CHAPTER 7

BLOGS IN E-LEARNING

7.1 INTRODUCTION

Social networking sites dominate every other interactive social media sites in the semantic web existing in the World Wide Web. Recently, many social interactive websites have evolved for assisting and enlightening the social activities of various kinds of web users. Social networking users are making use of interactive websites for chatting with friends, discussing with technical experts, entertaining with amusement activities, such as watching movies, playing games, sharing entertainment related links and watching individual’s personal interest contents on their favourite social sharing sites. Most of the users who use the social network are learners, and every day, the growth and needs of these users are abruptly ‘increasing’. Thus, it would be an added advantage for the learners to learn from larger social web communities, where a pool of learning contents is available. The learning contents are widely spread over the web. They exist in various forms of representation such as web forums, information sharing websites, file hosting sites, and blogs. Blogs are the main form of social interactive information sharing sites. Plenty of blogs are available on various topics, discussing many current trends. Several research studies have been carried out on the use of social media, for educating the learners to develop knowledge based on their interest. Isolated knowledge is useless, as it is neither easily retrieved nor easily expanded. Learning is about internalizing and externalizing knowledge
and establishing relations between knowledge of various types from different sources. The semantic links between resources can be established in two ways: user definition and automatic discovery. Blogs created by various bloggers are available in the web as knowledge. It is necessary for the blog users to find the required blog content for their need. To improve the efficiency of e-learning through the use of educational blogs, a study of the effective retrieval of a personalized trusted blog retrieval system is needed. The retrieval system also ranks the blogs in the order of relevancy and produces the summarized blog content for the users. The supportive system is implemented along with traditional classroom teaching. This method of learning system encourages the learners to concentrate more interestingly because the learners also contribute their knowledge in the discussion of the topic. The supportive learning system involves more interestingly the participation of learners in the subject with evolving technology.

7.1.1 E-learning Systems

In the last decade, e-learning facilities have increased in academic applications. Their uses have risen in higher education and have almost changed the learning modes of the student communities. The engineering domain is clearly aware of this ever-growing scenario, and using it for implementing effective learning strategies to the modern young minds. And also the applications of electronic learning have started dominating various platforms that involve online, distance and traditional university education systems.

E-learning is a web application, which is used to share the content, and to manage, disseminate, and monitor the educational activities of an organization through online activities. A few of its highlighted functions are to manage learners, learning resources, learning object materials and activities, to control access, monitor the learning process and to make
evaluations. It can also be stated that the use of information and web technologies in learning is being encouraged through the use of e-learning systems.

7.1.2 Blog-oriented E-learning Systems

E-learning systems occupy many teaching-learning activities, and the importance of invoking efficient methods to develop online learning tools is becoming an eminent one. Upcoming trends suggest a mutual balance between instructor-guided and technology-oriented courses, especially in the emerging use of social interaction-based learning.

7.1.2.1 Striving Factors for Blog-led E-Learning System

The striving factors are the possibility of interchanging information enabled by e-learning platforms, the possibility of knowledge delivery by spreading it to the knowledge communities, and flexible and available resources and their features.

7.2 SUPPORTIVE LEARNING SYSTEM

![Figure 7.1 Supportive Learning System]
7.2.1 Functional Blocks

The supportive learning system shown in Figure 7.1 uses many functional models to automate some of the phases of the e-learning process. In particular, the system initializes a unit for collecting learning materials by setting target concepts in the input domain ontology and associate different course faculties to post blogs on a specific topic. The e-learning based supportive learning system mainly encompasses the Mind-map, Faculty posted blogs, Semantic annotator, Blog collector, Blog filtering system and the blog repository. The faculty created blogs are shown in Figure 7.2. The blog repository contains the collected blogs using the input ontology, and it collects the blogs based on the subject terms represented in the ontology.

![Notes for Engineering]

Figure 7.2 Sample blog created by Faculty.

7.2.2 Blog Pre-processing or Filtering

It allows transforming the original blogs from the blogosphere into a common format to be used by blog mining tasks. Thus, before applying
various mining techniques, general data preprocessing tasks have to be completed. The mind-map is the graphical representation of subject details that belong to the corresponding subject classes. In addition to the collected blogs using input ontology, the blogs relevant to the subjects are created and posted by the faculties. The faculty posted blogs are annotated, using ontological terms. The annotated blogs are stored in the blog repository.

7.2.3 Standardization of Methods and Data

The current tools for managing data from various resources may be useful only to their developers. There are no general tools or re-using tools or techniques that can be applied to the learning system. So, a standardization of data and the preprocessing, discovering and post-processing tasks are needed.

7.2.4 Integration with the e-learning system

The blog collection and filtering related tasks are integrated into the e-learning environment. All data preprocessing and post-processing are carried out into a single application.

7.3 MINDMAP

Currently there is an increasing interest in web mining and educational systems, making e-learning a new growing research community. After preprocessing the available data in each case, data mining techniques can be applied. Faculties create the subject mind map using the MindApp tool to outline the subject. It gives an overview of the subject. Figure 7.3 shows the sample mindmap for a subject operating system. This in turn, gives the functions of the operating system, process management, storage management, IO systems, protection and security etc,. Process Management deals with Threads. A thread in turn, contains Multithreading Models which are the
Many-to-One model, the One-to-One model, and the Many-to-Many model. The mindmap gives a clear idea of the subject and what it contains. This helps the learners to get an insight into the subject. Blogs are created for each subject according to the mindmap, and the relationship is created using the ontology. It gives the successor and predecessor of each topic in a subject. Blogs collected and created are converted to the common Blog Markup Language (BlogML) format. This facilitates the system with easy retrieval and a universally acceptable format. BlogML the formatted blogs contain the XML tags like blogpost, keyword, title, description, url, data, author, tags, frequency and contents. BlogML formatted blogs are stored in the blog repository for learner access.

Figure 7.3 Mind-map for Educational Domain
7.4 TEACHING-LEARNING SYSTEMS

E-learning systems have proven to be fundamental in several areas of education and in corporate organizations. There are many important advantages for people who learn through online, such as convenience, portability, flexibility and costs. However, the remarkable growing nature of modern knowledge due to the exponential growth of the World Wide Web, requires novel learning methods that offer additional features, such as information structuring, efficiency, task relevance, and personalization.

7.4.1 Recommendations based e-learning Systems

Recommendations are required in order to help learners in finding out the information relevant to their needs. The Semantic Web is an evolving development of the World Wide Web, in which the meanings of information on the web are defined; therefore, it is possible for machines to process it. The basic idea of the Semantic Web is to use ontology to accurately describe the contents in a machine readable way. These ontological terms can then be shared and retrieved on the web. Data are only meaningful in certain domains and are not connected to each other from the World Wide Web point of view, which certainly limits the contributions of a Semantic Web for sharing and retrieving contents within a distributed environment. Through the blog-oriented supportive learning system, this Semantic Web can be integrated and made use of, in achieving the needed recommendation based personalized blog search system.

7.4.2 Ontologies in e-learning System

Ontologies are the graphical representations of specific domain knowledge, and they are mainly used to represent the information in a hierarchical form, using various levels of classes. Ontologies and data
collection agents are an appropriate and integrated method for defining personalized learning experiences; i.e., the most adoptable order of learning activities is able to enlarge the perception level of learners with respect to some focused learning objectives. Indeed, ontologies can architect and conceptualize the educational domains of interest by understanding their conceptualization by identifying its equivalent subjects and organizing them by means of a fixed set of relations as depicted in many fields of various representations available in knowledge engineering. Ontologies are often engaged with problems related to distributed knowledge and the better integration of domain information. Most of the traditional retrieval systems use ontologies for collecting domain specific data from different sources. Considering such aspects of ontologies, they are being invoked in e-learning systems to collect various blogs from multiple sources of blog data available in the blogosphere. In a learning system, ontologies are used to represent various subject details in the form of classes and subclasses, with their attributes termed as properties of respective classes. The supportive learning system does make use of the input domain ontology, for retrieving domain oriented as well as focussed blog information on a particular topic.

7.4.3 Various e-learning Frameworks

As the usage of interactive social media sites has evolved vastly, online based e-learning systems have occupied and utilized the web resources. Along with this rapid development of interactive learning sites, various teaching-learning systems are also making great impact on learner communities. Most of the e-learning systems simply focus on providing the learning materials as they exist in the traditional text books. And a few of the systems have also contributed to provide domain specific subject materials. But, in the case of the proposed supportive e-learning system, it allows the users to discover their common interests, in terms of frequently visited or
referred blogs, by using user personalization. It also assists online learning by automatically presenting users with the blogs related to their interest. The novel hierarchical clustering technique has been implemented, thus saving users’ time searching for additional information and helping to educate them on the current topic.

7.4.4 Supportive Technologies for e-learning approaches

Electronics-based learning systems have attracted many learner communities towards achieving better learning. Though there are many approaches available, most of the e-learning supportive technologies have been designed to meet the needs and preferences of learners’ communities. In many cases, those e-learning technologies anticipate special utilities for using those learning technologies, according to the user convenience.

7.4.5 Preserving Trust among e-learners

Trust is considered as a complex analyst of the learner’s future activities based on past activities. In our day-to-day life, we always think about whether we can trust someone for something. Likewise, it is also important to calculate the trustworthiness of the bloggers, to decide what type of information would be highly useful, but at the same time with trust.

7.4.6 Trends in e-learning Technologies

1) Widely distributed blog readers are the learners and the tutors are referred to as the learning objects.

2) Multiple educational resources are integrated from different origin of information sources

3) Blog readers who are ultimately the learners of the system can access the content from anywhere.
4) Flexibility to use several learning resources of blogs

5) Personalization, knowledge creation, and acquisition.

7.4.7 Multimedia Based e-learning

Multimedia based educational resources play a dominant role in e-learning, and provide higher interaction with the use of rich graphical user interfaces. With the advent of multimedia based contents, the amount of available multimedia resources on the net has been increased drastically. It is important to integrate these educational resources for better e-learning experiences.

7.4.8 Learning System Models

In order to alleviate the limitations of the learning method supported by the existing learning systems, and to provide a new e-learning system, we need suitable models and processes for e-learning experiences, adapted to learner expectations and objectives in the new Web environment.

With this vision, the distributed nature of the Web brings efficient management of several content repositories, the integration of contents coming from different blogging sites and so on. The main component is that the majority of tutors use blog supportive e-learning platforms, with the consequence that more and better content has been created and delivered to the students. Currently, it seems that most tutors have been using e-learning functionalities, mainly to distribute content and to communicate with learners, using different learning object methods. Another important component is the standard of e-learning systems and less integration of digital repositories. These are the two key components of the sharing of contents, and the authors encourage training in e-learning standards and repositories to allow the sharing of more and more content. Most of the e-learning systems have
focused on the course design. However, support to the e-learning facilities for improving the learning experience has become a necessity.

### 7.5 TRADITIONAL VS SEMANTIC BLOG-BASED SUPPORTIVE LEARNING

An analysis shows that the students are more interested in community learning rather than in classroom teaching. Figures 7.4 and 7.5 show the comparison chart of the feedback collected from the students for a subject without and with evolving technology. This work emphasizes interactive social learning with the traditional learning methodology. A good number of learners are impressed, and have reported excellent feedback for the supportive learning system. The analysis clearly says that learners are more interested in community learning rather than classroom learning.

![Subject Without Evolving Technology](image)

**Figure 7.4 Learner’s Feedback for the Subject without Evolving Technology**
Learners are very much interested in traditional learning for the subject without evolving technology. Figure 7.4 clearly shows the view of the learners for the subject probability and statistics, data structures and design and analysis of algorithms. Our system is compared with the traditional system and Semantic blog based learning system. Our system yields a higher number of learners interested in subjects with evolving technology. Figure 7.5 shows the appreciated number of learners interested in social learning introduced by our supportive learning system.

![Graph showing learner interest in subjects with evolving technology](image)

**Figure 7.5 Learner’s Feedback for Subject with evolving Technology**

### 7.6 SUMMARY

- E-learning provides intuitive ways for learners to get knowledge on various domains through the electronic representation of web resources.
- Blog sites have evolved as interactive sources of rich information on various technical and current topics. Blogs
play a great role in e-learning, as they provide highly supportive information on various recent technologies.

- The mindmap is the representation of data, specific to a particular domain, and it is represented in an inter-linked way to correlate information focusing on a common topic. This kind of representation helps greatly to semantically inter-link the relevant data.

- Though many more e-learning standards and technologies are available, the semantic blog-based supportive learning system contributes highly to enhance the electronic-based learning processes.