

Chapter-2

Literature Review-II: Application of Multimedia Materials in Teaching and Learning at Universities

Maulana Azad Library, Aligarh Muslim University

CHAPTER 2**LITERATURE REVIEW-II****APPLICATION OF MULTIMEDIA MATERIALS IN TEACHING AND LEARNING AT UNIVERSITIES****2.1 INTRODUCTION**

The use of multimedia technology for spreading education and development has constantly been a significant part of policy and planning of education by the government in India. At the same time, educational experts and decision making bodies both at the centre as well as at the state level are supporting the integration of modern technology, like computer and internet based multimedia materials in education. Multimedia technology in education is referred to as the use of multiple technologies for the propagation of knowledge. Some of the multimedia tools used in ICT which include, computers, internet and broadcasting technologies (e.g. radio, television) and mobile phone. They are also in favour of computer and internet based information communication (ICT) for pedagogical purposes (adoption of cloud based virtual classroom Universities and mobile-Learning initiatives). Moreover, various national and state specific schemes have been implemented by the Indian government. These run simultaneously many privately led IT initiatives at secondary, senior secondary and higher education levels.

However, there is a great difference in the ICT usage in the urban and semi-urban/rural institutions of the country. The ICT arrangement, quality of ICT and its application for academic purposes is limited to only some college and universities in percentage, due to lack of IT staff, shortage of funds and connectivity problems. But growing prevalence of multimedia mobile phones in every one's hand and advancement of 4G wireless technology, increases hope and it is expected that broadband issues would be resolved by the end of the 12th five-year plan (2012-2017) in the rural areas of the country. However, the government of India should take some innovative steps towards providing low cost computers and infrastructure for collaboration and research in the colleges and universities similar to the "Akash" tablet initiative for school going students (Report, FICCI Higher Education Summit, 2009, 2012 Calsoft lab, 2012).

2.2 NATIONAL POLICY ON EDUCATION FRAMED IN 1986

The draft of National policy on education framed in 1986 and modified in 1992 emphasized using educational technology to promote the quality of teaching and learning process. The **vision, mission** and **policy goals** are as follow:

Vision of policy
“The ICT policy in School education aims at preparing teachers and youth to participate creatively in the establishment and growth of knowledge society leading to all round socio-economic development of the national and global competitiveness”.
Mission of the policy
“To device, catalyse, support and sustain Information Communication Technology (ICT) and ICT enabled activities and processes in order to improve, access, equity and quality ”.
Policy goals:
<p>To achieve the above mission and vision, ICT policy in education will work towards:</p> <ol style="list-style-type: none"> Creating an environment in the states to develop IT/ICT knowledgeable community. Creating an IT/ICT literate community can deploy, utilize, benefit from IT/ICT and contribute to nation building. Create an environment of collaboration, cooperation and sharing, conducive to the creation of demand for an optimal utilization of and optimum returns on the potentials of IT/ICT in school and higher education. Promote universal, equitable, open and free access to state of the art IT/ICT enable tools and resources to all students and teachers. Promote development of localized quality content and enable students and teachers to partner in the development and critical use of shared digital resources. Promote development of professional networks of teachers, continuing education of teachers; guidance counselling and academic support to students. Promote research, evaluation and experiment in IT/ICT tools and enable practices in order to inform, guide and critically utilize the potentials of IT/ICT in education. Motivate and enable wider participation of all sections of society in strengthening education through appropriate utilization of ICT.

Source: Table: (2.1) National Policy on Information and Communication Technology (ICT) MHRDC, 2012)

- i. Table below Shows the report of the Federation of Indian Chambers of Commerce and Industry (FCCI) educational summit 2009, suggested that the use of multimedia technology/IT/ICT can help to improve India's higher education system in three ways

Greater Equity	Better Access	Improved quality
<ul style="list-style-type: none"> • Better access to students from various socio-economic groups leading to greater inclusion • Good quality institutions are not restricted to a few pockets but are made accessible to students located all over the country. • Content from all over the world made available 	<ul style="list-style-type: none"> • Low cost of education • Increase flexibility, providing anytime anywhere access to students • Reduction in capacity constrains making large enrolments possible in courses run by reputed institutes • Technology can be leveraged to provide access to course in new and emerging fields to greater number of students. 	<ul style="list-style-type: none"> • Usage of supplementary teaching aids • Better and more efficient process and management systems • Access to up to date content • Increase knowledge sharing among course creators and scientists • Creation of comprehensive centralized digital repositories for reference materials.

Sources: (Table: 2.2) FCCI Educational summit 2009

- ii. Previous steps taken by the government of India to use ICT for content delivery and enabling access to the resources are as follows: Delivery of content

Gyan Darshan

Started in, 2000, Gyan Darshan is a bunch of channels which especially broadcast educational programs for school students, university students and adults and courses are contributed by the IGNOU, UGC CEC and IITs etc.

Gyan Vani

It is a bunch of Frequency modulation (FM) radio channels which transmit programs constituted by organizations like IGNOU and IITs.

UGC countrywide Classroom

Under the country wide UGC classroom initiative, education programs are telecast on Gyan Darshan and Doordardshan's National Channel (DD1) every day. Till date, more than 10,000 programs have been telecast on subjects, such as Arts and Social Sciences.

E-Gyankosh

It is a knowledge repository launched by IGNOU in 2005, which aims at storing and preserving digital learning resources. Almost 95% of IGNOU's printed materials have been digitalized and uploaded on the repository.

National programme for technology enhanced learning (NPTEL).

Approved in 2001, National programme for technology Enhanced Learning (NPTEL) is a joint initiative of IITs and IISc. As a part of its first phase, digital course content for 129 engineering/ science courses has been developed and uploaded.

iii. Enabling Access to resources

E-Journal Consortia AICTE-Indian National Digital Library in Engineering & Technology (AICTE-INDEST) is consortium set up by the Ministry of Human Resource to enhance greater access and generate annual savings in the access of bibliographic databases. UGC has also launched its Digital Library Consortium to provide access to peer reviewed journals and bibliographic databases covering subjects such as arts, humanities and sciences

Networking of higher education institutions

Education and Research Network (ERNET) promoted by the Department of Information Technology, Government of India, provides communication infrastructure and services to academic research institutions in India.

It is undertaking network projects such as AICTE-Net, ICAR-Net and UGC-Info net to provide internet and intranet facilities.

Source: Report, FICCI Higher Education Summit, 2009, 2011.

iv. Some case studies evidently show the emerging impression of IT/ICT/multimedia technology in higher educations that are as follows:

National Mission on Education through ICT Scheme (2009) was launched by the government of India to connect ICT's

- The National Mission on Education through ICT is an INR 50 billion, centrally sponsored scheme submitted by the Ministry of HRD and approved by the Cabinet Committee on Economic Affairs (CCEA)
- The mission on envision to cater to the learning needs of 500 million Indian
- Some key objectives of the Mission include:
 - Availability of e-knowledge content free of cost to Indians
 - Development of knowledge modules to take personalized needs of learners
 - Providing support for the creation of virtual technological universities
 - Building connectivity and knowledge network among and within institutions of higher learning in the country
 - Standardization and quality assurance of contents to make them world class
 - Spread digital literacy for teacher empowerment
 - Certification of competencies of the human resources acquired either through formal or non-formal means

v. National Programme on Technology Enhanced Learning (NPTEL), is a combined programme of the Indian institute of technology (IITs) and Indian Institute of Science (IISc), funded by the Ministry of Human Resource Development, Govt. of India which provides video courses and E-learning through web based technology in Engineering, Humanities and in the Science streams with the objective to offer free online courses, spread quality education of Engineering and science and technology in India.

Many Indian students are unable to study in the good colleges and universities. So, through the NPTEL they could access quality lectures and content. The main focus areas of NPTEL project is higher education, professional education, distance education and continuous open learning (Ananth, 2011, Vyas, 2013, <http://nptel.ac.in/pdf/NPTELFAQ.pdf>).

- vi. **National Knowledge Network (NKN) and connected Digital** is a state-of-the-art multi-gigabit project spread all over the India. The objective of this resource-sharing network project is to digitally connect all national universities, colleges and research institutions to create “country-wide virtual classrooms”. The project was launched for a period of 10 years. Since May 2016, NKN has connected over 1585 institutions under various categories in all over India. At present, this programme is a component of the umbrella term “Digital India” programmes. This project provides video conference classrooms, Wi-Fi connectivity in hostels, wireless hotspots and laptops / desktops to all professional and science students (IAS POINT, 2018, Vyas, 2013).
- vii. **A- VIEW (Amrita Virtual Interactive e-learning World)** is an e-learning, multimedia and multi-model platform which is developed by aboriginal Scientist of India. It gives an immense experience of learning through internet which is very good and similar to the real classroom experience. It gives opportunity to teach and interact with the students in the real time through audio and video. Moreover, A VIEW permits the teacher or instructor to do live assessments and evaluation of the students and collect real time feedback from the participants. A-VIEW is created by Amrita e-learning Research Lab. A- VIEW multimodal e-learning platform is installed in various IITs, NITs and in other educational institutes across the country. A-VIEW is funded by the Ministry of Human Resource Development (MHRD) under the central govt. of India’s project on National Mission for Education and using Information Communication Technology (NME-ICT) and with other different projects in virtual labs and Natural Language Processing (NLP) (<http://aview.in/aview>).
- viii. **National Library and Information Services Infrastructure for Scholarly Content (N-List)** under the N-List programme INFLIBNET is being function under the National Mission for Education and using Information Communication Technology NME-ICT project of MHRD govt. of India. In this programme thousands of E-books and reputed national and international E-journals are provided to the Universities and Colleges with the intention of enhancing research culture among the

students and teachers. N-List programme is required to expand its coverage in all universities and colleges of India and trained for its productive usage of the resources (<http://nlist.inflibnet.ac.in/about.php>).

- ix. Educational satellite (EDUSAT) is launched on August, 2011 in India. It is the first educational satellite made especially for helping the education sector. The main objectives of EDUSAT are to fulfil the requirements of distance education system in India. EDUSAT has connected a large part of rural and urban areas of the country. Moreover, Indira Gandhi National Open University (IGNOU) is using educational satellite for web based technology and TV to offer online course (Hanlon, 2004).
- x. The growing development of private firms like Manipal Education Group, Shiv Nadar University, BITS Pilani, Hughes Global Education, UEI Global, and Centum Learning provides ICT infrastructure which makes education accessible for all and in an effective way. Some private companies provide information Communication infrastructures are discussed below.

2.3 COMPANIES PROVIDING ICT INFRASTRUCTURES

Table 2.3. Companies providing ICT Infrastructure

HughesNet	Possesses a Network of fifty classrooms in 34 different cities of India well equipped with the latest multimedia technology to receive satellite signals from studios which are situated in educational institutes. Examples of institutes using HughesNet infrastructure include IITs, XLRI and IIMs.
Reliance World	It is a part of Reliance ADAG and the Reliance World is a series of cyber cafes which is collaborated with the computer based testing organization that offer different testing centres (e.g TOEFL and IELTS).
Oracle	It is an enterprise-strength provider company which support academic institutions in developing performance management, compliance, reporting, efficiency and recruiting.

Source : Sources: company websites and FICCI Higher Education, 2011

2.4 PRIVATE EDUCATIONAL INSTITUTES DELIVERING COURSES OVER ICT

Table 2.4: Private Educational Institutes Delivering Courses over ICT

Institutes	Segment	Descriptions
Macmillan India	Higher Education	Has collaborated with IIM-C and IIT-D to offer online management development programs
Amity University	Higher Education	Offer online MBA and BBA programs
Arihant Institute	Test Preparation	Possesses a networking of competitive classes that are well equipped with latest technology to receive satellite signals. Chartered accountant (CA) coaching lectures are recorded at base location in Ahmedabad and relayed to the classes in various cities.

Sources: company websites and FICCI Higher Education, 2011

2.5 SCOPE OF MULTIMEDIA MATERIALS (MMM) IN TEACHING AND LEARNING

Multimedia materials can be differentiated in two basic structures. The first pattern is associated with the place of teaching and learning for instance and it is necessary to have a synchronized presence of a teacher and student interaction. Nowadays, it is easily possible for teachers to teach at long distance, thanks to multimedia materials.

The second pattern of MMM is concerned with the way people learn, students can interact or they can be passive. The use of MMM promotes learning and makes it easy for the teacher and students to generate more knowledge and information in less time.

2.6 TEACHING LEARNING MATERIALS (TLM)

In the area of education, TLM has generally used an acronym which refers to teaching/learning materials. Broadly speaking, the term TLM stands for educational materials which teachers use in the classroom to achieve specific objectives that are specified in the lesson plan. These can be audio, video, CD/DVD, computer, overhead projector (OHP) etc. Teaching in the classroom in which the teacher only gives

lectures and writes on the blackboard or whiteboard is one of the examples of the traditional classroom. TLM is not used in the traditional classroom. Activity-based learning applies different types of teaching/learning materials and gives stress on students' interaction to learn new knowledge, information, and concepts (Lewis, 2016). The rapid growth in the field of science and technology has brought a great development in the field of educational materials. Multimedia technology has become an important component for the presentation of any academic content. The expansion of the internet has also developed the need for multimedia stuff.

2.7 TEACHING ON-SITE AND DISTANCE TEACHING

The use of multimedia materials in teaching and learning needs separate learning on-site and distance learning, even though both are known as e-learning (electronic learning). E-Learning is a source of promoting learning activity by using electronic media based on multimedia technologies (Scardamalia & Bereiter, 1993).

The first patterns of multimedia materials are applied as an equipment to help in the transfer of knowledge in a traditional classroom lesson. The use of a variety of media especially videos, images, sounds etc can develop the retention of contents in learners' minds (Breiter, Scardamalia, Cassels & Hewitt, 1997).

In the second pattern, distance teaching needs the use of multimedia materials for the entirely different environment, in which learners are more engaged in managing their learning objectives. In addition this, students have the opportunity in e-learning to use multimedia more independently in comparison to they need to do during a lesson or learning on-site.

There are two types of e-learning: self-paced and leader-led. The idea of self-paced learning is that learners have the advantage to access computer-based (CBT) or Web-based (WBT) training materials at their own pace and students choose what they want to learn and fix them when they will learn it. On the other hand, leader-led e-learning includes a teacher and students may have access to multimedia materials in real-time (synchronous) via- video conferencing, audio, text messaging or they can use delayed materials (asynchronous). Both types of distance learning used as a performance support tools (PST) which facilitate students in performing a task or in self-evaluation (Collins, Brown, & Newman, 1995).

2.8 PASSIVE AND INTERACTIVE LANGUAGE LEARNING MATERIALS (LLM)

The use of multimedia materials in teaching and learning environment suggests that it distinguishes students in two major groups with reference to the required change in the behaviour of the students: passive and interactive. Passive media are those tools which teachers use for the sake of enhancing the explanation, presentation and to make their teaching effective and use videos, sounds, pictures, graphics and so on. In this case, learners do not interact with multimedia materials, which means that integration of multimedia in existing contents, do not transform according to the behaviour of the students.

Interactive multimedia materials transform existing contents according to the behaviour of the learners; learners may decide to change contents according to their needs, interests, and levels. Interactive multimedia materials use the same technological tools as in the passive ones. For example, videos, sounds, and texts, but Interactive MMM allow individual students to access special information according to their requirement or the students get reply just on demand. For example, self-evaluation tools are an interactive multimedia application. With the help of multimedia, students can rare and manage time they spend in learning, and thus they can use MMM more effectively and efficiently. Interaction is one of the best tools or techniques for learning, as it makes possible for the students to participate actively and cooperate for the sake knowledge building. Knowledge is all the time a social construct and a sense-making activity (Weick, 1995).

2.9 MULTIMEDIA IN CLASSROOM TEACHING

Multimedia materials are integrated into language teaching and learning in the form of text, graphics, pictures, audio, and video. When images and sounds are presented simultaneously then it is more interesting and engaging for the language learner. Therefore, application of multimedia in the language classroom is becoming very trendy among teachers as well learners. However, the use of multimedia technology in the language classroom is not enough to motivate learners. It also needs to use the combination of teaching methods, strategies, techniques, and audio-visual materials, to make classroom environment stimulating and interactive (Arifah, 2014). Multimedia materials can be used to teach many types of courses since it gives ample

variety of learning styles and models. Student's learning style is a term which is associated with the students' cognitive behaviour and explains how learners understand, perceive, interact and respond to the learning environment. It has been proved that students are more at ease with getting knowledge in that setting which is close to their main learning style. Different students in the classroom have their own varieties of learning modes, such as visual, oral and kinaesthetic. Some students in the classroom are multimodal, having several modes that are the combination of all modalities. Multimedia materials help the learners in establishing their mental syllabuses which help the teacher to activate learners' visual, aural and kinaesthetic development. Multimedia provides equal opportunities to the students for their performances. Learners are motivated and encouraged to adopt a versatile approach of learning in which materials presented in a variety of modes (Grzeszczyk, 2016).

2.10 APPLICATION MMM FOR LEARNING AND TEACHING OF DIFFERENT LANGUAGE SKILLS

i. Reading while listening

The combinations of audio and visual senses have a significant effect on the instruction of listening and speaking skills. While teaching listening and speaking with the help of multimedia, the instructor can give the text and reading comprehension questions and meanwhile play the supporting audio material because learners can carry out listening and speaking at same time. Such techniques support in decreasing the problems of listening exercises and develop the learners' ability to understand the text quickly and develop the level of reading comprehension. The web-based dictionary and grammar of multimedia technology (computer) can facilitate learning and solve learning difficulties at any point of time a anywhere inside and outside the language Classroom. For example, if the learners are not able to understand, they can pause audio-visual for a while or listen and repeat (Zhang, 2012). Conventionally, learners may become worried and may be unable to recall some portion of information at a time when they encounter new vocabulary. As far as the multimedia platform is concerned, it helps in getting rid of anxiety and develops their confidence. The techniques of reading procedure while listening is displayed in figure (2.1).

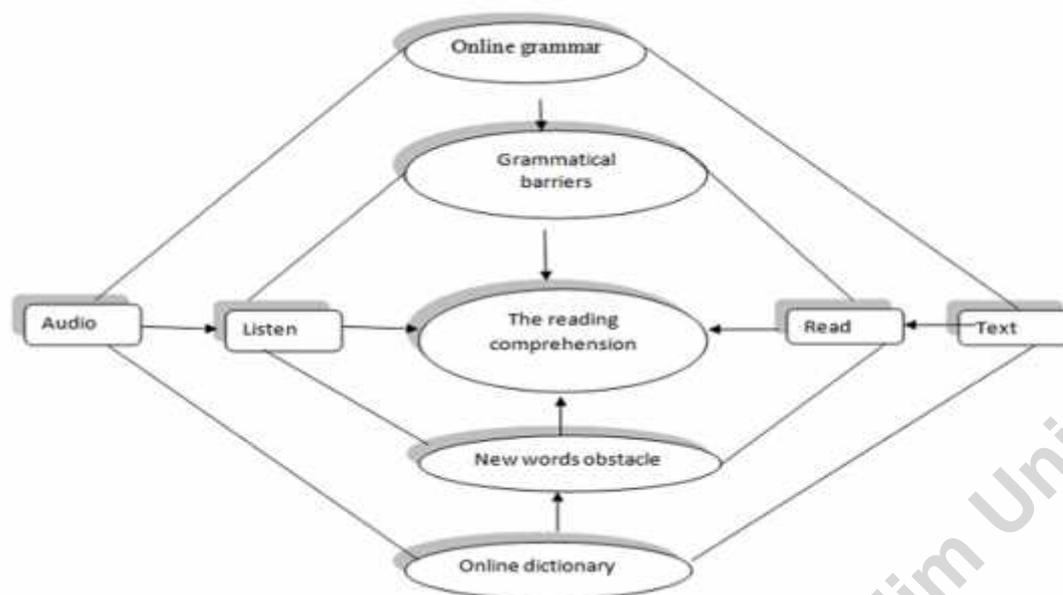


Figure 2.1 The process of reading

ii. Listening and repeating

Traditionally, learners read a book but it may be difficult for them to identify the flow of language, and other language features for example, short and long vowels, allophones, phonemes, consonants and consonant clusters, rhythm, repetition and assimilation in the language flow as well as stress and intonation types. The learners will replicate after the recording, but such activity do not allow guessing the speaker's intention by perceiving the non-verbal communication and body gestures. Students can only listen to the voices. But with the support of multimedia technology, some English language exercises can be prepared with pictures and text can be inserted along with audio-visual media synchronously. Students can repeat each elements of language and begin to follow pace of native speakers speed to listen to the next part etc. In this way students are able to fluently and accurately repeat according to the speed of speakers and gradually increase the speed of speaking with proper articulation, extend the length of the repeated part of exercise and apply accepted pronunciation, stress, intonation and emotion (Shi, 2016). Fig 2.2 displays the process.

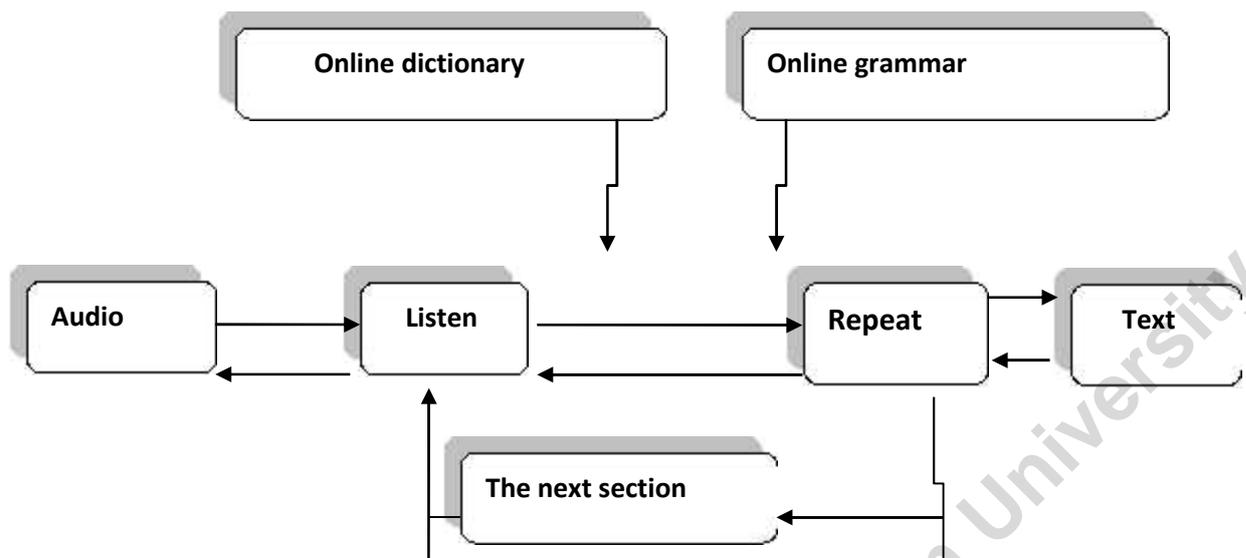


Figure 2.2: The standard pronunciation, intonation and emotion

iii. Speaking English

The multimedia technology especially the computer is well equipped with the features of audio-visual interphone and audio-visual chat which gives the opportunity to teachers, students and friends etc. to listen and watch each other even they are in different and distant place. With the help of computer-assisted language teaching, learners can randomly interact and directly go into such types of language learning centres and can get the chance to communicate with native English language teachers, friends as well as passionate English language learners. All such efforts and practices can improve their listening and speaking skills of English language.

iv. Teaching reading comprehension

Reading is a psycho-cognitive procedure in which the reader applies knowledge of linguistics, social and cultural experiences and advanced learning techniques to comprehend the author's ideas and emotions with the help of insight and processing of the vocabulary and symbols in the written form. Because of mutual influences of different components contained in the writers' personal factors and the reading comprehension itself, readers have diverse comprehension on the same reading material. According to Young (1989), reading skill is commonly divided into three different stages: understanding of the surface text, deep meaning using the inferential technique, and creative understanding. Therefore, it can be separated into three

different approaches: (i) the bottom to top model approach is the method of linear processing and comprehending from specific to the general in other word understanding from parts to the whole that begins right from letters and lastly reaches the aims to comprehension of entire article through the learning of words and sentences. (ii) The top to bottom model means a process in which the readers have the advantages of previous knowledge and utilize it to make predictions about the topic, and finally assess whether their prediction is right or wrong. Reading is not considered as a passive skill because it is a process which requires the reader to engage actively and think innovatively, also gives a kind of impression that is "...guessing and predicting game of Psychological language". (iii) The interaction model stressed on the shared effect between the reader and the act of reading and especially focuses on the interface between the knowledge of linguistics such as morphology and syntax, and background knowledge associated to the theme grasped by the reader and the ideas and emotions produced by reading comprehension. Through MMM the students' mental scheme can be activated and stimulated and this can enhance their reading comprehension (Song, J. & Wu, H. 2011).

v. Teaching writing

Writing skill is a practice of communication among the writer, their work and the readers. As writing works, states two essential components: first content and the language used to express it. Moreover, computer-assisted writing refers to the entire writing process of applying the particular materials, input, symbol, code and words created by the multimedia technology and network resource to process, to refine, edit, compose and correct as well as exchange writings. Multimedia assisted writing also refers to the teaching of basic knowledge and skills of writing without the use of paper with the help of computer system and network resources. Computer-assisted English language writing is an integration of writer, editor and readers, and this is characterised with collaborative, interactive, synchronous and asynchronous instructional activities with flexible time and multiple integrated results (Shi, 2016).

2.11 USE OF MULTIMEDIA PRESENT TRENDS IN ENGLISH LANGUAGE TEACHING (ELT)

The 21st-century provides its people with modern choices, possibilities and challenges due to the presence of multimedia technology in all walks of life. In the

present time, schools, colleges, universities cannot remain a small place for the transmission of prescribed set of knowledge and information from the language teacher to learner in a predetermined period. Educational institutions should encourage for “learning to learn”, which means that acquisition of knowledge and skills which makes possible continuous learning for whole life. Therefore, this is the duty of the language instructor or teacher to guide the students according to the need of the hour. The need of the hour is to develop students’ proficiency in the English language. It is only possible through proper integration of multimedia technology in teaching and learning the English language. The traditional teaching and learning paradigms have been almost sent to the side-lines by the effective use of multimedia technology in educational practices. Multimedia has a wide range of technological tools and system which can be applied by the skilled and creative teachers in English language teaching and learning situations.

2.12 APPLICATION OF MULTIMEDIA IN LARGE CLASSES

In the last few decades, the use of multimedia technology particularly audio, videotapes are general tools integrated by the English language teacher in the large classrooms. Now, multimedia software is being used to play, stop and record according to the instruction of teachers and need of the students. One of the drawbacks of audio, video media is that learners are kept in the place of the passive receiver. But after the introduction of computer-assisted language teaching, learners play a role of an active user of multimedia tools and it gives the opportunity for interaction between them and learning devices. Proper integration of multimedia materials in large classes helps the teacher to solve some challenges of language teaching and learning. It also facilitates the development of communication skills among the learners. Multimedia offers a multi-“sensory approach” of learning, authentic materials, real learning experience and give better opportunities for learning (Shamdama & Ijemofwu, 2013).

2.13 MATERIALS DEVELOPMENT FOR ESL LEARNERS

There is a great debate among scholars about how language learner can best acquire a second or foreign language. (Tomlinson 1998 a: 6). One of the prerequisites for language acquisition is a rich experience of language in use; such experiences are to facilitate language acquisition.

- The language experience need to be contextualized and comprehensible (Krashen, 1985, 1993, 1999).
- The students need to be motivated, relaxed, positive, and engaged (Arnold 1999; Tomlinson 1998b, 2003d).
- The language and discourse features available for potential acquisition are required to be salient, meaningful and frequently encountered (Maley 1998; Tomlinson 1998b).
- The students are required to achieve deep and multi- dimensional processing of the language (Tomlinson 2000c).

In an ideal situation, materials for language acquisition should use the principle of experiential approach (Kolb, 1984). Therefore, the analytical noticing activities should follow engaging students in experiential activities in which focus is on personal response to the meaning of the text. It is found by the different researchers, and language experts that supporting learners to participate in meaningful communication in which students are using language to attain intended outcomes is important for improvement of communicative competence. In addition, materials should provide opportunities to the students for actual use of language and to achieve intentional objectives and provide opportunities for them to get feedback on the effectiveness of their communication (Tomlinson 1998b).

2.14 COMPUTER ASSISTED LANGUAGE TEACHING

The use of computer assisted language learning (CALL) is increasing day by day. Since Burns' (1979) research thesis which is considered as the primary research on the influence of computer assisted teaching on learners' understanding (Hawisher & Selfe, 2007), CALL has "evolved at a remarkable rate" (Levy & Stockwell, 2006, p.1). The term CALL, is labelled differently, for example CAI (computer- assisted instruction), or TELL (technology enhanced language learning) and MMM (multimedia materials) is preferred in this study (Hubbard & Levy, 2006, p. 9).

According to Levy, (1997, p. 1) "the search for and study of application of the computer in language teaching and learning" CALL, and more specifically Multimedia technology in CALL, has been extensively applied to endorse language teaching and learning, assess learners' language, and collect data for different aspects

of study. As suggested by Hernández- Ramos (2005), the impact of multimedia technology applied by teachers and learners should not be only described as the matter of access. In addition, the impact of the use multimedia materials should help in teachers' productivity and efficiency and students' activities in of language learning.

Language learners possibly have a right to use multimedia technology in educational settings in two different ways: language learning from the book and language learning with multimedia technology (Reeves, 1998). Whereas, the previous term suggests a relatively passivity of students and second suggests and active participation of learners (Hill, et al. 2004).

2.15 JUSTIFICATION FOR USING MULTIMEDIA TECHNOLOGY IN EDUCATIONAL SET UP

Current educational technology is considered as the integration of modern education with latest educational technology that provides knowledge, information, and strong insight of teaching. Modern multimedia technology has brought changes not only in educational method and means but has also developed the critical thinking and models of education. The application of multimedia technology has helped the student to apply knowledge learned from the textbook and apply it in compensating for the deficiency in the traditional methods. Numerous studies have revealed that multimedia technology can enhance teaching, learning and retention of content material at the time of class session or self-study period much more, in comparison to "traditional" lecture or study materials which are not using multimedia (Mayer, 2001. Fletcher, 2003, Kozma, 1991). According to Najjar (1996), such progress can be credited to dual coding of the information which presented through two variant modes- visual as well as auditory for instance (Clark & Paivo, 1991) – leading to understanding of the material at the time of the class session and retention of the material afterwards the examination (Mayer, & Moreno, 1998). There is general unanimity that multimedia presentations are very useful and effective when the variant forms of multimedia support one another rather than when superfluous sounds or pictures are displayed for entertainment, which may produce disorientation and cognitive overload which would interfere or disrupt with learning rather than improving learning (Mayer, Heiser & Lonn, 2001).

In spite of all this everyone is not in favour of multimedia technology in the classroom. Therefore, it is very important to keep in mind that poor implication, execution and less developed multimedia can be disadvantageous rather than advantageous. The strength of pedagogical value and reason or rationale for using multimedia in the classroom should be based on three basic points which are as follows.

1. **To raise interest level-** Learners appreciate and often look forward a variety media.
2. **To enhance understanding-** Sophisticated and rich multimedia materials enhance students comprehension and make them able to understand complex topics, particularly dynamic process that unfold over time.
3. **To develop memorability-** Rich media materials helps in good encoding and easy retrieval of information.

With the growing development in instructional activities, language teachers have started paying their attention to multimedia teaching which is associated with educational technology. Therefore, multimedia technologies are now found in schools and colleges widely and slowly they are going to be the forefront of classroom teaching and learning. Now, approaches, methods, techniques of teaching have been very much assimilated with multimedia technology and show its advantages in teaching. Simply, we can state that current educational technology leads toward the development of multimedia in teaching (Wang, 2010).

2.16 MERITS OF MULTIMEDIA TECHNOLOGY

- **Personalized education:** Teaching and learning with the help of technology is advantageous for both normal and slow learners (Caruso, 2008). Moreover, when the teachers are not able to give separate consultation, in this case, the learners can solve the instructional goal through self-learning (Tsai et al; 2008; Shen et al; 208).
- **The flexibility of time and space:** Multimedia technology permits the students and teachers to stop, retrieve and revisit the study material according to their own pace, at their convenience before the end of flexible time frame (Hughes, McLeod, Brown, Maeda, & Choi., 2007).

- **Easy for different personality types:** Multimedia technology is an unbiased educational tool for learning. A shy student has the option to work in a comfortable learning environment which provides privacy and self-learning space (Trujillo, 2007), without any pressure from the teachers and classmates. Furthermore, the characteristics of multimedia technology are that learners can store questions and employ repetition so that student has more chance for self-learning. A well-equipped multimedia material is a group effort by the teachers, students, educators and administrators (Trujillo, 2007) and it can be applied by the teachers in the classroom to save time, energy and effort.
- **Concrete learning experiences:** The idea Cone of Experience described by (Dale, 1946) is that the human learning is basically based on three aspects: practice, observation, and thought. Multimedia technology is the combination of concrete ideas and abstractions which conducts teaching with the help of image, texts, and audio- visual presentation
- **Variety of teaching materials:** Multimedia materials help in developing students' cognitive development because it uses diversified teaching materials such as text, music, picture, and animation (Wang- Tsung, 2010).
- **Effective motivation:** With the application of video or motion picture, live designs and flash effects in multimedia can develop interest and encourage students for teaching and learning.
- **Improvement in traditional learning methods:** With the use and inclusion of interactive multimedia technology in the traditional method of edification, personalized learning and teaching, mass production, immediate test feedback and flexibility of time and place, gives the opportunity to increase learning speed.
- **Effective teaching materials:** Multimedia technology uses presentations which motivate the teacher and learner to integrate different varieties of multimedia components effectively. Multimedia learning materials can assimilate situational use of media and also motivate the student to comprehend subject matter easily, observe its importance in different applications. A hyperlink is commonly incorporated into teaching materials

that develops wholesome effectiveness and range of subject understanding (McGaughey, & Mc Neil, 2004).

- **Decrease in psychological hindrance:** Some students are shy, hesitant and have low confidence. Such students are afraid and feel embarrassed to ask a question before the classmates and teachers results in toward the ineffective learning. Multimedia technology provides personal space and time to reduce pressure from teachers and classmates. In this way, we can state that multimedia platform provides best-suited learning environment (Wang-Tsung, J.2010).
- **Immediate feedback and repetitive learning:** The multimedia technology helps in improving learning effectively. It also gives an opportunity for immediate feedback. Multimedia materials give space to the learners and authorities to teach the learner repetitively. In traditional teaching, the effectiveness of student learning depends on the attitude and methods of particular teachers. (Elsom-Cook, 2001).

2.17 REVIEW OF LITERATURE BASED ON EMPIRICAL RESEARCH

The application of multimedia technology in teaching especially in the language classroom has increased in the last two decades and it has shaped a very flexible learning environment for students (Laurillard, 1993). Computer-based multimedia technology, such as internet, World Wide Web, bulletin board, blog, online courses on web page, discussion groups, and distance education have changed teaching in all levels (Mc Collum 1997, Lewis 1998, Chrisman 1998, Smith 1997). Schools, colleges, and Universities all over the world are constantly investigating methods, techniques and different ways to use computer-based technology to develop teaching and learning.

Therefore, various studies aim at to highlight the importance of the integration of multimedia technology in language learning and teaching materials into ESL classes (Li, at el. 2006). There are also some various studies which show that positive attitudes, practices and opinions are vital for successful language (Kopinska, 2013). Several studies have found that successful integration of multimedia technology in

teaching and learning depends on the attitudes of the teacher and students towards the use of computers in an instructional setting (Mueller at el. 2008, Sang, at el. 2010).

Li and Kirkup (2007) studied the dissimilarities in Chinese and British students' attitude towards the use of internet and computer. The result of the study has shown that British students were more interested in using computer technology for academic purposes in comparison to the Chinese students. However, Chinese students were quite more self-confident regarding their use of the multimedia computers.

Omar (1992), in his research paper, focused on college students' attitude towards the use of computer technology in USA and Kuwait and revealed that the degree of attitudes of these two groups differed significantly in the two countries. Whereas the students of the USA had more positive attitudes towards the computer, Kuwaiti students were less positive.

Zamari, Adnan, Idris, & Yusof, (2012), studied on students' perception of using online learning materials and challenges that students faces while using it. The outcome of the study was that "62.9% students mentioned that websites are very helpful, 14.4% said that they are very interesting, 12.4% mentioned that websites they visited were not interesting at all and 10.3% said that the websites were not that helpful." Moreover, while learning a language with the use of online learning materials only 10.3% students did not face any difficulties. However, most of the students found motivated to use web-based online learning materials. Students who had lack of knowledge of the internet and were not exposed to online learning displayed difficulties towards the use of it (Ibid).

Brett (2016) reported the effect of incorporating interactive multimedia Business English CD-ROMs as an evaluation component of an undergraduate unit in business English. The assessment of this incorporation was based on data collected from student questionnaires, observation, and comparative test grades. The study reveals some apparent area of success in its endeavour to incorporate multimedia technology with curriculum, but some aspects of multimedia use need review.

Wang and Munros, (2004) studied learning pronunciation with the use of CALL materials which were used in the previous laboratory work on pronunciation training. Findings indicated that "trainee showed improved perceptual performance, transferred

their knowledge to the new context, and maintained their improvement three months after training. These findings back up the practicability of computer-based technology and learner-centered programs for second language pronunciation teaching.”

Albirini's, descriptive study tried to explore the attitudes of EFL teachers in Syria towards the ICT. The major findings of this study were that teachers have a positive attitude towards ICT. But, insufficient computer resources are the cause of teachers' lack of computer skills (Albirini, 2006).

Madkour (2016) tried to investigate in his study the impact of digital dialogue journaling, as a communicative approach to improving college students writing skill. It was a quantitative and quasi-experimental study. A pre-test was used to measure the entering behaviour of the students before implementation of digital dialogue journaling then online Google dialogue was sent to the participants and they posted their writing on different topics. The students' and teachers' dialogue made the corpus data which helped the researcher to examine the effectiveness of dialogue journaling for developing writing skills. The data analysis instrument, analysis of variance (ANOVA) was used in the study to compare the results of pre-test and post-test. The text analyzer software was also applied to investigate students writing's lexical density and phrase frequencies. The result of the study demonstrates that implementation of Google dialogued journal gives opportunities of new means of communication to develop collaborative writing and quality of students writing improved and activities to acquire advance writing skills were promoted. Moreover, teachers can participate in the written conversation with learners to guide them to develop their writing skills.

Darood & Asl (2016) tried to find out in their study whether there are differences in Iranian EFL students' accuracy in both audio-visual recorded (videos, movie, song etc.) and audio recorded task. For this purpose, students were divided into two groups, control, and experimental group. The study found that impact of audio-visual recorded listening tasks is different from audio recorded tasks. Moreover, audio-visual materials develop teachers' and students' motivation and they also increase the clarity of topic and make abstract ideas more concrete among the learner.

Lin (2016) examined whether video-based materials can facilitate second language learners' text comprehension at the level of macro and microstructure. The data were

collected for this study through macrostructure and microstructure reading comprehension, pre, post an immediate test. The study revealed that video-based materials have more positive impact on learners' in comparison to multimedia presented in narration, on-screen text or text alone. In short, materials with the integration of video facilitate the L2 learners' understanding at the micro and macro level for better performances in an immediate test.

Li (2016) made an effort to examine whether audio-visual perception training can develop students' auditory perception of L2 speech sounds. For this, the researcher took nine sessions on audio-visual perception training programme. Students' perception performances were tested before, while and at the end of the training programme. The study found that audio-visual training on speech perception can lead to adult language learners' progress in auditory perception of these L2 speech sounds for which in the beginning they faced complexity.

Bradley (2001) studied the growing development and central role that computer education plays in the discussion of the future educational scenario.

The primary source of data collected for this study from 14 detailed interviews with English language teachers who are experienced to teach at university level and commonly used the computer in their teaching. Another source was the reflective journal of the researcher's teaching in a computer-assisted classroom experience for more than two years. Content in the data was analysed and connected with sociological theories of risk. In this study, two types of risk-oriented theories were Beck's theory of risk society of modernity and second Foucault's governmentality theory, were applied to hypothesize. One approach is ethical and the other is strategic. The above two approaches assisted in giving a clear to give a clear explanation of ambivalence pattern of responses in the interview data to show how university teachers give importance to the skills of computing in English classroom as needed but at the same time express reservations for the isolating trends of using computers in teaching. The findings of study show that risk is helpful in explaining ambivalence while indicating the need for further research to understand how computing is becoming part of the educational tools in different teaching contexts in the Japanese universities and how risk as strategy and ethics explain possibilities to develop an understanding of computers and education.

Sands (2005) in his paper “Assessment of effective teaching practices and the use of technology in English as a second language first-year composition course” applied classroom-based research in order to assess the usefulness of classroom teaching practices for developing learner’s writing in English in a second language composition class which integrates technology at different degrees.

The procedures employed by the researcher in this study for collection of data were classroom research plus observation, audio-recordings of real classes and online dialogue and discussion. Findings from the data analysis bring to light that most the learning outcomes and effectiveness of an ESL composition course depends on the teachers’ design and delivery of the course.