**ABSTRACT**

With an aim to shift from being known as developing country to developed country came the concept of e-learning in India. It is indeed a promising reform with a positive outlook and no specified boundaries. e-learning refers to learning supported by electronic media. e-learning is a means of education that incorporates self-motivation, communication, efficiency, and technology. It is effective as it eliminates distances and subsequent commutes. It is the acquisition of knowledge and skill through electronic technologies such as computer and Internet-based courseware and local and wide area networks. e-learning refers to utilizing e-resources in the e-world. With the vast development of various technologies, learning today is no longer confined to classrooms with lecture delivery as the only method of conveying knowledge, rather, an electronic means of learning has continued to evolve. e-learning facilitates education using communications networks, and has made learning possible from anywhere at anytime using the Internet, wide area networks or local area networks. The students who used to spend their time in library searching for information in books and journals can now a days, use search engines and figure out the web sites for the information needed, thus making information sharing a very easy task.

Recently a lot of e-learning platforms-commercial or open source have also been developed. Open source allows source code of the software available to others which is free of cost. With open source, many programmers contribute to the development of a software package - ensuring (in theory) a bug-free version of software that is not intended for financial gain or proprietary ownership. Open source e-learning platforms have lately become an obvious choice whenever an elearning infrastructure is being designed. Open Content is a promising concept for certain fields of e-learning and Knowledge Management. 

**Abstract**

Together e-learning and open source applications have gained prominence. e-learning probably is one of the means by which education and training can reach greater to the number of people. The development of e-learning platforms and open source systems contribute to the ease of accessing knowledge at the higher education level.

The broadest e-learning utilization nowadays is the Learning Management System (LMS), which is considered, in the view of the International Forum of Educational Technology & Society (IFETS), as “a collection of e-learning tools available through a shared administrative interface”. A Learning Management System can be thought of as the platform in which online courses or online components of courses are assembled and used. Learning Management System (or LMS) is a software solution that enables the management and delivery of online content to learners. LMSs are web-based to make possible "anytime, anywhere, any pace" access to learning content and management.

**Problem Definition**

e-learning is perceived as one of the means by which education and training can reach greater number of people to ease the accessing of knowledge at the educational and vocational level. At the same time, the trend of e-learning in Jammu and Kashmir is not encouraging. The slow growth of e-learning in the state of Jammu and Kashmir can be attributed to various factors which includes about two decades of militancy, poor industrial infrastructure, difficult geographical locations,
different cultural and ethnic groups and unsound fiscal management during the past decade have been the major factors.
The overall objective of this endeavor is to study and critically analyze the present open source e-learning initiatives in Jammu and Kashmir and develop an effective and efficient frame work for utilization to bridge the knowledge divide in J&K. In fact, purpose is to understand the role of e-learning in reshaping concept of educational courses as well as vocational courses. Furthermore, with an aim to

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analyze the level of advancement of technology and effectiveness of open source initiatives in J&K and to encounter the knowledge gap between solutions provided by existing methodologies and demand of the society, a design model for implementing e-learning in J&K state is recommended.

Structure of Research Work

The entire study is divided into two parts.

Part first is devoted to the study and in-depth analysis of e-learning initiatives in Jammu and Kashmir. The findings have been enlisted on the basis on primary and secondary data used in this study. The outcome of this study disseminates information regarding various e-learning initiatives in education sector of J&K and innovative new methods of applications. It further explores the challenges being faced in implementing e-learning in J&K.

Second part focuses on studying commonly used open source softwares, and utilizing the services of the selected three Learning Management Systems. Finally, based on the results obtained from both the studies, a framework has been designed using e-learning tools so as to support open learning as an effort to bridge the knowledge divide in J&K.

The present study is discussed and presented in the six chapters of Ph.D thesis. A brief description of each chapter is given below.

Ⅰ Chapter - 1

This is an Introductory Chapter and consists of three sections:

In section first, a conceptual analysis of e-learning is made. Besides, e-learning standards, open source e-learning, and their standards are precisely explained. It further highlights the different modes of learning, and differences between them. Learning management system concept is also explained.

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In section second an attempt has been made to know about the growth and evolution of e-learning as a process on one hand and emergence of e-learning as a major technological revolution on the other hand. Further, e-learning initiatives across country and specifically in J&K are discussed. A brief critical analysis of advantages and disadvantages of e-learning has also been done.

In section third, concept of open source e-learning, and learning management system, has been explained. Selection process for selecting top three open source elearning LMS has also been discussed. Lastly, the overall focus and the major objectives of the study have been highlighted.

Ⅱ Chapter – 2

In this chapter a review of existing literature related to the field is made and a theoretical framework of the study is described. The research consists of a qualitative study supplemented by literature studies, guided by surveys to identify field leaders, augmented by quantitative perspectives where possible and informed
through case studies so as to identify commonalities in centers of excellence. An extensive literature survey coupled with review of various articles/ papers/ IT enabled e-learning and e-education related projects are also done. Various papers from journals are reviewed to get wider understanding about e-learning. In addition, various authored books, edited books, govt. publications, referred journals, research articles, and international/ national/ regional/local dailies is also reviewed to find out gaps related to the field selected for intensive study.

**Chapter – 3**

This chapter is devoted to research methodology used for conducting the present study. The methodology starts with defining the research problem, identifying data sources, designing research approaches, and research instruments. The reliability of the outcome of the study will depend on the reliability of the methods used to reach at those conclusions. This describes and motivates the methodology. It also includes a description of the tools used in data collection and defines data sampling techniques. The research methods are based on: historical study, study of relevant documents, data collection through questionnaires, comparative analysis and lastly, evaluation of results.

**Chapter - 4**

In this chapter data analysis related to various variables selected for intensive study has been made. Data has been collected from the respondents working at the University, College, and Semi–urban based Higher Secondary Schools. The major variables selected for this study include: Usability, Purpose, Availability, Awareness, Level of Engagement, Operational experience, Opinion, Impact of ICT, Availability of resources, Technical & maintenance issues, Impact on students (teachers point of view), Self Perception (towards e-learning), Self Perception(towards students), Benefits(teachers point of view). These have been used to know the perception of teaching faculty in above stated educational institutions regarding e-learning and EDUSAT initiatives as most effective way of imparting education to the learners. However, an in depth perceptional analysis of each one of the above mentioned variables has been described graphically and made elaborative.

**Chapter - 5**

Based on the results and findings of the study two e-learning effectiveness prototypes have been designed. The designed prototypes aim at enhancing the vocational and non-vocational educational skills. The architectural design of the purposed prototypes aims to enhance the skills of the clients by offering them the flexibility to negotiate with the teaching style as well as with the learning content. Furthermore, the designed prototypes have been explained with respect to four tier architecture consisting of system software layer, middle layer, application general layer and application specific layer. System software layer consists of TCP/IP, FTP, HTTP, SMTP, RDBMS components. The middle layer manages the Libraries & APIs and the Data store access components. The application general layer deals with the designed application’s components i.e. Calendar, File management, Mail management, Web delivery, DB interface for database access. The top most layer i.e. the application specific layer shows the working components like assessment, course delivery, digital library etc. of the designed prototypes. An academic support has been sought from already three validated and approved LMS. The application of these prototypes at a preliminary level has been tested over one hundred
beneficiaries. The response observed has been described graphically which of course shows the positive trend.

Chapter – 6

In this chapter concluding observations are made and recommendations to overcome the shortcomings and challenges observed in EDUSAT policy of e-learning have been suggested for improvement purpose. The prominent problems and challenges observed under this study include, Politico-administrative hurdles, Socio-cultural barriers, Geographical-Demographical factors and finally technological problems. To overcome these problems it is recommended that designed prototypes may be implemented at the operative level.

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