
UNIT 8 DEVELOPMENT OF E-LEARNING RESOURCES

Structure

- 8.0 Introduction
- 8.1 Objectives
- 8.2 E-learning: What, Why and How?
 - 8.2.1 Concept
 - 8.2.2 E-Pedagogy and Design Process
- 8.3 Types of E-learning Resources
 - 8.3.1 Digital Print
 - 8.3.2 Digital Audio
 - 8.3.3 Digital Video
 - 8.3.4 Web-based Resources
- 8.4 Digital Content Creation Tools
 - 8.4.1 Visual Content Creation Tools
 - 8.4.2 Image Sourcing, Creating, Editing and Uploading Tools
 - 8.4.3 Interactive Content Creation tools
 - 8.4.4 Infographic and Chart Maker Tools
 - 8.4.5 PowerPoint Presentation Tools
 - 8.4.6 Audio Creation Tools
 - 8.4.7 Video Creation Tools
 - 8.4.8 Media Integration tools
 - 8.4.9 Tools for Writing for the Web
- 8.5 Delivering E-learning
 - 8.5.1 Learning Management Systems
 - 8.5.2 Learning-Content Management Systems
- 8.6 E-learning through Web 2.0 tools
 - 8.6.1 Web 2.0 tools: The Concept
 - 8.6.2 Blogs
 - 8.6.3 Wiki
 - 8.6.4 Social Networking
 - 8.6.5 Social Bookmarking
 - 8.6.6 Micro-blogging
- 8.7 Let Us Sum Up
- 8.8 Answers to 'Check Your Progress' Questions
- 8.9 References
- 8.10 Unit End Exercises

8.0 INTRODUCTION

In Units 5, 6 and 7 you studied about designing SLMs, media and technology for ODE, and development of SLPs respectively. These units collectively have provided you an understanding of how media and technology transformed the concept and the process of teaching and learning in distance education – a shift in focus from conventional teaching and learning. The Information and

Communication Technology (ICT) can empower students in directing their own learning, learning at their own pace and in constructing their own knowledge using various print, non-print and electronic media, devices and software. Innovative use of emerging ICT has increasingly paved the way for more options, to choose from, for teaching and learning. These developments force us to rethink about further transformation in the nature of teaching and learning and to re-examine the learning theories and principles, in the emerging e-Learning environments.

Currently e-Learning has become one of the effective alternatives to the distance learners. As a result educators are more interested in applying emerging technology to create new teaching-learning environments to meet the ever-increasing and ever-changing nature of learning needs of the students. It is, thus, the creative use of technology that can enhance the capacity of students to acquire knowledge, skills and value system.

Efforts are also being made to effectively design learning experiences by creating new types of materials to facilitate higher learning. In this context, we attempt to develop an understanding of the concept of e-learning, types of e-learning resources, e-learning tools, digital content creation tools, effective e-learning strategies, e-learning management systems (e-LMS) and learning content management system. We hope you will find the discussion in this Unit interesting and useful in making your teaching-learning more effective so that you can optimally utilize the e-learning experiences and materials.

8.1 OBJECTIVES

After going through this Unit, you should be able to:

- explain the concept and pedagogy of e-learning;
- describe different types of e-learning resources;
- identify digital content creation tools used for developing e-learning resources;
- design e-learning resources;
- discuss the means of delivering e-learning; and
- understand and apply web 2.0 tools for e-learning.

8.2 E-LEARNING: WHAT, WHY AND HOW?

In this section, we will focus on what, why and how of e-learning.

8.2.1 Concept

E-learning is an abbreviation of the term ‘electronic learning’. E-learning literally means the type of learning carried out, facilitated or supported by some or the other electronic gadgets, media or resources. Broadly speaking, e-learning is nothing but learning facilitated by the use of a range of electronic media and technology which include mainframe computers, microphones, listening devices, audio and visual tapes, floppy diskettes, multimedia CD-ROMs, interactive videodisks and advanced ICT.

Today, e-learning is mostly delivered though the internet, although in the past it was delivered using a blend of computer-based methods like CD-ROM.

E-learning offers the ability and facility to share material in all kinds of formats such as videos, slideshows, word documents and PDFs between users, to conduct webinars including live online classes, and to promote effective and real time communication and interaction between distance teachers and learners. (<https://www.talentlms.com/elearning/elearning-101-jan2014-v1.1.pdf>). The variety of media and emerging ICT together provide us diverse ways and means of e-learning such as teleconferencing, audio-conferencing, video-conferencing, computer-based conferencing, e-mail, live chat, surfing on the Internet and Web browsing, online reference libraries, video games, customized online courses, etc.

With the introduction of the computer and internet in the late 20th century, e-learning tools and delivery methods witnessed tremendous expansion. As a result, virtual learning environments began to thrive, with people gaining access to a wealth of online information and e-learning opportunities. Of course, in 21st century M-learning is becoming a means of ubiquitous learning developed and delivered on wireless devices like our cell phones, which offer facility for downloads for off-line learning. E-learning is thus a broader concept than online learning since it encompasses electronic devices and information that are not always dependent or linked to online.

In the emerging ODE context, e-learning refers to utilizing electronic technologies to access educational curriculum outside of a traditional classroom situation. It enables students to access, investigate, analyse, construct and evaluate concepts and ideas encountered in their courses. Currently, in most cases, e-learning is referred to a course, programme or degree delivered completely online via the Internet and the web. It is interactive in nature, delivered live where you can “electronically” interact in real time *synchronously* or sometimes have access to pre-recorded lectures, discussions, etc delivered online *asynchronously*. In such case there is always a distance teacher interacting / communicating with you and grading your participation, your assignments and your performance in tests, etc. E-learning, proven to be a successful method of training and education, is becoming a way of life for many citizens in transnational environment.

The term “e-learning” has only been in existence since 1999, when the word was first used at a computer based training (CBT) systems seminar. Later, other words such as “online learning” and “virtual learning” also came in use in search of and in the efforts to describe e-learning. Some theorists (Kruse, 2002) divide e-learning into three branches: *computer-aided instruction* (CAI), *computer managed instruction* (CMI), and *computer-supported learning resources* (CSLR). CAI includes the portion of the given e-learning product that provides the instruction such as tutorials, simulations, and exercises. CMI refers to the testing, record keeping and study guidance functions of an e-learning product. CSLR includes the communication, databases and performance support aspects of e-learning. Though these branches can be analyzed differently but for us all these refer to parts of the greater whole, i.e. e-learning.

E-learning, according to Paulsen (2003), is as interactive learning in which the learning input/experience/content is available online and provides automatic feedback to the learner’s learning activities. Online communication with real teachers may or may not be included but the focus of e-learning is usually more on learning content than on communication between learners and teachers. E-learning covers a wide set of digital learning applications and processes such as

web-based learning, computer-based learning, virtual classroom, etc. It includes delivery of content via internet, intranet (LAN / WAN), audio and videocassettes, satellite broadcast, interactive television, CD-ROM, etc.

You need to be very clear that e-learning has direct link with open and distance learning (ODL) system. The Open and Distance Learning Quality Council, UK (Ahmed, Hanzala, Saleem and Cane, 2013) defined e-learning as “the effective learning process created by combining digitally delivered content with (learning) support and services”. In this definition you will find that four terms have been used. They are:

- *effective learning*, (there are many types of learning but some may not be effective),
- *combining* (judicious combination of ICT and pedagogy that facilitates learning; it is the combination that makes the difference, not the individual parts),
- *digitally delivered content* (through CDs, cell phones, intranet and internet, it normally excluded paper-based materials) and
- *support services* (that is the learning support provided by tutors, counselors, instructors or course coordinators).

You can thus understand e-learning as a concept that includes all possible media, methods and technology to impart quality education as per the capability and requirements/needs of the learners.

Types of Activities

E-learning happens through undertaking e-learning activities which are either synchronous or asynchronous. In other words, e-learning provides for both synchronous and asynchronous communication (FAO, 2011).

- **Synchronous:** These events or activities take place in real time. Synchronous communication between two people requires both of them to be present at a given time. Examples of synchronous activities are chat conversations and audio/video conferencing. e.g. Chat and Instant Messaging, Video and audio conference, Live webcasting, Application sharing, Whiteboard, Polling, virtual classroom.
- **Asynchronous:** These events or activities are time-independent. A self-paced course is an example of asynchronous e-learning because online learning takes place at any time. E-mail or discussion forums are examples of asynchronous communication tools. e.g. E-mail, Discussion forum, Wiki, Blog, Webcasting.

Here in this context, better you have clarity about online learning or online education as well. As mentioned in Unit-6 (See sub-section 6.3.3.3), e-learning is a sub-set of distance education. Online learning or online education is a sub-set of e-learning, which is explained below.

- **On-line education:** With the world-wide increase in availability of ICTs, the term ‘online’ has become very popular and is closely associated with e-learning. According to Rekkedal and Qvist-Eriksen (2003) e-learning is often used as a synonym for on-line education. It (online education) includes not only delivery of contents via Internet, intranet/extranet (LAN/WAN) and

world wide web but also audio and video tapes, satellite broadcasts, interactive TV and CD-ROM. It allows access to course materials, assignments, reference materials, contact sessions, etc online and permits interaction through a full range of interactive methodologies based on effective instructional design and the use of computers and other means of electronic or telecommunications. Through a range of online learning technologies, we can engage predominantly in synchronous (real-time) communication, with fellow students and teachers through networked computer and asynchronous interaction across space, time, place and pace. Online education thus provides greater freedom/flexibility in study and help in accommodating learners' other personal, social and official/business commitments. MIT OpenCourseWare, edX, Udacity and Codecademy are some e-learning sites that offer online open courses.

Online learning and web-based learning (WBL) are sometimes used interchangeably. WBL is a computer-based learning in which the learning material is presented on pages accessible through World Wide Web (www). Typical media used are text, graphics, animation, audio and video. Of late e-learning is referred to technology-based learning, focusing on web-based delivery method. In this context, it is also important for you to know the difference between Internet and the Web (World Wide Web, www). This is essential because many people use the terms Internet and World Wide Web interchangeably, though in fact the two terms are separate and not synonymous, yet closely interrelated.

Difference between Internet and Web

The Internet and the Web are two different things. The **Internet** is a massive *network of networks*, a networking infrastructure (hard and soft). It connects millions of computers together globally, forming a network in which *any computer can communicate with any other computer* as long as they are both connected to the Internet. Information that travels over the Internet does so via a variety of languages known as *protocols*. The **World Wide Web**, or simply Web, is a way of accessing information over the medium of the Internet. It is an information-sharing model that is built on top of the Internet. The Web uses the HTTP protocol, only one of the languages spoken over the Internet, to transmit data. The Web also utilizes *Internet browsers* such as *Internet Explorer* or *Google chrome* or *Firefox* to access Web documents called Web pages that are linked to each other via hyperlinks. Web documents also contain graphics, sounds, text and videos. The Web is just one of the ways that information can be disseminated over the Internet. The Internet, not the Web, is also used for email, Usenet news groups, instant messaging and file transfer protocol, i.e. FTP (Vangie Beal, See www.webopedia.com/DidYouKnow/Internet/Web_vs_Internet.asp). To conclude, the Web is not a network. It is not the Internet itself. It is a system of clients (web browsers) and servers that use the Internet for its data exchange.

Of late, both the Internet and the Web are used as essential components of e-learning. E-learning thus represents a new paradigm of learning — a cognitive/constructivist approach which encourages the construction of new knowledge structures and avenues for their use. This type of learning takes place in a highly interactive environment with feedback from the teacher and fellow learners.

With this clarity of the concept of e-learning, we will now discuss e-pedagogy and design process.

8.2.2 E-Pedagogy and Design Process

Pedagogy focuses on enabling learning and intellectual growth of students in contrast to instruction that treats students as the objects ready to take instructions of curriculum implementation. Successful pedagogy requires teachers to understand how students learn and exercise their autonomy to design, develop, implement and assess educational activities that meet individual and collective needs of learners.

E-Pedagogy

E-pedagogy might broadly be defined as ‘learning design that incorporates educational quality, values and effectiveness of teaching, learning and assessment activities supported by technology’. While one might argue against a separation of e-pedagogy from any other pedagogy research and evaluation literature suggests that new modes of teaching and learning are emerging through the use of online networks, access to remote experts and, more recently, mobile technologies (Bilali, Bushati, Dibra and Barroli, 2013 at hrcak.srce.hr/file/179404).

E-learning pedagogy or pedagogy of e-learning represents instructional activities that promote active student learning in the context of e-learning. It will focus on the exploitation of information technologies to adapt to the varying learning scenarios and diverse student needs (http://www.itdl.org/journal/may_06/article01.htm). With the emergence of e-learning, it has become common to use the terms ‘e-pedagogy’, ‘e-learning pedagogy’ or ‘pedagogy of e-learning’ synonymously. However some differ with such usage, with nuances of their own arguments (Mehanna, 2004; see <http://www.aabri.com/HC2014Manuscripts/HC14024.pdf>), which, in this context, is not much significant to focus upon.

Nevertheless, fact is that, consistent theory of online education is lacking, without which there is no quality teaching and learning. It such a theory is required to provide: a) the conceptual base for the expectations of a pedagogically sound, effective design for planning and implementing both online teaching and learning; b) with a setting that will help understand online students and their learning process; c) a framework with a set of methodological directions and advice to prepare both online teachers, instructors, tutors, etc for effective teaching and help them maintain their professionalism, and learners for their effective learning.

Instructional Design Process

You have already understood the instructional design (process) in the context of SLMs or SLPs in Unit-5. That makes you easy to understand here the instructional design process in e-learning as well.

One of the biggest challenges faced by e-learning experts is the lack of relevant e-content in the digitized or electronic form. Gupta (2006) argues that management of content, making it available to a number of learners, understanding the intellectual issues of the content and finding out the most relevant learning content to be in line with the course objectives are some of the challenges that need to be addressed. He further argues that there is a need to develop standards/criteria based on which the relevant e-learning content can be developed. In addition, guidelines need to be prepared to help the policy planners and practitioners to evaluate the quality content, in order to ensure that it meets the pre-defined course objectives.

The instructional design depends on the theories and principles of learning. While learning theories are the backbone of any instructional design, the latter optimizes the learning outcomes. Similarly, instructional design to develop e-learning combines learning theories, e-learning experience, technological innovation and visualization of the outcomes. Regarding implications of learning theories for designing e-learning materials, Becta (2006) suggest that:

- Learners should know why they are learning something and what they can expect to achieve once they have completed the learning experience. That is, they should know the aims and objectives of e-learning materials.
- The materials should be appropriate to the learning and training needs of the learners.
- The materials should be motivating and interactive: exciting the learner into wanting to learn.
- The assessment of learning should directly involve the learner.

Like learning depends upon instructional design, e-learning also depends upon its design. The e-learning system is process-oriented, encouraging learners to reflect on and evaluate their own learning experiences. It is based around a series of diverse activities, providing a scaffold of learning (Attwell, 2005). As such the programme is highly structured but is learner-oriented; learners' own experiences provide them raw materials for learning. Attwell suggests the following steps for developing of e-learning, based on the seven challenges of e-learning design. Let us discuss these steps in brief.

- Defining objectives:*** E-learning objectives should be specified with the standard the learners are expected to achieve. The objectives should be clear, realistic and challenging for the learners. Setting of learning outcomes in terms of knowledge, skills and behaviours form the first and foremost step in the instructional design process.
- Basing e-learning on learners' own experiences:*** For setting the learning outcomes, you should have sound knowledge of the learning needs, characteristics and experiences of the learners. This is a major challenge, because you need to have fair idea of their pre-requisites and experiences, their attitudes towards the course content, their learning/study skills, etc., so that the learning materials are designed around these factors. Proper assessment of their prior experiences about the content of e-learning courses will enable you to make learning input relevant and specific to their needs, experiences and expectations which will also help the learners to reflect upon the outcomes and do self-evaluation of the experiences.
- Creating Learning environment:*** You have to think of different ways and means of developing an interesting, interactive and powerful learning environment so that e-learning does not become boring and monotonous exercise. The learning content should be based on real life situations/experiences and should be supported by examples, illustrations, case studies, diagrams, games, animation and so on. The learning materials should present relevant activities to help the learners master knowledge and skills, and to demonstrate the extent to which they have mastered the knowledge and the skills. Only those learning experiences should be selected which can make

learning challenging and make students think on their own. The video can form a dynamic component and also provide learning material a multimedia form. You need to think of problem formulation and problem-solving strategies which will promote reflective-thinking and innovation among the learners. The learner should control the process of learning so that s/he gets intrinsic motivation to sustain and reinforce acquisition of relevant knowledge and skills.

- iv) ***Supporting e-learning:*** The learners have different social, economic, cultural and educational backgrounds, and have differing learning styles. The learning opportunities need to be self-paced to fit in with the schedules of learners and allow them to progress at different speeds depending on their learning needs and the availability of time. The fact is that one format may not suit all learners. The e-learning material and activities should allow learners to be flexible and engage in different ways to suit their needs and schedules. The e-learning system should therefore support each individual learner accordingly.
- v) ***Developing dynamic and sustainable content:*** The e-learning process should support development of dynamic content. It should facilitate incorporation of changes and to adopt the content to emerging learning/training needs and ideas. The feedback from the learners should be part of the learning input to be offered in future courses. The revision, adaptation and extension should be a continuous process.
- vi) ***Developing flexible modes of delivery:*** As we know, the learners come from different backgrounds, and hence have different learning styles and strategies. Some may wish to have purely online learning, with or without teacher support. Other learners may prefer to use the e-learning materials as support for face-to-face contact. So the e-learning materials should be developed in such a way that these can be implemented through different modes of delivery and hence satisfy the needs of the individual learners.
- vii) ***Recording, validating and presenting learning:*** The learners' academic achievement should be recorded and accredited to the learner's account. Some learners pursue their study for knowledge sake while others are more reflective and desire to develop their expertise in a particular subject area so that they can professionally grow. Based on their learning inputs of knowledge, skills, and behaviours developed as a result of going through the e-learning materials, activities/experiences the learners could be awarded a certificate, diploma or degree accordingly.

Instructional design is just a part of e-learning strategy of your institutional setting. A successful e-learning strategy relies on the interconnectedness of five main elements — Tools, People, Training, Supports, and Processes (Young, 2007). It calls for identification of different tools required and the people to be involved, training them, providing them all the support required and putting all the processes and related guidelines in place. You have to follow an effective strategy that can integrate all these key elements in designing, developing and delivering e-learning through different e-learning resources.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

- 1) Explain the concept of E-learning and its significance in open and distance education.

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8.3 TYPES OF E-LEARNING RESOURCES

E-Resources are vital sources of e-learning. Digital technology, when applied to the stored intellect, has made the task very easy, speedy and comfortable. The information collected through the ages can be effectively used for further research, betterment and overall development of the society. Now, e-resources or e-learning resources are easily accessible even in remote areas. E-resources also solve storage problems and control the flood of information.

Digitization is the process of transforming text, sound, images or motion picture from analog form (a continuous stream of data that we can see or hear) into digital form (a series of binary data based on a sampling process) that we can save, organize, retrieve, and restore through electronic devices into perceptible surrogates of the original works. Of the vast number of digital assets that are being created, still images, texts, motion pictures, and sound recordings predominate (<https://www.bowdoin.edu/dam/audio/>). Digitization also brings with it the tremendous benefit of “random filing,” since we no longer have the worries that come with maintaining manual, physical files that are necessary for storing audio/sound files in material form. Further, these characteristics require us to alter how we approach browsing visual, audio and video materials in digital form.

E-learning resources are mainly available in three forms or types – digital print, digital audio and digital video. Having a range of resources in e-learning makes the content more diverse and interesting and can provide practical examples of different material. We will briefly discuss these types below.

8.3.1 Digital Print

With growing utilization of digital technology, there is a trend emerging to digitalise the print sources. The more prominent among them is the e-resources in digital print form, which are made available online. These electronic information sources are becoming more and more important for the academic community. The advent of technology has made the libraries to add these new

forms to its collection, though there is an emergence of separate digital libraries. Important among the digital print forms include:

- Web Sites - Open Access, Full-Text and Bibliographic
- E- Books, Journals and Articles
- E-theses and e-dissertations
- E-dictionaries and references
- E-catalogues
- E-Archives and Research repositories
- Data Files
- E-encyclopedias
- Guide books and Handbooks
- Others

Wide variety of these e-resources, thus available in digitalized print form, help you learn the content sitting at the desktop or having a mobile in hand and with access to Internet facility. These forms of e-resources can also provide you information from outside sources such as links to many other websites including online library catalogues so that you can gain a broader understanding of the same through wider access to the content from multiple perspectives.

8.3.2 Digital Audio

Digital audio refers to the reproduction and transmission of sound stored in a *digital format*. This includes CDs as well as any sound files stored on a computer. In contrast, the telephone system (but not ISDN) is based on an *analog* representation of sound. In sound recording and reproduction systems, digital audio refers to a *digital representation* of the audio waveform for processing, storage or transmission. When analog sound waves are stored in digital form, each digital audio file can be decomposed into a series of samples (http://www.webopedia.com/TERM/D/digital_audio.html). Some other forms include online presentations, Webinars and Podcasts.

Digital audio fundamentally differs from its analog counterpart (cassette tape) because it reveals no meaning without availability of the software and hardware that translate and render it as sound. Digital audio is the sound that has been created through the process of digitization. Sometimes, digital audio is created through digital recording, conversion, or is acquired through a third party (e.g., via e-mail attachment, purchase or license, downloading from the Web, etc). (<https://www.bowdoin.edu/dam/audio/>).

8.3.3 Digital Video

Unlike traditional analog video, which is captured frame by frame on a tape, digital video is recorded digitally. *Analog video* represents moving visual images with *analog signals* while digital video is a representation of moving visual images in the form of encoded *digital data*. An analog video such as a *motion picture film* uses a series of photographs which are projected in rapid succession while *digital video* comprises a series *digital images* displayed in rapid succession. Since digital video is stored in a digital format, it can be recognized

and edited by a computer, which is also a digital device. *Digital video* thus refers to the capturing, manipulation and storage of *video in digital formats*. A digital video (DV), camcorder for example, is a video camera that captures and stores images on a digital medium (<http://techterms.com/definition/dv>; & http://www.webopedia.com/TERM/D/digital_video.html).

Digital video can be copied with no degradation in quality. In contrast, when analog sources are copied, they experience generation loss. Digital video can also be stored on hard disks or streamed over the Internet to end users who watch content on a desktop computer screen or a digital Smart TV. In everyday practice, digital video content such as TV shows and movies also includes a digital audio soundtrack (https://en.wikipedia.org/wiki/Digital_video).

8.3.4 Web-based Resources

Web resources or web-based resources include Web-based applications or services that are accessed using HTTP or HTTPS. Web-based resources encompass every ‘thing’ or ‘entity’ that can be identified, named, addressed, accessed or handled, in any way whatsoever, in the web at large, or in any networked information system. Examples include: Microsoft Outlook Web Access and other Web-based email programs, Web portals, corporate intranets, and standard Web servers.

You also need to know whether a native app and web-based app is one and the same. “A *native app* is one that is built for a specific platform, such as iPhone or Android, using their code libraries and accessing their available hardware features (camera, GPS, etc). A *web-based app*, on the other hand, is one that is hosted on the web and accessed from a browser on the mobile device (<https://uxmag.com/articles/native-or-web-based-selecting-the-right-approach-for-your-mobile-app>).

As far as distance education is concerned, there are two major types of Web resources – information for research, and interactive applications for teaching and learning.

Characteristics of Web-based Resources

Unlike printed self-learning materials which are linear in design, Web-based materials are basically non-linear in design, because on the WWW you can create all kinds and ways of accessing information through search engines, URLs, menu-bars, hyperlinks and other navigational methods. Interaction with tutors and peer group and even others having similar interests can be as frequent as desired through email, chat sessions, computer conferencing, newsgroups, etc.

Web-based materials have the following characteristics:

- ***Non-linear instruction:*** Provides sufficient hyperlinks to enable learners to interact with the materials in a non-linear manner to supplement the knowledge being provided through the course.
- ***Collaborative activities (team work):*** Offers opportunities for active participation in the learning process and active articulation and organization of ideas through discussion forums, collaborative activities etc.
- ***Access:*** Provides temporal access, 24 hours/day, 7 days/week transcending gender, age, race, physical as well as socio-economic barriers.

- **Active learning:** Systematically organized sequenced content is presented attractively using graphics, audio files, video files, animation, flow charts, etc.
- **Multiple perspectives:** Content presented is culturally unbiased and objective and is applicable to different learners according to their knowledge base.
- **Problem solving approach:** Tasks (assessments) which are similar to real world activities and problems or questions which would make learners construct their own knowledge.
- **Web based learner support:** Provision of Web based tutors should be there to provide the necessary support and guidance; and other Computer Mediated Communications (CMCs) such as chat rooms, discussion forum, notice boards, etc.

Significance of digital literacy in e-learning

Digital literacy has become part of our lives. We easily navigate on the web, searching for articles and videos, and sharing information with our friends. These tasks seem easy; however they are not that easy for everyone. There are still many people for whom the web is a confusing, dark space. Digital skills should be part of education to ensure that every student, independent from age and background, can equally participate and benefit from the infinite knowledge of the web (<https://elearningindustry.com/digital-literacy-critical-elearning>). Lack of digital literacy is thus one of the major limitations in exploiting the web-based resources.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

2) What are the types of E-learning resources?

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8.4 DIGITAL CONTENT CREATION TOOLS

Development of e-learning content is essentially dependent upon the availability and utilization of a variety of software called digital content creation tools. These are the technological resources used to design the digital content. They are of different types and serve varied purposes in creation of digital content. Digital content becomes integral part of these tools, since without these tools the digital content has no existence. In other words, the digital content creation tools are, in

fact, the software into which the desired content is put. And, some tools help in improvement of the quality of digital content. Different tools are appropriate for creation of different digital content. In this section, an attempt is made to present you with a wide range of digital content creation tools that are useful for developing e-learning content of different types. Of course, some of these tools may be free versions while others may be paid versions and some may be of both the versions providing for varying options to users.

8.4.1 Visual Content Creation Tools

Visual content creation tools are useful in creating attractive and interesting visual content in digital form. There exist a number of tools useful to varied people ranging from beginners to the expert users involved in content creation. These tools will help you in performing different tasks while writing, creating or developing the visual content. Different tools serve different purposes while some serve multiple purposes. Thus, different tools will help you in performing different purposes; some tools may help you perform many functions. Given below are some of the widely available tools along with their websites which you will find useful to choose from for visual content creation and editing.

- **Tools for Keyword Analysis:** For example, Keyword Finder (kwfinder.com); Keywordtool.io (keywordtool.io); Keyword Discovery (www.keyworddiscovery.com); Wordstream (www.wordstream.com/keywords); Google Trends (www.google.com/trends); Serpstat (serpstat.com); Ubersuggest (ubersuggest.io); Google Webmaster Tools (<https://www.google.com/webmasters>).
- **Content Generation Tools:** For example, Canva (www.canva.com); Content Idea Generator (www.portent.com/tools/title-maker); BuzzFeed (www.buzzfeed.com/tools); Coschedule Headline analyser (coschedule.com/headline-analyzer); HubSpot's Blog Topic Generator (www.hubspot.com/blog-topic-generator); Tweak Your Biz (tweakyourbiz.com).
- **Content Analysis Tools:** For example, BuzzSumo (buzzsumo.com); Venngage (venngage.com); Evernote (evernote.com); WordCounter (wordcounter.net & www.wordcounttool.com).
- **Text Editing, Content Readability, Testing and Quality Check Tools:** For example, MarkdownPad (markdownpad.com); Grammarly (www.grammarly.com); Whitesmoke (www.whitesmoke.com); Online correction (www.onlinecorrection.com); Languagetool (www.languagetool.org); Online Editor (www.grammarcheck.net/editor); Online text correction (www.textcorrection.com); Spell Check (www.gingersoftware.com/spellcheck); Paperrater (www.paperrater.com); Grammar and spell check (www.gingersoftware.com/spellcheck); Gingersoftware (www.gingersoftware.com/grammarcheck); Headline Analyzer (www.teachingblogtraffic.school.com/free-headline-analyzer-too); Editorially (beautifulpixels.com/web/editorially-write-collaborative-editor-online); Correctica (correctica.com); Hemingway App (www.hemingwayapp.com).
- **Data analytics and Infographics tools:** For example, Percentage Change Calculator (percent-change.com); 3-Way Percentage Calculator ([111](http://3-way-

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percentage-calculator.software.informer.com); Conversion Rate Calculator (<http://www.xe.com/currencyconverter>); Piktochart (piktochart.com); Timeline JS (timeline.knightlab.com); Infogr.am (infogr.am); Annie Cushing's Must-Have Tools (www.annielytics.com).

- **Duplicate Content (Plagiarism) Checkers:** For example, Grammarly (www.grammarly.com); Copyscape (www.copyscape.com); Duplichecker (www.duplichecker.com); Plagiarisma.Net (plagiarisma.net); Plagiarism Software (www.plagiarismsoftware.net); Plagspotter (www.plagspotter.com).

8.4.2 Image Sourcing, Creating, Editing and Uploading Tools

In order to make your digital content more appealing, you may like to enrich the content with appropriate images or photos. Finding right images or photos from among those existing and freely available for use must be preferred to save your time, energy and effort, unless it is especially required or warranted for such purpose. By using these tools, sometimes you can also attempt to create the images of different types, particularly of your choice, and enrich the resource in these tools for viewing and using by others. These tools may provide you vast diversity of images or photos of various living and non-living things and innovative images of all kinds created by the resource users/producers. These tools may include: Caption Free Images, Searchable Photo Stock, Free Photo Collection and Photo search tools, among others. Some of these tools, as examples, are mentioned below.

- **Caption Free Images tools:** For example, Plash, Death to the Stock Photo (deathtothestockphoto.com), New Old Stock (nos.twinsnd.co), Picjumbo (picjumbo.com), The Pattern Library (thepatternlibrary.com), Getrefe (getrefe.com), IM Free (imcreator.com/free), Jay Mantri (jaymantri.com), Public Domain Archive (publicdomainarchive.com/), Magdeleine (magdeleine.co), Foodiesfeed (foodiesfeed.com), Picography (picography.co), Raumrot (raumrot.com), ISO Republic (isorepublic.com).
- **Searchable Photo Stock tools:** For example, Dreamstime (www.dreamstime.com), Free Digital Photos (www.freedigitalphotos.net), Free Images (www.freeimages.com), Free Range Stock (freerangestock.com), Free Photos Bank (www.freephotosbank.com), Image Free (www.imagefree.com), Morguefile (morguefile.com), Pixabay (pixabay.com), Public Domain Pictures (www.publicdomainpictures.net), Stockvault Free Stock Photos (www.stockvault.net), Rgbstock Free Stock Photos (www.rgbstock.com).
- **Free Photo Collection tools:** For example, Ancestry Images (www.ancestryimages.com), BigFoto (www.bigfoto.com), Gratisography (gratisography.com), FreeMediaGoo (www.freemediagoo.com/), Hubspot (www.hubspot.com), iStock (www.istockphoto.com/in), Little Visuals (littlevisuals.co), Pickupimage (pickupimage.com), Superfamous Images (images.superfamous.com), Unsplash (unsplash.com), Wikimedia Commons (commons.wikimedia.org).
- **Photo Search tools:** For example, Can We Image (canweimage.com), Compfight (compfight.com), Creative Commons Search (www.creativecommons.org), Foter (foter.com), Google Advanced Image Search

(www.google.co.in/advanced_image_search), Every Stock Photo (www.everystockphoto.com), PhotoPin (photopin.com), TinEye (www.tineye.com).

- **Image Design tools:** Canva (www.canva.com), PicMonkey (www.picmonkey.com).
- **Logo Maker tools:** LogoGarden (www.logogarden.com), LogotypeMaker (logotypemaker.com), Free Logo Maker (logomakr.com), DesignMantic.com (www.designmantic.com).
- **Photo Editing tools:** Photoshop (www.adobe.com/Photoshop), BeFunky (www.befunky.com), Pixelmator (www.pixelmator.com).

8.4.3 Interactive Content Creation Tools

Even if you have made your digital content rich enough with good text and images/photos, you may like to add some interactive content to make the teaching-learning activity more dynamic, interesting and effective. You may think of making e-learning content interactive in diverse ways. Depending upon the nature of the content and suitability of the tool(s) you can use them appropriately for the intended effect/purpose.

Some of the tools that will be useful for you to make the learning content more interactive include: Qzr (www.qzr.com); SnapApp (www.snapapp.com); Guides.co (guides.co); Apester (apester.com); Zaption (www.zaption.com); WebyClip (webyclip.com); Mapme (mapme.com); Brackify (brackify.com); Polldaddy (polldaddy.com/features); PlayBuzz (www.playbuzz.com); Votion (www.votion.co); Zembula (www.zembula.com); ThingLink (www.thinglink.com); Infogr.Am (infogr.am); RooJoom (www.roojoom.com); Compfight (compfight.com).

8.4.4 Infographic and Chart Maker Tools

If you have such content which is required to be presented in the form of graphs and charts you need to use infographic and chart maker tools. For example, you can use the tools like the following, among others, for such purposes: Venngage (venngage.com); Infogr.am (infogr.am); Infoactive (infoactive.co).

8.4.5 PowerPoint Presentation Tools

If you want to help the learners focus on the message and create a collaborative environment you can share the information with them very easily and also equally help those who fail to attend the original presentation for any reason, PowerPoint presentation is very useful for both the teacher and the learners. PowerPoint presentations can also help ease your anxiety while speaking by focusing the audience's attention on the slides, text and images. There are many PowerPoint presentation tools. Some of these tools, for example, are: *Microsoft PowerPoint* (microsoft-powerpoint-2010.jaleco.com), PowToon (www.powtoon.com), Google Slides (www.google.com/slides/about), SlideDog (slidedog.com), SlideShare (www.slideshare.net), SlideRocket (www.sliderocket.com), Prezi (prezi.com), AuthorSTREAM (www.authorstream.com), Haiku Deck (www.haikudeck.com).

8.4.6 Audio Creation Tools

Effective audios will help keep the students actively involved in learning. There are multitude of ways in which you can incorporate audio into the learning process and it is possible through a variety of tools available for this purpose. Some of these tools useful in this regard include: Vocaroo (vocaroo.com); UJAM (www.ujam.com); Incredibox (www.incredibox.com); Audacity®(www.audacityteam.org); Coffitivity (coffitivity.com).

8.4.7 Video Creation Tools

Video creation tools will help you use stock media clips or produce, trim and upload your own videos. Some of the popular video creation tools, among others, include: Animoto (animoto.com), GoAnimate (goanimate.com), Powtoon (www.powtoon.com), Sellamations (sellamations.com), VideoScribe (www.videoscribe.co), Evaer (www.evaer.com), Call Recorder *for Skype* (www.ecamm.com/mac/callrecorder), Google Hangouts on Air (support.google.com), Camtasia (discover.techsmith.com), ScreenFlow (screenflow.en.softonic.com/mac).

8.4.8 Media Integration Tools

You can use media integration tools for integrating the visual, audio and video contents or components. These tools are also useful for delivering support across multiple media/channels such as the web, social, phone, email, mobile and live chat, among others. Some of these tools, for example, include: Chirbit (www.chirbit.com); Meme Generator (memegenerator.net); Evernote (evernote.com); Polldaddy (polldaddy.com).

8.4.9 Tools for Writing for the Web

There are a number of online tools for writers of all types. These tools are useful to those who are new to the world of authorship and also to those who are veterans trying to make significant contribution to most of Web services and applications. These tools will help you learn about optimizing your content for the Web — from blogging platforms to networking hotbeds, from job boards to real-world gatherings. These tools, for example, include: Mou (www.mou-online.com); Clipboard Cleaner (play.google.com/store/apps/details?id=com.kodholken.clipboardcleaner&hl=en); Word2CleanHTML (word2cleanhtml.com); Storify (storify.com); Google Fonts (fonts.google.com); PlaceIt (placeit.net); Word2cleanhtml (word2cleanhtml.com).

The tools mentioned under sub-sections 8.4.1 to 8.4.9 above are just a few examples only and are not exhaustive. However, we believe that the above information on different tools would have given you a broad idea of a variety of tools that exist for digital content creation. In this section you have thus known various types of digital content creation tools. You may note that, no one tool may be adequate enough by itself to create comprehensive digital content. Creation of effective digital content calls for utilization of diverse tools. The tools mentioned above serve different purposes. Each tool might have its unique quality and feature. The tool you wish to use must be relevant, organic, and valuable to your purpose as well as that of the students or the audience, as the case may be.

You can therefore try all the relevant tools, from among those mentioned above, to get practical experience of their working or usefulness for your content creation tasks. So you can make use of these tools and save your time in digital content creation. Hope you can create and publish your dream content.

8.5 DELIVERING E-LEARNING

You may recall that in sub-section 8.2.2 of Section 8.2 above, we talked about “Supporting e-learning” as one of the key elements of e-learning design. E-learning must therefore adopt to the changing needs and times of the target group. Delivery of e-learning is done by ensuring support through web-based software application known as Learner Management System (LMS). Hence, some call it eLMS since it is basically web-based application programme (Stacey, 2001). Some educators use the term Learning Content Management System (LCMS) software as a close cousin of LMS (Kruse, 2002); though there exist a difference between them, i.e. while the former software (i.e. LCMS) is used to author and manage learning content the latter software platform (i.e. LMS) is used to deliver and track courses. In fact, the LMS (or eLMS) is a highly visible, major investment in the e-learning initiative.

In this section, we will discuss LMS and LCMS briefly, to give you an idea of both of them. Let us look at this support as a part of delivery of e-learning.

8.5.1 Learning Management System

LMS is a global term for a computer system (software) specifically developed for managing online courses, distributing course materials and allowing collaboration between students and teachers. A LMS will allow you to manage every aspect of a course, from the registration of students to the storing of test results, as well as allow you to accept assignments digitally and keep in touch with your students. In essence, the LMS is the backbone of most e-learning activities. LMSs are built on various platforms, commonly PHP, .Net or Java and they will hook up to a database such as PostgreSQL, MySQL or SQL Server. LMSs do vary in the features they offer, but most systems are likely to have some or all of the following features: Easy GUI (GUI stands for Graphical User Interface). Customization, Enrollment, Virtual Classroom, Social Networking, Communication, Course pathways, Reports, Help with content creation, and Testing (Epignosis, 2014; at <https://www.talentlms.com/elearning/elearning-101-jan2014-v1.1.pdf>). There are many LMSs out there, both commercial and free systems i.e. open source software. For example, Moodle is a free and open source e-learning software platform also known as Course Management System, Learning Management System or Virtual Learning Environment (Ahmed, Hanzala, Saleem and Cane, 2013). LMS plays a key role in the success of e-Learning.

LMS is a software for planning, organizing, implementing and controlling the learning process. Any institution offering e-learning / online courses, therefore, organizes, implements and controls various aspects of learner support — teaching, advising, counselling, library services, technical assistance, administrative services, etc — through an LMS. The institution providing e-learning is required to manage the entire learning process through LMS. LMS is a broad term, which is used for a wide range of systems that organize and provide access to online

learning services for students, teachers, and educational administrators. These services usually include access control, provision of learning content, communication tools and administration of learners. LMS is a fully integrated e-learning administration system that facilitates the administration of learner and course, and monitoring of the learning process quickly and efficiently. It enables the delivery, management and administration of a range of learning activities, services, content and data.

The LMS/e-LMS ensures that the e-learning material is delivered to the learners and movement of submission and assessment of assignments, etc are monitored. The institution has to ensure effective integration of all elements: human and physical resources, associated with e-learning. e-LMS performs the following functions (Stacey, 2001):

- Schedules and register learners into online and offline courses.
- Keeps learner profile data.
- Launches e-learning courses.
- Tracks learner progress through the course.
- Manages classroom-based learning.
- Provides learning administrators with ability to manage resources including labs and classroom (resource management).
- Supports learner collaboration.
- Creates test questions and administers the test.
- Reports performance/learning.
- Builds interconnectivity with virtual classroom.

Using an LMS, learners select courses, receive content, complete exercises, quizzes, etc and also communicate with instructors and other peer learners. Instructors, administrators and managers monitor learner participation through records contained in an LMS. In other words, LMS supports the students at every stage of their learning and assessment. It also provides for cost saving, control over educational activities, improvement in the speed and effectiveness of educational process and improvement in communication among learners. The emerging view with the educational institutions seems to be that an LMS is a critical tool in the management and development of human resources and a mechanism for improving the status of learning and training process. In other words, LMS is a comprehensive delivery system, designed to provide efficient tools for creating electronic lesson plans, class assignments, tests, ability to use interactive features such as threaded discussions, video conferencing, discussion forums, etc and also for tracking the progress of individual students in a course including its completion.

8.5.2 Learning Content Management Systems (LCMS)

Some educators use the term Learning Content Management System (LCMS) as a close cousin of LMS (Kruse, 2002). An LCMS manages and delivers personalized content reducing the learner's time to acquire proficiency in learning/training, thus resulting in increased organizational productivity. LCMS is primarily responsible for creating, managing, maintaining, delivering and tracking web-

based content. An LCMS is meant for content developers, instructional designers, and learning managers providing primary management of learning content. It performs the following functions (Stacey, 2001):

- Content creation tools
- Workflow tools to manage content development process
- Learning object repository
- Organizing reusable content
- Content reuse and adaptive individualized learning path based on learning objects
- Asynchronous collaborative learning including discussion groups
- Testing, and certification
- Reporting of results
- Delivery of content in multiple formats (online, print, CD-ROM, etc.)
- Providing content navigational control (look and feel)
- Interconnectivity with virtual classroom, LMS, learning enterprises, etc.

Based on the functions listed above we can say that LMS and LCMS complement each other. An LMS and LCMS can be integrated and information from the two systems can be exchanged. In addition, both the LMS and the LCMS can interconnect with other enterprise applications making e-learning an integral part of the whole enterprise.

The most frequently listed LMS tools that have performed inter-operability tests with LCMS tools, and good examples of products that clearly fit the LMS space includes (<http://www.productivity.corn/LMS/brandonhallimssyslms.doc>; and Young, 2007), for example:

- Saba Enterprise – <http://www.saba.com>
- Click2Learn (click2learn.pk);
- THINQ Training Server (www.kmsi.us/thinq_solution.htm)
- Learning Space (<http://learningspacetoolkit.org>)
- TopClass (www.classtools.net)
- Plateau LMS – <http://www.plateau.com>
- SumTotal Systems Total LMS – <http://www.sumtotalsystems.com>
- EEDO ForceTen LCMS – <http://www.eedo.com>
- GeoLearning GeoMaestro – <http://www.geolearning.com>
- Learn.com LearnCenter – <http://www.learn.com>
- OLAT – <http://www.olat.org/public/index.html>
- Ganesha – <http://savannah.nongnu.org/projects/ganesha>
- Ilias – <http://www.ilias.de/ios/index-e.html>

You should make sure to review the features, functionality and cost of the various options of the market as well as your ability to refine and customize the solution

to meet the organizational needs. You need to ensure that you are choosing the best option to support your e-learning strategy.

Check Your Progress

- Notes:** a) Space given below the question is for writing your answer.
b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

3) What is Learning Management System (LMS)?

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8.6 E-LEARNING THROUGH WEB 2.0 TOOLS

By now you have understood that the WWW or simply the Web provides the users with a uniform and convenient means of accessing vast resources through the Internet. The Web is an information sharing model built on top of the Internet. The Web uses the HTTP, one of the languages of the Internet, to transmit data. The Web is a huge collection of documents called web pages that are linked to each other via hyperlinks. Web documents contain text, graphics, sounds, video, etc which can be accessed with a web browser. Search engines are used to search for documents and files on the Web, usually on similar or related subjects. The Web offers an amazingly quick way to access information and is the richest storehouse of information in the world. What is Web 2.0 or Web 2.0 tools?

8.6.1 Web 2.0 Tools: The Concept

Web 2.0 is about revolutionary ways of creating, collaborating, editing and sharing user-generated content online. It is also about ease of use — technology has never been easier or more accessible to all. It is all possible because of web 2.0 tools. These tools are internet tools that allow the user to go beyond just receiving information through the web. Web tools can be used to enhance teaching and collaboration among teachers and students as well as increase professional collaboration between educators.

A Web 2.0 site may allow users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in contrast to Web sites where people are limited to the passive viewing of content. Examples of Web 2.0 include social networking sites, blogs, wikis, folksonomies, video sharing sites, hosted services, Web

applications, and mashups (https://en.wikipedia.org/wiki/Web_2.0). The user is expected to interact and to create content with others.

8.6.2 Blogs

What is a blog? Short for *Web log*, a blog is a Web page that serves as a publicly accessible personal journal for an individual. It has defined owner or leader or author. Typically updated daily, blogs often reflect the personality of the author. (<http://www.webopedia.com/TERM/B/blog.html>). Bloggers can usually use a number of services for the updates including instant messaging, e-mail, Twitter, etc. The posts are called *microposts*, while the act of using these services to update your blog is called *microblogging*. Social networking sites, like Facebook, also use a microblogging feature in profiles.

8.6.3 Wiki

Wiki is a server software that allows users to freely create and edit Web page content using any Web browser. A wiki is a website that provides collaborative modification of its content and structure directly from the web browser. A wiki is run using wiki software, otherwise known as a wiki engine. There are dozens of different wiki engines in use, both standalone and part of other software, such as bug tracking systems. Some wiki engines are open source, whereas others are proprietary. Some permit control over different functions (levels of access); for example, editing rights may permit changing, adding or removing material. Others may permit access without enforcing access control.

A defining characteristic of wiki technology is the ease with which pages can be created and updated. Wiki supports hyperlinks and has a simple text syntax for creating new pages and cross links between internal pages on the fly. In a typical wiki, text is written using a simplified markup language (known as “wiki markup”), and often edited with the help of a rich-text editor. A wiki engine is a type of content management system, but it differs from most other such systems, including blog software, in that the content is created without any defined owner or leader, and wikis have little implicit structure, allowing structure to emerge according to the needs of the users.

Wikimedia is the collective name for the Wikimedia movement, revolving around a group of inter-related projects, including Wikipedia, Wiktionary, Wikiquote and others, which aim to use the collaborative power of the Internet, and the *wiki* concept, to create and share free knowledge of all kinds.

8.6.4 Social Networking

The term “Social networking” represents a wide range of internet-based software that facilitates the users to make and promote connections with their friends, family, classmates, customers and clients. Social networking is also a significant target area for marketers seeking to engage users. Social networking can occur for social purposes or business purposes or for both through sites or services. A *social networking site* or *social networking service* (abbreviated as SNS), is the phrase used to describe any Web site that enables users to create public profiles within that Web site and form relationships with other users of the same Web site who access their profile. SNS is collectively called social media.

Social network sites or services are very diverse and incorporate new information and communication tools such as mobile connectivity, and allow users to share ideas, pictures, posts, photos, video, activities, events, and interests with people in their network. The unparalleled potential of the Web has been fully recognized and exploited now with social networking having gone almost as long as societies themselves have existed, through Web-based groups established for that purpose. Social media is a platform to build social networks or social relations among people who share similar personal and career interests, activities, backgrounds or real-life connections.

Social networking services are a type of Web 2.0 internet-based applications. These software services are provided by different service providers such as Microsoft OneDrive, Google Drive, Dropbox, Box, Amazon Cloud Drive and Apple's iCloud Drive which support these media through their respective Operating Systems. To explain, as an example, OneDrive is Microsoft's service for hosting files in the "cloud", that's available for free to all the owners of a Microsoft account. OneDrive offers users a simple way to store, sync and share all kinds of files, with other people and devices on the Web. Same is the case with other service providers. These providers provide varying cloud storage services.

The main types of social networking services are those that contain category places, means to connect with friends, and a recommendation system linked to trust. Popular methods now combine many of these services such as: Facebook, Google+, LinkedIn, Instagram, Pinterest, Vine, Tumblr, and Twitter (American-based) widely used worldwide; Wechat, Sina Weibo, and Tencent QQ in China; Nexopia in Canada; Badoo, Bebo, V Kontakte (Russia); Delphi, Draugiem.lv (Latvia), iWiW (Hungary); Nasza-Klasa (Poland); Soup (Austria); Glocals in Switzerland; Skyrock, The Sphere, StudiVZ (Germany); Tagged, Tuenti (mostly in Spain); Myspace, Xanga and XING in parts of Europe; Hi5 in South America and Central America; Mxit in Africa; CarnivalPics based in Nigeria; Cyworld, Mixi, Renren, Friendster, Sina Weibo and Wretch in Asia and the Pacific Islands. Social network services can be split into three types: socializing social network services mainly for socializing with existing friends (e.g., Facebook); networking social network services mainly for non-social interpersonal communication (e.g., LinkedIn); and social navigation social network services mainly for helping users to find specific information or resources (e.g., Goodreads for books) (https://en.wikipedia.org/wiki/Social_networking_service).

There are many social media sites. In order to enable you to understand their diversity some of the popular social media sites are described in brief below.

- **Edmodo:** It provides teachers and students a secure place to connect and collaborate, share content and educational applications, and access homework, grades, class discussions and notifications. It helps social media to customize the classroom for each and every learner.
- **Twitter:** It is a real-time information network that connects you to the latest stories, ideas, opinions and news about what you find interesting.
- **YouTube:** It allows a great access to billions of people to discover, watch and share originally-created videos.

- **TED:** It covers riveting talks by remarkable people, free to the world. It is devoted to spreading ideas, usually in the form of short, powerful talks (18 minutes or less). covers almost all topics — from science to business to global issues.
- **Animoto:** It turns your photos, video clips, and music into stunning video masterpieces to share with everyone. It is fast, free, and also shockingly easy!
- **Wikispaces:** A wiki is a space on the Web where you can share work and ideas in the form of text, pictures and links with videos and media. It has a visual editor and a bunch of other tools to make sharing all kinds of content as easy for students as it is for their teachers.
- **Kidblog:** It is designed for K-12 teachers who want to provide each student with an individual blog. Students publish posts and participate in academic discussions within a secure classroom blogging community. Teachers maintain complete control over student blogs and user accounts.
- **Audacity:** You can use Audacity to Record live audio, convert tapes and records into digital recordings or CDs, edit various sound files, cut, copy, splice or mix sounds together, change the speed or pitch of a recording. Audacity is a free, easy-to-use, multi-track audio editor and recorder for Windows, Mac OS X, GNU/Linux and other operating systems. The interface is translated into many languages.
- **Moodle:** It is a Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a free web application that educators can use to create effective online learning sites. For students: MPS Moodle; for teachers: Online PD Moodle.
- **Tagxedo:** It turns words — famous speeches, news articles, slogans and themes, etc — into a visually stunning word cloud, with individual words sized appropriately to highlight the frequencies of occurrence within the body of text.
- **Doodle:** It radically simplifies the process of scheduling events, whether they are board meetings or team meetings, or dinners with friends, or reunions, or weekend trips, or anything else.
- **LinkedIn:** It is specially designed for the business community and professionals. It allows users (workers and employers) to create profiles and “connections” to each other in an online social network which may represent real-world relationships.
- **Google+:** Owned and operated by Google, it helps people to discover amazing things created by passionate people and also to explore your interests, join communities of people around any topic, group things you love into collections, and build a home stream filled with amazing content.
- **Myspace:** Myspace was the largest social networking site which was overtaken by Facebook. It offers an interactive, user-submitted network of friends, personal profiles, blogs, groups, photos, music, and videos. e-mail, a forum, communities, and weblog space.

All the social media discussed above have educational value and significance, but it all depends on the way they can be used by the teachers and the students.

8.6.5 Social Bookmarking

When you are looking at a particular Web site or home page and you want it back to see later quickly, you can create a bookmark for it by saving the link to a Web page. You can add further links to make a list of saved links. The list that contains your bookmarks is called the “bookmark list”. Social bookmarking is thus simply tagging a web page with a web-based tool so that you can easily access it later. Unlike storing bookmarks in a folder on your computer, tagged pages are stored on the Web and can be accessed from any computer.

Social bookmarking is a centralized online service which allows users to add, annotate, edit, and share bookmarks of web documents. (Aichner and Jacob, 2015). Social bookmarking is a user-defined taxonomy system for bookmarks. Such a taxonomy is sometimes called a folksonomy and the bookmarks are referred to as tags. Technorati, a blogging site, describes the system as “The real-time Web, organized by you.” Web sites dedicated to social bookmarking, such as Flickr and del.icio.us, provide users with a place to store, categorize, annotate and share favorite Web pages and files. (<http://whatis.techtarget.com/definition/social-bookmarking>).

A good social bookmarking definition begins with the history of the concept. It was first thought of in April of 1996, with the launch of the very first social bookmark, itList.com. From that point on, the business began to grow, and social bookmarking became known for building relevant links, bringing in traffic and new customers, and the other benefits of social bookmarking that businesses can take advantage of (<http://www.brickmarketing.com/what-is-social-bookmarking.htm>). *Social bookmarking* is a great traffic-boosting *search engine optimization (SEO)* strategy because it’s easy, effective and trendy.

When a link is ready to be put into a social bookmarking network, it is first tagged or submitted to a social bookmarking site. It is tagged with three keywords that are optimized on the website, and then a description of the website is added. From that point on, it can be searched through the keywords on the network. Social bookmarking sites are the best way to promote any website, event or brand so quickly on internet. There are hundreds of bookmarking sites. Some popular social bookmarking service providers are:

- Technorati.com – A blog and business social bookmarking website
- Del.icio.us – A popular social bookmarking service that is the most famous
- Yahoo Bookmarks – A bookmarking service hosted by Yahoo.com as one of their many services
- Google Bookmarks – Another bookmarking service, hosted by Google.com and intended for normal people as well as businesses to use.

Social bookmarking tools are an emerging educational technology that has been drawing more of educators’ attention over the last several years. This technology offers knowledge sharing solutions and a social platform for interactions and discussions (Farwell and Waters, 2010). These tools enable users to collaboratively underline, highlight, and annotate an electronic text, in addition to providing a mechanism to write additional comments on the margins of the electronic

document. For example, Delicious could be used in a course to provide an inexpensive answer to the question of rising course materials costs. RISAL (Repository of Interactive Social Assets for Learning) is another social bookmarking system used for supporting teaching and learning at the university level (Churchill, et al, 2009).

Social bookmarking tools have several purposes in an academic setting including: organizing and categorizing web pages for efficient retrieval; keeping tagged pages accessible from any networked computer; sharing needed or desired resources with other users; accessing tagged pages with RSS (Really Simple Syndication) feeds, cell phones and PDAs (Personal Digital Assistants) for increased mobility; allowing librarians and instructors the capability to follow students' progress; and giving students another way to collaborate with each other and make collective discoveries (Redden, 2010).

8.6.6 Micro-blogging

Microblogging is a web service that allows the subscriber to broadcast short messages to other subscribers of the service. Microblogging is the activity or practice of making short, frequent posts to a microblog. It is a type of blog that lets users publish short text updates. The posts are called *microposts*, while the act of using these services to update your blog is called *microblogging*.

Microblogging is a combination of *blogging* and *instant messaging* that allows users to create short messages to be posted and shared with an audience online. Social platforms like Twitter have become extremely popular forms of this new type of blogging, especially on the mobile web — making it much more convenient to communicate with people compared to the days when desktop web browsing and interaction was the norm (<https://www.lifewire.com/what-is-microblogging-3486200>).

Microposts are brief and can be written or received with a variety of computing devices, including cell phones. Microposts can be made public on a Web site and/or distributed to a private group of subscribers. Bloggers can usually use a number of services for the updates including instant messaging, e-mail, or Twitter. Although most microblog broadcasts are posted as text, some microblogging services allow video or audio posts. Social networking sites, like Facebook, also use a microblogging feature in profiles. On Facebook this is called “Status Updates”. Subscribers can read microblog posts online or request that updates be delivered in real time to their desktop as an *instant message* or sent to a mobile device as an SMS text message. The appeal of microblogging is both its immediacy and portability.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

4) What do you understand by Web 2.0 tools? Give some examples.

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8.7 LET US SUM UP

In this unit, we have explained the concept of e-learning and the instructional design process involving defining objectives, creating powerful learning environment, supporting e-learning, developing dynamic and sustainable content, its delivery, and evaluation, among others.

E-Learning is simply a mode of learning which requires different resources. We have discussed different types of e-learning resources including the web-based resources and their characteristics. It refers to technology-enabled, web-based delivery methods. It is both an approach and a strategy to facilitate and enhance learning through both computer and communication technology. In e-learning environment the learners get synchronous and asynchronous feedback. The performance of the learners is assessed through their participation in activities, project work, homework, examination, etc. E-learning thus fosters a multiuse environment, yet has the ability to track individual students and monitor their progress.

Like any other mode of learning, e-learning too has strengths and limitations. Success of e-learning depends, to a great extent, on the motivational level and learning skills of the learners. To make e-learning environment attractive, we use effective learning strategies suited to the needs of the learners. We have to devise or adopt an appropriate learning management system and learning content management system. E-learning management is electronic environment that enables the delivery, management and administration of range of learning activities, services, content and data. LMS and LCMS complement each other.

E-learning through Web 2.0 tools has transformed the very concept of teaching and learning. In this context we discussed the role and place of current developments such as Blogs, Wikis, Social Networking, Social Book Marking and Micro-blogging in promoting e-learning.

We hope the unit has provided you relevant content to enable you realize the objectives of the unit.

8.8 ANSWERS TO ‘CHECK YOUR PROGRESS’ QUESTIONS

- 1) E-learning (electronic learning) is a type of learning carried out, facilitated or supported by electronic gadgets, media or resources. E-learning encompasses electronic devices, services and information that are not always dependent or linked to online. However, currently, e-learning is popularly referred to that learning mostly facilitated through the Internet. In this context, e-learning has been defined as interactive learning in which the learning input/experience/content is available online and provides automatic feedback to the learner’s learning activities. The focus of e-learning is usually more on learning content than on communication between learners and teachers. E-learning covers a wide set of applications and processes such as web-based learning, computer-based learning, and all types of digital learning. It includes webinars, live online classes, real time communication and interaction between distance teachers and learners such as teleconferencing,

video-conferencing and computer-based conferencing, e-mail, live chat, surfing on the Internet (Web browsing), online reference libraries, video games, customized e-learning courses, etc.

E-learning has direct link with open and distance system. In ODE context, e-learning refers to utilizing electronic technologies to access educational curriculum outside of a traditional classroom situation. It enables students to access, investigate, analyse, construct and evaluate concepts and ideas encountered in their courses. It is useful to offer a course or programme completely online via the Internet and the web.

- 2) E-learning resources include: digital print, digital audio, digital video and web-based resources.
- 3) Learning Management System (LMS) is a global term for a computer system specifically developed for managing online courses, distributing course materials and allowing collaboration between students and teachers. It is a comprehensive e-learning delivery system, designed to provide efficient tools for creating electronic lesson plans, class assignments, tests, threaded discussions, video conferencing and discussion forums, etc and to track the progress of individual students in a course including completion. The institution providing e-learning manages the entire learning process through LMS. It is thus a software for planning, organizing, implementing and controlling the learning process. It enables the delivery, management and administration of a range of learning activities, services, content and data.
- 4) In contrast to Web sites where people are limited to the passive viewing of content, a Web 2.0 site (or tool) may allow users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community. Web 2.0 offers revolutionary new ways of creating, collaborating, editing and sharing user-generated content online. Web 2.0 tools can be used to enhance teaching and collaboration among teachers and students as well as increase professional collaboration between and among educators. Examples of Web 2.0 tools include: social networking sites, blogs, wikis, Social Networking, Social bookmarking, and Micro-blogging, among many others.

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Suggested Readings

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8.10 UNIT END EXERCISES

Unit End Questions

You may write brief notes or full-length answers to these questions in your own interest. It might help you during your preparation for examination.

- 1) What is e-learning? Explain its pedagogy and design process. (1000 words).
- 2) Discuss different types of e-learning resources. (500 words).

- 3) Explain the utility of digital content creation tools in development of e-resources. (500 words).
- 4) Explain the significance of LMS and LCMS in delivering e-learning. (1000 words).
- 5) What do you understand by Web 2.0 tools? Explain their relevance in the present day world. (1000 words).



Questions for Critical Reflection

- 1) What do you think are the limitations of e-learning in comparison with the predominant ODL practices?
- 2) Though e-learning offers new teaching and learning environments, it poses serious challenges to the academic staff of concerned institutions in terms of expecting them to assume new responsibilities and to acquire a range of new skills and talents. Do you think these challenges are easy to overcome? Justify your answer.
- 3) Do you think Web 2.0 tools rendered traditional media outdated in their reach and appeal? Justify your answer with suitable examples.

Activity



Select any tool of your choice and convenience/comfort from among the respective websites mentioned under sub-sections 8.4.1 to 8.4.9 of section 8.4. Try to use the selected tool and record your experiences on a separate sheet of paper. You carry it with you to share your experience in using the tools with your colleagues, academic counselors and resources persons during any scheduled opportunity you get at your study centre.