de, Richter Barry, Nel Carisma, "The effect of multimedia use on the teaching and learning of Social Sciences at tertiary level: a case study", *Y&T* n.17 Vanderbijlpark Jul. 2017.

10. Almarabeh, Amer Ehab F, Sulieman Amjad, "The Effectiveness of Multimedia Learning Tools in Education" *International Journal of Advanced Research in Computer Science and Software Engg.* 5(12), December- 2015, pp. 761-764

11. Mayer Richard E, Moreno Roxana, "A Cognitive Theory of Multimedia Learning: Implications for Design Principles", *Research Gate*, 2016

12. Xu Xianhong, "Study on Effective Using of Multimedia Teaching System and Enhancing Teaching Effect", *ijET* Vol. 12, No. 6, 2017, pp-187-195.

13. Shakya Subarna, Introduction to Multimedia, <https://www.researchgate.net/publication/328491781>, 2018