

**THE USE OF ELECTRONIC INFORMATION RESOURCES  
AMONG THE USERS OF THE  
PENANG PUBLIC LIBRARY CORPORATION**

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## ABSTRACT

Public libraries place importance on information technology for the delivery of quality services. One aspect of quality services is knowing the usage in the electronic information resources (EIRs) among the library users. This study was done to investigate the use of the EIRs at the Penang Public Library Corporation (PPLC). This study employed a multi-method approach to collect data; including a printed questionnaire survey, group interview, observations, and examination of documents. The data was analyzed using SPSS Version 12.00.

The findings revealed that EIRs services provided by PPLC are being regularly used by the users. It was found out that the younger group relied more on the EIRs. The most preferred EIRs were Internet (51.9%) and OPAC (43.2%). The preference of Internet was higher among school students with 25% users and college students with 17.2% users, whereas preference of OPAC was higher among the professional group with 30% users. It was found out that most of the users who used Internet were for information searching. For OPAC, they seemed more likely to use title search in searching library materials and they learned to use the OPAC by themselves. The usage of other EIRs were less popular with Electronic Journals (19.1%), Online databases (16.0%) and CD-ROMs (7.4%). Therefore, PPLC must strive aggressively to promote the less popular EIRs which are provided but seldom used by the library users. PPLC needs to improve its training programme in order to help users to enhance the use of EIRs.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 What is a library?

Historically, libraries were created out of need. The first public library in the history of Western civilization was probably founded by Peisistratus, the tyrant of Athens, in the sixth century B.C. The greatest library of the ancient world was created by Ptolemy I in Alexandria during the third and fourth centuries B.C. The first National Library, France's Bibliotheque Nationale was developed from the private collections of French Kings Charles V, Charles VI, Charles VII, and Louis XI (Leerburger, 1989).

Traditionally, libraries have been defined as organizations that acquire, organize and disseminate information. Libraries are needed to enrich our minds and defend our right to know, just as other institutions that protect our safety and property.

The Oxford Dictionary, Thesaurus and Wordpower Guide (2001) define a "library" as a building or room containing a collection of books and periodicals for use by the public or the members of an institution.

Saskatchewan Libraries (2001) define library as a social institution, as libraries reflect and shape society itself. One of its fundamental roles is the preservation of information and knowledge for the library patron. Simply stated, libraries are still the most likely place where one can find specific information in an easily accessible, physical location.



The Encyclopedia Britannica Online (2004) describes libraries as collections of books, manuscripts, journals and other sources of recorded information. They commonly include reference works, such as encyclopedias that provide factual information and indexes that help users find information in other sources.

Libraries today are known as a vast store of information, and have the ability to organize, manage and disseminate information and knowledge which can contribute in achieving a knowledge-rich society in any country.

As the twentieth-first century begins, it has turned libraries and information centers into new institutions with the growth in the electronic dissemination of information. This trend is likely to help libraries continue existing as in the past. However, the basic purpose of libraries to organize and disseminate information is now needed more than ever. Moreover, with the widespread availability and use of electronic information, libraries are no longer defined by the size of their physical collection but rather by the amount of information to which they can provide access.

#### *1.1.1 Types of libraries*

Based on the definitions above, libraries were generally divided into five major categories; National Libraries, Academic Libraries, Public Libraries, Special Libraries and School Libraries. The five types of libraries mentioned are only the primary kinds. In reality many libraries are combinations or blends of more than one basic type. Each library has its general roles and a specific group of customers to serve. Table 1 show breakdown of libraries by type.

Table 1: Types of libraries

Types	General Role
National Library	Provide library services to the nation and serve as national information resource centers.
Academic library <ul style="list-style-type: none"> <li>- Universities libraries</li> <li>- Colleges libraries</li> </ul>	An academic library is to support the faculty, students and staff of the college or university.
Public library <ul style="list-style-type: none"> <li>- District libraries</li> <li>- Branch libraries</li> <li>- Mobile libraries</li> <li>- Town libraries</li> <li>- Village libraries</li> <li>- Mosque libraries</li> </ul>	Public library serves every citizen at every stage of life. They serve a wide range of needs of people from toddlers to senior citizens.
Special libraries <ul style="list-style-type: none"> <li>- Armed forces libraries</li> <li>- Government libraries</li> <li>- Other special libraries (e.g. Association libraries, Organization libraries)</li> </ul>	Usually their missions are correlated with the objectives of their parent organizations.
School libraries/School Media Centers <ul style="list-style-type: none"> <li>- Public school libraries</li> <li>- Private school libraries</li> </ul>	The libraries are responsible for supporting the curriculum of the institutions to improve basic literacy and support teaching-learning.



### 1.1.2 Public libraries and their roles

#### *What is a public library?*

According to the *IFLA/UNESCO Public Library Manifesto (1994)*, the Public Library is the local center of information, making all kinds of knowledge and information readily available to its users. The services of the public library are provided on the basis of equality of access to all, regardless of age, race, sex, religion, nationality, language or social status. All age groups must find material relevant to their needs. Collections and services have to include all types of appropriate media and modern technologies as well as traditional materials.

#### *Public Library Roles*

At the international level, two bodies, namely United Nations Educational, Scientific and Cultural Organization (UNESCO) and International Federation of Library Associations and Institutions (IFLA) organize, sponsor or initiate projects, activities or programmes in the areas of Libraries and Education. The first Public Library Manifesto was published in 1945 and later revised in 1972 and 1994.

The *IFLA/UNESCO Public Library Manifesto (1994)* describes the role of public libraries as:

“the local gateway to knowledge, provides a basic condition for life long learning, independent decision-making and cultural development for the individual and social groups” and



“the Public Library as a living force for education, culture and information and as an essential agent for the fostering of peace and spiritual welfare through the minds of men and women.”

According to the *Public Library Service: IFLA/UNESCO Guidelines for Development (2001)*, the library service:

- is established, supported and funded by the community, through local, regional, or national government
- provides access to knowledge and information through a range of resources
- should be equally available to all members of the community
- supports cultural and artistic development
- provides community information services based on the local needs
- collects, preserves and promotes local culture
- provides a range of services sometimes within and beyond the walls of the library building
- provides services using information and communication technology

The *IFLA/UNESCO Guidelines for Development (2001)* also state that in order to fulfill the above-mentioned roles the public libraries need to have adequate resources, levels of staff, appropriate training and sufficient funds.

Ordinarily, the public library has been considered as a purveyor of culture through the provision of literature and a provider of educational materials. In most developing

countries the educational role has been extended not only to support the informal educational enrichment program needed by the lifelong learner, but also to serve as a resource for the development of reading habits of its public (Ahmad Bakeri, 1998).

Fourie (2002), stated that the major direction for today's public libraries in United States was set when the ALA published its post-war Standards for Public Libraries in 1943. A public library should provide free library service to the residents of a particular community. The direction was expanded in 1966, which included the concept that "service to all" as the reason that a library exists.

Providing access to knowledge in a variety of formats to support formal and informal education has been the basis in the foundation and maintenance of most public libraries and remains the core purpose of the public library.

## **1.2 Public Libraries in Malaysia**

### *1.2.1 History*

The 19<sup>th</sup> century is important to Malaysian library development because it witnessed the birth of three public libraries that is Penang Library, Malacca Library and The Kuala Lumpur Book Club, which have survived until today. The Kuala Lumpur Book Club is now known as *Pustaka Peringatan Kuala Lumpur*.

The Penang Public Library was opened on the 1<sup>st</sup> January 1817 as a subscription library. As the British influence spread across the states of Peninsular Malaya, more subscription libraries were established. Malacca established its first subscription library in 1818,



followed by Kuala Lumpur Book Club, in 1898, and Ipoh in 1930. The first free public library was established in Kota Bahru, Kelantan in 1938, followed by Butterworth in 1954. A public library service in Sabah was formalized with the establishment of Sabah State Library in 1953. (Lim, 1970)

In 1965, a Standing Committee on Public Libraries was set up by *Persatuan Perpustakaan Malaysia* to encourage the organization and development of public libraries at all levels throughout Malaysia. In 1968, the Blueprint for Public Library Development was launched. The Blueprint contained several important recommendations that had an impact on the public library services in Malaysia. Among the major recommendations were the followings:

- Public libraries should be established and run by independent Public Library Corporations on a state basis, with representation of federal, state and local government interests;
- Legislation should be adopted which will provide for the establishment, organization and financial support for public libraries;
- The proposed National Library of Malaysia should be the apex of the national library system and should provide leadership, consultancy and other services for the public libraries.
- Annual recurrent costs of public library services should be borne by the states and capital costs of buildings, equipment and initial book stock by the federal government. (Anuar, 1968)



Today, the public libraries in Malaysia often function as local centers for making knowledge and information readily available to the general public through its main library, district libraries, branch libraries, town libraries, mobile libraries, village libraries and reading rooms.

### **1.3 How libraries have changed over the years**

In the library world today, the electronic revolution has a major impact on the storage, access and transmission of information. This revolution has shortened the time required to locate and access information and also reduced the storage requirement of the library. Collections and services have changed significantly.

#### *1.3.1 Collections*

In the past, majority of library collections were in print format. This has changed over the last few years. Electronic information and communications technologies (ICT) are reshaping the libraries. The number of electronic collections is becoming huge and libraries are now purchasing new information formats. For example with the introduction of Compact Disc-Read Only Memory (CD-ROM), bulky printed volumes is reduced to a slim disk. With technology changes, more libraries are offering users access to electronic versions of books, journals, full-text-journals, CD-ROMs, etc. The collections housed within the walls of the library will be an extension to create a library without walls. Generally, libraries will still continue as a hybrid of print and electronics resources. Print materials will still remain a superior medium in many ways;

portability, relatively more permanent, an inexpensive storage, and an easier medium to access.

### *1.3.2 Services*

The new technologies which have been employed in the libraries automate existing functions, such catalogues, circulation, acquisition, reference, inter-library loan, selective dissemination of information, and others. By using the technologies and electronic media, acquiring and organizing of information sources can improve the speed and accuracy of information provided. In the past, for example library provides catalogues that consisted of cards filed in drawers. Patrons were limited to looking for materials in their own library by author, exact title, or exact subject heading. This situation began to change in the late 1980's. Many of today's electronic library catalogues allow a patron to search for materials by keyword (which searches for the words in the title, subject heading and note fields of an item record). Most library catalogues are now available through the Web. In addition, most library catalogues are no longer stand alone entities, but are part of a larger library networks. Electronic materials have added other conveniences to the library services; quick, remote access and with new search techniques. Another example is the Selective Dissemination of Information (SDI) as an alerting service, which informs the users that documents are available in the library which meets their needs. The users are regularly provided with specific up-to-date information on their topic of interest. With contemporary technological capabilities, automatic updates can be done through articles downloaded from the World Wide Web and sent using email, or pasted on the bulletin board of the library web page.



### *1.3.3 Introduction of ICT and Electronic Information Resources (EIRs)*

#### *Definition of ICT*

ICT as defined by the Malaysian Communications and Multimedia Commission (MCMC, 2001) is:

“a complex and heterogeneous set of goals, applications and services used in producing, distributing, processing, and transforming information. It includes output of industries as diverse as telecommunications, TV, radio, computer hardware and software, computer services and electronic media such as Internet, e-mail, and e-commerce”.

#### *Definition of Electronic Information Resources*

EIRs are similar to electronic publishing. UNESCO describes electronic publishing as the use of electronic means of communications to make information available to the public. Electronic publications are stored in computers and may be displayed for viewing either on a computer screen or as a print out. Types of electronic publishing;

- Electronic books, journals, pamphlets etc.
- Interactive databases
- Interactive multimedia such as games
- New publication forms such as bulletin boards, discussion lists and electronic pre-print which are available through electronic networks
- CD-ROMs

The power of these new technologies makes possible a variety new service to libraries that act as information service-based, which will lead these applications to the users. Generally accepted that technology and knowledge have become an important factor that will make libraries continue to be seen as dynamic information centers. Essentially,

public libraries should be able to exploit modern technology to improve their libraries operations in meeting the users need as ICT are adopted in everyday life.

#### *1.3.4 Types of ICT and EIR*

In discussing the benefit of ICT it was quoted that “everybody ought to have access to a computer; everybody ought to have access to the Internet; and everybody ought to know how to use it and then we ought to make it possible to people to make the maximum use of it” (White House Press Release, 2000).

ICT covers products that will store, retrieve, transmit or received information electronically, such as personal computers, email, and digital television. The use of ICT can help society in accessing information in faster way. ICT enables information to be deployed from anywhere at any time by any person or organization with no respect for place, history or tradition.

Electronic Information Resources include Online Catalogs, CD-ROMS, Internet, Electronic abstracts, indexes, full-text journals, newspapers and data resources accessible via the Internet and on library system machines (databases) and digital library projects.

### **1.4 The Penang Public Library Corporation**

#### *1.4.1 History*

The first library to be established in Malaya under the British was a small subscription library in Penang in 1817. As a subscription library, it was formed as an independent



society and was managed by a Committee elected annually at the Annual General Meeting of members. The Secretary of the Committee served in an honorary capacity as “librarian”, but he was usually assisted by a paid library clerk who was responsible for maintaining all routine records.

Membership of the library tended to be exclusive in those days. Not everybody could join as a member although he/she was willing to pay the required entrance fee and monthly subscription. In the case of Penang Library his/her acceptance as a member was conditional upon his/her obtaining a two-thirds majority in a ballot by members. The library was used mostly by Europeans. Furthermore, the library was founded to cater specifically for the reading needs of the European community. Little is known about the early history due to the Japanese invasion. (Lim, 1970)

On June 13 1972, the Penang Public Library Corporation Enactment was passed by the State Assembly. With the implementation of this enactment, the Penang Public Library Corporation was formed. It took over the Penang Library in 1972 and the Butterworth Library in 1974. In April 1973, the Penang Library decided to provide free library services to motivate and encourage the people to use the library facilities. Only a refundable deposit was charged at the time of enrollment. With the amendment of the Penang Public Library Rules (Amendment) 1991, a new policy was implemented to charge subscription and registration fees to be a member of the library. (PPLC, 2003)

#### *1.4.2 Present Situation*

The Penang Public Library Corporation currently has its headquarters in Seberang Jaya, Perai (mainland) and its branches in George Town, Balik Pulau, Bukit Mertajam and Jawi. The corporation also has its own Children's Library in Jalan Scotland, Penang, and 1 township library in Bagan Ajam, 2 libraries at shopping mall in KOMTAR and Bayan Baru, 51 village/community cyber libraries (Appendix A) and 10 mobile libraries. All these libraries are well distributed all over the island and the mainland. The library network is widespread and located not only in the urban areas but also in the remote villages, thus establishing a network of information services among the public. According to Penang Public Library Corporation, it has made a paradigm shift by developing all its libraries as electronic libraries (being the first public library in Malaysia to have linkages to all its libraries), taking advantage of the enabling technologies, creating a single, integrated virtual library. The aim is to make global intellectual knowledge readily available online to the general public through its 69 service points.

#### *1.4.3 Management of the Library*

Moving to a knowledge-based society requires the Penang Public Library Corporation to visualize and strategize its mission and vision to create services combining the traditional library and web-based services.

As any organization, Penang Public Library Corporation stated clearly its vision and mission as follows:



### *Vision*

Penang Public Library Corporation as a medium towards information, a knowledgeable and reading society to archive nation's vision.

### *Mission*

Ensure citizens of Penang enjoy the opportunities of various hi-tech services parallel to state expansion and development program.

### *MS ISO Certification*

The Malaysian Government believes that the accepted ISO 9001 standard can contribute to improve quality and enhance excellent work that can lead to a systematic management of quality. For the Penang Public Library Corporation, the core business is to strengthen the library collection for its users, based on their needs and rules in order to increase the efficiency of the library system. The library was issued the ISO 9001-2000 Certificate in March 2005.

As at January, 2005, the present staff strength is 153. From the number only 30 are permanent staff and 123 are temporary/contract workers. The permanent staff comprises of 2 professionals and 28 supporting staff.

#### *1.4.4 Automation*

The Penang Public Library started to computerize in 1996. In the years that followed, to keep abreast with technological advancements, the library had undergone three phases of development to reach to its present ICT facilities.

In 1997 the Library launched its own web site. By 1998, the library computer system was changed to a fully integrated automated library system which was also web-based and has an integrated link to its homepage. The Library further enhanced its web site to create access to its own databases through OPAC and also link to other libraries and government institutions as well as electronic databases.

In line with the government's commitment and direction towards ICT, in the year 2000, the Library embarked on the implementation of an electronic library system – the e-library. The existing integrated library system is extended to cover all branches and village/community libraries, creating a virtual information center where data is exchanged freely but securely. High speed communication lines (128kbps leased line) to the Internet, as well as web hosting, are made available between the main library and branch and village/community libraries. This web-enabling technology facilitates the provision of Internet service, email, e-learning, e-community and online databases.

#### *1.4.4.1 Networking*

The network configuration in Penang Public Library for the library's staff use consists of 30 workstations, which are connected to a series of cascaded hubs. For public use, 20 workstations are provided which have access to the online catalog (OPAC), subscribed databases, Internet and multimedia.

The branch and village/community libraries are equipped with a minimum of 2 workstations and a maximum of 10 workstations from a local area network (LAN). This LAN is connected to the local area network in the main Library via Secure Virtual



Private Network (SVPN) over Internet, thus forming a wide area network (WAN). The integrated library system offers online transactions which can be done electronically which help users in the branch/village/community libraries in accessing the online databases offered by the main Library. The main Library uses the Virtual Private Network (VPN) infrastructure as a means to construct a secure network using the Internet, public network cost effectively.

For connectivity from branch and village/community libraries to the main Library, VPN Integrated Services Digital Network (ISDN) dial up over the Internet is used (in some places where possible Streamyx Digital Subscriber Line (DSL) is also used). Every branch and village/community library are equipped with ISDN, dial-up or DSL (Streamyx) whereas the main Library uses the leased line. Modems and hubs are placed in each branch and village/community library for connectivity, whereas the main Library requires routers, switches and hubs.

#### *1.4.5 Collections*

A strong library collection is essential in supporting the information services provided for users by libraries. As of April 2005, the library had 195,797 active members and the book collection was 667,493 volumes. The book loan was 132,996 from January till April 2005.

The Penang Public Library collection comprises The Penang Collection, Malaysiana Collections, Reference Collections and Digitized Collections.

### *The Penang Collection*

The Penang Collections are the pride of the Library. The Penang Collection materials can be in any form whether books, leaflets, brochures, and written in any language. Also the materials may include any items either published in Penang, written by Penangites (whether published locally or otherwise), or depicting Penang as the background.

### *Malaysiana Collection*

The Malaysiana Collections are available both for the local and foreign visitors. These materials provide a more in-depth knowledge of Penang as well as the other states of Malaysia in all subjects including education, culture and recreation.

### *Reference Collection*

The Reference Collections include library materials such as dictionaries, encyclopedias, handbooks and general topics. The Reference Service includes the General Reference Collection, Limited Access Collection, Individual Collection and Penang Collection.

### *Digitized Collection*

The library digitizes its own materials to provide information by creating local digital content which was built in the early 19<sup>th</sup> century. The digitization projects include the photographs of old Penang and old newspaper titles (The Syonan Times, Malai Sinpo, Penang Dailynews and Penang Shimbun).

#### *1.4.6 Services*

Information services provided by the Library are as follows:

##### *Loans Service*

The Library provides various types of materials: books and non-books for loan to registered library members.



### *Bulk Loan Service*

Reading materials can be loaned by small libraries under the organizations and institutions. The Library has set some rules and regulations that must be followed in order to borrow the library materials.

### *Inter-library loan*

This service helps to obtain materials or information needed by the users of the library from other library or organizations if what is needed is not available in the library collections. This activity helps to strengthen the reference and information services.

### *Reference Services*

In the era of ICT, the library provides Electronic Information Services in order to fulfill the information needs of the users. In line with the development of Information Technology the Reference Service provides online access to various local and international databases through the Internet and CD-ROM services. Among the online databases provided are:

- ProQuest Academic Research Library On ProQuest Direct (web) consists more than 1,500 full text journals, abstracts and indexes on Management, Arts, Education, Social Sciences, Medical and General topics.
- General Business File ASAP International contains full text abstracts, articles index and newspapers index from 1,500 publications from a wide range of disciplines; businesses, management, industrial, and manufacturing. It is a useful too for global reference information on business.
- ProQuest Kids Quest contains abstract, articles index, and full text from 100 reference publications.

- INFOTRAC Junior Edition allows children to refer online journals which consist of abstracts, indexes, full text from 70 reference publications.
- BOND provides information on benchmarking in Malaysia and overseas.
- Malaysia-On-Net (MONET) is a website on Malaysia which contains information on business, tourism and important events.
- NSTP Online contains more than 1.5 million newspaper and journal articles.

#### *CD-ROM Databases*

- ProQuest GPO (General Periodical Ondisc) contains abstract and index articles from 1,800 general reference publications from 1996-1999.

#### *Penang Public Library Corporation Web site*

The Penang Public Library Corporation Web site was created through the *Jaringan Ilmu* (Knowledge Network), a project managed with the cooperation of National Library of Malaysia and MIMOS. The web site can be accessed through the URL: <http://www.penanglib.gov.my>. The information on the web site includes the history of the library, services provided, important events and current news.

#### *Penang e-learning Community*

This website attempts to provide an efficient medium for the development of a knowledge-based community. This electronic community portal is created as a one-stop community center for information, communication and collaboration to form knowledge through variety of resources from education, personal experiences, experiments and



projects. This community portal is developed as a tool to facilitate interaction amongst interest groups, common members and the general public.

### *OPAC*

In 1998, the Library acquired the Virginia Technical Library System (VTLS) which was able to computerize the main activities including OPAC. It began to function on 8th June 1999. Users can access the bibliographic details which include books, journals, conference papers, video cassettes, compact disc, CD-ROM, multimedia and newspapers articles.

In April 2002, the library implemented Integrated Library Management Utility (ILMU) Perdana.

### *Newspaper and Journals*

Daily newspapers, local and foreign journals are provided for reading and reference purposes.

### *Reprography*

Photocopy facilities are provided for the users with minimum charges.

### *Hypermedia Center*

The Hypermedia Center is located in the children's library. The center aims at encouraging creativity among children through technology and the usage of computers. The children are exposed to interactive multimedia environment which offers online databases, multimedia and internet services.

### *ICT Training Room*

This room is equipped with 21 multimedia PCs with internet connection and provides basic computer skills and Internet training.

### *Media Resources*

The Media Resources provide services and facilities where readers can listen to cassettes, compact discs, and view videos in a special room.

### *Services for the Visually Impaired*

To provide access to the library's information sources and services for the visually impaired, equipment such as JAWS – Job Access with Speech is provided. This special section is also equipped with IT facilities such as Braille embosses computers with voice synthesizer and a reading machine-Galileo. At present the library is producing children's books in Braille and is also involved in providing computer training to the visually impaired children.

### *Reading Promotion Activities*

Various promotion activities are undertaken to attract children, teenagers and adults towards inculcating reading as a cultural habit. An Activity Club has been established to run various activities to attract the groups towards reading and library usage, such as drawing, story telling, indoor games and essay competition. Workshops, seminars and talks are carried out for teenagers and adults.

### *Mobile Libraries*

Mobile Libraries represent a unique and very commendable service of the Penang Public Library. The service is meant to bring information and knowledge to people without public library facilities in their vicinity. There are ten mobile libraries servicing the remote areas on the island and Seberang Perai.

### *Village/Cyber Libraries*

With the IT infrastructure, the library has put in efforts to network its libraries and turn the Village Libraries into Cyber Libraries. The Cyber Libraries are found in 54 areas.



Beside printed materials, these Cyber Libraries are equipped with multimedia collections, such as educational and interactive CD-ROMs which help expose and improve children to their computer knowledge and skills.

### **1.5 Statement of Problem**

In the information age, most libraries promote the usage of electronic resources. With the rapid growth of information technology, information sources are not limited to printed materials only. Digital, online and electronic information are easily accessible by the public users.

With the wide variety of collections and services offered by the Penang Public Library Corporation, there has been little assessment of their usage, and their effectiveness. Thus, there is a need to examine how these resources are being used. This information can then form the basis of whether the collections and services are meeting the needs of users

It is clear that electronic information resources provided by the Penang Public Library Corporation play an important role to the communities. The library has visualized and strategized its mission and vision to create new services in line with the advancement of the technology. However, little is known on how the electronic information resources are being utilized in meeting the needs of the public user.

In Malaysia, no study has been done on the use of electronic information resources by the public libraries. This study attempts to address the lack of awareness on electronic

information resources being used in the Penang Public Library Corporation, and its impact.

### **1.6 Aims of Study**

The aims of study were:

1. To determine the demographics of users of electronic resources in the Penang Public Library Corporation.
2. To determine what forms of electronic resources do the library provides
3. To determine how the electronic resources of public libraries are being used and what differences it makes to the library and to the users.

### **1.7 Research Questions**

The following research questions were used to guide the study:

1. What forms of electronic information resources are provided by the Penang Public Library Corporation?
2. What are the demographic background of the users of these electronic information resources at the Penang Public Library Corporation and what usage patterns exist, if any?
3. What is the level of satisfaction among the users of the electronic information resources?
4. What are the users' perceptions of the advantages and disadvantages of the electronic information resources provided by the library?



## **1.8 Significance of the Study**

The significance of the project lies in three main areas:

1. The findings of this study may provide valuable information and enable Penang Public Library Corporation to gauge their effectiveness in meeting their goals, and to better plan for future development.
2. The outcome of the study may provide baseline data to the Penang Public Library Corporation for comparison with future studies and data to other public libraries in Malaysia and the region for comparison purposes.
3. This study can provide guidelines to other public libraries in the country and region to carry out similar studies.

## **1.9 Definitions of Terms**

Operational definitions used in this study include:

1. Electronic resources are defined as those resources that users access automatically via a computing network from inside the library or remote to the library (Shim et al. 2001). They include Internet, OPAC, CD-ROMS, Online databases, Electronic journals and e-books.
2. Use of electronic resources is defined as searching, browsing, examining and visiting and evaluating an electronic resource by a user.
3. User is also referred as patron who uses the resources and services of a library not necessary a registered member (Reitz 2004)

### **1.10 Assumption**

The survey was designed to obtain useful answers to the questions posed. It was necessary to target the survey to those users who were already familiar with the use of electronic information resources. As such, they are assumed to have acquired the basic skills of locating, accessing, evaluating, retrieving and presenting information.

### **1.11 Limitations of Study**

The study has been limited by the following factors:

1. The use of electronic information resources in public libraries in Malaysia has not been investigated before. As a result this has led the research to rely on foreign literature.
2. Six type of EIRs are available in the library services namely; Internet, OPAC, CD-ROMs, Online databases, Electronic journals and e-books but only five types of EIRs were chosen as the key variables for the study, namely; Internet, OPAC, CD-ROMs, Online databases and Electronic journals. E-books are not included because the library does not have any e-book collection provided for the users.
3. In conducting group interview, the researcher acted as moderator and therefore was not able to focus on recording the notes. To ensure adequate notes were recorded, an assistant was appointed for this task. In the process of taking down notes, every effort was made to ensure accuracy, but there may be times where the notes were incomplete due to the fast pace of discussions.
4. During the group interview, efforts were made to get all the participants to express their views. However, as the members of the group were randomly



selected, some were rather shy and reluctant to speak out. As such, not every participant was able to express his or her opinions on every one of the questions asked.

### **1.12 Summary**

This chapter serves as an introduction to the study. It has given an overview of the definitions of libraries, and the role of public libraries. A brief history as well as the current situation of Penang Public Library Corporation has been presented. An introduction to ICT and EIRs is also included. The chapter then examined the problem and the aim of the study. It has also discussed the significance of the study, research questions, operational definitions used in the study, and its limitations.

The next chapter presents a review of the literature related to public libraries and electronic information resources.

## **CHAPTER TWO**

### **REVIEW OF LITERATURE**

#### **2.1 Introduction**

The rapid growth of technology (technology revolution) today has created tremendous impact on information (information explosion). This information is obtained in a wide variety of resources, primarily in print and electronic forms. Public libraries are one key avenue in providing access to these information resources.

As implied by Gill (2001), public libraries should promote the adoption of information technology as the basis for all future development. The development of ICT, particularly, the Internet gives the public libraries many exciting opportunities which many have taken eagerly and in a creative ways. The primary goal of the study is to determine the usage of the electronic information resources among the target group of the Penang Public Library Corporation.

#### **2.2 Approach to Literature Review**

In preparing this study a significant amount of time was spent searching for the relevant document related to the topic.

Various information sources used were:

- (i) journals articles, books, conference proceedings, theses and dissertations
- (ii) using search engines; Yahoo, Googles and AltaVista
- (iii) databases subscribed by University Malaya; LISA PLUS, UMI ProQuest, ERIC, MUSE Project and Emerald



- (iv) MyLib
- (v) The National Library of Malaysia (OPAC) was also searched for books and journals titles.

The keywords used were:

- (i) electronic information resources
- (ii) information resources
- (iii) electronic resources
- (iv) electronic resources use in public library
- (v) ICT – information communication technology
- (vi) Online databases
- (vii) electronic journals
- (viii) Internet usage
- (ix) Use of internet
- (x) use of OPAC

A through search of the library and information science catalogs and indexes did not find any identical study to the proposed one, although there have been related studies conducted in United States and elsewhere. In addition to the articles retrieved through the above search, relevant articles were also obtained from citations of individual articles. The overall search primarily involved online searches. The results were then limited to studies relevant to the research topic. Printed versions of library materials were also searched. Printed journals titles that were found relevant to this study included *Public Libraries*, *Aslib Proceedings*, *IFLA Journal*, and *Library Review*, *Journal of Library and Information Science* and *Electronic Library*.

### **2.3 Research Methods used in other studies**

Waldman (2003) carried out a qualitative research on Freshmen's use of library electronic resources and self-efficacy, using a survey method. The survey had a number of open-ended question and closed-ended questions. The questionnaires were distributed among 500 students at Baruch College, University of New York. This research looked at how the roles of self-efficacy play in the students search for information and use of the library's electronic resources.

A survey done by Statistics Canada (2001) entitled "Overview access to and use of Information Communication Technology" collected detailed information on individual use of technology. The target population was all patrons who were 15 years old and above residing in Canada. In the survey, all respondents were contacted by telephone. Households without telephones which represented less than 2% of the target population were excluded. The samples were selected using the Elimination of Non-Working Banks technique of Random Digit Dialing (RDD). A response rate of 80.8% was obtained.

A case study done by Ray and Day (1998) entitled "Student attitudes towards electronic information resources" focused upon students and the impacts of the electronic library on staff and students." Students across three universities were selected. From the first case study, 317 questionnaires were returned, second case study 155 questionnaires were returned and third case study 162 questionnaires were gathered. The members of staff data were collected by interviews and focus group.



The Electronic Publishing Initiative at Columbia (EPIC) United States (2001) conducted a comprehensive research program to examine the use and effects of electronic resources on college faculty. A 25 minutes online survey was conducted between February 11 to March 9 2003. E-mail invitations were sent to scholars in the field of International Affairs and Earth/Environmental Sciences at 4 years colleges and universities across the universities. The overall response rate to this online survey was 14%.

Methods in conducting similar research have included questionnaires, online surveys, telephone interviews and focus groups. The questionnaire received a higher response rate from respondents and this method was felt to be most appropriate, and therefore was adopted in this study.

#### **2.4 Importance of Electronic Information Resources**

Electronic information sources, as stated by (Brophy 1993) details the advantages of networking for the user as being: the information needed can be delivered from the most appropriate source to the user; the user can re-specify his or her needs dynamically; the information is obtained when it is wanted, so becomes "just in time" rather than "just in case"; the user selects only the information needed to answer the specific question and, finally, the information is only stored should the user wish. Electronic information can therefore provide a number of advantages over traditional print-based sources.

The advantages include the fact that searching electronic information resources are often faster than consulting print indexes, especially when searching retrospectively, and they

are more straight forward when combinations of keywords is used. They open up the possibility of searching multiple files at one time, a feat accomplished more easily than when using printed equivalence. Electronic resources can be printed and searches saved, can be repeated at a later date and they are updated more often than printed tools. One main advantage, especially to distance learners or those with limited time to access the library, is their availability from outside the library by dial-up access.

In order to utilise the growing range of electronic resources, library user must acquire and practice the skills necessary to exploit them. "For the users using a variety of online databases, it is as though they were parking lot attendants, where every vehicle is not only a different make and model but has a different configuration" (Blandy & Libutti, 1995). As (Dutton 1990) suggests, the skills required to maximise the potential of electronic resources are much greater than those required for searching printed sources. These skills include a knowledge of the structure of the database and the instructions which must be input into the computer by the searcher, as well as an understanding of the ways in which the instructions are linked with one another. To this end, (Brophy 1993) states users do not often appreciate the skills required to search these sources, stating they are deceptively easy to use.

Worrell, (2003) stated the importance of electronic materials as the electronic resources offer many unique advantages that traditional library resources, such as print materials, simply cannot. Information available on the Internet, for example, affords the user a level of currency that print material does not have. Web pages and online databases are often updated with frequency (daily, weekly, monthly, etc.), whereas print materials are



never updated without purchasing a new edition or waiting on the release of quarterly supplements. Electronic resources also provide access to information that might be otherwise restricted to patrons because of geographical location or finances. Other advantages of electronic resources include the interactive element. Books on CD-ROM allow children to explore the story and interact with the illustrations. Teachers, students, and the general public can use Internet sites to convert units of measurement, create word searches and other puzzles, or play content rich games and take subject-specific quizzes. Electronic resources – databases for example – also usually provide extensive hypertext cross-referencing, which allows the user to explore additional resources or related content with the click of a mouse. Also, search techniques such as employing Boolean operators and truncation, browsing listed subject headings, and narrowing a search through advanced search fields' quickly direct users to the most relevant information for their needs.

Electronic resources also meet the diverse needs of different patrons. ADA workstations make electronic resources accessible to handicapped peoples, a need too often denied by print resources. The availability of remote access to electronic resources appeals to masses of people who would prefer to conduct their information inquiry from the comfort of their home at any time of day or night.

Tenopir (2003) noted that the existence of libraries is needed as users rely more on electronic subscriptions provided by the libraries and they prefer to use the Internet more than the other library resources. More researches need to be done in the future on this aspect. Previous researches have suggested that libraries services can be upgraded by

providing more library materials and educating the users to gain help from the librarians whenever needed. The ability to find and retrieve information effectively is a transferable skill useful for future life as well as enabling the positive and successful use of the electronic resources whilst at libraries.

Users perceive electronic resources—in particular electronic journals and, for students, the Internet—to hold many advantages. Faculty members at Association of College and Research Libraries (ARL) cited convenience, timeliness, and the ability to search text as the most important factors in choosing electronic journals over print (Lenares 1999). Least important to them was animation of graphics, although others sometimes mention that as an important advantage. In other surveys, graduate students said the top reasons for using electronic journals were the ability to link to additional information, the ability to search, and the currency of materials (Liew, Foo, and Chennupati 2000; Woodward et al. 1997). The ability to search across a wide range of journal articles, search within an article, and interact with multiple levels of information objects were listed as the top three significant features sought in future electronic journals (Liew, Foo, and Chennupati 2000).

Students reported the top three ways of accessing the electronic resources has improved their academic careers: access to a wider range of information, faster access to information, and easier access to information (Ray and Day 1998).

In Netherlands, Tilburg University faculty members cite timely availability, easy access, full text searching, and access from home as factors that promote the use of electronic journals (Roes 1999).



Essentially, public libraries should be able to exploit modern technology to improve their libraries operations in meeting the users need as ICT are adopted in everyday life.

## **2.5 Disadvantages of Electronic Information Resources**

Although the advantages outweighing the perceived problems or concerns as use increases and more resources are available, users still express some concerns about the disadvantages of electronic library collections. The most common complaint found in many studies is the discomfort of reading from the screen or poor graphic quality (Nelson 2001; Woodward, Rowland and Mcknight 1998; Sathe, Grady, and Giuse 2002). Respondents consistently report that they prefer to print out articles for reading and do most of their reading from the paper printout (Stewart 1996; King and Montgomery 2002; Cherry and Duff 2002)

Faculty members from the Association of Research Libraries (ARL) institutions said that the most important characteristics that would lead them to choose print over electronic were ability to browse, portability, physical comfort, and convenience (Lenares 1999). In citing the chief reasons for preferring print over electronic journals, Vanderbilt University medical faculty and students said that print is easier to read format, of better graphic quality, easier to browse, and easier to access (Sathe, Grady, and Giuse 2002).

Table 2: The Advantages and Disadvantages of Electronic Information

Resources (compiled using various sources)

Types of Electronic Information Resources	Advantages	Disadvantages
Internet	<p>Ability to work from any location.</p> <p>Information being available all in one place.</p> <p>24/7</p>	<p>Difficult to determine the validity of the source.</p> <p>Hard to determine when to quit searching.</p> <p>Easy to be distracted or lost on a tangent.</p>
OPAC	<p>Automated – saves valuable time.</p> <p>Comprehensiveness.</p> <p>Easy-to-use.</p> <p>Flexible text selection combination of tests and time limit.</p>	<p>Disjunction between sites.</p> <p>Lack of permanent connection.</p> <p>Lack of navigational cues.</p>



CD-ROM	<p>Does not need an internet hook-up.</p> <p>Data retrieval is faster.</p>	<p>Slow upgrade.</p> <p>Limited access.</p> <p>Often cannot be read.</p> <p>Frequency of update. Vendor search software will not read other vendor's CD-ROMs.</p>
Online Databases	<p>Vast amount of information.</p> <p>Approved resources.</p> <p>Allow to tackle more information quickly.</p>	<p>Need to sort through all this information and discriminate what is relevant and what is not.</p>
Electronic Journals	<p>More efficient means of communication; is transferred only when someone requests it.</p> <p>Articles can be printed out immediately at the computer terminal. Articles which exist in an electronic form can be accompanied by colour images, multimedia files, etc.</p>	<p>Problematic archiving/preservation issues – electronic access goes away when the publisher ceases or the libraries cancel subscription.</p>

	<p>An electronically published article contains a link which facilitates email communication with the author.</p> <p>Unavailability of a particular issue at a particular time is avoided (assuming the technology is working properly). Multiple users can access a given article at the same time.</p>	<p>Limited chronological coverage – library does not own the journal only pay for access.</p> <p>Obsolescence</p> <p>Migration</p>
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## 2.6 Previous Research in Public Libraries

### 2.6.1 Internet

A recent related study [in the United States] was one where nearly 10,000 library patrons in five states completed surveys during a one-week period between November 2000 and February 2001 about their library and computer use. Over four-fifths (81%) said they had used the library computers, 20% said they had no other computer access and 30% said they had no other internet access (Gordon, Gordon and Moore, 2001).

Batt (2000), in another study, reported on a United Kingdom government's initiative to use the public library service as a key component in the government's agenda for social change. The report describes the People's Network project, as the following:

- key priority areas – education/learning for life, citizens' information, business and the economy, and community history/identity;



- objectives – access to ICT equipment, training opportunities and electronic content;
- expected outcomes – the chance for all to benefit, new opportunities for people to learn and develop, and better informed and more economically effective communities.

Bertot, McClure, Fletcher (1997) reported on the 1997 national survey of U.S. public libraries and the Internet. A sample was drawn from 2,000 public library systems and a total of 1,426 surveys were returned, for a response rate of 71.3%. The first national study conducted in 1994 found that 20.9% of public libraries in the United States had some type of connection to the Internet. The 1996 study found that 44.4% of public libraries had a connection to the Internet. The 1997 data reported here found that 72.3% of public libraries have an Internet connection. The findings show an increased sophistication in public libraries' use of the Internet. They show significant amount of resources were being redeployed by public libraries to establish and maintain an information infrastructure to support the use of the Internet and other information technologies. The findings also reveal that 78.2% of the U.S. population has access to a public library that provides public access Internet services.

Ormes and Dempsey (1995) the Research Officers of the UK Office for Library and Information Networking, carried out a survey of UK public library authorities in late November 1995. Every UK authority (167) responded, representing a complete picture of the UK situation. Fifty three percent of all public library authorities in the UK had some form of Internet connection. Sixty one percent of public library authorities in

England, Wales and Northern Island have some form of Internet connection). However, typically, there was a very limited form of connection, both in terms of penetration and type of access. Only 3% of individual service points in the UK had some form of Internet connection. The figure is slightly higher in England, Wales and Northern Island (where 4% of service points have a connection) than in Scotland (where 2% of service points have some form of connection). Some libraries are beginning to become information providers. However, half of the libraries with an Internet connection are not making any information about themselves or their services available. The most common category of information made available is information about library services themselves (some libraries are doing this in association with Project EARL), followed by local authority and community information. Only 2 public libraries in the UK reported that they had catalogues online.

Turner and Kendall (2000) studied Public use of the Internet at Chester library, UK. The quantitative and qualitative research into the use being made of the Internet facilities at Chester Library between August 1998 and May 1999 were carried out. A questionnaire survey of 178 users revealed substantial use by non-library members, mostly aged between 16 and 35, with only slightly higher use by men than by women. Most of the respondents had received no formal training in Internet use and the most popular application was e-mail. Follow-up interviews with 9 users provided examples of the value of the service to users. More active promotion and publicity for the service, reduced charges, and increased training and support from librarians, were amongst the recommendations.



Moe (2002) conducted a sample survey of nearly 2,000 Colorado public library patrons. The survey design included outcome-based questions in order to understand the impact of computers and Internet access provided by public libraries. Colorado public libraries provide 2,297 computers for public use, of which 1,492 have Internet connection.

Internet access through public libraries is an active step in bridging the digital divide. More than two-third of the library patrons' poll have no other access to the Internet except through library computers. Without this freely available resource, many people would be deprived in their ability to access information, find opportunities, and compete globally in the growing digital environment. Coloradoans from all demographics rely on Internet access at public library.

Urban Library Council (Spring, 2000) conducted a survey on The impacts of the Internet on public library use, consisted of a national random telephone survey of 3,097 adults. Some major findings were:

- Use of the library and use of the Internet were positively related to educational attainment.
- Use of the library and use of the Internet were affected by the sex of the respondent. Percentage of males who reported using the Internet was higher than the percentage of females who reported using the Internet.
- Internet perceived by the respondents as availability (hours of access), range of resources, expectation of finding what is sought, ability to act immediately

on the information obtained, up-to-date of information, fun and enjoy ability of browsing

### 2.6.2 CD-ROMS

Rogers (1993), in a survey conducted by Opinion Technology on behalf of the Information Access Company (IAC), indicated a remarkable increase in the use of electronic resources in libraries. The survey stated "the trend towards electronic libraries is accelerating, incorporating more than 80 percent of all public libraries and 99 percent of all academic libraries."

Other statistics gleaned from the survey, which polled more than 1300 librarians by phone, reveal that

- Networks of CD-ROMs are growing at a rate of 50 percent a year in public libraries, and 65 percent in academic libraries.
- 90 percent of high school libraries are equipped with CD-ROM databases; an almost 100 percent increase from two years ago.
- 75 percent of all junior high schools have CD-ROM databases.

Tinanoff (1996) studied CD-ROM searchers in a public library and came to similar conclusions: "The users of CD-ROM database products seem to be satisfied with the products and the technology, but perhaps too easily satisfied."



### *2.6.3 Online databases*

Burnstein and Williamson (2000) who carried out a research study in 2000, at the time when the Gulliver Program, part of the Victorian Government's Libraries Online project, was being undertaken in Victoria. Four databases (World Magazine Bank, IAC Health Reference Center, IAC Custom and Infosentails Electronic Library) were trailed to assess their usability. Four Victorian public library services (Bayside, Port Phillip, Corangamite and Casey-Cardinia) were involved. The research in each case began with a focus group of library staff - to explore their perceptions of content and usability of each of their two databases, as well as general access issues. The second part of the fieldwork involved trials of the databases with 10 individual users in each of the library services. A major finding of this project was that the Gulliver databases were not being used to optimal level possibly because of lack of training.

## **2.7 Previous Research in Academic Libraries**

### *2.7.1 Electronic Resources*

Franklin and Plum (2004) reported Web-based surveys of networked electronic services usage at academic libraries in the United States between July 1998 and June 2003. More than 18,000 library users were surveyed as they accessed networked electronic services at five academic health sciences libraries University of Arizona Health Sciences Center, University of Connecticut Health Sciences Center, University of Colorado Health Sciences, Center University of Texas Medical Branch at Galveston and University of Texas Southwestern Medical Branch at Dallas and two large main campus libraries, University of Colorado and University of Arizona serving a variety of disciplines. A statistically valid methodology for administering simultaneous Web-based and print-

based surveys using the random moments sampling technique were discussed and implemented. Results from the Web-based surveys showed that at the four academic health sciences libraries, there were approximately four remote networked electronic services users for each in-house user. This ratio was even higher for faculty, staff, and research fellows at the academic health sciences libraries, where more than five remote users for each in-house user were recorded. At the two main libraries, there were approximately 1.3 remote users for each in-house user of electronic information. Sponsored research (grant funded research) accounted for approximately 32% of the networked electronic services activity at the health sciences libraries and 16% at the main campus libraries.

Pasch and Miranda-Murillo (2004) did a study of the IT related library projects underway in Central America Libraries in early 2004. Computers were used to some extent for cataloging and for Internet activities, less so for database access or other electronic services. Research centers (many run by NGOs) and university libraries generally provided the best library services in the region. In fact, libraries and information centers in Central America were among the first users of personal computers, CD-ROM readers, modems and database software in the region.

Ibrahim (2004) reported findings from a survey conducted to measure the use and perceptions of the United Arab Emirates University faculty members of electronic resources. Questionnaires were sent to a sample of 140 faculty members and responses were received from 125 (89%) of them. Results revealed that respondents used electronic resources for less than 50% of the time spent on the library each term. The



most used electronic resources were online reference materials with the mean of 2.86, full-text articles at a mean of 2.78, e-journals at the mean of 2.70, the online catalogue at the mean of 2.65, with less usage reported for bibliographic databases at the mean of 2.46, and e-books as the least used electronic resource at the mean of 2.10. Overall respondents were satisfied with the electronic resources provided by the library. The library provided adequate access to a range of electronic resources ( $t=3.70$ ,  $p<0.05$ ), librarians offered an adequate level of bibliographic instruction and training that enabled faculty members to use the electronic resources effectively ( $t=3.87$ ,  $p<0.05$ ) and ( $t=3.31$ ,  $p<0.05$ ) respectively.

In a study related to the types and frequencies of references to online resources, Harter and Kim (1996) found that the rate of electronic resources use was extremely low, only 1.9% and 0.2% respectively for e-journals out of the total articles examined.

A case study by Ray and Day (1998) entitled, "Student attitudes towards electronic information resources" focused upon students and the impacts of the electronic library on staff and students." The findings suggested that many respondents did use some electronic resources and were aware of their benefits. The most popular electronic resources were the Internet and CD-ROMs with 80.7% and 76.7% respectively. Recommendations from this study include promotion of on-screen help, printed guides and training for the less popular electronic resources, to encourage students to see the potential of them.

Whitmire's (2001) survey, investigating students' use of electronic resources at the University of Maryland University College concluded even when students come into the library to use resources, they are most likely to use a computer in the library rather than consult traditional print resources, read, or study.

Rashikhah (2004) studied the use of electronic resources by undergraduate students at Perpustakaan Tun Abdul Razak 1 (PTAR). The findings showed four types of electronic resources; Internet, Online databases, OPAC and CD-ROMs were fully utilized by PTAR 1 users. The students used all sources for many reasons. In general, the main reasons were fast and easy access, available at anytime, and can be accessed anywhere.

Ahmad Fadzil and Wan Fatimah (2005) conducted a survey on learning and library usage trends: a Universiti Teknologi PETRONAS (UTP) case study. A survey questionnaire was used among the undergraduates and postgraduates students. The findings of the survey indicated that undergraduates students use the library predominantly for referring to books (46%) followed by journals (19%), the Internet (17%) and online databases (11%) whereas the postgraduates students who are typically research students use the library mainly for referring to journals (43%) followed by online databases (26%) and the Internet (13%). In general, when comes to research work, students will always use the library resources in particular, the online databases and the Internet as the main search engine for assignments or project work.

Ramzy and Ur (2004) noted that electronic resources were vital, but extremely expensive and medical librarians were genuinely concerned about their effective use. It



is a widely held view that low awareness and poor skills are among the primary reasons for their under-utilization. A questionnaire-based survey of health professionals affiliated with three teaching faculties of Kuwait University was conducted to find out the nature and extent of use and the reasons of low use of these resources. Responses were received from 70.9% of the faculty members. They reported that time constraints, lack of awareness, and low skill levels were among the primary constraints they experienced. A large number of them proposed a variety of measures of formal orientation and training to become more effective users.

Laribee and Lorber (1994) conducted a survey at Eastern Illinois University's Booth Library to determine the level of awareness, usage, and general impressions of the library's electronic resources. In August 1993, questionnaires were distributed to the university's faculty and administrators. The results showed that ILLINET Online was the most widely used of the online services. Also, as expected, CD-ROMs were popular in providing access to bibliographic citations and actual data. Contrary to general expectations, 46.8% of the respondents were unaware of DIALOG and only 12.4% had ever used it. On the respondents' general impression on the electronic resources available through the library, in general, the opinion about the features of the library resources were positive since no attribute received a mean score below 3.2 on a scale of 1 to 5 (1 being the lowest score possible and 5 being the highest). Overall, the respondents found the system to be more reliable; less intimidating; and faster. They also felt somewhat satisfied with the resources and the system in general, as well as its ease of use. The respondents' thoughts or comments about the electronic resources available through the library were divided into the following categories:

- Thirty-three comments (35.8%) were of a positive nature.
- Thirty-two comments (34.7%) were related to issues of more training, documentation and education.
- Nine comments (9.7%) were related to the need for improving and increasing the library's holdings.
- Nine comments (9.7%) were of a negative nature.
- Nine comments (9.7%) were neutral or of a general nature.

Rowley et al (2002) investigated and profiled the user behaviors in relation to electronic information services within the UK Higher Education Academic Community. Findings were based on interactions with 1500 users, including academic staff, library and information services staff, and students. The framework methodology used an array of quantitative and qualitative approaches to lend a variety of insights into user behavior with electronic information services, factors that encourage the use of electronic information services, and those that act as barriers to the effective integration of electronic information services into the learning experience. Students made a relatively low level of use of EIS, and their use was focused on email (often Hotmail), the web, and search engines, and online catalogues. When students were aware of specific information sources that support their studies, their awareness may have been cultivated through one of a series of different channels including their peers, one-to-one coaching by library and information services staff, training sessions, or activities embedded in the curriculum.



A survey was conducted at the University of Northumbria, United Kingdom (Ray and Day, 1998) to determine the students' attitudes towards electronic information resources. They discovered that 80.7% of the students used CD-ROMs and 76.7% used the Internet. Use of online databases known as BIDS was very low across the whole sample (36.8%). About 37.5% of the sample population used e-journals as an information retrieval tool. A further 46% of the respondents used OPAC. From the study, it seems that the most popular electronic resources used by the student were the Internet and CD-ROM.

Meer et al (1997) carried out a survey in 1994 at the Western Michigan University faculty to gather information regarding library use, computer use, and attitudes toward computing. The survey was sent to the entire population of 742 faculty members, and the single wave produced an overall response rate of 42.3 % (314 completed the survey forms). The results in the area of library electronic services, 62.9% used electronic databases, 61.2% used WMU online catalog, 59.7% used other online catalogs and 45.2% used CD-ROM databases. Approximately 60% of the faculty answering the survey reported using the WMU online catalog several times a month. Approximately the same percentage of faculty reported use of online electronic databases and other online catalogs, but they used these services less often (less than once a month). On the other hand, only 45 percent of the respondents reported using CD-ROM databases at all, averaging less than once a month.

### 2.7.2 Internet

Singh (1998) studied the use of Internet among Malaysian librarians. The main finding showed that 90% of the respondents used the Internet for work-related purposes. World Wide Web and e-mails were preferred by the librarians.

Elbakheit (1998) studied the impact of the Internet on the library, the usage patterns and perceptions of postgraduate students at the University Malaya. A group of 100 postgraduate students were surveyed to determine how they used the Internet, its influence on their research and their perceptions of the Internet. The findings on the use of services available showed that the popularly used ones were the World Wide Web (18.3%) and e-mail (8.5%).

A nationwide survey of students and academicians in the Netherlands found that 60% of respondents in the humanities, 78% of respondents in the social sciences, and 82% of respondents in the sciences used the Internet for study or work and nearly all believed they had Internet skills (Voorbij 1999).

### 2.7.3 CD-ROMs

Sulemani and Badu (2003) carried out a quantitative study which adopted a cross-sectional research on the impact of CD-ROM in the University of Ghana Medical School Library using a sample of 230 persons. The study indicated that CD-ROM services generally had some degree of positive impact on providing users with access to information. Only three of the 38 users of the service reported no impact. Overall, 92% of respondents reported a positive impact. The study also sought to identify the specific



purposes of CD-ROM use. The result showed that 77% of CD-ROM use was for the preparation of academic articles and the writing of project work or doctoral theses.

Edzan (1996) studied the Malaysian postgraduates' student in Leeds in 1995 with regard to their uses of CD-ROMs databases. She found that only 58.3% of the participants used CD-ROM databases. The participant reported that the CD-ROM databases were useful for writing research papers, articles, and books and can help in thesis preparation. She asserted that there was a hopeful and vivid future for CD-ROM databases in Malaysia. She concluded by urging librarians and information scientists to upgrade their utilization of information sources.

Oduwale (2001) studied the impact of and constraints to the use of CD-ROM databases in Nigerian academic libraries. The questionnaire was sent to ten academic libraries in Nigeria identified from a preliminary study on their CD-ROM database collections and use. The results revealed that high cost of subscriptions to CD-ROM databases was ranked first as the major constraint. The introduction of CD-ROMs had led to an increase in the use of journal collections in the reference library and an improvement in the status of libraries. AGRIS and CAB Abstracts were the most commonly used bibliographic database on CD-ROM.

Majid (2001) explored the use of CD-ROMs in academic libraries of three South Asian countries; Pakistan, Bangladesh and Sri Lanka. It was found that only one-half of the libraries were using CD-ROMs technology. This probably shows the lack of initiative and appreciation for this technology among the library management in these countries.

Beside these factors, the negligible number of CD-ROMs searches conducted at these libraries could be attributed to inadequate publicity, lack of user education and over bureaucratic policies and procedures.

General user opinion towards the use of electronic resources, in particular CD-ROMs, has been positive, with students enjoying using these sources and finding relatively few problems while using them. Surveys undertaken at Oakland University (Schultz & Salomon, 1990) into student satisfaction with CD-ROMs discovered that:

- 83% of students surveyed felt that using this source saved them time, and found it relatively easy to use
- Two-thirds of those surveyed stated that if the CD-ROM service was busy, they would wait for it to become free rather than use the print tool
- 85% would choose this version over print.

Chen and Raitt (1990) conducted a survey on the use of CD-ROMs and other optical products in West Europe. They found that there was a high level of users' enthusiasm for CD-ROMs in academic and college libraries. The end-users felt that CD-ROM technology was viable because it increased access to information. The libraries found that it increases library usage as decreasing the use of the print equivalence. Both the users and library staff agreed that it was a time-saving technology.

Al-Haddabi (2004) indicated 58.4% postgraduate students preferred to use Internet to search for the information they required. Apart from Internet, the Online databases was another preferred source of information searching among the respondents (23.3%) to



fulfill their information needs and 7.3% respondents use CD-ROMs. The Internet and online databases are popular and has more advantages. This could be due to their similarities as both are accessible through the World Wide Web.

#### 2.7.4 OPAC

Ariyapala and Edzan (2002) studied the OPAC use behavior of foreign postgraduate students at the University of Malaya Library. The findings showed that the highest percentage of OPAC use was to find a book title (81.0%).

Ng, (1997) did a survey on the use of library tools to find information for course work.

The results of the survey concluded:

- *Awareness:* Majority of the students were aware of the use of Library OPAC and Internet as tools to information seeking. However, the same cannot be said of CD-ROM databases and online databases. Only 31.9% and 26.4% of the respondents were aware of the availability of CD-ROM databases and online databases respectively.
- *Usage:* Majority of the respondents (73.6%) used the library OPAC, the same number of respondents used Internet, 12.6% used CD-ROM databases and only a mere 6.3% used online databases.

The survey also showed that 43.1% of the respondents used only the library OPAC and Internet to find information, 16.7% used the library OPAC and 17.4% used the Internet only.

- *Usefulness of tools:* Compared to the used of library OPAC, more students tend to find information from accessing Internet. Of the 106

respondents who used the library OPAC, only 16% could find the information.

The Kingston University Library (2004) London carried out a user survey between 22<sup>nd</sup> March and 12<sup>th</sup> April 2004 and a total of 1,926 forms were completed, which represent 14% of the University student population. The findings showed that 40% of the students used Internet, 36% used library catalogue (OPAC) and 28% used computers.

#### 2.7.5 *Electronic Journals*

In a JSTOR survey, it was found that faculty members from humanities, economics and social sciences used online catalogues, full text electronic journal databases and abstracting and indexing databases more frequently and they expected to use them more extensively in the future (Finholt and Brooks 1997).

Colvin and Keene (2004) did research on supporting undergraduate learning through the collaborative promotion of e-journals by library and academic departments in Business School at University College Worcester, United Kingdom. This research evaluated a project designed with the primary aim of testing a hypothesis that learning can be enhanced by promoting the use of e-journals. Analysis of the results indicated that effective collaboration between academic and library staff, the timely embedding of e-journal induction into the learning process and associating it with the assessment process, can significantly enhance the learning of students. It was also recognized that students need to be encouraged to see beyond assignments and adopt a holistic approach towards learning.



Kortelainen (2004) carried out a study on the use of electronic journals and commercial journal article collections through the FinELib portal at University of Oulu, Finland. E-journals provided by the FinELib offer several services that exceed those of the printed version, and can be said to offer more relative advantages. Individual journals can be identified and searched both through searching words and browsing the volumes and issues of different years. The structure of the journal, as an entity, had been maintained, and the publication channel of an article was readily visible.

In a survey at the University of Maryland, 31% of the faculty members reported have never used electronic journals; the reasons cited were unfamiliarity with how to access the journals and a lack of need because of personal subscriptions (Dillon and Hahn 2002).

Only a few studies have examined gender as a factor in information use, beyond studies of recreational Internet use. Majid and Abazova (1999) found that male academic staff at the International Islamic University, Malaysia, reported that they possessed better computing skills than did their female counterparts. Finholt and Brooks (1999) found males to be slightly more frequent users of JSTOR.

Monopoli et al. (2002) found that male staff at the University of Patras, Greece, reported more frequent use of electronic journals than did the female staff (although a very small percent of students or faculty used electronic journals at all since the electronic journals were in English rather than Greek).

### *2.7.6 Online Databases*

Ramakrishna (1997) conducted a study on the use of online and CD-ROM databases at the National Centre for the Cell Science (NCSS) Library in Pune, India. Users at NCSS had used online searching of international databases through DIALOG since October 1993. They found that CD-ROMs were much easier compared to bound volumes of journal and indexes. A number of respondents preferred CD-ROMs because they could select relevant citations and discard irrelevant articles immediately.

Lagier (2003) did a study on the measuring the usage and usability of online databases at Hartnet College in 2002 to determine whether three electronic resources made available by the library are being used. Data for the study was obtained from server log files and user survey. Findings from the study indicated that EBSCOhost and ProQuest databases were used more than CQ Researcher.

In a study of computer engineering undergraduate students in Nanyang Technological University in Singapore, researchers discovered that more than one-third of the respondents had never accessed computer engineering databases available through the library and of those, half had never heard of them (Majid and Tan 2002).

## **2.8 Previous Research in National Library and School Library**

### *2.8.1 OPAC*

The National Diet Library (NDL), Japan (2003) conducted a user questionnaire survey in the autumn of 2003 on the Use of the NDL services and user satisfaction and needs.



In this survey, it was found the rate of NDL-OPAC used was more than 60% at the Tokyo Main Library and the Kansai-kan. At the International Library Children Literature, the rate is as low as that of users of the NDL-OPAC that is 10% among all visitors.

### 2.8.2 *Electronic Resources*

Williams (2003) conducted a web-based survey on teachers influence on usage of electronic resources of online databases and the Internet in the school library media center among the students at the Indiana high schools (Carmel High School and Southport High School). Findings revealed that the teachers encouraged their students to use Internet in the school library media center but most did not direct to use online databases. Internet were said to be faster, easier to use and has a great scope of information. The findings also indicated that most of the teachers themselves were not familiar with the online databases and never used the databases. However, 80% ranked the school library media center's catalog and the school library web page as good and excellent.

## 2.9 **Summary**

From the review it is seen that many studies focused on single variable types of EIRs and less was done to compare between the types of EIRs especially the research done in public libraries, whereas studies done in academic libraries showed that the most popular usage of electronic resources are Internet and CD-ROMs. This study attempted to fill the gap by researching the usage of the five main types of EIRs; Internet, OPAC, CD-

ROMs, Online databases, and electronic journal. It is hoped that the results will strengthen the need to explore the issues related to these types of EIRs at Penang Public Library Corporation.

The next chapter presents the methodology used in conducting this study.



## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

This study on the use of electronic information resources among the users of the Penang Public Library was guided by the following questions:

1. What forms of electronic information resources are provided by the Penang Public Library Corporation and how are these managed?
2. What is the demographic background of users of these electronic information resources at the Penang Public Library Corporation, and what usage patterns exist, if any?
3. What is the level of satisfaction among the users of the electronic information resources?
4. What are the users' perceptions of the advantages and disadvantages of the electronic information resources provided by the library?

The study focused on users of the Penang Public Library Corporation main library in Seberang Jaya, Penang.

In order to answer the research questions above, this study used a quantitative exploratory research approach to gather the data.

The following sections are covered in this chapter:

- (a) research design,
- (b) research instrument,
- (c) population and sample,
- (d) data collection, and
- (e) analysis of the data.

### **3.2 Research Design**

This study represents an exploratory quantitative research and used a multimethod approach. According to Sekaran (2000), "an exploratory study is performed when a researcher has little knowledge about the situation."

The Dictionary of Public Relations Measurement and Research (2002) defines "exploratory research" as, seeks to establish basic attitudes, opinions, and behavior patterns or facts about a specific population or sample; are typically inductive and involve extensive probing of the population or sample or data.

Quantitative research refers to information obtained about some or all members of a target population through structured procedures, such as a census or a survey, allowing conclusions to be made for the total target population. A quantitative method requires standardized information in order to define or describe variables, or to study relationships between variables.

There are two major types of survey research (Kerlinger, 1986). The first type can be classified as "exploratory" and the objective is to become more familiar with a topic. There is usually no model in exploratory research and the concepts of interest need to be



better understood and measured. An exploratory survey is useful in determining, the problems that impede its successful implementation. Resulting data can then be refined to identify new possibilities and dimensions of interest. Another type of exploratory survey research is referred to as "descriptive". This type of study has been described as indispensable in the early stages of studying a phenomenon (Dubin, 1978) as it develops the units that comprise theories. In other words, descriptive research is aimed at describing the distribution of a phenomenon in a population, thereby ascertaining facts.

Covey (2002) categorized usage studies to help librarians design the most appropriate investigations for the type of information they hope to gather. Covey's categories of research studies include the following:

- surveys (questionnaires)
- focus groups
- user protocols (experiments and observations are both included here)
- others (heuristic evaluations, paper prototypes and scenarios, and card-sorting tests)
- transaction log analysis

Each of these methods has advantages and disadvantages. According to Covey (2002), problems or concerns with surveys include the following:

- General surveys are time-consuming and expensive to prepare, conduct, and interpret.
- Unless follow-ups are sent so longitudinal analysis can track changing patterns of use, surveys provide no baseline data.

- People receive many surveys, and it is difficult to motivate them to complete and return surveys.
- The usage information gathered in general surveys might better be gathered by transactional logs.
- Specific surveys are more beneficial, but must be repeated over time.
- User satisfaction surveys may not provide enough information to solve the problem, and service "gap" surveys are more difficult to administer and analyze.
- A survey is only as good as the wording of the questions and the response rate.

Problems or concerns with focus groups, according to Covey, include the following:

- A skilled moderator needs to direct the groups to keep discussions on track.
- An unskilled observer may fail to take adequate notes.
- The qualitative data gathered in focus groups can be time consuming and difficult to interpret.

Problems or concerns with experiments or observations (called user protocols by Covey), include the following:

- Librarians, if observing, have a difficult time not assisting the subjects.
- Librarians may not be trained to interpret and analyze the data from user protocols.
- Recruiting subjects, in particular subjects who are comfortable with the process of thinking aloud, is difficult.



In general, the following types of conclusions can be drawn from each technique:

*Interviews or surveys: preference questions.* Preference questions, or questions about what people want, show what people say they prefer or value. Demographic information is almost always asked, allowing conclusions to be made about groups.

*Interviews or surveys: behavioral questions.* Questions about behavior in general (for example, "Do you use the library's electronic journals?") show what people do at least some of the time. Demographic information is almost always gathered as well, allowing conclusions to be drawn about individuals or groups of individuals.

*Focus groups.* Focus group participants are not randomly selected; instead, individuals who can express opinions about a service or issue are invited to participate. Therefore, preferences and behaviors observed in focus groups must not be overly generalized to the population as a whole, nor interpreted as the only possibilities.

*Observation in natural setting.* Participants are asked to record their interactions with information systems or their research process. Conclusions can be drawn about types of behavior, and models of behavior can be derived.

The goal of this study is to provide information that libraries can use to make important decisions about collections and the services. From the findings, a synopsis can be provided of what users are telling, regarding the reasons and types of electronic information resources are likely they preferred and to use them in future.

In order to carry out the research, the following steps were taken:

## *Questionnaire*

1. The research topic was determined and finalized.
2. A review of the literature in the field of Library Science and Information Technology was carried out, by accessing, reviewing and analyzing selected literature.
3. Preliminary interviews and discussions were conducted with the Librarian at the Penang Public Library Corporation on the proposed topic in November 2004.
4. A structured questionnaire was developed, and pre-tested among colleagues in the Research Methods class. The questionnaire was revised based on the feedback.
5. The questionnaire was sent for pilot study at Penang Public Library Corporation on 8<sup>th</sup> January 2005.
6. Minor modifications were made upon receiving comments from the Reference Librarian and after analyzing the data from the pilot study.
7. The questionnaire was sent for main study at the Penang Public Library Corporation on 22<sup>nd</sup> January until 19<sup>th</sup> February 2005.
8. The data received was coded, key-in and analyzed to answer the research questions.



### *Group Interview*

1. Discussions were held with the Reference Librarian at Penang Public Library Corporation.
2. The time, date and venue were fixed.
3. The Reference Librarian selected the users to participate in the interview.
4. Structured interview questions were developed as guidelines.
5. The interview session was carried out on 19<sup>th</sup> February 2005.
6. The data collected was analyzed.

### **3.3 The Research Instrument**

A number of approaches were used to collect data, including observations, survey using a questionnaire, group interviews and examination of documents. The survey and group interviews asked questions about the users' preferences, including how users felt about the library services pertaining to the electronic resources. Other questions asked for information on user behavior. Observations and examination of documents also showed what users did, but did not reveal anything about their preferences. Each of these methods provided different perspectives and it was only when they were taken together that a full picture of what users actually do, why they do it, what they prefer, and what they are likely to need in the future, we collected.

### 3.3.1 *Observation*

Observations, which enable collection of data when the respondents are reluctant to provide any verbal data. It allows for the collection of a wide range of information.

Observation among the users using OPAC was conducted to obtain information and to investigate the following aspects:

1. Which group (younger or older) uses the EIRs most
2. The amount of time spent accessing information at each section
3. Whom did they ask for help and
4. Which section of the library is the most popular

This method of field study enabled the researcher to obtain direct qualitative details of the phenomenon.

### 3.3.2 *Questionnaire*

Questionnaire is the most commonly used method of data collection and enables the respondents to offer data on a wide range of topics. The questionnaires were distributed among the users at the Penang Public Library Corporation.

An eight-page questionnaire was employed to gather information to the topic. A copy of the questionnaire is attached in Appendix B. The questionnaire asked the participants to answer questions related to their use of EIRs. The questionnaire consists of three sections; Section A comprised 4 questions related to demographic information such as gender, age, race and category. Section B comprised of 15 questions which asked general questions pertaining usage of the EIRs. Section C comprised 7 questions which focus on the satisfaction with EIRs and the performance of the library. In this section



questions using a five point Likert-type scale of 0 – 5 ranging from No Opinion, Very Dissatisfied, Dissatisfied, Somewhat Satisfied, Satisfied and Very Satisfied were applied and there were two questions were open-ended to obtain the respondents ideas and comments in their own words.

### 3.3.2.1 Pilot Study

In order to evaluate the questionnaire, a pilot study was conducted on the 8<sup>th</sup> January 2005. During the pilot study, 20 questionnaires were distributed and the total number of responses was 13. Questionnaires were personally hand delivered. Before the questionnaire was given to the users, the researcher personally approached them and those who were willing to participate were given the questionnaire. The respondents were the users of Penang Public Library Corporation selected randomly from those who visited the *Siber Kafe*, OPAC Section and *Jurnal Elektronik* Section. The questionnaire was also given to the reference librarian to check on the reliability of the questions.

The data collected was analyzed and the comments given by the reference librarian were considered for the amendments of the questionnaire. Changes were made to some questions, for example; Question 7b. The Online Databases provided by the library was added and was arranged accordingly and Question 8b, one CD-ROM; KLSE on Disc was removed because no longer available in the library. One question was added to Part C, No. 5 in order to get their views on dissatisfaction.

While doing the pilot study, the researcher found that the participants could understand the language used in the questionnaire therefore and there was no necessity in translating the questionnaire into Malay language.

### 3.3.3 Group Interview

Group Interview, is a form of questioning as a principal technique of data collection. Group Interview (Appendix C) with selected users who use the EIRs was conducted in order to get their views on electronic resources provided by the library. The interview questions were in a structured form.

Structured interviews will provide more open-ended and useful information. Hug (1975) mentioned structured interview allow the discovery of new facts, opinions and attitudes and enabled one to check and verify information. The structured interview comprises 10 questions (Appendix D).

### 3.3.4 Examination of Documents

*Examination of Documents*; in addition to participant observation, questionnaire and interviews, the researcher also make use of documents (forms) which can add additional insight or information to the research. These records helped the researcher to examine details information related to the uses of EIRs.

The users who use the Internet and Online Databases were given a form to fill up (Appendix E & F) by the librarian. The document can be analyzed and some conclusions can be made from the analysis such as which group uses more EIRs and amount of time accessing it.



### 3.3.5 Summary of the method used

A summary of the methods used are shown in Figure 1.

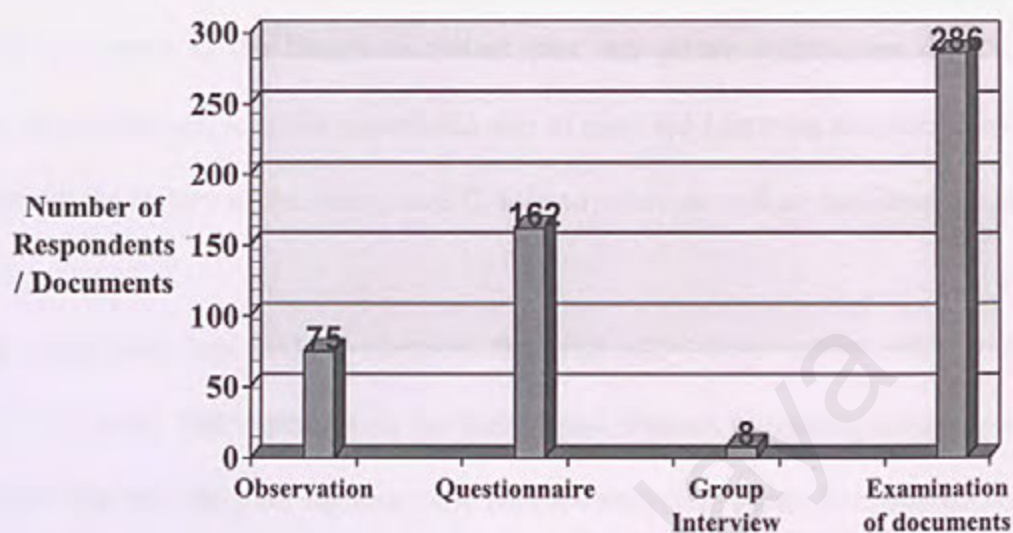


Figure 1: Methods Used in the Studies

### 3.4 Population and Sample

The study was conducted at the Penang Public Library Corporation. The total membership of Penang Public Library Corporation, Seberang Jaya as of 19<sup>th</sup> February 2005 was 105,167. The questionnaire data was collected over nearly a month period from 22<sup>nd</sup> January to 19<sup>th</sup> February 2005. The sample for the study comprised of users who used the *Siber Kafe*, OPAC Section and *Jurnal Elektronik* (Electronic Journals) Section of the Library. A total of 200 users were randomly selected as a sample for the study. The staff of the Penang Public Library Corporation helped in the distribution of the questionnaire. Out of 200 questionnaires distributed, 165 were returned and 3 of the questionnaires were not used because the respondents did not answer most of the questions. The total number of responses was 162, with a response rate of 81%.

### 3.5 Data Collection

Prior to collecting the data, a telephone call and written approval (Appendix G) has been obtained from the Penang Public Library Corporation. After obtaining the permission, initial visit was made to the library to collect data and gather information from the brochures, annual reports, seminar papers and also to meet the Librarian to obtain verbal information on the history of the library and IT infrastructure as well as the future plans.

Follow-up visits were then made to carry out the pilot study, observations, main study and group interviews. Discussions with the Reference Librarian in making arrangement for a suitable time and place for the interview sessions were also made. An assistant was appointed to help the researcher in conducting the observations and group interviews.

*Observations:* Two sessions were conducted and the main objective is to gain the pattern of EIRs usage among the users. A total of 75 users were observed on 8<sup>th</sup> January and 19<sup>th</sup> February 2005. The observations were manually recorded and the data were analyzed.

*Session 1: Saturday, 8<sup>th</sup> January 2005*

*Session 2: Saturday, 19<sup>th</sup> February 2005*

The researcher was there from 10.15am until 4.30 pm. The intention of choosing a Saturday for the observation was because more users visited the library on that day. The researcher sat at a corner which was quite far from the respondents in order to observe their natural behavior. Once the respondents entered the library, the researcher jotted down those respondents who used the *Siber Kafe*, OPAC section and *Jurnal Elektronik* Section.



*Questionnaires:* The questionnaires were distributed from 22<sup>nd</sup> January until 19<sup>th</sup> February 2005; and were personally hand-delivered. The respondents were the users of Penang Public Library Corporation selected randomly from those who visited the *Siber Kafe*, OPAC Section and *Jurnal Elektronik* Section.

*Group Interview:* The Group Interviews were carried out on Saturday 19<sup>th</sup> February 2005. The target groups were selected based on regularly users who visit the EIRs section. They were selected mainly because as regular users they can express ideas and give some comments and also suggestions on the effectiveness of the EIRs services provided by the library. Eight participants were selected for the discussions. Those users were approached and who were willing to participate in the interview were invited. They were first asked some introductory questions, aiming to get some general information. Later, they were asked to give comments and suggestions on aspects which were related to the usage of EIRs. The interview was conducted in both English and Malay language as to allow participants to express themselves freely and also to create an informality situation. The interview took about 1 ½ hours. The time, date and venue of the interview sessions were chosen by the Reference Librarian. The interview was recorded manually by an assistant.

#### *Examination of Documents:*

Documents related to the usage of EIRs; namely Internet and Online Databases were examined and analyzed. A total of 21 documents of the Online Databases and the total of 265 documents of Internet usage were examined.

### 3.6 Data Analysis Technique

*Observations:* Based on field observation, the data collected was recorded and information was jotted in a log book. The frequency of occurrences was calculated. All data was analyzed for similarities and differences.

*Questionnaires:* Data from the questionnaire was analyzed using the SPSS (Statistical Package for Social Sciences) Version 12.0 for Windows.

*Group Interviews:* The qualitative data from the interview with the users were recorded manually and the answers given were then arranged accordingly.

*Examination of Documents:* Documents were examined and the data was coded manually and was analyzed using SPSS (Statistical Package for Social Sciences) Version 12.0 for Windows.

### 3.7 Summary

This chapter reports the methodology of the study and also the various methods of data collection. The study used Observation, Questionnaire, Group Interview and Examination of Documents. The researcher randomly selected 200 users at the Penang Public Library Corporation to participate in the survey. The questionnaire which consisted of three sections was developed, covering Demographic Information, Usage of Electronic Information Resources and Satisfaction with the electronic information resources. Meanwhile, the Group Interviews selected eight voluntary users to participate in the programme. Observation was done in two days time involving 75 users pertaining



to the usage of OPAC and the total of 286 documents were examined and analyzed related to the usage of online databases and Internet.

The next chapter presents the findings of this study. The data obtained is presented and interpretation of the findings in relation to the aim of the study is offered.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND RESULTS**

#### **4.1 Purpose of study**

The purpose of this study was to investigate the use of electronic information resources (EIRs) at the Penang Public Library Corporation (PPLC). The survey method using a printed questionnaire, a group interview and systematic observations were employed to gather data for the study. The responses were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive analyses and cross tabulations were made to obtain results related to the objectives of the study. The analysis and findings in this chapter cover the respondents' usage of EIRs, frequency of use, types of EIRs used and their preferences, satisfaction with the EIRs and their perceptions of the advantages and disadvantages of EIRs.

#### **4.2 EIRs Services Provided by PPLC**

Information on the EIRs services provided by PPLC was gathered from the various sources (e.g. library home page, bulletins, brochures, seminar papers and personal observations during visits). Most of EIRs services were placed at the Reference Section and those services provided were Internet, OPAC, Online databases, Electronic journals and CD-ROMs. The EIRs were selected and acquired upon approval made by the Selection, Quotation and Weeding Committee. Electronic resources, such as online databases and electronic journals are the library's most expensive collection. Effective management of these electronic resources can result in improved access among the



users. From the systems, the data can be configured and examined as well as tracked for each databases used whether it is accessed in-library or remotely.

4.3 Demographics of Respondents

4.3.1 Gender

Figure 4.1 shows the gender of the respondents.



Figure 4.1: Genders of Respondents (n=162)

The 162 respondents were fairly balanced in terms of gender, with 85 (52.47%) females and 77 (47.53%) males.

4.3.2 Race

Figure 4.2 shows the race of the respondents.

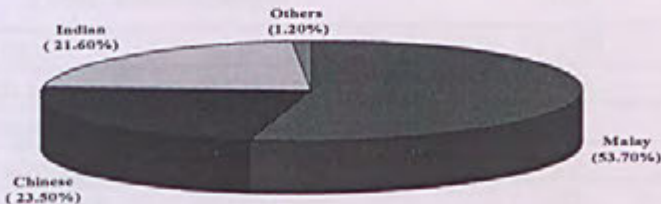


Figure 4.1 Genders of Respondents (n=162)

In terms of race, the results show that there were 87 (53.7%) Malay respondents, 38 (23.5%) Chinese, 35 (21.6%) Indians, and 2 (1.2%) Others, comprising Siamese and Sikh.

A cross tabulation of gender and race, as shown below in Table 4.1, shows that the number of males and females were almost the same, except that the number of Indian females were far more than the number of Indian males.

**Table 4.1: Cross Tabulation of Gender and Race  
(n=162)**

		Race				Total
		Malay	Chinese	Indian	Others	
Gender	Male	44	21	10	2	77
	Female	43	17	25	0	85
Total		87	38	35	2	162

### 4.3.3 Age

Table 4.2 below shows the statistics for the age of the respondents.

**Table 4.2: Age of Respondents  
(n=162)**

Total Respondents	162
Mean age	26.78
Median age	26.00
Mode age	19
Minimum age	13
Maximum age	62



From the analysis, it was observed that the mean age of the respondents was 26.78 years, with the minimum being 13 years and the maximum age being 62 years. The mode age of respondents was 19 years.

4.3.4 Category

Table 4.3 below shows the category of the respondents

**Table 4.3: Category of Respondents  
(n=162)**

Category	Frequency	Percent
Professional	31	19.1
College student	25	15.4
School student	23	14.2
University student	19	11.7
Academician	16	9.9
Businessman/woman	15	9.3
Housewife	13	8.0
Unemployed	9	5.6
Retired/Pensioner	3	1.9
Others	8	4.9
<b>Total</b>	<b>162</b>	<b>100.0</b>

From the table above, it can be seen that the majority (60.4%) of the respondents were professionals, college, school and university students.

4.4 Usage of Electronic Information Resources (EIRs)

4.4.1 EIRs usage among PPLC Library Users

One of the main objectives of this survey was to investigate the EIR usage of the PPLC library users. Based on the respondents feedback, as shown in Table 4.4 below, 108 (66.7%) of the respondents indicated that they used EIRs and only 54 (33.3%) did not use EIRs provided by the library.

**Table 4.4: Usage of Electronic Information Resources (EIRs)  
(n=162)**

Use of electronic resources	Frequency	Percent
Yes	108	66.7
No	54	33.3
<b>Total</b>	<b>162</b>	<b>100.0</b>

A cross tabulation of use of EIRs against age group is shown in Table 4.5 below.

**Table 4.5: Cross Tabulation of Age group and Use of EIRs  
(n=108)**

Age Group	Use of electronic resources		Total
	Yes	No	
13-19 years	29	10	39
20-29 years	50	26	76
30-39 years	19	14	33
40-49 years	8	3	11
55-59 years	1	1	2
60 and above	1	0	1
<b>Total</b>	<b>108</b>	<b>54</b>	<b>162</b>

The table above showed that the younger group uses EIRs more than the older group. This is seen in the first two groups of 13 – 29 years with a total of 79 respondents who used EIRs, compared to those of the age 30 and above where only 29 respondents used EIRs. This is also supported from the observations done on 8<sup>th</sup> January and 19<sup>th</sup> February 2005 between 10.15am - 4.30pm, where it was observed that there were 51 younger group users used EIRs compared to 14 older users as shown in Table 4.6 below.



**Table 4.6: Observation on Usage of OPAC  
(n=65)**

Group	No. Using OPAC
Younger	51
Older	14

An examination of the usage forms also indicated a similar trend, as shown in Table 4.7 below.

**Table 4.7: Usage of Internet, CD-ROMs and Online Databases  
(n=30)**

Group	Internet	CD-ROMs	Online Databases
Younger Group	24	-	2
Older Group	4	-	-

Thus it can be inferred that the younger library users use electronic information resources more than older users.

#### 4.4.2 Types of EIRs used

Users were asked the types of EIRs used. The responses are shown in Table 4.8 below.

**Table 4.8: Types of EIRs used  
(n=162)**

Types of EIRs used				
Internet	OPAC	CD-ROMs	Online Databases	Electronic Journals
88 (54.3%)	68 (42%)	13 (8%)	26 (16%)	26 (16%)

From the table above, it was observed that Internet and OPAC had the highest users, with 88 (54.3%) respondents and 68 (42%) respondents respectively, while only 13 (8%) said they used CD-ROMs. This suggests that Internet and OPAC were utilized more by the PPLC users. However, it is interesting to note that all EIRs provided by PPLC are being used by the users. The findings showed that the usage positively matches the PPLC mission to ensure citizens of Penang enjoy the opportunities of various hi-tech services parallel to the state's expansion and development program.

#### 4.4.3 Types of EIRs Preferred

Users were also asked the category of EIRs that they preferred. The results are shown in Table 4.9 below.

**Table 4.9: Types of EIRs Preferred  
(n=162)**

Preferred EIR	Frequency	Percent
Internet	64	39.5
OPAC	30	18.5
CD-ROMs	3	1.9
Online Databases	6	3.7
Electronic Journals	5	3.1
Total	108	66.7
Do not used EIRs	54	33.3
<b>Total</b>	<b>162</b>	<b>100.0</b>

In term of EIRs used, again Internet was ranked highest with 64 respondents (39.5%), followed by OPAC with 30 respondents (18.5%), Online Databases with 6 respondents (3.7%), Electronic Journals with 5 respondents (3.1%), and the lowest being CD-ROMs with 3 respondents (1.9%). However, from observations done on 8<sup>th</sup> January and 19<sup>th</sup>



February 2005 between 10.15am - 4.30pm, it was seen that OPAC Section was heavily used, as shown in Table 4.10 below.

**Table 4.10: Observation on Usage of EIRs  
(n=75)**

EIR Section	Total Users
OPAC	65
Internet ( <i>Siber Kafe</i> )	28
Online Databases	2

From the table above, it was seen that Internet and OPAC were the most preferred EIRs in public library. The higher OPAC usage compared to the Internet may be due to the charges imposed by the library. The library charges RM 2.00 per hour for Internet usage, but the use of the OPAC is free.

This finding is similar to that of Tenopir (2003), who found that users preferred to use the Internet more than the other library resources. The finding is also similar to a case study done by Ray and Day (1998), whose findings revealed that the most popular electronic resources in academic library were the Internet and CD-ROMs with 80.7% and 76.7% usage respectively. The difference between public library and academic library in terms of EIRs preference may be because public library users come from people of all ages and at all stages of life. Their information needs are likely to be more general, whereas academic library users are younger and have specific information needs related to their studies and therefore preferred the Internet.

From the cross tabulation of category of users and their preferred EIRs, as shown in Table 4.11, it is observed that the preference of Internet were higher among school

students with 25% users and college students with 17.2% users, whereas preference for OPAC was higher among the professional group with 30% respondents.

**Table 4.11: Cross Tabulation of Category of User and Preferred EIRs (n=162)**

Category of User	Preferred EIRs				
	Internet	OPAC	CD-ROMs	Online Databases	Electronic Journals
School student	25%	3.3%	33.3%	0%	0%
College student	17.2%	10%	33.3%	0%	20%
University student	12.5%	13.3%	0%	16.7%	20%
Professional	14.1%	30.0%	0%	50.0%	60.0%
Retired/ Pensioner	0%	6.7%	0%	0%	0%
Academician	7.8%	6.7%	0%	0%	0%
Businessman/ woman	9.4%	3.3%	33.3%	16.7%	0%
Housewife	6.3%	13.3%	0%	16.7%	0%
Unemployed	3.1%	6.7%	0%	0%	0%
Others	4.7%	6.7%	0%	0%	0%

This finding is supported from the group interview on 19<sup>th</sup> February 2005, where users who were mainly college or university students, preferred to use EIRs facilities provided by their college or university library. Given this scenario, it provided some explanation as to why Online Databases, Electronic Journals and CD-ROMS services were less used by the college and university students who visited the public library. They claimed that their visits to the public library basically were because of the pleasant and peaceful environment. Whereas, the professional groups may be coming to the library to refer to



the library collections. Thus the OPAC is one way to help the users to maximize the usage of the library collections.

#### *4.4.4 Frequency of EIRs used*

The users were asked on the average usage of EIRs per month. The data is shown in Table 4.12 below.

**Table 4.12: Frequency Use of EIRs per Month  
(n=108)**

<b>Frequency of EIR Use per Month</b>	<b>Frequency</b>	<b>Percent</b>
Once a day	6	5.6
Between 2 - 5 times a week	25	23.1
Once a week	46	42.6
Once a month	28	26.0
Others	3	2.7
<b>Total</b>	<b>108</b>	<b>100.0</b>

From the table, it is observed that, out of 108 respondents who used EIRs, 6 respondents (5.6%) used them once a day, 46 respondents (42.6%) used them once a week, 28 respondents (23.1%) used them between 2-5 times a week. Thus 71.3% of the respondents used EIRs quite frequently. It can thus be inferred that EIR services provided by PPLC are being regularly used by the users.

#### *4.4.5 Usage of Internet*

##### *4.4.5.1 Gender and Race*

Based on the examination of documents, a cross tabulation on usage of Internet by gender against race is shown in Table 4.13 below.

**Table 4.13: Usage of Internet  
in the Month of January by Gender and Race  
(n= 265)**

		Race				Total
		Malay	Chinese	Indian	Others (Sikh)	
<b>Gender</b>	Male	42	39	22	4	107
	Female	86	44	27	1	158
<b>Total</b>		<b>128</b>	<b>83</b>	<b>49</b>	<b>5</b>	<b>265</b>

From the table above, it was observed that Malay, Chinese and Indian females used Internet more than males. However, this finding contradicts with a study done by Turner and Kendall (2000) on Public Use of the Internet at Chester Library UK, who noted that only slightly higher use by men than by women.

#### 4.4.5.2 Age

Table 4.14 below shows the statistics for the age of users.

**Table 4.14:  
Usage of Internet in the Month of January by Age  
(n= 265)**

<b>Total Documents</b>	<b>265</b>
Mean Age	23.98
Median Age	21.00
Mode Age	19
Minimum Age	9
Maximum Age	49

From the analysis, it was observed that the mean age of the users was 23.98 years, with the minimum being 9 years and the maximum age being 49 years. The mode age of



users was 19 years. Therefore, this result supports the earlier findings that younger library users used electronic information resources more than older users.

#### *4.4.5.3 Users' access time using Internet*

Based on the examination of documents, the users' access time using Internet is shown in Table 4.15 below.

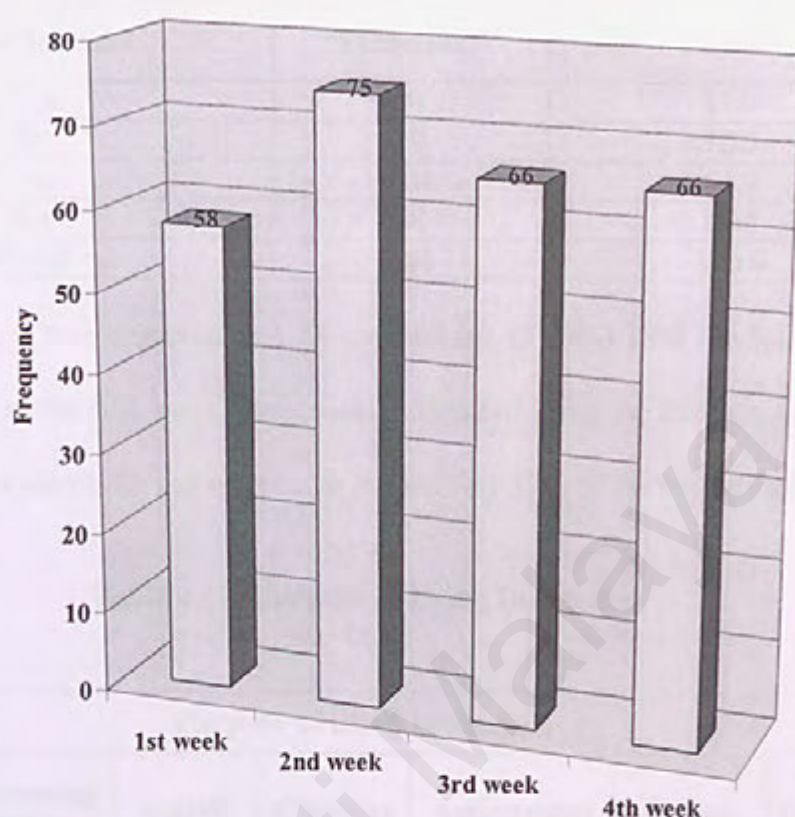
**Table 4.15: Frequency of Access Time  
on the Internet in January  
(n=265)**

Access Time	Frequency	Percent
One hour	240	90.6
Two hours	23	8.7
Three hours	2	0.8
Total Documents	265	100

As can be seen in Table 4.15, the highest percentage 90.6% of the users spent one hour of their time while accessing the Internet.

#### *4.4.5.4 Variation in use of Internet*

Based on the examination of document as shown in Figure 4.3, it showed the variation use of Internet by week.



**Figure 4.3: Total Usage of Internet in the Month of January 2005  
(n=265)**

From the analysis, it was observed that, usage of Internet is slightly higher on the 2<sup>nd</sup> week and relatively less in the 1<sup>st</sup> week. However, it was observed that the usage of Internet has almost similar distribution throughout the weeks.

#### *4.4.5.5 Purpose of using Internet*

Users were asked to indicate their usage of Internet services provided by the library. The findings are shown in Table 4.16 below.



**Table 4.16: Usage of Internet  
(n=162)**

Use of Internet	Frequency	Percent
Yes	84	51.9
No	20	12.3
Total	104	64.2
NA	58	35.8
<b>Total</b>	<b>162</b>	<b>100.0</b>

From the results, it was observed that 84 respondents (51.9%) used the Internet. This represents 66.7% of the EIR users. Their main purpose of using the Internet, as shown in Table 4.17, was to search for information as reported by 37% of the respondents.

**Table 4.17: Purpose of Using Internet  
(n=162)**

Purpose of using Internet						
Info Searching	Browsing WWW	e-mail	Chatting	Assignment	Games	Others: Download software
60 (37%)	38 (23.5%)	45 (27.8%)	19 (11.7%)	18 (11.1%)	6 (3.7%)	1 (0.6%)

This finding is also supported by another study (Al-Haddabi, 2004) who noted that 58.4% postgraduate's students preferred to use Internet for their information searching.

However, from the group interview, nearly all participants reported that they used Internet to look up for information to do their assignments.

#### 4.4.6 Usage of OPAC

The usage of OPAC by the respondents can be seen in Table 4.18 below, which showed that 66.0% of the respondents, representing 66.7% of the EIR users, used the OPAC.

**Table 4.18: Usage of OPAC  
(n=162)**

OPAC	Frequency	Percent
Yes	70	43.2
No	37	22.8
Total	107	66.0
NA	55	34.0
<b>Total</b>	<b>162</b>	<b>100.0</b>

##### 4.4.6.1 Searching method

The method of using OPAC is shown in Table 4.19 below.

**Table 4.19: Searching method  
(n=162)**

Searching Method	Frequency	Percent
Search by title	39	24.1
Search by author	13	8.0
Search by keyword	10	6.2
Search by subject	8	4.9
Total	70	43.2
NA	92	56.8
<b>Total</b>	<b>162</b>	<b>100.0</b>

As can be seen from Table 4.19, out of 70 respondents (43.2%) who used OPAC, 39 respondents (24.1%) searched by title.



This suggests that users primarily searched for resources by title. This may be due to users being more familiar with the title than other search approaches. It may also be that they remembered the title better than an author. The low use of searching by keywords is surprising.

These results are similar to the findings of (Norden and Lawrence, 1981 and Sirdhar, M.S, 2002) who found that the title searches were more frequent than author searches. It is also similar to a study done by Ariyapala and Edzan (2002) which revealed that the highest percentage of OPAC used was to find book title (81.0%).

#### 4.4.6.2 Users' Access Time using OPAC

Through observations done on 8<sup>th</sup> January and 19<sup>th</sup> February 2005 between 10.15am - 4.30pm each day, the average user access time using OPAC is as follows in Table 4.20.

**Table 4.20: Average Access Time on the OPAC**  
(n = 65)

Access Time	Users
5 -10 minutes	48
10 – 15 minutes	12
15 – 20 minutes	5
<b>Total Users</b>	<b>65</b>

As can be seen in Table 4.20 most users spent only a short amount of time (5-10 minutes) accessing the OPAC. However, in certain circumstances the same user kept on continuing accessing OPAC several times.

#### 4.4.7 Usage of Online Databases

Users were also asked about their usage of online databases. The results are shown in Table 4.21.

**Table 4.21: Usage of Online Databases  
(n=162)**

Use of Online Databases	Frequency	Percent
Yes	26	16.0
No	76	46.9
Total	102	63.0
Not Applicable	60	37.0
<b>Total</b>	<b>162</b>	<b>100.0</b>

The use of online databases was rather low, with only 16.0% of the respondents. This may be due to the nature of information contained in them, which tends to be more academic rather than targeted towards the general public. This is in line with a study done by Burnstein and Williamson (2000) who noted that the major findings why the Gulliver databases (i.e. four databases in four Victorian public libraries) were not being used to the optimal level and the lack of training was being blamed.

##### 4.4.7.1 Race

Based on the examination of documents, Table 4.22 below shows the usage of Online Databases according to race.



**Table 4.22: Usage of Online Databases  
According to Race in the Month of January 2005  
(n=21)**

<b>Race</b>	<b>Online Databases</b>
Malay	8
Chinese	11
Indian	1
Sikh	1
<b>Total Users</b>	<b>21</b>

As can be seen from Table 4.22 above, the usage of Online Databases among the Chinese respondents is higher compared to the Malay and other races.

#### 4.4.7.2 Age

Based on the examination of documents, Table 4.23 shows the mean age group that uses Online Databases.

**Table 4.23: Usage of Online Databases  
in the Month of January by Age  
(n=21)**

<b>Total documents</b>	<b>21</b>
Mean Age	30.00
Median Age	29.00
Mode Age	29

From the analysis, it was observed that the mean age of the online databases users was 30.00 years, with the median age being 29.00 and the mode age 29 years.

#### 4.4.7.3 Variation in use of Online Databases

Table 4.24 below, shows the variation use of online databases over the month of January 2005.

**Table 4.24: Use of Online Databases  
in the Month of January 2005  
(n=21)**

<b>Variation Use of Online Databases (Jan. 2005)</b>	<b>Number of users (Jan. 2005)</b>
1 <sup>st</sup> week	5
2 <sup>nd</sup> week	4
3 <sup>rd</sup> week	7
4 <sup>th</sup> week	5
<b>Total Users</b>	<b>21</b>

As can be seen Table 4.24, the weekly distribution usage of online databases were similar over the four weeks. However, from the table it was found out that very small users used the online databases.

#### *4.4.7.4 Users' Access Time using Online Databases*

Based on the examination of documents, Table 4.25 shows the users' access time using the online databases.

**Table 4.25: Access Time on the Online Databases  
in the Month of January 2005  
(n=21)**

<b>Time Accessed</b>	<b>Total Users</b>
½ hour	8
One hour	13

From the analysis above, most users spent their time about an hour in accessing the online databases.



#### 4.4.7.5 Types of Online Databases Accessed

Users were also asked to indicate the types of online databases they accessed. The results are shown in Table 4.26.

**Table 4.26: Types of Online Databases Accessed  
(n=162)**

Online Databases Accessed	Frequency	Percent
MyLib - EBSCOhost	10	6.2
- CLJ Legal Network	1	0.6
- SirimLink	1	0.6
- PalmOilis	0	0
INFOTRAC - Computer Database Resources	2	1.2
- Health and Wellness	10	6.2
ProQuest	0	0
General Business File ASAP	0	0
BERNAMA InfoLink	7	4.3
NSTP e-media	8	4.9

From the analysis above, it is noted that MyLib – particularly EBSCOhost, INFOTRAC - Health and Wellness Resources, NSTP e-media and BERNAMA InfoLink were used more than others. However, within this group, EBSCOhost was used far more while the specialized databases of SIRIMLink and CLJ Legal Network were very little used. As can be seen from the table, none of the respondents used Palmoilis within MyLib, ProQuest and General Business File ASAP.

This is also supported from an examination of forms, which indicated a similar trend as shown in Table 4.27.

**Table 4.27: Types of Online Databases  
Accessed In Month of January 2005  
(n=21)**

<b>Online Databases Accessed</b>	<b>Total Users</b>
MyLib	19
INFOTRAC	5
<b>Total</b>	<b>21</b>

The results above showed that MyLib and INFOTRAC were the main databases used by the users. The results above indicated a low usage of online databases among the users in Penang Public Library Corporation. The reasons for this low usage may be due to the lack of promotion or the databases not meeting the needs of the users. In the group interviews, one respondent suggested that the library should subscribe to the ERIC database.

However, from the findings revealed the more popular online databases accessed were:

EBSCOhost	-	6.2%
INFOTRAC (Health and Wellness Resources)	-	6.2%
NSTP e – media	-	4.9%
BERNAMA InfoLink	-	4.3%

The findings above is in line with Lagier (2003) who indicated that EBSCOhost was used more than ProQuest databases and CQ Researcher.



#### 4.4.8 Usage of CD-ROMs

Users were asked to indicate their usage of CD-ROMs. The findings can be seen in Table 4.28 below.

**Table 4.28: Usage of CD-ROMs  
(n=162)**

Usage of CD-ROMs	Frequency	Percent
Yes	12	7.4
No	94	58.0
Total	106	65.4
NA	56	34.6
<b>Total</b>	<b>162</b>	<b>100.0</b>

The use of CD-ROMs was low with only 7.4% of the respondents.

Table 4.29 shows the use of ProQuest GPO.

**Table 4.29: Usage of ProQuest GPO  
(n=162)**

ProQuest GPO	Frequency	Percent
Yes	12	7.4
NA	150	92.6
<b>Total</b>	<b>162</b>	<b>100.0</b>

The table above showed that only 12 respondents (7.4%) used ProQuest GPO. Usage of CD-ROMs was low among users in public library. This findings is in tune with Majid (2001), who noted that only one-half of the library users were using CD-ROMs technology. This probably shows lack of publicity and user education programmes. Other studies that noted the low level of CD-ROMs were in Ghanaian libraries by (Boye, 1996; Kisiedu, 1999) and among the reasons given were computer technology and CD-ROMs service in libraries in Ghana were relatively new phenomena.

#### 4.4.9 Usage of Electronic Journals

Table 4.30 showed the usage of electronic journals and the following Table 4.32 showed the subject searched among the users.

**Table 4.30: Usage of Electronic Journals  
(n=162)**

Electronic Journals	Frequency	Percent
Yes	31	19.1
No	73	45.1
Total	104	64.2
NA	58	35.8
<b>Total</b>	<b>162</b>	<b>100.0</b>

**Table 4.31: Subjects searched for information using electronic journals  
(n=162)**

Subject	Frequency	Percent
Education	14	8.6
Computer	13	8.0
Management	10	6.2
Economics	7	4.3
Law	7	4.3
Business	4	2.5
Social Science	4	2.5
Tourism	3	1.9
Medical	2	1.2
Arts	1	0.6
Other: General	1	0.6

It was found out that only 31 respondents (19.1%) used electronic journals and this percentage is rather low. This is in line with the findings by (Harter and Kim 1996) who found out that the rate of electronic resources used was extremely low, only 1.9% and 0.2% respectively for e-journals out of the total articles examined. Another study done by Dillon and Hahn (2002) who reported that 31% of the faculty members never used



electronic journals; the reasons cited were unfamiliarity with how to access the journals and a lack of need.

Table 4.31 shows the most subjects they searched for were Education, Computer and Management. It is clearly shown that those subjects have impact on the users. The library should take note in subscribing more electronic journal on the subjects being used and to promote those lesser used subject areas.

4.4.10 Reasons for not using EIRs

The reasons as to why respondents were not using EIRs services in PPLC are shown in Table 4.32

Table 4.32: Reasons for not using EIRs  
(n=162)

Reasons for not using EIRs	Never heard of any	Don't know how to use	No need for them	Complicated and difficult to use	Difficult to get connected
54 (33.3%)	11 (6.8%)	12 (7.4%)	22 (13.8%)	11 (6.8%)	0 (0%)

Table 4.32 above shows that 54 respondents (33.3%) did not use EIRs provided by the PPLC. The reasons given by 22 respondents (13.8%) were that they did not need EIRs, 12 respondents (7.4%) did not know how to use them, 11 respondents (6.8%) said that they never heard of any and it was complicated and difficult to use.

Table 4.33 shows a cross tabulation of age group and their reasons for not using EIRs.

**Table 4.33: Cross Tabulation of Age group and Reasons for not using EIRs (n=162)**

Age Group	Reasons for not using EIRs			
	Never heard of any	Don't know how to use	No need for them	Complicated and difficult to use
13-19 years	3	2	5	-
20-29 years	6	4	12	5
30-39 years	1	4	3	5
40-49 years	1	1	1	1
55-59 years	-	1	1	-
60 and above	-	-	-	-

From the cross tabulation of age group and reasons for not using EIRs, as shown in Table 4.33, it was found out respondents from age group of 20-29 years were the most who did not use EIRs and most of them said they do not need EIRs.

This finding is supported from the group interviews on 19<sup>th</sup> February 2005, where users who were mainly college or university students, preferred to use EIRs facilities provided by their college or university libraries. They claimed that their visit to the public library basically was to refer the reference collections and stated that PPLC have better books collections. For those who are working, they are normally well equipped with Internet facilities at their work place.

As to increase the usage of the EIRs among the library users, quite a number of respondents suggested that the PPLC must do a lot of promotion and implement a user education programme. This is in line with Adams and Bonk (1995) who indicated that



the most common reason for not using electronic information resources at the libraries of the State University of New York was a lack of awareness of what is available.

#### **4.5 Level of Satisfaction with the Electronic Information Resources (EIRs)**

##### *4.5.1 Users satisfaction on EIRs*

In order to investigate how satisfied the users were with the EIRs provided by PPLC, the survey asked the respondents to indicate their level of satisfaction. The findings are shown in Table 4.34 below.

**Table 4.34: Users Satisfaction on EIRs  
(n=162)**

<b>Very Satisfied</b>	<b>Satisfied</b>	<b>Somewhat Satisfied</b>	<b>Dissatisfied</b>	<b>Very Dissatisfied</b>	<b>No Opinion</b>
6(3.7%)	60(37%)	32(19.8%)	3 (1.9%)	3 (1.9%)	1 (0.6%)

From the Table 4.34, it can be seen that overall respondents were satisfied (37%) or somewhat satisfied (19.8%) with the electronic information resources provided by the library.

##### *4.5.2 Users satisfaction on types of EIRs*

Users were asked to indicate their satisfaction to each type of EIRs provided by the library. The findings can be seen in Table 4.35 below.

**Table 4.35: Level of Satisfaction on types of EIRs  
(n=162)**

Level of Satisfaction	Internet	OPAC	CD-ROMs	Online Databases	Electronic Journals
Very Satisfied	10.5%	0	1.2%	0	0
Satisfied	29.6%	21.6%	3.7%	6.2%	6.8%
Somewhat satisfied	12.3%	11.1%	2.5%	6.2%	4.9%
Dissatisfied	2.5%	3.7%	0	2.5%	3.7%
Very Dissatisfied	0	3.7%	0.6%	0.6%	1.2%
No opinion	0	0	0.6%	0	0

From the table above, it was found out that the user's satisfaction for each type of EIR provided by the library was satisfactory. The percentage of satisfaction (very satisfied + satisfied + somewhat satisfied) for all EIRs provided is shown in Figure 4.4 below:



**Figure 4.4: Percentage of EIRs Satisfaction  
(n=162)**

#### 4.5.3 Adequacy of collection of EIRs

Users were asked to indicate on the adequacy of the collections of EIRs. The results are shown in Table 4.36.



**Table 4.36: Adequate collection of EIRs  
(n=162)**

Very Satisfied	Satisfied	Somewhat Satisfied	Dissatisfied	Very Dissatisfied	No Opinion
1.2%	17.9%	21.6%	14.2%	4.9%	4.9%

Based on the results shown in Table 4.36 above, it was found out that respondents were somewhat satisfied (21.6%) or satisfied (17.9%) with the EIRs collection in PPLC. This is supported by the group interviews; where the respondents gave positive comments that the library has better collections than their college library.

#### 4.5.4 Training in using EIRs

Table 4.37 below shows the users satisfaction in training provided by the PPLC.

**Table 4.37: Training on using EIRs  
(n=162)**

Very Satisfied	Satisfied	Somewhat Satisfied	Dissatisfied	Very Dissatisfied	No Opinion
1(0.6%)	21(13%)	34(21%)	28(17.3%)	9(5.6%)	12(7.4%)

As the table above suggests, the majority of respondents (34 respondents or 21%) were somewhat satisfied with the training, while 28 respondents (17.3%) were dissatisfied. This gives an indication that users felt training was very much required. These finding are in line with (Ibrahim, 2004) who mentioned that training provided by the United Arab Emirates University (UAEU) library was rather less satisfied. The findings also supported Ramzy and Ur (2004) who mentioned a large number of users proposed a variety of measures of formal orientation and training to become more effective users. A

few comments from the respondents were also made about their dissatisfaction, as outlined below:

1. Complicated to use electronic resources and therefore training is needed
2. No training provided
3. No clear instruction in using EIRs
4. Not enough information given on how to use
5. Explanation on using OPAC is needed.
6. Need assistance in using EIRs

Based on the group interviews on 19<sup>th</sup> February 2005, 4 participants commented that the library should promote the EIRs services. Thus, the library needs to provide extensive training for the users in order to have greater impact on the usage of EIRs.

#### *4.5.5 Assistance by the Librarian*

Tables 4.38 below showed ways of the users obtain assistance in using OPAC.

**Table 4.38: Observation on Assistance in using OPAC  
(n=65)**

Assistance in Using OPAC	Number of Users
Friends/Parent	12
Librarian	2
On their own (Refer Manual)	51
<b>Total Users</b>	<b>65</b>



Based on the observation done on 8<sup>th</sup> January and 19<sup>th</sup> February 2005, it was found that the OPAC terminals are situated quite far from the Librarian's Desk. This situation might hinder the users to approach the librarian easily. As a result, users seemed to use the systems on their own or were more likely to ask friends/parent more compared to approaching the Librarian for help. This finding is in line with the study done by Ariyapala and Edzan (2002) who found that 66.7% of their students learnt OPAC by themselves.

This finding is also supported by the group interviews, where a few respondents commented that they were 'shy' to approach the librarian. This cannot be explained to why they were reluctant to approach the librarian.

In order to better serve the users it was suggested that the staff of PPLC must always be proactive in offering their help to the users as librarians are the forefront of information and dissemination. This is in line with the study done by Tenopir (2003) who mentioned that the existence of the libraries is needed as users rely more on electronic subscriptions provided by the libraries. Previous researches suggested that library services could be upgraded by providing more library materials and educating the users to gain help from the librarians whenever needed.

#### *4.5.6 EIRs Advantages and Disadvantages*

The advantages of EIRs perceived by the respondents are shown in Table 4.39.

**Table 4.39: EIRs Advantages**  
(n= 162)

EIRs Advantages	Percent
Fast and efficient	55 (34.0%)
Easy to get information	40 (24.7%)
Variety of information	36 (22.2%)
Up to date information	20 (12.3%)
Convenient	17 (10.5%)

On the pros and cons of using EIRs, *fast and efficient* seemed to be thought of as an advantage by most respondents (34%) while another 24.7% considered it as *easy to get information* and 22.2% indicated as *variety of information* available.

This findings was in line with Ray and Day (1998) who noted that the students reported the top three ways that access to electronic resources has improved their academic careers: access to a wider range of information, faster access to information and easier access to information

This was also mentioned in group interview where the advantages of Internet were perceived as information that is available 24 hours a day. Two respondents quoted that,

*"Can do things freely"*

*" Gives the ability to do work at anytime of the day until late at night"*

The disadvantages of EIRs perceived by the respondents are shown in Table 4.40 below.



**Table 4.40: EIRs Disadvantages  
(n=162)**

<b>Disadvantages</b>	<b>Percent</b>
Takes time	42 (25.3%)
Difficult to get right information	29 (17.8%)
Relevancy of information	24 (14.8%)
Insufficient information	18 (11.1%)

Based on the result above, the three main disadvantages of EIRs that were ranked according to percentage as follows:

1. Takes time 25.3%
2. Difficult to get right information 17.8%
3. Relevancy of information 14.8%
4. Insufficient information 11.1%

During the group interviews; most frequently mentioned factor about disadvantages of the Internet usage was the quantity of information that was obtained. It was difficult to determine the relevant information. As quoted by a respondent:

*"You can get carried away by keeping on searching and ended-up looking at irrelevant information."*

#### **4.6 Users' suggestions on how to improve EIRs services provided by PPLC**

This section gathered the respondents' opinions on how to improve EIRs services provided by PPLC. A total of 64 (60.5%) respondent gave their suggestions. Those suggestions can be categorized as follows:

1. To add computers in the Internet Section and speed up the connections
2. To add OPAC terminals
3. Maintenance of the computers need to be look into
4. Need staff to assist the users
5. Need user education program
6. Promote the services provided
7. Reduce charges or provide free service of the Internet

#### **4.7 Summary**

This chapter has presented the analysis of the data from a survey, group interviews, observations and examination of documents on the use of electronic information resources among the users of the Penang Public Library Corporation. This chapter explored the demographic information among the respondents followed by the analysis of the 79 variables related to the usage of the EIRs and satisfaction with the EIRs.

From the analysis it can be seen that 66.7% of the respondents indicated that they used EIRs provided by the library. The most frequently used EIRs were the Internet and OPAC. In addition, those who used EIRs were from the mean age of 26.78 years which



is similar to the percentage of respondents' category that belong to school, college, university students and professional group. The high percentage (33.3%) of respondents suggesting that the reason they did not use EIRs was because they *did not need EIRs, did not know how to use, and never heard about it*. This problem needs to be addressed. From the analysis also, most of the respondents were satisfied with the EIRs provided by the library. In order to maximize the usage of the EIRs among the users the library should proactively promote and market the EIRs more effectively. It would seem, from the comments made the users felt the library provide insufficient training and as such, the library needs to provide extensive training especially to less popular EIRs.

The next chapter presents a summary and discussions of the findings, implications and recommendations. It also presents some suggestions on future research that can be done as to draw more useful findings from the public libraries perspective.

## **CHAPTER FIVE**

### **DISCUSSION, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSIONS**

#### **5.1 Introduction**

This final chapter presents a summary and discussion of the findings, implications, recommendations and conclusions. This chapter concludes by providing areas for future research in the public library field.

#### **5.2 Summary of the Findings**

The analysis of the data led to the followings findings:

1. All EIRs provided by PPLC are being used by the users and it positively matches the PPLC's mission.
2. Younger age group rely more on the EIRs.
3. Internet is the most popular EIRs used and this is followed by OPAC. However the usage of CD-ROMs, Online databases and Electronic Journals has not been fully utilized by majority of the respondents due to lack of awareness and effective promotions by the library.
4. Reasons for not using EIRs included being unaware of the services, not needing the electronic resources, and not knowing how to use.
5. Library users requested guidance from the librarian and effective training programmes to help them in using the EIRs efficiently.



## 5.3 Discussion

### 5.3.1 EIRs usage in PPLC

Based on the findings, the demographic factors (age and category of respondents), the number of respondents who used the EIRs was found to be from the school, college, university and professional groups. The younger group used the EIR differently than older group. The younger group in the age of 13 – 29 years was more likely to use Internet for:

Chatting	-	89.5%
Email	-	84.5%
Browsing WWW	-	84.3%
Assignment	-	83.3%
Games	-	83.3%
Information searching	-	78.5%

Respondents over the age of 30 and above used Internet activities less. Older group was most likely to use EIRs for:

Information searching	-	21.7%
Browsing WWW	-	15.8%
Email	-	15.5%
Chatting	-	10.6%
Assignment	-	16.7%
Games	-	-

Whereas for the usage of Online databases, CD-ROMs and electronic journals it was found out the age of 29 years and above used more of the services. This is due to the usage of these types of EIR was more specific to certain category of users.

Internet and OPAC were seen as EIRs preferred among the PPLC users. This was probably due to their familiarity in using these types of electronic information resources. Another possible reason could be that the respondents had been exposed to the Internet much earlier as compared to other types of EIRs. Through the findings, it was indicated that the users used the EIRs according to their preferences. This suggested that users may use online database, electronic journals and CD-ROMs more frequently and if they were aware of their benefits. In order to help users enhance the use of others EIRs, PPLC need to adequately promote others EIRs and improve its training programme.

### *5.3.2 Training on the use of EIRs*

In today information age it should be agreed that there is an increase in information resources available especially those published electronically. Individuals who were not familiar with these sources will not be able to select the most accurate and effective one and will not benefit from its content. Therefore, it was suggested that training on the use of these resources should be done as to promote the usage of it.

The study found that 43.9% respondents (very dissatisfied + dissatisfied + somewhat satisfied) were less satisfied with the training provided by the PPLC. Therefore, it is important for the library to provide good user education programme that could increase



the user's capability in 'information skills'. Without good training these valuable electronic resources will be underutilized by the majority of the users. PPLC should also conduct workshops to introduce and demonstrate to the users the full range of EIRs available, especially electronic journals, online databases and CD-ROMs.

Based on the findings, there were some respondents who perceived that information on the Internet was 'difficult to get the right information' and that it was 'difficult to determine relevant information.' Internet was seen as a rich source of information and the library could help to improve the users on Internet information literacy by creating online tutorials. These online tutorials could be a practical use in finding the information needed. The online tutorials should provide some basic Internet search tools, such as search engines and how to use the best keywords for good search strategy. Internet training is important for users who have lack in-depth experience or even for those who have better understanding because technology is always ongoing change.

Hopefully, after attending the training programme the users would develop positive attitude towards the library and feel more confident when using the library services. PPLC must provide training on an-going basis because not all users could use all the resources provided unaided and professional help is very often needed.

### *5.3.3 Reasons for not using EIRs*

Based on the findings that 7.4% of the respondents 'don't know how to use', there is a possibility that they did not obtain the professional library help they need or they were reluctant to approach the librarian for assistance. In this case the library needs to

improve the training program. The library also needs to do marketing and promotion for the EIRs services provided, because it was clearly stated that 6.8% of the respondents answered 'never heard' about the services. In this case the library needs to take a more aggressive approach to market the EIRs. Beside that, 6.8% of the respondents stated that they did not use EIRs because it was 'complicated and difficult to use.' In this situation PPLC should set some strategies to provide training or individual user assistance to some potential users.

However, 13.8% of the respondents said that they did not need EIRs. This may be because they did not know the advantages of EIRs. It is important to note that according to the Public Library Service, IFLA/UNESCO Guidelines for Development (2001), the public library should help its users develop skills that will enable them to make the most effective use of the library's resources and services.

#### *5.3.4 New roles of the Librarians*

Through the observations, it was found out that lack of efficiency of the librarian somehow had led to the low usage of the EIRs. The librarian seemed to neglect the needs of the users, by not attending the users when they faced problem of accessing the EIRs services. This may be due to the fact that PPLC did not have enough staff to attend all the users, or the librarians were bogged down by their heavy work load. The request for guidance and assistance, as suggested by the respondents also justifies this observation.



Nowadays, with the great variety of electronic resources offered by the library, librarians are often seen as electronic-resources expert. PPLC should emphasize on enhancing the role of reference librarian and training of library users for EIRs use should be a high priority. In fact the users need more guidance in using electronic resources than they did in using a library of print materials. Reference librarian should play an important role in advising and recommending these electronic resources that are available in the library and help the users in using them at the point of enquiry and information need. The librarian must develop and maintain a good knowledge of the content and scope of each resource.

#### **5.4 Implications**

The findings of this study have several implications for PPLC services.

##### *5.4.1 Selection of EIRs*

In selecting electronic resources, librarians were being guided by the collection policy but usually the contents were pre-determined by the vendors. The contents may include some materials with little or no relevance to the library users. Based on the findings, the survey helped the library in deciding the selection of EIRs particularly to support the subject interest of the users. The three main subjects' areas indicated by the respondents were Education, Computer and Management. In this case the library management should look whether there is a gap in the collection in these subject areas. The findings also helped PPLC justify which database subscriptions should be dropped, added or retained. In addition, PPLC should keep and study the web links statistics as to keep track of the link usage in order to determine the destination where the users frequently click to

obtain information. Thus, the library can gather information on the users' preferences between the local web sites or the subscription databases. Information can also be captured on most searched subject areas and through the observation and evaluation of the PPLC webpage, it is suggested that PPLC should create subject driven web pages as to ease the usage of these electronic services.

#### *5.4.2 Training on Use of EIRs*

The growth of electronic information had created a high expectation from the users, for the librarian and library staff to assist and instruct users in using EIRs. Without good training, the electronic services provided will not be fully used by the library users. The library must always bear in mind that training is the best way in making the services provided fully appreciated and the users will gain benefit from it.

#### *5.4.3 Marketing of EIRs*

Lack of marketing has led to low usage of the EIRs services. The findings from this study also indicated that 33.3% are non-users of EIRs. If sufficient marketing is done the number of usage would probably increase.

#### *5.4.4 Promote the EIRs services to all level age group, especially to older age groups*

Old age group can be defined as generally people aging 56 and above which is the retirement age in public service in Malaysia. Library needs to know what their information needs are. Through the membership data the library can identify this older



age group and conduct group interview and studies in order to gauge how collections, services and programs are relevant to this age group. This will help the library to ensure their needs and interest is reflected in the library services. PPLC can offer website for these older age group, focusing information on health issues, retirement, grand parenting, and travel and leisure activities. Some other activities can be included such as 'Senior Day' which the library can offer hands-on learning such as email classes, so there will be an effort shown by the library to connect older groups with new technology.

## **5.5 Recommendations**

Based on the results obtained, the following recommendations are proposed for an improvement in EIRs used at PPLC.

### *5.5.1 Awareness of EIRs*

The results clearly show that a large number of respondents are unaware of EIRs that are available in the library. As a result, these resources are not fully appreciated by the users. In order to address this lack of awareness of EIRs, there is a need to disseminate information about the EIRs availability and this can be done through user education programmes, individual user assistance, small group discussions, printed documentation and pamphlets. This can raise awareness and develop a closer relationship between the library and its users.

The user education programme is necessary and PPLC must put greater effort to guide the users that could improve their ability in using the EIRs services effectively. This is

due to the fact that the more electronic resource that library acquires and makes available to the users, the greater the demand for instruction on how to access and use those resources effectively and efficiently. Training for the less popular electronic resources is also important in order to encourage the use of it. This is in line with Dutton who suggested that the skills required to maximize the potential of electronic resources are much greater than those required for searching printed sources. (Dutton, 1990).

#### *5.5.2. Managing the electronic resources*

One of the priority tasks of PPLC is to manage whatever they have subscribed or created so that the usage is efficient. Users commented about problems of disconnectivity due to power failure, and the absence of certain subject areas, such as management and education. Once material has been acquired it needs to be managed efficiently. In the management of EIRs, for example electronic journals, there is always an ongoing maintenance problem. Titles are being added and removed on a regular basis, and to maintain updated information on holdings is difficult. Nevertheless, PPLC needs to manage the EIRs to meet the users' needs.

#### *5.5.3 Expand the number of Internet PC*

PPLC must ensure that there are sufficient computers available for the users, especially for those who are using the *Siber Kafe* (Internet Section). This is due to the suggestions made by the respondent who stated that more computers should be added in that section. Based on the Internet usage statistics compiled by PPLC there is an average of 350 users of the Internet computers per month. Library management should also upgrade the



systems used and should make sure that the maintenance of the computers is regularly being done.

#### *5.5.4 Marketing and promotion of EIRs*

The main concern to PPLC is achieving organizational goal and objectives, user satisfaction and provides satisfying services to all their users. It is important to note the library must always apply some marketing approach. PPLC must plan and strategize effectively their products and services.

This is in line with Bryson (1992) who feels that "information and information sources can and should be marketed like any other commodity in order to ensure their effective use".

It was clear from the findings that PPLC needed to address marketing and communications issues. Library management must create and implement a marketing plan to increase awareness of the library information resources particularly CD-ROMs, electronic journals and online databases. Successful marketing will help library to manage user expectations and increase awareness and use of the library resources and services. The library must ensure that users are aware of the services and resources that are available. An important step in any marketing strategy is to study the needs of the users as well as evaluate the services. Library frequently gathers certain types of statistics for example Internet use, reference questions and circulation statistics. These statistical data can be used to create a profile of specific target groups that use the library services. When analyzed, these users' details and preferences would give the library capability to target groups for specific educational or promotional efforts. With the

promotion efforts; monthly program can be initiated so that the library can manage to increase the variation in use of the EIRs.

In order to help to ensure that EIRs are used widely and effectively it is important to have marketing strategies in place and also information skills training opportunities. It is also essential to have good formal and informal mechanism set up to ensure that these resources purchased or created are the right ones and that they are used.

### 5.6 Future Research

As a whole, this research gives a brief look into the EIR services provided by the PPLC. The findings from this study suggest several areas that could be studied further in order to draw more useful findings and analysis from the public libraries perspective.

The followings are some suggestions that can be studied further.

1. Further efforts to replicate this study with more respondents should be useful in order to obtain more concrete results and analysis.
2. A similar study can be done to investigate the usage of electronic information resources in all the branch and village libraries at PPLC in order to portray a broaden picture.
3. A user assessment project should be conducted on a periodic basis at PPLC in order to identify information needs, analyze trends and to determine level of satisfaction with the services provided. As highlighted by Kebede (2002);



major steps need to be taken in order to continue identifying and meeting users' need in electronic environments primarily should involve:

- keep users informed of the requirement of electronic information sources, assessing existing capabilities of users, both personal and environmental in a continuous basis;
- determining the difference between users' capabilities or requirement of electronic information sources and
- determining the nature of electronic information sources to be provided so that they are accessible and usable within the capabilities of the users

The user assessment project need to be undertaken in order to learn more about the users needs and satisfaction. The assessment data can be used in strategic planning that will enable library to implement changes to improve its products and services. Like a famous saying, "The user spoke... and library responded."

4. A similar study can also be done to investigate all the public libraries in Malaysia in measuring the usage of electronic information resources provided by the library. The information obtained will be valuable source of a country report.
5. A study can be carried out focusing on specific target group to acquire their needs according to the individual group and various types of electronic

resources used based on their purpose. This is essential for the library to better improve their services in order to meet the users' expectations.

6. A similar study can also be conducted by the National Library of Malaysia because it also provides EIRs services to its users. Furthermore the users of National Library of Malaysia are similar to the public library users. This study can also portray the usage in a larger library.

## 5.7 Conclusion

The overall findings of this study revealed that the users at Penang Public Library Corporation used EIRs and the younger group used more of the EIRs services. However it is interesting to note that the age group of 60 and above also used the EIRs services provided by the library. Through these findings it also indicated that the users used EIRs according to their preference and accessibility of the EIRs. Internet and OPAC were seen to be the preferred EIRs. In order to increase the usage of other EIRs, PPLC needs to promote and improve the training programme so as to create awareness of their benefits. Through the suggestions given by users, PPLC should actively guide the users in recommending the resources and help the users in using the electronic resources. The findings also stated that there were users at PPLC who did not use EIRs services. Given this scenario, PPLC needs to plan in term of minimizing the percentage of non-users of EIRs.



## 5.8 Concluding Statement

The purpose of this study was to find out the usage of EIRs among the users at Penang Public Library Corporation (PPLC), their level of satisfaction with the services provided, satisfaction on the training, and suggestions for improvement. It was found that all EIRs facilities provided by the library were being used by the users at different levels. They were generally satisfied with the services but were only somewhat satisfied with the training and they hoped for more training and facilities. It is hoped that the findings will be useful to the PPLC and that the study has made a contribution to the body of knowledge on the use of electronic information resources.

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