EXECUTIVE ABSTRACT

Engineering Education plays an important role in the development of skilled manpower, enhancing industrial productivity and also makes notable improvement in the quality of life. Basically it offers courses and programmes in engineering, technology and its allied disciplines. Engineering college libraries like other academic libraries are expected to maintain quality and standards both in teaching and research. The libraries in engineering institutions play a crucial role in meeting the information requirements of users of professional disciplines.

In the digital age, libraries acquiring more and more electronic resources (e-resources) because of its perceived benefits, such as easy access to digital information and its comprehensiveness. Due to dramatic increase of e-resources in libraries, the collection, acquisition and proper management for better access to these resources always puts a high demand to the library professionals. This forces the libraries to devise strategies to manage and deliver e-resources conveniently related to engineering and its allied disciplines. In order to make the teaching and learning more effective , the academic community need right information sources to consult that are expected to available in the libraries .Thus library acts as the facilitator and provider of need based information to highly academicians and intellectuals.

The use of latest form of e-resources in libraries began with the development of the machine readable catalogue format in the 1960s. E-resources have been increasingly accepted in Indian libraries and libraries around the world. Their popularity has been increased due to its accessibility, portability and storage. Last decade has witnessed a phenomenal increase in the use of e-resource such as e-journals, e-books, and full-text / aggregated databases, digitized and born-digital documents, digital images, streaming video, sound, audio books and internet/web resources in Indian libraries because of its merits over print resources. As a result, it has a significant impact on libraries and its users in both operational and organizational aspects besides changes in library usage pattern and budgets.

The increasing acquisition of e-collections and providing seamless online access to users have posed major challenges, which includes changes in libraries workflow such as selection,

acquisition, copyright, license agreement, negotiation, cataloguing, development of access interfaces, etc. In addition to the above, how to acquire and manage these collections in most efficient ways to ensure optimal access to users (students and faculty members) is became an issue before the library professionals. Consequently, methods, norms and standards are being developed for the management of e-resources in libraries through continuous research and innovation.

Due to influx of e-resources coupled with recent technological innovations lik e-books , e-journals, e-databases etc. the library users often compare these services with services of libraries and expect similar simple and convenient access of e-resources from libraries. Corollary, these developments became a challenge for librarians to manage the collection development of e-resources. Many librarians found management of e-resource as critical because existing integrated library management systems (ILMS) are not capable enough to support the management of e-resources. The development of ERMS either through in-house expertise or commercial/proprietary product is a path breaking innovation in the line of library management which meets these challenges. It is a one-stop solution for managing and accessing e-resources which develop with specific standards and compatibility.

The publications of books and journals have largely moved out from the print world to electronic publications. Maintenance of both form of resources brought fundamental change to libraries system The other factor such as cost benefit analysis should also be considered when libraries begin to invest in e-resources which can help in strengthen the value of its subscriptions-resources give attention to a range of legal issue including licensing. 'Licensing' in case of subscription of e-journals must be negotiated with content provider and executed as contracts. While negotiating on licensing, librarians should look into 'authorized users and sites', 'archiving policy and perpetual access', 'copyright and fair user', 'usage statistics', 'liability for unauthorized use', 'privacy and confidentiality', 'cost', 'technical considerations', 'indemnification', 'terms of payment and termination', 'governing law' etc.

E-resources play an important role in higher education in India. 'Library', 'Resources' and 'Education' are three indissoluble and indivisible concepts. These three are being vitally and concomitantly related to; and co-existent with each other. Currently libraries provide 'one-stop solution' for print and e-resources, including titles from commercial aggregated databases and free titles. The e-resources have placed more demands for research and

academic purpose. It becomes more popular because of their incredible benefits to organizations, students, faculties and research scholars.

Thus the advent of IT has made a great impact on library services by including materials accessible through electronic means and by providing the assistance of library professionals in navigating and thoroughly analyzing the tremendous amount of knowledge – its explosion with a variety of digital tools and techniques. As a result of this changing environment, there is a strong demand and increase in the use of electronic information sources. This situation further made a great impact on the management of electronic information in the higher learning institutes including engineering and technical institutes in the country. Hence there is every need to study the existing situation as well as to identify the areas to be improved. At the same time there is an urgent need also to study the procedures followed for the management of access to electronic information sources as the future of library science and library profession tremendously depend on the knowledge and attitude of the users in accepting the changing nature of information sources in pursuing their study and research at fullest extent.

In view of the drastic growth in the number of engineering colleges as well as increase in the amount and use of electronic resources, the present studies is important and also demand a further investigation to comprehend their proper management for better access to these resources. Various criteria for management of electronic resources related to financial provisions are highly concerned in this regard. This will help to identify the best possible practices so that engineering college libraries can adopt effective and meaningful management procedures applicable to both government and private engineering colleges in the state.

Keeping in view the above factors, it is thought fit to investigate the problem entitled "Management of Access to Electronic Information Sources in the Engineering Colleges of West Bengal: An Analytical Study from Users Perspective". A few studies on electronic resources are available in literature; mostly they are restricted to few aspects and presented in the form of research papers. There is no comprehensive and systematic study on this topic undertaken so far.

This study is only confined to 36 Engineering College libraries approved by the All Indian Council of Technical Education(AICTE) , affiliated to Maulana Abul Kalam Azad

University of Technology(MAKAUT)formerly West Bengal University of Technology (WBUT), established up to 2012 . The present study encompasses various aspects of the management of access to e-resources in the engineering college libraries such as Information Technology (IT) infrastructure, selection, acquisition, evaluation, license agreement, and mode of access to e-resources.

As the present study is an analytical study, it merely examines the nuances of management of access to e-resources in libraries. Moreover, this study is conducted only in thirty six engineering college libraries in West Bengal approved by the All Indian Council of Technical Education (AICTE) , affiliated to Maulana Abul Kalam Azad University of Technology (MAKAUT)

It has been understood from the review of literature that the growth of electronic resources and their use in engineering college libraries is increasing day by day in a cost effective manner and their compatibility to the available infrastructure in libraries. Moreover, the electronic information can be accessed at anytime and any where , and this has made the library professionals thought of selecting , acquiring and properly managing so as to satisfy the information requirements in a comprehensive manner. Most of the libraries are moving towards acquiring electronic resources. The importance of collection development policy and the factors related to that have been highlighted by many authors. The managerial aspects of such resources for better access have been investigated. In view of the above the present study demands further investigation to comprehend there proper management for enhancement of access to these resources for better use is highly concerned in this regard. Therefore it is thought fit to explore the problem in a systematic manner.

In the present study, data were collected from both primary and secondary sources. Structured questionnaire method is being used in the collection of primary data. The present study is based on both Primary and Secondary Data. Primary data are collected through questionnaire and secondary data in certain places are collected through various sources of publications such as institute Brochure, Know your library, Magazines and also from the websites of selected engineering colleges. In addition to that, data were also collected on critical points through observations such as attitude of library staff, physical condition of library etc. These are used defining the state of art of the engineering college libraries undertaken for the study.

The data processing and analysis is mainly focussed on bringing out the number of criteria considered relating to different aspects on management of e-resources by the 36 libraries covered under study. The notable observations are supplemented by bar diagram, pie-chart, and graphical presentations wherever possible for a better understanding of the observations made. The observations are tabulated systematically and presented sequentially maintaining the logical flow of analysis.

A holistic approach of sample 36 libraries of engineering colleges both in government & private sector is presented in this section for a general understanding of the procedures followed by these engineering colleges for the management of access to electronic information for its better utilization and access. In this connection it is thought fit to pertinent to present a brief account on the colleges , network infrastructure facilities prevailing in these libraries, availability of different electronic resources particularly those prescribed by the AICTE along with various aspects of management of these resources namely awareness and knowledge regarding selection, acquisition, evaluation, license agreement , mode of access to these resources.
 Attention has also been given to the major impact of electronic information sources on library as a whole particularly on the users, their satisfaction level, preferred methods of searching are also highlighted. The budgetary provisions for management of electronic information sources in these libraries are also discussed in this regard

In the concluding part the present study have intended that the concept of library management has been changing significantly with the growing demands of electronic resources into library collections. Today e-resources management has been considered as one of the important components of library development. After automation and digitisation of library resources, there is a strong challenge for library professionals to manage this vast amount of e-resources. Today, the library users are open to multiple sources of information and expect quality material within shortest possible time irrespective of the format of information. Proper understanding of customer's perceptions along with service quality dimensions is essential for library professionals to recognize the users' expectations.

The original model of integrated library system was designed primarily for print materials but it lacks the functionality needed for managing subscription to electronic resources. It has been observed that electronic resources in the last few decades have been growing with its volume

variety and nature to dominate library collections. As a result a new genre of software called the Electronic Resource Management System (ERMS) has been emerged. This type of comprehensive system approach has the ability to manage all types of library resources, including print, electronic and digital materials with support for the metadata formats and collection development policy needed to acquire and describe all formats, rather than, managing e-resources as a separate activity