CHAPTER 2

REVIEW OF RELATED LITERATURE

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- E-Journals growth and penetration in libraries
- E-Journals collection development and management
- Conclusion
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REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

A thorough and systematic survey of related literature has been carried out, from 1996 till date, with a view to understand the state-of-art of the topic as well as to get a hold on the previous studies undertaken on “E-Journals Collection Development and Management”, nationally and internationally. The variables, data collection tools and statistical techniques used in the present study have been selected after the exhaustive review of the available literature in the field.

The review presented below includes literature pertaining to the growth of E-Journals and E-Resources as a distinct information resource, as well as their collection development and management aspects, from within the country and from outside the country. To know more about E-Journals / E-Resources and its collection development issues, first step was to go through articles/papers written in various journals, conferences and websites and portals. Scanned through a good number of library and information science journals available in print as well as online, online databases of full-text journals, abstracts and indexes, and searches made on various search engines like Google, Google scholar, papers presented in number of International/National conferences/Workshops helped in getting few core and relevant literature. A total of 102 relevant papers were reviewed with a view to justify the need and relevance of the study.

The summary of each item reviewed are presented in this chapter under the following broad headings:
2.2 E-Journals Growth and Penetration in Libraries

2.3 E-Journals Collection Development and Management

2.4 Conclusion

2.2 E-JOURNALs GROWTH AND PENETRATION IN LIBRARIES

Odlyzko (1996) reports that the development of the E-Journal is the inevitable outcome of two forces. One is the technology pull. More and more tools are becoming available for scholars to run the publishing business by themselves. The second force is an economic push caused by the exponential growth in scholarly literature. He opines that given the proliferation of E-Journals, academic libraries should start to think of how to handle certain problems that are found with the use of E-Journals. As libraries are making commitment to developing an E-Journal collection, they must also develop a collection development philosophy for E-Journals, subscriptions method, policy decisions and related issues among others. As there are a wide range of E-Journals available to the libraries, the selection decisions should be made within an explicit collection development policy.

Astrocraft and Langdon (1999) report the results of a research study which investigates benefits and barriers to the purchase of E-Journals in university library collections in UK and North America. Research findings demonstrate the growth of E-Journals, and their benefits, the issues of access to the E-Journals in university libraries, including availability, methods of access and delivery plans, promotion and evaluation. The study looks at various cost factors, site license issues, purchase decisions, consortia purchasing and archival issues. The study also highlights the current considerations affecting the purchase of E-Journals in university collections.
Frazer and Morgan (1999) states that libraries are always facing questions like whether or not electronic full text access facilitate elimination of print subscriptions that actually save money. The Authors points out the major issues to consider before a decision on E-Journals for print is taken: adequacy and sufficiency of hardware and software in the library and campus to support electronic access; suitable solutions to various cataloguing and bibliographic control questions relating to electronic journals; faculty input; consideration of “areas of excellence” which the university may be pursuing. They clearly state that these issues need to be considered when making cancellation decisions regarding print journal version.

Montgomery (2000) reports the result of a study to examine the impact of E-Journals on library operations, staffing, infrastructure and cost at the Drexel University Library. The study finds that with the access to E-Journals there is an increase in computer network infrastructure, and staffing costs. However, this also resulted in a decreased requirement for space and technical services for print journals. Photocopying is reduced by 20% and reference questions by 8%. The library created a new position of Electronic Resource Manager who is responsible for developing E-Resources i.e. to negotiate and review contracts and interact with consortia for purchase of E-Resources.

Gardner (2001) examines the impact of E-Journals on library staff of the Association of Research Libraries member institutions in the United States. It is found that the changed workflow in the libraries increased the recruitment of library staff. The results show that the selection processes for E-Journals are more complicated than that of print ones. It is also noted that the amount of work required to update bibliographic records and holdings of E-Journals is much greater than for print journals.
Montgomery and Marion (2001) investigate on the changes in operations of an academic library due to migration from print based journal collection to E-Journal collection. The findings from the study show that different departments present very different patterns of costs associated with print or E-Journals. Library services have been dramatically affected by the advent of E-Journals.

Nicholas (2001) discusses the impact of E-Journals on the internal working practices within the library of University of East Anglia. The author stresses the need to redefine roles and workflow arrangements for the ongoing maintenance of this collection and observes that involving library staff at all levels is a successful strategy in the promotion of E-Journals to the university as a whole. He also points out the role of the electronic resources librarian in facilitating these changes, especially in terms of the need to make links across departments and groups within the library and throughout the institution.

Rawson (2001) describes the introduction of E-Journals at Queen’s University Belfast and discusses library management issues in the areas of funding, statistics, storage, use of agents, control and off-campus access etc. in each case comparing the situation with E-Journals to that with print journals to identify the problems solved or created by the new medium. He gives a detailed account of the growth of E-Journals from the year 1997 to 2001.

Suzanne (2001) reports the results of a research study on the budgetary, collection development and user satisfaction of E-Journals and print journals in the disciplines of political science and economics. The results show that the annual paper subscription price of the core printed journals in the field of political science and economics increased tremendously during the academic year of 1998-2000. 60 current
titles and 24 JSTOR archival titles were available online compared to 119 journals that were still unavailable online. Web based resources such as Science Direct, Springer, Lexis / Nexis, Academic Universe, Ebsco and IDEAL provided full text access to currently available journals while JSTOR offered electronic access to archival materials of the core journals in the disciplines of political science and economics. The electronic usage statistics of currently available expensive online titles indicates the total use of some of the titles. Study also finds that remote area use of these titles was higher than library use.

Chakraborty (2002) reveals that E-Journals have now been recognised as a major link in scholarly communication. The timely publication, ease in delivery, incorporation of multimedia contents, hyper linking and search facility etc. are some of the feature, which have attracted interest of both library and scholarly communities. The article deals with importance, definition, evolutionary trends and access of E-Journal. It discusses along with advantages, the burning issues and challenges to the present and future library and information professionals. The article ends with the comment that the E-Journals is a result of the explosion of Internet use, particularly World Wide Web technology.

Gayatri and Sridharkumar (2002) describe the shift from print to E-Journals and explain how information professionals should handle this new format of information. They give a detailed account of different issues relating to E-Journals such as access related issues, license agreement, negotiation with publishers, training of users and library staff to handle E-Journals. They also point out the need for archiving E-Journals.
Hunter (2002) provides an excellent overview of the history of transitioning to electronic serials. She points out that, even though electronic-only subscription models are available from some major publishers since the mid-1990s, the majority of academic libraries do not begin to embrace this subscription model until 2000. Hunter finds that libraries based their decisions to “go-e-only” on several factors: an inability to support both print and electronic format, attractive cost saving for electronic only subscriptions and the need for realised saving with regard to shelf space and binding costs.

Dulaymi et al. (2004) discuss the growth of E-Journals in academic libraries in Saudi Arabia since 1992. The study investigated the changes in E-Journal and print journal collections and acquisitions in terms of number of titles, type of provisions and acquisition, budgets and costs between the years 1995 and 2000 and the findings of the study reveals that the percentage of E-Journal collections sharply increased in 1996 by 98%, which corresponded to an increase in their budget of 125%. At the same time the size of print Journal titles decreased to a considerable extend. E-Journals are mainly in bibliographic form, which again do not fulfill the information needs of the users. The findings of the study would also help SAL managers consider some important criteria in E-Journals collection management such as aggregating journals from many publishers to integrate full-text into library systems; exploring cooperation and consortium development efforts; providing Arabic and English language E-Journals publishing systems; networking through resource sharing and cooperative collection development; providing a full integrated collection in both print and electronic formats via OPAC; redirecting existing funds to adjust staffing and resource requirements;
addressing selection criteria of scholarly journals and evaluating procedures in a written policy.

Kumbar and Karisiddappa (2004) explain that there is no standard and accepted precise definition of E-Journals and often E-Journals are called virtual journals, paperless, online journals, scholarly E-Journals, networked journals and CD-ROM Journals etc. Basically E-Journal is one which is available in electronic form and can be accessed using computer and communication technologies. With the emergence of internet, the prominence of E-Journals is felt greatly. E-Journals are serials which are produced, published and distributed nationally and internationally via electronic networks.

Rockliff (2004) discusses the experience with the E-Journals in The Queen Elizabeth Hospital (TQEH) Library. The South Australian Human Services Library Consortium has a close impact on the TQEH Library of becoming an electronic library. The experiences of the earlier years show that E-Journals have been a success for the library and its users. The users need a lot of training to meet their needs. The library has gained cost benefits as well as other non-measurable benefits by cancelling all print journals where electronic access was readily available. The users of the library have adapted well and are a group of a well suited to the application of the new technology. For these reasons, E-Journals and other e-services have a strong future in the library.

Sreekumar (2004) gives a detailed account on the growth of E-Journals and the need for long term preservation of the vast treasure of scholarly E-Journals and E-Resources gathered by the IIM Consortium over the past years. Digital Archiving aims at the long – term storage, preservation and access to information that is born digital or for which the digital version is considered to be the primary archive. Long-term preservation and
archiving of E-Resources is an unsolved problem for libraries that need continuing access to information over extended periods of time, for researchers who rely on a cumulative record of data and scholarship, and for libraries, archives, museums and other cultural institutions whose mission is to preserve knowledge.

**Abdulla (2005)** in a case study explains the rapid development of E-Journals at the United Arab Emirates University (UAEU). It describes the scope of the journal migration project and its impact on library operations. The study shows that E-Journals have added enormous resources to the collection, improved service, enhanced access to journal literature, increased its usage and decreased the demand for document delivery of single articles. The study also indicates the challenges of offering E-Journals and UAEU’s concern about removing irrelevant titles, control cost and retain the freedom to make changes on its journal collection.

**Angrosh (2005)** studies the importance of print and E-Journals in the dissemination of information by applying a value chain analysis. The study focuses on obtaining an understanding in terms of cost of productions and cost drivers associated with the journals. The value chain analysis advocated that E-Journals are the viable and cost-effective medium for creation and dissemination of information. The initial cost of establishing an E-Journal is lower than that of a print journal. The structured annual cost of publishing E-Journals reduces over years. The study also suggests that by addressing the crucial issues of authenticity and validity of articles and thereby publishing valuable peer reviewed scholarly articles, E-Journals can play a major role in meeting our increasing demands effectively.

**Zhang and Haslam (2005)** explain the University of Nevada, Las Vegas (UNLV) libraries movement towards a predominantly E-Journal collection including
evaluation of library collection and re-evaluation of organisational structure, staff resources and workflow to find the best ways to provide library users with timely and reliable access to electronic resources. The study focuses on the changing workflows in the implementation of electronic resources. The study consists of sections: development of the electronic resources collection, reengineering acquisition/periodicals, new responsibilities and new skills, next steps and conclusion. The findings of the study state that the composition of the libraries journal collection has been dramatically changed. The percentage of print only subscriptions decreased from 59 percent in 1990 to 20 percent in 2004, while E-Journals jumped from 35 percent to 75 percent. The percentage of libraries materials acquisition budget spent on electronic resources rose by at least 10 percent each year. The proliferation of electronic resources have a major impact on the acquisition/serials activities from handling physical objects to initiating and ensuring ongoing access to electronic resources. It has resulted in a work flow that requires ongoing review and change to accommodate the constant technological developments that have impacted the management of information delivered electronically.

Sreekumar and Sunitha (2006) narrate the community acceptance of E-Journals at Indian Institute of Management Kozhikode and explain the strategies adopted by the library to keep pace with the trends in technology, scholarly publishing market, the LIS profession, the user demand and in winning the hearts of the user community. The authors point out the features, facilities and functionalities of E-Journals and gave a detailed account of the upcoming scholarly communication models exist the world over. They explain the growth of E-Journals at IIMK and how E-Journals are accepted by user community. They narrate the different marketing and
outreaching strategies adopted by IIMK for promoting E-Journal usage and also gave a
description about the usage monitoring methods adopted at IIMK with the help of
student community for increasing the usage of E-Journals. They summarise that
community participation in the promotion of E-Journals is a pre-requisite for
community acceptance as well.

Dollar et al. (2007) describe their experience of migration from print to
electronic resources to manage the electronic resources at the Cushing/Whitney
Medical Library at the Yale University. The case study by the researchers found that
hundreds of print journals were shifted to electronic only. This transition from print to
E-Journals has meant better services to library patrons and help advance the research
and patient care missions. The challenges of managing E-Journals have forced the
library staff to work together more collaboratively and have created a more cooperative
work environment. The study recommends that the library staff must be willing to
make fundamental changes to traditional library roles and to take on new roles to keep
a medical library vital in an electronic age.

Crum (2008) advocates providing a unified, seamless interface one stop
shopping for the full range of journal literature available and of interest to library users.
He emphasises on the importance of providing this access. The author reviews the tools
available for making journal collection accessible and analyses the categories of journal
literature to which a library could provide access such as print and individual electronic
titles aggregated collections and big deals, free titles, free articles and articles available
for purchase. He also discusses the challenges associated with each category as well as
tools available to overcome these challenges. The author summarises with a brief look
at future trends that will affect the ability of libraries to provide coherent, seamless access to journal literature.

Hawthorne (2008) describes the history of the development and use of E-Journals and electronic resources in libraries in the United States. He provides an overview of the major developments in the field with a focus on the library catalogues, electronic databases, E-Books and E-Journals. He intends to convey the broad sweep of change that has characterised these electronic resources from 1960’s to the early 2000’s as well as a sense of the underlying issues that remain the same. The author opines that an understanding of the history of the development and use of these resources may lead to a better understanding of the current environment and provide inspiration of the future and he describes that whatever new electronic resources or ways of accessing them become available in the future, libraries will enter the fray with both enthusiasm and trepidation along with the will to provide the best possible resources and services to their patrons.

Easton (2009) reports the results of a comparative study of the growth of print and E-Journals in Stanford University for five years from 2001 to 2005. The results show that there is a tremendous growth of E-Journals during these five years period and finds out that there is 63% increase in the E-Journals subscription during this period and the university initiated a tremendous replacement of print journals with electronic only. The study also points out the need for providing additional professional staff for managing E-Journals.

Mirza (2009) reports the results of a study conducted at six public sector's-general university libraries from Federal area of Pakistan to review the current status of E-Journals and electronic resources and services, their extent and to find out the
problems being faced in providing these services. The findings of the study show that only one (16.7%) university library has written collection development policy for E-Resources, while five (83.3%) university libraries have no written collection development policy for E-Resources. Two (33.3%) university libraries have, allocated up to 10% of their collection development, budget for acquiring E-Resources, while other two (33.3%), university libraries answered that, there is no allocation, but they are spending on acquiring, E-Journals and E-Resources according to their needs, remaining two (33.3%) university libraries answered that there was no allocation in their budget for acquiring E-Resources. Notice board are being used by five (83.3%) university libraries as a marketing tool for promoting their E-Resources, while library orientation is being used in four (66.7%) university libraries. Only one (16.7%) library is using routine mailing (16.67%) for this purpose. Four (66.7%) university libraries have mentioned that lack of training opportunities for library professionals was a hurdle in providing electronic resources & services. Three (50%) libraries have mentioned that lack of resources was an obstacle to provide E-Resources and services, but 83.3% university libraries are not satisfied with their available E-Journals and E-Resources services.

Kickuk (2010) notes that “many academic library staff express feelings of being overwhelmed or frustrated by the rapid growth and violability associated with electronic collection and their impact on public and technical services.” This is consequent upon the rate at which the library acquires E-Resources. The author undertook the study in order to analyse the growth of E-Journals and E-Resources and the internal and external impacts. The implication of this study for academic libraries is
that the growth of E-Resources needs to be properly managed if users must enjoy the full potential offered by the use of the resources.

2.3 E-JOURNALS COLLECTION DEVELOPMENT AND MANAGEMENT

Vogel (1996) warns that selection of E-Journals and E-Resources outside the guidance of a collection development policy leads to haphazard unfocused groupings of resources that may or may not support the mission of the library. The author suggests a separate collection policy for E-Journals and E-Resources, and a policy that address the information formats; technological implications both for the library and the institution; and management and staffing issues of supporting electronic resources, and whatever is the policy it must be flexible and need to be interpreted sensitively within the context of local needs, priorities and culture.

Kennedy (1997) notes that the current growth rate of scholarly publishing threatens the economic health of university library budgets and makes it increasingly difficult for scholars to sort the worthwhile from the valueless. He also adds that libraries see the prices of scholarly journals rise by over 10 percent each year. At the same time, the fraction of university budgets devoted to libraries has been generally declining, electronic resources is seen by most librarians as a partial answer to the problem of their ability to acquire an increasingly limited share of the world’s literature.

Nisonger (1997) points out the basic library collection management issues regarding E-Journals, including selection, budgeting, policy making, collection evaluation, and preservation/archiving. The author explains that staffing and budgeting for E-Journals can be organised on subject based or format-based approaches, or some combination of both. He points out that E-Journals selected through the same three-
stage process used for print journals: identification, evaluation and selection. Most of the traditional criteria for print journals are also applicable to E-Journals, but additional criteria are super imposed on them. The cancellation and weeding of E-Journals have not been addressed by the profession but will assume more significance in the future. He also observes that there is a need for new client centered evaluation methodologies that focus on availability and accessibility rather than ownership.

**Gabriel (1998)** presents a summary report of the Association of College and Research Libraries New England Chapters Serials Interest Group’s Fall 1996 program which dealt with E-Journals. The report addresses various collection development issues. The report points out the public service issues relating to the E-Journals viz., access related issues and archival issues, and recommended for co-operate archiving. The report also addresses system issues and recommended for formulating a collection development policy for E-Journals and identified several major areas to consider.

**Miller et al. (1999)** look at the issues revolving around E-Journals collection development, including their role in distance education, and how libraries should proceed in the near future. Libraries within all institutions of higher education are viewing serial collection development in a new light. According to them, E-Journals are one means of making off-campus research more closely resemble that on-campus. They stress on the need to increase E-Journals subscription to improve the research activities of distant learners. They also point out that the terms such as ownership, access, copyright rules, definition of the site, authorised users, language of the agreement etc. should be familiar to library professionals while going for E-Journals subscription.

**Chu (2000)** reports the result of the survey to investigate the response of librarians of 95 major academic libraries in the United States towards E-Journals. The
author reports that the top five libraries cited reasons for acquiring E-Journals as: ability to provide remote access; simultaneous use by more than one user; timely access; searching capabilities not found with print journals and accommodation of such unique features as links to related items. The study observes that libraries benefit from E-Journals and it provide users faster, more convenient 24-hour desktop access from home or campus.

Gessesse (2000) examines the problems that an academic library must consider in order to align its collection development activities with the environment of digital librarianship in the twenty-first century. The author opines that collection development policy must be written or revised to include E-Journals and E-Resources as another format for library’s collection development. Library must reserve a significant portion of its acquisitions budget for E-Resources and E-Journals. Besides, in an attempt to have a well-rounded and balanced collection, the librarian needs to keep abreast of the current changes in format and cost factors affecting databases and current materials on the market. He or she needs to train and retrain herself / himself about literature selection tools and the trade bibliographies available on the market including electronic database vendors. The study reports that the availability of E-Journals and E-Resources made the libraries to reexamine and redesign the collection development policies.

Sathyanarayana (2000) discusses the technological history of E-Journals, access models, archiving, pricing and other several issues. He gives a detailed account of how E-Journals have emerged as a result of information & communication technology, internet and World Wide Web. He explains different access models practiced by E-Journal publishers and vendors. He gives a detailed account of archival issues and discusses issues relating to rights, accumulation, aggregation, search engine,
interface, development, infrastructure, maintenance and third party archiving etc. The various pricing models practiced for E-Journals are discussed and he concludes the paper with the comment that these issues will prove to be the major challenge to libraries, publishers and all other involved players.

Shoba (2000) on the subscription models and access models for E-Journals on the Web indicates that publication of E-Journals has become the main area of thrust for most of the publishers in the area of science and technology. The subscription for an E-Journal is different from subscribing to a journal in the print form. Subscription can be User ID/Password based or IP based. Most of the popular magazines and serials have their E-version free access, where as the general trend is that access to scholarly journals are fee based only. However, some of the scholarly journals are generous enough to provide their table of contents and abstracts freely, for the benefit of their readers.

Anilkumar (2001) explains the major challenges and issues relating to E-Journals in the era of ongoing shift towards electronic publishing and access to E-Resources. The major issues regarding electronic journals are their pricing, reliability and accessibility of data, archiving and back files availability, full-text features, and currency of information, intellectual property and copyright issues. The author also gives an outline about major publishers of E-Journals.

Betterton and Wade (2001) discuss print and electronic serials management practice at Sheffield Hallam University library, UK. They examine the budget management, selection criteria, bibliographic information and general collection management. According to them, one of the key principles behind effective serials management is the need to make information contained in serials quickly and
conveniently available to end users. They also look at the challenges information professionals face in providing access to E-Journals, describes the role of library in making library staff aware of copyright and license issues, and to recommend best practice for linking to resources.

**Cole (2001)** looks at E-Journal management from an academic library perspective. He discusses about the various types of E-Journals available at the University of Leeds. He explains that University of Leeds subscribed to package E-Journals through the academic consortia and from aggregators. These bundling titles helped to give them an identity in the mind of the users. Other category E-Journals available are free with print titles, with additional cost, trials, freely available titles etc. The author describes the role of publishers and agents in the E-Journal subscription and need to maintain a balanced relationship with them by the library. According to him, the libraries should do every possible step to publicise E-Journals. He examines various issues associated with E-Journals like licensing, access, archival etc. and discusses the future development including replacement of print journals at University of Leeds.

**Ashcroft (2002)** reports the result of a research study on promotion and evaluation of E-Journals in academic library collections in the UK and North America. The results of the study state that provision of an E-Journal collection is cheaper than an equivalent print journal collection, but the libraries do not take into account the additional cost of ensuring the adequate provision of an electronic archive or the cost of systems to support access to E-Journals. Providing best user access while considering questions of cost and best value becomes all the more challenging when faced with the countless alternatives being provided by suppliers. The study evaluates the availability
of different subscription models of E-Journals and reminds the libraries on the need for approaching these subscription models cautiously before selection. The study states that collaboration between libraries in the form of consortia based purchasing is established practice in North America and gaining popularity in the UK and consortia can act to tackle cost through group purchasing of licenses. Effective promotion and marketing of collection, links from OPAC to journals/supplier/publishers, library software which gives a single user interface for searching all E-Journals titles, subject listing of E-Journals on library web pages etc. can benefit their users and help to maximise the use of E-Journals. Usage statistics should be used as a source of information to guide selection and acquisition of E-Journals, but majority of libraries still rely on publisher. The study also stresses on the need for training library staff to handle E-Journals and equip themselves with the skills necessary to identify and address IT problems in a fast changing technological environment.

Henning (2002) describes the details of the database named VERA (Virtual Electronic Resources Access) created by his team at the MIT libraries based on the result of a survey to find out the problems relating to the existing E-Journal access system. He explains how this database helped to improve access of E-Journals and made it easier to maintain a growing number of E-Resources. Though VERA is developed to improve public web interface for the MIT libraries’ E-Journals and databases, it has grown into something much more than that. It acts as a working database which members of the staff use to track license agreement and to easily manage changes to large group of titles. The database is flexible, simple and easy to use by the user community.
Kushwah et al. (2002) attempt to address the management, organisation and service issues of E-Journals. They give a brief account of managerial issues of E-Journals in the selection of E-Journals, providing access to the E-Journals, different pricing patterns followed by the publishers, archiving of E-Journals, licensing agreement etc. They opine that clear understanding of the objectives of the parent organisation, user needs and requirements etc. are required for the selection of E-Journals. According to the authors, E-Journal access is not simple and there are many issues like technology requirements, restricted or unlimited access, access via publisher or aggregator, issues of privacy and accountability etc. They also look into the creation of database for the E-Journal management system and describe the status of access to E-Journals in the academic environment, particularly in Universities, and the action taken in this regard.

Lee and Wu (2002) examine considerations for format selection decisions relating to E-Journals. According to them, format selection is a complex process. E-Journal selection decisions will vary depending on the library’s specific needs as outlined by its mission statements and collection development policy. Factors such as content functionality, longevity, users and cost play important roles in determining the most suitable options. They opine that librarians must periodically reevaluate their libraries’ selection criteria and adjust accordingly.

Sreekumar et al. (2002) share the digital subscription strategies adopted at IIM Kozhikode, in order to meet the challenges of the electronic era. With the information revolution coupled with media explosion, librarians are posed with multi-faceted problems of collection development issues, diminishing financial resources, and the spiraling cost of information. It is high time for librarians to learn the skills of
electronic subscriptions, digital collection development and its efficient management in the changing information environment. Variant forms of collection development and management through the Digital media, with a view to support the ‘Access’ Vs ‘Ownership’ slogan are discussed in detail.

Vijayakumar and Vijayakumar (2002) discuss the impact of E-Journals in academic libraries in India. They explain the advantages and disadvantages of electronic journals to the libraries and users. The authors give a detailed report on the various issues associated with collection development of E-Journals such as copyright and licensing, infrastructure issues, pricing, archival issues, access management, technological issues etc. The authors also mention the implications of E-Journals on the academic libraries in India and explain the factors to be considered in the selection and acquisition of E-Journals, cataloguing, archiving, providing user’s access, training and support to staff and users. They conclude the paper with an emphasis on the importance of E-Journal consortia in the collection development of E-Journals in the academic libraries in India and the role of academic librarians in the management of E-Journals.

Lugg and Fischer (2003) examine the workflow steps required to support E-Journals from selection to access. They identify the E-Journal work flow as: resource identification; selection; license evaluation/ negotiation; ordering; payment/prepayment; receiving; discovery/access management; usage tracking; renewal/cancellation. They also discuss about the services that subscription agents and other intermediaries can provide to assist with these tasks.

Pandian and Karisiddappa (2003) look at the technology requirements for modern library consortia for E-Journals and E-Resources and issues related to that both
at the information providers and member libraries end. Issues like stability of the system, access related issues, issues relating to formats and standards of the resources are discussed. An ideal library consortia that is technology enabled is also provided.

Robertson (2003) addresses the impact of E-Journals on academic library services. The results of the survey shows that 64% of the respondents consider that E-Journals definitely have a sizeable impact on the volume of inter library loan and document delivery requests processed. It is also noted from the survey that fewer requests are now submitted to ILL-DS (Intern-Library Loan – Document Supply) departments and that library users are increasingly accessing E-Journals themselves. The survey further reveals that ILL budgets were continuing to decrease in size, at the same time, subscriptions to E-Journals are significantly on the increase.

Stern (2003) compares different pricing models existed in E-Journals and E-Resources subscription with consortia pricing models. He explains that differential pricing as opposed to through consortia models will result in different costs and advantages to libraries, where as consortia models for customisation of services and cost control mechanism based upon actual and projected use. He concludes his paper with a remark that a tiered pricing approach within the consortia may provide the best if the blend of the overhead cost, organisational complexities and benefits are within reason.

Gouder and Narayana (2004) give an exhaustive account on the plethora of problems faced by the libraries as well as the existing library consortia in India, towards E-Journal subscriptions. E-Journals have indeed made an all-round big impact on economics, access and user base. Neither libraries nor the publishers have sufficient experience or data to determine the appropriate unit cost of information, the effective
return on investment, or the most appropriate economic model for charging or paying for electronic information. The pricing models for E-Journals must result in a significant reduction in the per use of information. Pricing should be market-based, not formulaic. Libraries and providers must jointly develop and agree upon what continues and effective measure of the use and value of electronic information so that both parties can demonstrate better return on investment.

Singh (2004) describes the impact of information technology on collection management of E-Journals and E-Resources in libraries and also on the librarian’s role. He discusses the factors affecting collection management in libraries and emphasises the need for change in collection management policy. He also provides information about the availability of various electronic formats such as online source, CD-ROMs, internet sources and websites along with criteria to evaluate them. He also discusses the usefulness of subject gateways and pricing structures of different E-Resources.

Fabrizia (2005) reports the result of a research study conducted by him at the University of Parma, Italy to investigate the organisation of E-Journal titles from a user view point, in order to find out what influence the approach adopted by the library may have on the use of E-Journals and what characteristics the organisation of E-Journals should have to enable an easy discovery of resources. The research methodology comprises a mixed qualitative and quantitative approach: a focus group, observations, interviews and questionnaire. The result of the study shows that group of users appeared still reluctant to use E-Journals, the main barriers to use being lack of awareness and limited number of relevant resources. Their preference appeared to be based on the familiarity of the methods and similarity to the organisation of their physical library. The organisation of E-Journals adopted by University of Parma had
the potential to meet the user’s expectations, but its actual implementation requires more effective promotion and user centered design.

Sreekumar and Sunitha (2005) discuss E-Journal collection development prospects through the library consortium. They explain the numerous features of E-Journals in the present day library collection development and digital content management context and narrate variety of subscription models followed for E-Journals collection development. The authors give a detailed account of the importance of library consortia in the E-Journal collection development and explain benefits of consortia and different models of consortia practiced all over the world as well as in India. The authors briefly describe various consortia movement in India and explain the initiative taken by IIM Kozhikode in the development of IIM consortium. They elaborate the role of IIM consortium in the collection development of E-Journals in all IIMs and substantial savings in the subscription cost of IIMs. They also narrate the organisational structure of IIM consortium and major issues faced by the consortium such as resource identification, technology infrastructure, pricing issues, access related issues, licensing and copyright issues, archival issues, sustainability issues and usage and usability issues. They summarise by explaining the future plans of IIM consortium for archiving the subscribed content and thereby it would act as a central repository playing the role of intellectual network nerve centre.

Sreekumar and Sunitha (2005) narrate the major E-Journal consortia initiatives in India, benchmarks and consortia models, advantages of consortia subscription and problems associated with consortia. The authors explain the different subscription and pricing models practiced for E-Journals and the need for starting E-Journal consortia and benefits associated with the E-Journal consortia. They also
point out how the development of technology helped in the functioning of library consortia. Authors give a brief account of the library consortia initiative at international level and give a detailed description of Indian initiative and explain different consortia models practiced in India and major issues relating to consortia in India. They conclude with the remark that though E-Journal collection development is a complex and complicated process and involve large number of issues, consortia approach brings in numerous benefits to the participating libraries.

Mogaddam (2006) narrates some pricing and publishing models of E-Journals. The higher and fast rising price of E-Journals has a professional effect on the flow of the scholarly communications. As a result, the libraries struggled to keep up with the exploring volumes and cost of E-Journals especially in science, technology and medicine (STM). Consequently a number of pricing and publishing models of E-Journals have been created to offer a constructive response to those issues. The author discusses some of such models in the field of STM. The mostly used models in STM are TULIP, PEAK, SPARK, BioOne, High Wire Press, Project MUSE, JSTOR, PubMed, and EPIC.

Patra (2006) shares his experience of providing E-Journals services to the Scientists at the Central Glass Ceramic Research Institute, Calcutta. The author discusses the development of E-Journal services within the library and explains activities involved in providing user access to the E-Journals and its impact on library operations. This paper highlights the challenges and issues involved in E-Journal services and find that providing training to the staff as well as library users and managing the services of the E-Journals are the most important issues. The author also shows that E-Journals have added enormous resources to the collection and improved
the service of the library, enhanced access to journal literature and decreased the demand for photocopy services as well as document delivery of single articles.

Fortini (2007) details the problems and concerns that arise during an E-Journal project and the issues that persist through E-Journal acquisition and management. The survey was conducted on the experiences of E-Journal selection and management of staff members of three academic libraries. After examining their responses, the study resolves that the librarians considering a switch to electronic access face many problems. They must be prepared to face continuing problem with access, archiving, cost, staffing and technology. The study also indicates a lack of conscience between the different levels of administration regarding problems and concerns with E-Journals management, suggesting a need for better administrative communication.

Bothmann and Holmberg (2008) address the E-Journals and electronic resource management from the perspectives of planning, policy and workflow issues experienced by libraries. The results of the survey reveal four common themes related to E-Journals and other E-Resources management that libraries perceive as challenges. These themes include lack of adequate staffing levels, constant change in resources, budget issues and communication with vendors, colleagues and users. The study also notes that libraries must regularly work towards creating policies, documenting their workflow and planning in all areas of electronic resource management.

Christendon and Willhite (2008) describe how California Digital Library (CDL) supports the thousands of E-Journals, databases, collections and reference works that are licensed by California Digital Library on behalf of the ten campuses of the University of California (UC). They explain three key components of the California Digital Library’s electronic resources program: the involvement of librarians at all the
campuses to monitor and evaluate University of California’s electronic resources; California Digital library’s internal process for working with vendors and CDL’s requirements documents which emphasise both technical standards and best practices.

**Joshipura (2008)** provides an in-depth and comprehensive coverage of the workflow for E-Journals and Electronic Resources from selection to acquisition. The author addresses major steps processes procedures and issues in selecting and acquiring E-Resources and gives a detailed account of various facet of the selection process, including tools, challenges and criteria, and provided a checklist for collection development librarians for evaluating the resources. She addresses acquisition workflow from verification of resource to ordering and acquiring the product and provides an additional checklist for acquisition librarians for reviewing license agreement. The author also comments that libraries should keep up to date on various changes and developments taking place in the areas of collection development and acquisition.

**Poe et al. (2008)** provides a detailed account of how one library handles the E-Journals and electronic resources management workflow in a collaborative effort. The objective and mission of the study is to present successful library electronic resources workflow applications, procedures and ideas from practicing library professionals at Jacksonville State University (JSU) and contributes to the literature and area of electronic resource management. The study also provides considerations for workflow enhancements and details the advantages of centralised workflows and collaboration between units.

**Premchand and Arora (2008)** discuss the initiative of University Grant Commission of India in setting up of UGC InfoNet Digital Library Consortium in order
to provide access to scholarly communication to the academic community of India. The study provides evidence of increased use of consortium services for access to E-Journals and E-Resources in the Higher Education institutions of India. The findings of the study state that there has been a qualitative increase in overall usage of E-Journals and E-Resources but use is also depends on a high band width internet connection in the participating libraries.

Sunitha (2008) discusses various issues and additional prospects relating to E-Journal collection development. The author also narrates the E-Journals management at Indian Institute of Management Kozhikode and various strategies to be adopted by present day libraries in E-Journal collection development and management. The author explains different subscription models practiced for E-Journals such as direct and second party E-Journals, aggregated E-Journals, e-content access to print subscription, consortia based subscription, open access journals etc. and examines various issues in E-Journals collection development such as licensing/copyright, pricing, access management, archival, IT infrastructure, budget, usage monitoring, usability issues and pointed out the need for finding the solution to these issues. The author mentions various strategies and technologies adopted by IIMK in the collection development of E-Journals and steps adopted by IIMK in collection management and maintenance of E-Journals and various marketing and outreach strategies for improving and increasing the usage of E-Journals and suggests that this collection development model can be adopted and practiced by any libraries in the country.

Burnette (2009) identifies the issues and trends that impact the management and planning of E-Journals and E-Resources through a discussion of budget, expenditure tracking and reporting. He explains that E-Resources have a long term
impact on the collection budget and the funds required for E-Resources have grown exponentially in response to the number of titles that have shifted from the print format or added an electronic component. He opines that the E-Resource format is now significant enough for a separate line item to track activity in greater detail over time, but at the same time, E-Resources challenge the budget by adding supplemental costs, various expenses paid to acquire the title, maintain the subscription, upgrade equipment, educate users and negotiate and manage license agreements. According to him managers need to monitor the dynamic E-Resource price models and their effect on purchasing power, budget administration and work procedures. He points out that pricing models make products comparisons extremely difficult because there are no standards. He summarises that acquiring materials in digital form is both complex and labour intensive. Efforts to manage the communication and coordination needed to achieve access to E-Journals and E-Resources will help forge a necessary dialogue between librarians and staff resulting in more efficient workflows and acquisitions process. Awareness of the impact that E-Resources have on acquisitions will help librarians juggle competing demands for effective E-Resource management.

Brown (2009) explains how E-Journals workflows have matured from the print age to the sweeping electro-centric e-workflow of today. The author gives a detailed account of the license agreement required in E-Journal subscription, pricing negotiation, different subscription models practiced for E-Journal subscription and different access approach adopted by the libraries. He emphasises on the need for E-Journal maintenance and management in the libraries and summarises with the remark that in the E-Journal workflow, staff cooperation and staff expertise are critical and
with the flexibility and cooperation of the staff libraries will be able to meet the challenges of the E-Journal workflow in these digital days.

Carr (2009) discusses the E-Journal activation and workflows and describes the external activation and internal activation of E-Journals. After a library has acquired the right to access an E-Journal, it must activate and maintain this access. The author points out that the activation and maintenance of E-Journal access is a challenging, multifaceted process and it constitutes the crucial final step a library must take to enable users to gain access to resources for which it has often taken great care to negotiate acceptable licensing and business terms. The author presents an overview of some of the most important task, tools and partners that are involved in this process and explains that the effective activation and maintenance of E-Journal access is clearly an achievement which is a key to library’s successful transition from print to E-Resources.

Collins (2009) describes how personnel handling E-Journals and E-Resources tasks have fared as libraries make the transition to acquiring and managing E-Resources. The result of the survey shows that libraries have reached critical junction in respect of staffing for E-Resource management and most of the libraries now have a firm understanding of E-Resource responsibilities and can be take a step back to proactively plan for ERM. The study highlights several staffing issues and concerns that should be considered during the planning process such as the utilisation of Para-Professional, the use of existing positions and the pros and cons of organisational models. The study finds out that libraries have to examine their plans for growing their e-collections, examine their current staffing resources and seek funding opportunities before determining the most appropriate plan for organising their staff and library functions.
Davis (2009) reports the results of the study conducted at University of Nevada, Las Vegas (UNLV), Cornell University, University of North Carolina at Greensboro, and University of Wisconsin-Madison to assess the E-Journals collection and the implications of concomitant changes for collection and acquisition functions. Librarians from these academic institutions were interviewed regarding their experiences and perspectives with evolving purchasing and collection models for serials i.e., (i) Shifting to Electronic only serial collections and (ii) Pay per view serial access. Major findings of the study states that the participating libraries vary across issues of staffing, technical infrastructure and budget; all the staff was equally well informed and a common understanding of goals and issue related to the transition to electronic only serials; more staff time has been necessary to maintain and resolve access related issues than was initially expected; there is a common awareness of collection issues amongst librarians, faculty, and students; there are many instances where collections and purchasing functions need more centralised procedures for gathering, researching, and reviewing statistics about the use and value of the collection as a whole; reactions from administration at the participating institutes have been very supportive of these experimental methods devoted to saving money and time; libraries should rethink a pay per view serial access strategy if the collections and acquisitions budget becomes over used; as the articles come directly from the publisher, pay per view serial access has been a great benefit for researchers needing high quality images; there is a high level of record-keeping necessary to document and evaluate project like this, including tracking articles being purchased, journal titles, subscription costs and costs of articles among other details. The study summarises that neither model is a perfect option for most
libraries. However, both models offer opportunities to meet the increased demand of E-Resources by patron and develop tools and strategies to manage electronic collection.

**Day (2009)** attempts to sketch out some of the main problems related to the preservation of E-Journals content for the long term. The immediate problem relates to the fact that access to E-Journal content tends to be licensed by libraries rather than owned outright. This problem can be solved to some extent through increased cooperation between libraries and publishers, which needs to be focused on the genuine risk of losing E-Journal content. The longer-term survival of E-Journal content will additionally depend on the existence of competent repositories that can take E-Journal content from publishers and preserve it through time. The paper concludes with the remark that E-Journals are just one component of a constantly evolving scholarly communication system and should not be considered in isolation from other developments. Collaboration and cooperation will be very important in helping to solve these difficult problems.

**Ferguson (2009)** gives an outline on the some of the criteria specific to the selection of E-Journals and E-Resources. According to him the criteria for the selection can be divided into five broad areas: content, design and usability, accessibility, licensing and pricing. The author states that content selection criteria assess the quality and quantity of the materials covered in the E-Resources. Evaluating the extent of the full text content of E-Resources adds an additional level of complexity to the evaluation process. Design and usability selection criteria encompass the overall design of the interface, including factors such as functionality, ease of use, and administrative capabilities. The author describes that the accessibility of a resource has two distinct components. The first component of accessibility is defined as how accessible the
resource is to users on technical level. The second component is defined as how accessible E-Resources are through interlinking with other resources and content. Reading the license agreement can be one of the most challenging and intimidating aspects of selecting and acquiring an E-Resource. E-Resources are priced in many ways like annual subscription, pay per use, pay per view etc. Price may partially determined by the number of users and sites for which the resource is licensed. The author summarises with the remark that there is no hard and fast rules in the selection of E-Journals and E-Resources and most important factors in selection is identifying criteria that are most important for the organisation, prioritising these criteria and then applying them to the E-Resources being evaluated.

Kanadiaya and Akbari (2009) explain different factors related to the E-Journals such as definitions, importance, history, latest trends and access of E-Journals. Some other issues such as challenges to the present and future LIS professionals, the selection issues, acquisition procedures, process of accessing and archiving of E-Journals, etc. have also been explained. The authors suggest that while subscribing to E-Journals, first of all their importance in the library, available space, equipments to utilise E-Journals’ information in electronic form, etc. have to be kept in mind.

Kirchver (2009) attempts to show where licensing and negotiation are in transition today and what is on the horizon for change. He itemises the current license negotiation challenges and discusses the libraries collective concern with the impact of licensing on their practices, philosophy and principles. He points out the emerging trends in scholarly communication and technical innovation that are signaling the
Mesaj of the future library, its collection and perhaps the philosophies around both of these.

Medeiros (2009) attempts to synthesise the access methods employed by academic libraries over the past two decades to provide seamless E-Journal access to their users. Author gives a detailed account of the evolution of E-Journals and tremendous growth of E-Journals in the past 20 years. He emphasises on the need for developing tools to describe, organise and provide access to E-Journals and explains different methods developed by libraries for the management of E-Journals. He points out that most of the solutions developed are homegrown using applications such as Microsoft access, filemaker pro, and the open source My SQL database. In addition to this, aggregated databases such EBSCO Host, Proquest etc. provide more appealing access to E-Journals for users. These entities provide federated searching across thousands of E-Journals. The author explains how Cross Ref provides a means of linking from the bibliographic citations to the cited article through the digital object identifier (DOI) system. He also discusses about a more powerful means of linking library users to E-Journal content called Open URL which is a mechanism for linking users to appropriate copies of electronic resources or surrogates of these resources.

Oberg (2009) shares some thoughts on the future of E-Journal management. He observes that the E-Journal management will continue to change but in a much more accelerated and disintegrated way and most of the observations and predictions relating to E-Journal management are structured around four key areas such as longevity, management, content and access. The author identifies four issues relating to longevity of E-Journals such as: preservation of E-Journals should be viewed as a form of managing risk rather than just a new form of access; well-defined sources for
preserving E-Journal content must be used by qualified archival entities; libraries need to actively support and provide funding for qualified archival entities; members of academia, including libraries, must make archival deposit of E-Journal content by publishers a prerequisite of licensing their content. He appreciates the existence of archival entities such as LOCKSS/CLOCKKS (Lots of copies keep stuff safe/Controlled LOCKSS), Portico and the initiative taken by National Library of Medicine (NLM) in the development of a standard for E-Journal structure, basically a Document Type Predefinition (DTD) that describes a uniform way of representing the various pieces of an E-Journal. The author emphasises on the need for development of standard Electronic Resource Management System (ERMS) for management of E-Journals and mentions about several new standards such as Standardised Usage Statistics Harvesting Initiative (SUSHI) and the newly defined Online Information Exchange (ONIX) for easing the work of E-Journal management. The author points out the malleable nature of E-Journal content as compared to the content of print journals and states that how E-Journal content is accessed will become more important. He also observes that seamless linking and presentation of online as well as offline library content in user searches will be the key aspect of consideration in E-Journal access management.

Pitfer (2009) discusses how Bridgewater College evaluated its print periodical collection and proposed a revised reporting format for available budget resources. He reports that the new budgetary process provide more spending flexibility for departments and incentive for the cancellation of print titles as well as encourages a transmission to a stronger electronic presence by allowing departments to spend money
saved by cancellation of print periodical titles on the acquisition of new E-Journals and E-Resources.

Reichard et al. (2009) look at the forces driving E-Journals selection, acquisition, access and management at Concordia University library and how these e-collections are being financed and the overall access issues. They explain that the growth of E-Journals in Concordia University library helped to support curricular research needs of the student population and he pointed out the need for constant communication among library staff and faculty fosters inclusive involvement in decision making at all levels of E-Journal management. The authors find that CU library cancelled 61% of the library’s total print subscription and allocated these funds for the licensing of additional aggregated E-Journal databases. They describe various E-Journals subscription models practiced by CU library such as print journals with online access, journal aggregator databases, single E-Journal subscription, open access journals etc. and narrate the selection process, acquisition, access and management of each of these subscription models. The authors emphasise on the need for improving patron search efficiency and accessibility to E-Journals by implementing federated search engine, which will simplify the research process by allowing patrons to locate materials in the OPAC, in journal aggregator databases, and on the web simultaneously. They summarise with a remark that in spite of their complex management, E-Journals are a cost effective way for small libraries to provide thousands of resources to all patrons, whether on campus or at a distance.

Turner (2009) looks at the redefining service roles provided by intermediaries/agents in the acquisition, access and management of E-Journals and E-Resources. He examines the life cycle of E-Resources in general and shows where
intermediaries and the services they provide interact. The author observes that the management of E-Journals and E-Resources in the library take a large amount of skilled staff time, and much of it is spent on troubleshooting problems with missing content, access, and renewals and it is the role of intermediary to help lower the cost of all this administration through the provision of better, more efficient services. According to him, as more and more content is purchased in electronic format only, economies of scale make the use of intermediaries more rather than less efficient, and this is likely to lead to an expansion of their role and helping libraries to reduce cost.

Wakeling (2009) discusses the challenges relating to E-Journals collection development and reviews some of the essential features of that challenge in the areas of library budgeting and collection development. The author narrates the main characteristics of the collection development issues as (i) a changing complex of pricing models that have to be assimilated into budget projection; (ii) subscription bundling by publishers and the consequences of the “big deal”; (iii) the pressures on a serials budget that threaten the funding needed to sustain “tier three” publishers; (iv) the specific transitional budget and fund accounting implications of the move from a print-based to an E-Journal collection; (v) opportunities associated with key finding on the non subscription costs of managing a predominantly digital journal collection; (vi) the developing role and budget implications of just–in-time delivery services for e-articles; (vii) impacts associated with the open access (OA) movements. The author also examines how libraries have been adapting their collection policies to provide guidance and clarity in mapping a path through these complexities.

Watson (2009) explores the major issues affecting the preservation of E-Resources, especially E-Journals and examines ways in which libraries, publishers and
others are trying to preserve these resources both in the near and long term future. The author observes that the central concern for a library making the transition from print to E-Resources is maintaining perpetual access to the subscribed content and the factors such as lack of funds, pressure from the users, financial uncertainty over the future, who should take responsibility for preservation have resulted in a patchwork of preservation attempts by publishers, libraries and others. Other efforts that are having a positive impact on E-Resource preservation are government legislation and funding from nonprofit organisation. Another way in which institution can support library preservation effort is by putting policies in place that encourage or require researchers to deposit content in institutional repositories. The author summarises that the wealth of materials from the past to which researchers have access today is due in large part to the careful preservation efforts of libraries and others through the ages and if a comprehensive preservation strategy for electronic resource is not devised and implemented in the near future, there is a real danger that current research output may be lost to future generations.

Wical (2009) gives an overview of the need to effectively manage E-Journals and E-Resources. He emphasises on the necessity of having a systematic approach to managing E-Resources and E-Journals which can be facilitated by a thoughtfully implemented Electronic Resource Management (ERM) system. According to him libraries should consider ERM system to be additional but worthy investments that will facilitate better use of really expensive journals and the start up costs and yearly costs for ERM system are small in comparison to what is lost to the under utilisation of resources. He state that ERM system promises the libraries or library staff work group in charge of E-Journals and databases, a tool to organise various electronic products in
one location. It also a welcome solution to the difficult task of procuring and maintaining access to E-Journals and E-Resources. The author states that ERM systems can be developed to generate usage reports that are consistent and that allow for ready comparison of E-Journals. The author emphasises that the ERM system should be easier to navigate than paper files and could be used to ensure that the right people get the right information and he explains that if ERM systems are used to their full potential E-Resources managers could answer questions about perpetual access in a matter of seconds.

Wiley (2009) reports the result of a study that discusses the overarching criteria and fundamental reasons that lead a library to develop a particular combination of tools to manage and provide access to its E-Journals and E-Resources. The study focuses on seven academic libraries’ strategies for selecting, implementing and utilising technology to create an E-Resource infrastructure. The study looks at the factors that shaped the E-Journals and E-Resource infrastructures of seven academic libraries of varying sizes, locations and collections. The results of the study shows that in selecting E-Resource tools, the majority of these libraries have created specifically formed committees to analyse several different products and then decide which E-Resource management tools to implement. In some of the libraries, selection matters can also determine whether to acquire a tool for E-Resource management and access. The study finds out that constraints on funding for technology can influence whether a library buys a commercial product, installs an open-source tool or create a homegrown device. Four out of seven case libraries indicates that they have developed in house tools for E-Resource management and access that are eventually replaced by commercial products. Co-operation among libraries can have a decisive impact on the choice of
tools for E-Resource management and access. Four out of the seven case libraries note that they coordinate the acquisition of tools for E-Resources within a consortium. The study shows that all seven of the case libraries have made staffing changes as a result of their shift from print to E-Resources and these positions require staff members with new skill sets that will allow for the introduction and maintenance of new technologies.

The study also shows the strengths and weakness of the participating library’s E-Resource infrastructures and the strategies for building a customised E-Resource infrastructure. The case study of seven different academic libraries give a snapshot of the variety and complexity of challenges libraries have struggled with in designing E-Resource infrastructure.

**Canepi and Imre (2010)** report the result of a survey to determine current library practices for verifying online serial access. The survey results reveal that librarians want an automated process for verifying online serials access. Rather than just waiting for automation to arrive, 51 percent of 237 respondents systematically check access to subscribed online journals. Most of the librarians indicate that their libraries do not have the time and resources to check online access frequently, with 50 percent checking access annually, 18 percent biannually, and only 9 percent checking access according to publication pattern. The systematic checking requires some kind of a trigger mechanism and the survey shows that 57 percent of the respondents working in the libraries use link resolver, ILS, electronic resource management systems (ERMS), table content (TOC) alerts, RSS feeds provided by publishers, locally created spreadsheets, calendar reminders etc. for checking the online access. The survey also reveals that in majority (61 percent) libraries, faculty/librarians resolve the access problems indicate the need for allocating professional librarians for these tasks. The
study indicates the need for standardised holdings information, an automated electronic process for keeping serials holdings data up-to-date and an automated way of checking access.

Davis et al. (2010) discuss the role of several members of E-Journals supply chain in managing electronic resources and describes the opinion of several members about managing E-Journals. The acquisition librarian discusses the differences between managing print and electronic resources and she points out that with the addition of online subscription, the serial world changed dramatically and librarians have to deal with more players, pricing models, deals, issues and problems in managing online journals. More people with different skill sets are needed to manage online subscription. Librarians need to know how to work with A to Z lists, consortia, link resolvers, and electronic resource management system, licensing terms, collect usage data etc. The Electronic Resources Librarian gives an overview of the E-Journal supply chain, including publishers, subscription agents, and aggregators as well as software vendors. In addition to the subscription agents and publishers, new players in the electronic content world include aggregators, republication services, third party platform hosts, brokers, A-Z list service providers, integrated library system vendors and ERM system vendors. The E-Journal publishers share their thought on the electronic revolution from the perspective of a publisher and platform provider. They point out that the publishers face many of the same challenges as libraries: rising costs, staffing issues, and sustainability. The Technology providers state that their role in the electronic world is to help business grow by applying cutting-edge technology to their websites. From the discussions, it is clear that each members serve varying roles within the information supply chain and all the players experience complex challenges in
dealing with electronic resource management. It is also clear that by better understanding each other’s positions, the collaborative process involved in managing these resources can only be improved.

Khater and Appleton (2010) describe how Smithsonian Institution Libraries (SIL) managed their E-Journals and E-Resources with a locally developed and maintained database and discuss the current workflows along with the pros and cons of such an arrangement. The E-Journals and E-Resources management system development and management at SIL has been affected by SIL staff E-Journal workflows. E-Journals have posed significant challenges for SIL central services. The authors explain that E-Journals management initially developed in the form of A-Z list and eventually it turned into ERM system with a back-end for central service staff and a front-end for users. The authors explain the pros and cons of this system and describe the main advantages of the system like it is specifically tailored to SIL, the system is designed to be updated easily and quickly, particularly for licensing and vendor information. They also point out the main cons of this system as it requires a lot of higher-level staff time and energy for its maintenance. The authors summarise with the remarks that the cost of developing and maintain a system must be proportional to how well that system fills the needs of the organisation, providing long-term solutions rather than short-term patches. A system that works well for one institution may not meet the needs in another.

Sparks et al. (2010) report the result of the study to assess the need for a registry of archived E-Journals. The study include 22 interviews with representatives of archiving organisations, national and university research libraries, publishers and other organisations involved in the scholarly communication process. The study finds that
there is a perceived need for more, easily accessible, information about archived E-Journals. However, librarians expect a solution which goes beyond simply recording where a journal title is archived and tracking changes over time. Librarians need to understand, and be reassured about their access route to journals if their normal route is unavailable. In addition, the archives and the registry must be sustainable over the long term.

Blackburn and Lowden (2011) assess the E-Journals and E-Resource management workflows within libraries. By studying what librarians and library staff actually do, investigators try to understand the particular challenges, problems, and pain points present in libraries. The study provides a number of insights into E-Journals and electronic resource management practices within libraries. The major challenges relating to this area are identified. The increase of ongoing costs and a decrease in the amount of available funds are considered as the major challenge and other challenges include complex workflows, and varying formats and related access requirements. The study points out that librarian must focus their efforts on what their target audience specifically needs. The study also stresses the need for developing an efficient software tool and workflow processes for E-Journals management and emphasise that the developed system should provide maximum flexibility to work within the library’s current practices.

Ernestine (2011) discusses the general guidelines followed for the selection and acquisition of E-Journals in Care Western Research University (CWRU). The author states that in evaluating E-Journals for acquisition, collection managers should adhere to the library’s current collection policies in terms of the chronological, geographical, language and date of publication guidelines outlined in individual subject policies.
Responsibility for selecting E-Resources falls to collection managers and other staff of acquisition department. The author also states that due consideration should be given for licensing, funding, infrastructure facilities and archival issues.

**Han and Kerns (2011)** discuss the development of an interactive form to check E-Journal holdings using a Microsoft Access database and describe the electronic serial correction form and the electronic order form which are developed to change paper workflow into an electronic one, making the routing process easier and the forms clearer, more accurate and searchable. According to the authors, E-Journals are always hard to work with especially in terms of access management. The authors discuss three projects and the purpose behind the first project is to develop a tool to identify and resolve as many E-Journals access issues as possible before patrons encountered them and access database is selected for this purpose. After the database is launched, approximately 934 E-Journal access issues are reported and this tool helped librarians in detecting and resolving E-Journals and E-Resource access issues before patrons encounter them. The second project is about turning the old paper workflow into an electronic one. The authors state that the newly developed electronic serials correction form turned many of the negatives into positives. By switching to the electronic serials correction form, data on the form appeared more clear, correct, and consistent. The third tool is called the electronic order form. This form is designed to automate the order process for E-Resources. This project is still in the conceptual stage. The authors summarise with remark that these three projects help in streamlining and enhancing various electronic resource workflows.

**Kaur (2011)** reports the result of a questionnaire based survey conducted to examine the impact of E-Journals on university libraries in terms of resources, staffing,
space, technical services and equipment. The findings of the survey provide useful information regarding impact of E-Journals on subscription to E-Journals, infrastructure, staff, space, technical services, photocopying, inter-library loan, library use and reference services. The major findings of the study state that, the number of print journals in libraries decreased after providing access to E-Journals and majority of the libraries installed more nodes for accessing E-Journals. Access to E-Journals resulted in increased staff workload and decrease in shelving and circulation staff in libraries. More than 50% of the libraries have an increase in the capital cost on campus network and computer hardware, 77.8% of the libraries provide training to the existing staff to manage E-Journals, 33.3% created a new position for electronic resource manager and 44.4% libraries reduced the amount of photocopying. On an average, the libraries saved up to 30% cost on space maintenance for print journals. On the basis of the results, some suggestions have been put forwarded for developing E-Journals and ensuring their proper maintenance and utilisation. The study concludes with a remark that access to more E-Journals can be provided through various consortia and at the same time their proper utilisation should be ensured by developing proper infrastructure for their access.

Olorunsola and Adeleke (2011) examine the issue of E-Journal subscription, subscription models and the future of print version of journals in Nigerian Universities. The study reveals that Nigerian universities subscribe to E-Journals and they employ acceptable models for subscriptions. However, they use consortium more than any other model. The study also reveals that most of the libraries want to retain the print journals.
Srivastava (2011) discusses policy guidelines produced by various libraries and authorities to develop and manage E-Journal collections and tries to determine the key issues to be considered for selection, acquisition, access and management of E-Journals. The author opines that the collection development policy produced by individual institutions are focused on the particular needs of that institution and its clientele and many university libraries have developed internal policies for developing E-Journal collections. Columbia University Library, Boston College, Case Western Reserve University, University of Buffalo, University of Auckland Library and Bowling Green State University are examples of institutions that have developed and implemented such policies which vary in detail and complexity. The author gives a detailed account of the collection development policy of various institutions for E-Journals, and points out that E-Journals should be subjected to the same thorough review process as print journals even if they are free of charge. They must meet the standards expected of other resources in terms of excellence, publishing standards, editorial content, international diversity, citation analysis, comprehensiveness and authority. E-Journals are more than just an extension of the printed serial. Knowing the user needs, good financial decision making, ability to negotiate and network are the skills the E-Journal manager requires. Consortium offers reduce the price or increase the availability to E-Journals. The author suggests that libraries should participate in a consortium buying club and the problem of ownership needs to be sorted out while subscribing to E-Journals and access to back issues should be carefully negotiated with the publishers. The author concludes her discussion with the opinion that there are some key issues for selecting and managing E-Journals irrespective of the institutions or clientele. E-Journals should undergo the same rigorous selection as journals in print.
media and E-Journals must meet the standards expected of other resources in terms of excellence, comprehensiveness and authority.

Chandel and Saikia (2012) explain the challenges, issues and opportunities of E-Resources and emphasise the need to develop or procure ERMS which can integrate all these resources along with printed materials to provide single window approach to all resources available locally as well as globally in a universal library. According to the authors the first and the foremost impact of E-Resources revolution on libraries is about collection development followed by pricing, maintenance, archiving and management. Collection development of E-Resources is more complex than the printed resources. Archiving of resources is another problem faced by the libraries and they opine that there should be proper understanding between the publishers and the library about the archival policy. The authors also emphasise the need for introducing electronic resource management systems to manage E-Journals and other E-Resources. They also stress on the need for building cooperation and interaction among library professionals, publishers, vendors, users, and software engineers to discuss common issues to arrive at common goal of mutual interests to promote more production, use of these resources with their improved, maintenance and management to the maximum benefit of the users.

Johnson et al. (2012) discuss the key aspects of the E-Journals and E-Resources process in libraries such as collection development, selection and evaluation, licensing and renewals. They opine that the general aspects of traditional collection development such as subject, level, target audience are applicable to E-Resources. But as the management of E-Resources are more complex, authors stress the need for developing a supplementary policy which addresses specific format related
issues such as (1) technical feasibility including remote access, authentication, hardware and software compatibility and capability, storage and maintenance; (2) functionality and reliability including search and retrieval functionality, exporting and downloading, sorting and ranking abilities, interface reliability and availability; (3) vendor support including user training and support, trials and product demonstration, technical support and system notification process, statistical reporting, customisation and branding, data security and archiving policies; (4) supply including purchase model, pricing models, access options, archiving and termination rights, maintenance fees, cancellation rights; (5) licensing including model/standard license, governing laws, liability of unauthorised use, definition of authorised users, fair dealing, termination, refunds, period of agreement, language of license etc. The authors stress on the need for establishing clear guidelines and processes for the selection of E-Resources and suggest for the preparation of a checklist for selection and evaluation, establishing clear roles and lines of responsibility and consultation, and the establishment of an E-Resource evaluation panel, which could be compose of a group of E-Resource stakeholders from various departments within the institution. They opine that a standard model of license agreement that describes the rights of the library in easy-to-understand and explicit language should be prepared for the E-Resources subscription and stress on the need for reviewing the E-Resources to ensure that these resources continue to be relevant and provide demonstrable value for money.

Schopfel and Leduc (2012) reports the results of the study conducted to assess the relationship between subscription to E-Journals and the usage statistics. The study aims at evaluating the long tail of usage statistics and to compare it with subscription lists of individually selected titles and packages (big deals). The findings of the study
show that individual subscription of journals are more selective than big deals and trend towards a traditional retail curve. Unlike subscriptions through packages, usage and individual subscriptions can be related by a similar inclination. But both types of subscriptions fail to predict the popularity of a title in its usage. The findings of the study help in framing acquisition policy for E-Journals packages and individual subscriptions.

**Sunitha and Sreekumar (2012)** look at a unique solution that could be provided by institutional libraries where in users need to login just once and thereby get access to all the E-Journals and E-Resources through that single authentication. The authors discuss various collection management issues relating to E-Journals and point out the need for providing seamless access to the E-Journals and E-Resources and mention the role of content integration and aggregation. The authors describe the present access management methods practiced at Indian Institute of Management Kozhikode and point out the importance of providing single sign on and remote login facility to the users within the campus and off campus users. They explain the architecture and working principle of single sign-on and remote access system and narrated various products and solutions available for providing single sign on and remote login facility to users. The authors also provide insights on IIMK’s plan to provide their user single sign-on as well as remote login access to its vast treasure of electronic resources and summarise with the comment that SSO and remote login solution has a strong and long standing stake in the upcoming library services.

**Vasishta (2012)** describes the workflow of E-Journals subscription from acquisition to the access management. She explains that acquisition is the primary activity of collection development of E-Journals and it refers to purchasing of access
rights. The author states that the main challenges for acquisition of E-Journals include selecting the preferred pricing model, subscription schemes, ordering procedures, apprehension of various acquisition approaches including consortia purchasing etc. According to her, providing seamless access to E-Journals has always been the dream of librarians and it involves various modalities even after budget allocation, selection of a particular title and site licensing. The author gives a detailed account of various access methods for E-Journals and explains the necessity of proper dissemination of E-Journals by way of library catalogues, web portal, E-Journal management system etc. and also stresses the need for promoting E-Journals among the user community.

Koteswara Rao (2013) discusses various issues and problems of E-Journals and E-Resource management. He groups the major challenges relating to the management of E-Journals and E-Resources as: Selection and acquisition of E-Resources; Licensing of E-Resources; Pricing /Subscription models; Enabling Access to E-Journals; ERM tools for librarians; Value-added services; Need for library staff training. Similarly licensing of E-Resources requires utmost care and librarians must negotiate licenses that address the institution’s needs and recognise its obligations to the licensor and should ensure that the agreement is in compliance with the existing copyright laws and guidelines and does not jeopardise the user’s interests. There is no standardised pricing model for E-Resources and it vary with the subscription models, collections and packages and the author emphasises the need for selecting the pricing models suits for the library. Author narrates the issues relating to access authentication and access authorisation and stresses need for proving remote access to the electronic resources for the benefit of off-campus users. He also explains the importance of implementing electronic resource management system in the libraries and describes the
features and functionalities expected from ERM systems. The author also emphasises the need training the library staff for better management of electronic resources.

Madhusudhan and Rani (2013) report the result of a survey to examine the changing facets of E-Journals and E-Resources and current practices with regard to acquisition, selection, mode of procurement, promotion, development policy, problems and future plans in university libraries of Delhi. The specific objectives of the study are to find out the availability of different types of E-Resources in University libraries in Delhi; Know the reasons for acquiring/subscribing E-Resources; Study the different modes of procurement and acquisition of E-Resources; Find out the current policies and practices followed for acquiring E-Resources; Examine the different criteria for the selection of E-Resources and collection development policy; and Identify problems associated with the E-Resources and collection development under study. The major findings of the study show that subscription to E-Resources is mainly based on the factors such as easy to use, users demand and saving of space. Currency and timeliness is the first, and the cost of a resource is the last factor in collection development policy. The remote access facility to resources is also considered as a factor in the selection of E-Resources. The survey also reveals that libraries covered in the study in Delhi are lagging behind in strategic planning of E-Resources and collection development plan and its implementation.

Sathyanarayana (2013) sketches out the emerging challenges of e-collection development and changes it will bring in other key functions of the libraries. The author points out that in the e-world, the publishers are controlling and managing the right-of-access to the content through structural levels of rights, licenses and pricing models. He emphasises the need for redefining the purpose of collection development.
According to him, collection development should be short term and need based plan, investment focus should shift from content ownership for preservation to the provision of technology infrastructure that enhance the access, delivery and usage value, libraries should have to engage the publishers to develop content licensing models that will be more affordable and serve the needs of the user community for content at a global level. He narrates about different business models evolving around the new licensing process for e-content procurement such as perpetual access rights, limited period access rights, subscription models, user population, pay per-view model, subscription based articles delivery model, platform fee etc. He also emphasises the need for managing the rights and licenses and concludes with the remark that libraries will be increasingly buying the e-content through new form of licensing for a fee but what may not change is: library’s users will continue to access the content free unless the libraries also shift to commercial eco-system of charging for usage.

Sunitha (2013) discusses about the discovery system wherein users can retrieve required information from all the E-Journals and E-Resources through a single search. She explains various aspects of E-Journals and E-Resource management including the present issues of managing the vast number of electronic resources and need for introducing new technology like federated search system and web scale discovery system in libraries. She narrates the working principle behind the federated search system and the main drawback of the system. She explains the advantages, features and the technology behind library discovery services and narrates various commercial and open source products and solutions available with their features. She also gives a description of the library discovery system implemented at IIM Kozhikode and explains the role of discovery system in libraries in improving and increasing the usage
of electronic resources and stresses on the need of adopting this system in all libraries as a tool for accessing and managing their E-Resources.

Visakhi and Kacherki (2013) discuss the formation of E-Journals and E-Resource consortia for IISER, its achievements and also highlight how IISERs are managing E-Resources through different consortia like INDEST-AICTE, UGC-Infonet and also through individual institute subscription. The Main objectives behind the formation of IISER consortium are to subscribe electronic resources not covered under INDEST-AICTE Consortium for IISERs at highly discounted prices and at the best terms and conditions, enriching collection development in subject areas identified as relatively stronger in each IISER library, strengthening Inter-Library Loan (ILL), including online Document Delivery Services among all the IISER libraries. The authors also discuss the decision of IISER consortium to subscribe E-Journals archives as a long term preservation of scholarly information for future use. They comment that sustainability of consortium is important than its creation and the success of a library consortium depends very much on whole hearted support of the management, how to strategically tackle the issues like shrinking of library budgets, assessing the user requirements, identifying the right resources, consensus on subscription pricing, complicated and vulnerable license terms and conditions, perpetual rights to back files, copyright issues, uninterrupted and hassle free access, bandwidth issues, usage statistics, assessing return on investment.

Wical and Kishel (2013) report the result of the study conducted to assess the importance of collecting E-Journals and E-Resources usage statistics and their role in the collection management of E-Resources. The findings of the survey indicate that Wisconsin academic libraries are collecting more information than it is actually used
for decision purposes, but librarians make sure that the data they collect are as close as possible to their needs. Many of the respondents indicate that they need to justify the money that is spent on electronic resources. The study indicates that majority of the libraries collect usage statistics once a year. Majority of the participants inform that the measures they used to collect usage statistics are inadequate. But more than 70 percent of the librarians indicate that the usage statistics are very important to the decision to renew or cancel E-Journals and E-Resources and 81 percent libraries cancel electronic resources because of its low usage. The study gives a good idea of what academic librarians in the state of Wisconsin were doing with electronic resource usage statistics as a whole.

2.4 CONCLUSION

The survey of literature attempted to map the evolution of E-Journals and E-Resources as vehicles of primary information communication channels, and also the E-Journal collection development aspects being faced by the libraries the world over, looking from the socio-cultural, economical, scholarly, research, educational, and technology lenses. It is observed that E-Journals and E-Resources are now a significant forces in the contemporary library services. The survey report has been grouped into two, viz., the E-Journals growth and penetration and E-Journal Collection Development and management related studies.

The literature review reveals the complexity relating to E-Journals collection development. The survey has made it clear that most of the E-Journals related studies are conducted abroad and it also indicates that no single research study has been undertaken regarding the E-Journals collection development challenges and issues in special libraries in Kerala. Hence there is a need to conduct a study on the E-Journals
collection development to know about the challenges and issues relating to its collection development and strategies to be adopted and applied for the better management of E-Journals in special libraries in Kerala.

Some of the salient points from the studies mapped are as follows:

E-Journals have emerged as a result of the explosion of Internet use, particularly, the World Wide Web technology. The development of the E-Journal is the inevitable outcome of two forces - the technology pull and the economic push. Library services have been dramatically affected by the advent of E-Journals. E-Journals have now been recognised as a major link in scholarly communication. The timely publication, ease in delivery, incorporation of multimedia contents, hyper linking and search facility etc. are some of the features, which have attracted interest of both library and scholarly communities. Some of the significant issues relating to E-Journals are their pricing issues, reliability and accessibility of data, full-text features, currency of information, intellectual property and copyright issues, access related issues, license agreement, negotiation with publishers, archiving and back files availability, training of users and library staff to handle E-Journals. Collection development of E-Journals is a very complex and complicated process and as a number of subscription models, pricing models, access methods are practiced for E-Journals. Collection development and maintenance of E-Journals require high degree of professional skills and managerial capability from library professionals. Impact of E-Journals stresses the need to redefine the roles and workflow arrangements for the ongoing maintenance of E-Journals collection and observes that involving library staff at all levels is a successful strategy in the promotion of E-Journals. The management of E-Journals
are more complex and stresses the need for developing a supplementary policy which addresses specific format related issues such as (1) technical feasibility including remote access, authentication, hardware and software compatibility and capability, storage and maintenance; (2) functionality and reliability including search and retrieval functionality, exporting and downloading, sorting and ranking abilities, interface reliability and availability; (3) vendor support including user training and support, trials and product demonstration, technical support and system notification process, statistical reporting, customisation and branding, data security and archiving policies; (4) supply including purchase model, pricing models, access options, archiving and termination rights, maintenance fees, cancellation rights; (5) licensing including model/standard license, governing laws, liability of unauthorised use, definition of authorised users, fair dealing, termination, refunds, period of agreement, language of license etc.

The literature suggests that collaboration between libraries in the form of consortia based purchasing is the established practice and consortia can act in tackling the cost through group purchasing of licenses. In the case of assessment of usage of E-Journals, the usage statistics provided by service providers comes handy for librarians in their authentic assessment while going for renewals.

The literature also emphasises on the need for development of standard Electronic Resource Management System (ERMS) for management of E-Journals and mentions about several new standards such as Standardised Usage Statistics Harvesting Initiative (SUSHI) and the newly defined Online Information Exchange (ONIX) for easing the work of E-Journal management.
Further, the survey of literature has helped to know the tools and methods relevant for the study. Majority of the studies are conducted with the help of questionnaire survey. The perspective of the present study can be understood from the related literature reviewed in this chapter and all these above cited studies give a proper direction to the present study.