# CHAPTER 2

# REVIEW OF LITERATURE

This section aims to provide the history of online database, present status of online databases, online databases for library use, and definitions of online database. The review of previous studies on online databases will also be discussed.

## 1. The Fundamental of Online Database

### Database History

Online Database might be interpreted in several aspects and thus the understanding about it tends to vary. As one of the key words that need to be regularly mentioned, it is then necessary to explain its fundamental as well as definitions.

The word "database" was first used since 1950, when the Ministry of Defense of the United States of America built its first library to keep their navy document and weapons. This library was later known as "database" with the specific sense of the base of data. (Nongluck Mainaikit. Library Science Papers No. 31, October 1992: 82) Databases are understood as "the preferred method of storage for large multiuser applications, where coordination between many users is needed." (www.en.wikipedia.org/wiki/database.html, March 31st 2008) Databases then became a necessary tool that helps a large number of people access needed information. It also refers to "the collection of information, which can be stored in various types of formats" as defined by Palmer (1987). He explains further that "[A]n address book, a telephone directory, a membership list are examples of databases." To sum up, databases then are sources of information that generally exist in most places where information is needed that can serve a large number of users effectively.

Apart from serving as a source of information that can be accessed by users, "databases are designed to offer an organized mechanism for storing, managing and retrieving information." (www.databases.about.com) There are 4 main actions that databases can perform which are as follows:

1. Retrieve all records that match certain criteria
2. Update records in bulk
3. Cross-reference records in different tables
4. Perform complex aggregate calculations
   (www.databases.about.com)

Databases then provide numerous benefits for users to suit their demands with multi-functions. Interestingly, contents stored in databases can be adjusted and updated, which means that users can obtain information that is current. Combined with the benefits from the internet network, databases can be utilized in a greater capacity in a way that users can access to the information from a remote location without limitations of time.

**Online Database**

In the age of high rate of business competition, information is powerful for people in every field of work. In processing business, the lack of information refers to the weaknesses of idea, success and even monetary values. In the realm of education, information contributes to the new knowledge. As the rapid growth of information demand increases, the ways of searching information also change from the past. To save time and cost, people turn to seek for information which is fast and easy to access. Online searching, the use of computer to retrieve information online from databases, can effectively responds to such need.

Yet, databases and online databases are not identical. *Wikipedia* terms online database as "a database accessible via a network, now generally the internet. It differs from a local database held in an individual computer or its attached storage, such as CD." (www.en.wikipedia.org/wiki/Online_database.html)

In modern information searching method, to access an online database, users need to have an access of the Internet network. Harley Bjelland (1997:4) states,

> "Online databases are created and periodically updated by companies, individuals, academic institutions, corporations, governmental agencies that produced those databases. The users then can lease from database vendors, who in turn charge them for accessing their databases. Online databases can be accessed electronically form a computer located at a remote distance worldwide."

Online databases in this sense are commercial information services produced by any organizations and traded with others and thus provide mutual benefits. In addition, online databases are versatile source of information as Bjelland (1997) describes,

> "[e]ach database contains collection of information files of text, graphics, numeric and data in different formats of books, periodicals, articles, and document. One online database then functions as a library, except that the books, periodicals, newspapers and documents in the database are "shelved" electronically. Each database usually maintains specific data of a discipline, but some can contain multidisciplinary."

Online databases, from this point of view, provide a wide array of electronic information or serve as "mobile libraries" that users can benefit from. Interestingly enough, information of some online databases is accessed even before it is published in a printed source. This phenomenon can explain very well that online database service is beneficial to users around the world as it offers conveniences in terms of time and a variety of information sources that users can obtain from a single point of searching.

To summarize, online database means information which a producer or commercial vendor compiles by purchasing various papers, articles, reports, news, documentaries, and other formats of information. This information is then categorized into certain subjects available for users. Online Databases are considered a major source of knowledge in various fields that most organizations have to provide to their personnel.

In a short time, online searching became more and more popular because the online retrieval could access directly to the vast volume of data in a few seconds. It is evident that the demands increased when more people purchase their own personal computers. Realizing the increasing need for online searching, many libraries all over the world have equipped themselves with the online database service, a kind of electronic resource which the libraries subscribe from the database vendors around the globe.

### Bibliographic Database

Library, as a forum of knowledge and research, has adopted online databases as a significant mission aiming to provide students with a complete service of information. In *Wikipedia*'s words, library database can be explained as follows:

> "A bibliographical or library database is a database of bibliographic records. It may be a database containing information about books and other materials held in a library (e.g. an Online library catalog or OPAC) or, as the term is more often used , an electronic index to journal or magazine articles, containing citations, abstracts and often either full text of the articles indexed, or links to the full text."
> (www.wikipedia.org/wiki/Bibliographic_database)

A bibliographical or library database is a rich complete source of information that benefits users academically and thus serves researching process. Presumably, it will enhance the quality of academic works as more knowledge or information can be obtained and integrated systematically.

## 2. The Online Database Service of Chiang Mai University Library

To achieve a goal of being a quality research university, one measure that Chiang Mai University has to take is to follow the University's policy by providing users the Online Databases Service. Online resource became more important and vitally necessary for scholars, students, professors, lecturers and other users either

inside or outside the university. Regarding to the fact that researchers in a research university require diversified, in-depths, specific and advanced information as well as a fast and convenient access, Chiang Mai University Library attempts to provide the world best online databases that cover all disciplines of teaching and learning to ensure their users with the ultimate benefits. Therefore, in the year 2001, 19 Online Reference Databases Service were introduced and used (Annual Report 2001). Later on, the Commission of Higher Education, Ministry of Education, took responsibility in providing all governmental universities with subscription of 5 online databases every year to support the consistent research for students.

The sample of one popular online database is "Dissertation Abstracts Online (DAO)", which is a database that collects dissertations of Master's Degree and Doctorate Degree of students in the universities in America, Canada, England and Australia. It provides multidisciplinary contents by giving bibliographical data and abstracts from the year 1861 to the present. Besides DAO, ERIC is another interesting educational database that collects the educational information including abstract, bibliographical data, and various related journals since the year 1966 to the present.

Presently, the Central Library, Chiang Mai University provides a wide range of online services for lecturers, students, and human resources to support academic progress. Those services include Reference Databases, e-Journals, e-Books, CMU e-Theses, and CMU e- Research. The followings are 30 online databases available in Chiang Mai University Library, and each database serves different purposes in a variety of academic fields. Each database that will be presented as follows includes details of discipline of contents, type of database, type of information, amount of full texts titles, period of information, producer, and purchaser respectively.

1. **Academic Research Premier**

| | | |
|---|---|---|
| Discipline of contents | : | Multidisciplinary |
| Type of database | : | E-journal database |
| Type of information | : | Journals, Thesis |
| Amount of full texts | : | 4,648 titles |

| Period of information | : | 1975-2006 |
|---|---|---|
| Producer | : | EBSCO PUBLISHING |
| Purchaser | : | Chiang Mai University Library |

**2. ACM Digital Library**

| Discipline of contents | : | Computer and Information Technology |
|---|---|---|
| Type of database | : | E-journal database |
| Type of information | : | Journals, Periodicals, Proceedings, Transactions, Newsletters, Publications by Affiliated Organizations |
| Amount of full texts | : | 300 titles |
| Period of information | : | 1985-2006 |
| Producer | : | Association for Computing Machinery (ACM) |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

**3. ACS Publications**

| Discipline of contents | : | Chemistry |
|---|---|---|
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 24 titles |
| Period of information | : | 1996-2006 |
| Producer | : | American Chemical Society |
| Purchaser | : | Chiang Mai University Library |

**4. AGRICOLA**

| Discipline of contents | : | Agriculture |
|---|---|---|
| Type of database | : | Bibliographies and abstract |

|                        |   | database |
|------------------------|---|----------|
| Type of information    | : | Journals abstract, Articles and Reports |
| Amount of full texts   | : | - |
| Period of information  | : | 1970-2006 |
| Producer               | : | National Agricola Library |
| Purchaser              | : | Free Access |

**5. AIP/APS**

| Discipline of contents | : | Physics |
|------------------------|---|---------|
| Type of database       | : | E-journals database |
| Type of information    | : | Journals |
| Amount of full texts   | : | 19 titles |
| Period of information  | : | 2001-2006 and 2003-2006 |
| Producer               | : | American Institute of Physics and American Physical Society |
| Purchaser              | : | Faculty of science |

**6. Annual Reviews**

| Discipline of contents | : | Multidisciplinary |
|------------------------|---|-------------------|
| Type of database       | : | E-journals database |
| Type of information    | : | Journals |
| Amount of full texts   | : | 31 titles |
| Period of information  | : | 1932-2006 |
| Producer               | : | Annual Reviews, Nonprofit Publisher of the Annual Review of Series |
| Purchaser              | : | Chiang Mai University Library |

**7. ASCE E-journals (American Society of Civil Engineers)**

| Discipline of contents | : | Civil Engineering |
|------------------------|---|-------------------|
| Type of database       | : | E-journals database |

| | | |
|---|---|---|
| Type of information | : | Journals |
| Amount of full texts | : | 31 titles |
| Period of information | : | 1995-2006 |
| Producer | : | American Society of Civil Engineers |
| Purchaser | : | Chiang Mai University Library |

### 8. ASME E-journals (American Society of Mechanical Engineers)

| | | |
|---|---|---|
| Discipline of contents | : | Mechanical Engineering |
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 19 titles |
| Period of information | : | 200-2006 |
| Producer | : | American Society of Mechanical Engineers |
| Purchaser | : | Chiang Mai University Library |

### 9. Bentham Science E-journal

| | | |
|---|---|---|
| Discipline of contents | : | Pharmacology and Biology |
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 61 titles |
| Period of information | : | 2000-2006 |
| Producer | : | Bentham Science Publishers |
| Purchaser | : | Chiang Mai University Library |

### 10. Blackwell Synergy

| | | |
|---|---|---|
| Discipline of contents | : | Business, Economics, Finance and Accounting, Engineering, Computing and Technology, Health Sciences, Humanities, |

Law, Life and Physical Sciences,
Mathematics and Statistics,
Medicine, Social and Behavioral
Sciences, The Arts, Veterinary
Medicine, Animal Sciences,
Agriculture and Aquaculture

| | | |
|---|---|---|
| Type of database | : | Journals |
| Type of information | : | E-journals database |
| Amount of full texts | : | Journals |
| Period of information | : | 1997-2006 |
| Producer | : | Blackwell Producer |
| Purchaser | : | Chiang Mai University Library |

**11. CAB Abstracts**

| | | |
|---|---|---|
| Discipline of contents | : | Agriculture |
| Type of database | : | Bibliographies and abstract database |
| Type of information | : | Journals, Books, Proceedings, Researches and Patent |
| Amount of full texts | : | - |
| Period of information | : | 1973-2004 |
| Producer | : | CABI |
| Purchaser | : | Chiang Mai University Library |

**12. Cambridge Journals Online**

| | | |
|---|---|---|
| Discipline of contents | : | Science and Technology, Health Science |
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 180 titles |
| Period of information | : | 1997-2006 |

| Producer | : | Cambridge University |
|----------|---|---------------------|
| Purchaser | : | Chiang Mai University Library |

## 13. Classical Music Library

| Discipline of contents | : | Music |
|------------------------|---|-------|
| Type of database | : | Music database |
| Type of information | : | Music |
| Amount of full texts | : | 35,000 tracks |
| Period of information | : | - |
| Producer | : | Classical Music |
| Purchaser | : | Chiang Mai University Library |

## 14. EI Compendex

| Discipline of contents | : | Engineering |
|------------------------|---|-------------|
| Type of database | : | Bibliographies and abstract database |
| Type of information | : | Journals, Proceedings |
| Amount of full texts | : | 5 million records |
| Period of information | : | 1973-2004 |
| Producer | : | Engineering Information |
| Purchaser | : | Chiang Mai University Library |

## 15. Emerald Intelligence & Fulltext

| Discipline of contents | : | Social Sciences and Humanities |
|------------------------|---|-------------------------------|
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 120 titles |
| Period of information | : | 1994-2006 |
| Producer | : | MCB University Press |
| Purchaser | : | Chiang Mai University Library |

### 16. H.W.Wilson

| | | |
|---|---|---|
| Discipline of contents | : | Multidisciplinary |
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 1,800 titles |
| Period of information | : | 1994-2006 |
| Producer | : | H.W. Wilson |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

### 17. IEEE/IEE Electronic Library (IEL)

| | | |
|---|---|---|
| Discipline of contents | : | Electronic Engineering, Computer Technology |
| Type of database | : | E-journals database |
| Type of information | : | Journals, Periodicals, Proceedings, Transactions |
| Amount of full texts | : | 1,400 titles |
| Period of information | : | 1988-2006 |
| Producer | : | The Institute of Electrical and Electronics Engineers (IEEE) |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

### 18. Ingenta

| | | |
|---|---|---|
| Discipline of contents | : | Science, Social Sciences and Humanities |
| Type of database | : | Bibliographies and abstract database |
| Type of information | : | Journals |

| | | |
|---|---|---|
| Amount of full texts | : | - |
| Period of information | : | 1998-2006 |
| Producer | : | Ingenta |
| Purchaser | : | Free Access |

## 19. LexisNexis

| | | |
|---|---|---|
| Discipline of contents | : | Finance, Marketing, Producer, Economic and Business |
| Type of database | : | E-journals database |
| Type of information | : | Journals, News, Governmental Publishing, Company Profiles and the verdict of USA Supreme Court |
| Amount of full texts | : | 4,000,000 records |
| Period of information | : | 1980-2006 |
| Producer | : | Reed Elsevier Inc. |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

## 20. Matichon e-Library

| | | |
|---|---|---|
| Discipline of contents | : | 10 Sections, 50 Subject Headings |
| Type of database | : | News clipping database |
| Type of information | : | News clipping |
| Amount of full texts | : | 30 titles, 10 million records |
| Period of information | : | 1996-2006 |
| Producer | : | M. Education Company Co., Ltd. |
| Purchaser | : | Chiang Mai University Library |

## 21. PEP E-Journals (Professional Engineering Producer)

| | | |
|---|---|---|
| Discipline of contents | : | Mechanical Engineering |
| Type of database | : | E-journals database |

| | | |
|---|---|---|
| Type of information | : | Journals |
| Amount of full texts | : | 16 titles |
| Period of information | : | 1999-2006 |
| Producer | : | Institute of Mechanical Engineers |
| Purchaser | : | Chiang Mai University Library |

**22. Project MUSE**

| | | |
|---|---|---|
| Discipline of contents | : | Social Sciences and Humanities |
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 250 titles |
| Period of information | : | 2000-2006 |
| Producer | : | Johns Hopkins University Press |
| Purchaser | : | Chiang Mai University Library |

**23. ProQuest Digital Dissertations**

| | | |
|---|---|---|
| Discipline of contents | : | Multidisciplinary |
| Type of database | : | Bibliographies and abstract database |
| Type of information | : | Dissertation, Thesis |
| Amount of full texts | : | 1.6 million records |
| Period of information | : | 1861-2006 |
| Producer | : | ProQuest Information and Learning Company |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

**24. ScienceDirect**

| | | |
|---|---|---|
| Discipline of contents | : | Multidisciplinary |
| Type of database | : | E-journals database |

| | | |
|---|---|---|
| Type of information | : | Journals |
| Amount of full texts | : | 1,800 titles |
| Period of information | : | 1995-2006 |
| Producer | : | Elsevier B.V. |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

**25. SciFinder Scholar**

| | | |
|---|---|---|
| Discipline of contents | : | Chemistry, Biochemistry, Physics |
| Type of database | : | Bibliographic and abstract database |
| Type of information | : | Patent journals, Proceedings and Abstract |
| Amount of full texts | : | - |
| Period of information | : | 1973-2006 |
| Producer | : | American Chemical Society |
| Purchaser | : | Chiang Mai University Library |

**26. Springer LINK**

| | | |
|---|---|---|
| Discipline of contents | : | Science and Technology and Health Sciences |
| Type of database | : | E-journals database |
| Type of information | : | Journals |
| Amount of full texts | : | 1,130 titles |
| Period of information | : | 1997-2006 |
| Producer | : | Springer Verlag |
| Purchaser | : | Chiang Mai University Library |

**27. Taylor & Francis**

| | | |
|---|---|---|
| Discipline of contents | : | Multidisciplinary |

| Type of database | : | E-journals database |
|---|---|---|
| Type of information | : | Journals |
| Amount of full texts | : | 910 titles |
| Period of information | : | 1996-2006 |
| Producer | : | Talor & Francis |
| Purchaser | : | Chiang Mai University Library |

**28. Thomson Gale Testing & Education Reference Center**

| Discipline of contents | : | Multidisciplinary |
|---|---|---|
| Type of database | : | E-journals database |
| Type of information | : | Books |
| Amount of full texts | : | 140 titles |
| Period of information | : | 1996-2006 |
| Producer | : | Thomson Corporation |
| Purchaser | : | Chiang Mai University Library |

**29. Web of Science**

| Discipline of contents | : | Science, Social Sciences and Humanities |
|---|---|---|
| Type of database | : | Bibliographic and abstract database |
| Type of information | : | Journals, Books, Proceedings, Research and Patent |
| Amount of full texts | : | 8,500 titles more than 1.1 million records |
| Period of information | : | 2001-2006 |
| Producer | : | Thomson Corporation |
| Purchaser | : | The Commission of Higher Education, Ministry of Education |

**30. Thai Theses Online**

|  |  |  |
|---|---|---|
| Discipline of contents | : | Multidisciplinary |
| Type of database | : | CD-ROM |
| Type of information | : | Dissertation, Thesis |
| Amount of full texts | : | - |
| Period of information | : | 1989-2003 |
| Producer | : | Technical Information Access Center (TIAC) |
| Purchaser | : | Chiang Mai University Library |

Though the service of online databases provided by the Central Library of Chiang Mai University is likely to be considered complete, study on the effectiveness of the service and attitudes of the users have not *recently* been conducted. As guidelines to this research, previous studies and other related works need to be reviewed in this section.

**3.  Previous Studies and Other Related Works**

A number of studies concerning online database usage were carried out in various places. One result shows that online database is found to be the least popular service available at the Faculty of Agriculture, Chiang Mai University. Prapapun Plaichan (2004) conducted a research entitled "*The Information Retrieval via Internet of the Agricultural Students, Chiang Mai University*" in which data was collected from 411 questionnaires distributed to graduate and undergraduate students at the Faculty of Agriculture, Chiang Mai University. The aim of the research is to find out problems and needs of the students in retrieving information from the Internet. The study showed that, among three types of the information retrieving services namely: CMUL OPAC, the ISIS OPAC and the online databases, the most popular service is the CMUL OPAC as most graduate and undergraduate students usually used this service to search for books and other materials. The second popular service is the ISIS OPAC while the least popular one is the online databases. Prapapun discussed the

problems in retrieving information from all three types of service and those problems include insufficient computers and training courses and the users' instructions are not provided, respectively.

One surprising fact is that the CD-Rom Service tends to satisfy most users' needs more than Online Database Service as Prakaidao Srimora (2000) conducted a research on the usage of CD-ROM databases, another service at the main library. Data was collected from 260 questionnaires distributed to CMU students. It was found that the graduate students in the field of Science and Technology were constant users of CD-ROM databases. The purpose of CD-ROM database is to facilitate researchers or students to search for information that might be useful for their research or theses. The top three popular CD-ROM databases were AGRICOLA, LIFE SCIENCE and THAI THESIS. Most users were satisfied with the consultation service on CD-ROM search, and yet only few users were satisfied with the cost of printing, lack of knowledge of codes and abbreviations of retrieved records, limiting field and truncation search as well as lack of knowledge of scope and specific databases. The majority of users recommended that the library acquire more updated CD-ROM databases, reduce the printing cost, provide clear CD-ROM searching instructions as well as full texts of retrieved records. The result reflects a greater response to the use of CD-ROM than online databases since it is considered more convenient.

A pioneering study on online database was conducted by Srimora (2003) to explore the direction and progress of online database. The use of a multidisciplinary database called *ScienceDirect* available at Chiang Mai University Library was examined the needs, satisfactions, problems and recommendations. 364 questionnaires were used as a tool distributed to the Central Library's and faculty libraries users. The findings revealed that the majority of database users were Science and Technology graduate students. The purpose of their use was to supplement their lessons and to find the information for writing theses. Most of them were informed of this service by peers and lecturers. Users were satisfied with the updated contents, library staff and other facilities. Some problems were found such as the loss of internet connection and insufficient texts in Health Science. The top 5 popular

journals subscribed by Chiang Mai University Library were: Bioresource Technology, Postharvest Biology and Technology, Water Research, Enzyme and Microbial Technology and Process Biochemistry. The top 5 popular journals that Chiang Mai University did not subscribe were: Physica C: Superconductivity, International Journal of Food Microbiology, Journal of Chromatography A, Mutation Research Genetic Toxicology, Environmental Mutagenesis, and Journal of the European Ceramic Society. Srimora's research suggested that the library staff be well trained to operate the database service more effectively, upgrade the computer in order to be able to display various formats of information, provide more training courses for users, and publicize more database training. The researcher also recommended that there should be studies of other online database subscribed by the library or an evaluation of other commercial online databases in the same discipline should be conducted in order to compare its feature of contents, the accuracy of retrieval and the searching system.

Another interesting study was conducted by Samorn Tarapan (1999) to explore the usage, opinions, problems, and suggestions of UnCover database targeted at academic staff involving in Science and Technology academic field, Chiang Mai University. The research hypothesis was that there is only a small number of teaching staff in Science and Technology field using the UnCover database service. The finding revealed that, at the level of significant 0.01, a minority of the teaching staff in Science and Technology used this service. They preferred using printed journals to the electronic format. A major problem was found, which was the expense for purchasing electronic journals from UnCover database was considerably high.

Surprisingly enough, online database was well accepted and regularly used by the medical students in Faculty of Medicine, Chulalongkorn University. Krisna Mulanont (1998) studied the use of medical databases at the Faculty of Medicine, Chulalongkorn University with the number of population of 600. It was found that the bibliographic database used by most faculty members and medical residents was Medline (98.60%). The purposes of using medical database are to find information, to conduct research, to update academic works, to prepare class lectures, and to check

diagnosis/treatment and academic conferences/seminars. The majority of faculty members and medical residents were satisfied with the research obtained. The result indicated that there were no differences and no complications between the faculty members and the medical residents.

Moreover, online database in the U.S. is widely accepted and increasingly demanded. Chris Piotrowski (2004) surveyed the Scholarly Online Databases Use in Higher Education: A Faculty Survey at the University of West Florida, a survey which focused on the usage and users views toward online databases. The survey samples were sent to 250 faculty members, across 17 disciplines via campus mail. A total of 46 completed surveys were returned. The finding of this survey indicated that most respondents (N=46) felt quite satisfied with scholarly databases availability through the university library. Some faculties even suggested that databases such as Current Contents and *Social Sciences Citation Index* and *IEEE* be added to the list. Satisfaction levels with the library's interlibrary loan service are discussed as well as the reported demand for more access to online full-text articles. The major scholarly databases for research literature included *PsycINFO*, *JSTOR*, *Lexis-Nexis*, *ABI Inform* and *ScienceDirect*. In addition, the data collected suggested that faculty members were aware of the online databases resources in their field and had optimistic views toward online library services.

In 2001, the use of subscribed online databases in Chiang Mai University Library was studied by Pongpan Yamkhaekhai to find out satisfaction, problems, needs, and attitudes of students, faculty member, researcher and the librarians themselves. The areas that were investigated included the use of 8 online databases in Chiang Mai University library. The result showed that most users were graduate students, faculty member and researchers in Science and Technology. The users' main purpose was to search for information to be used for their teaching and study. The location where most of the users access the service was their faculties or departments and the searching occurred between 1.00-600 p.m. Each topic took about one hour of searching and most of the users conducted the search through the library homepage. They acquired online search skill by themselves. The most popular online databases

listed in order of their popularity are; ScienceDirect 2. Academic Research Library 3. CAB Abstracts 4. Digital Dissertations 5. ProQuest Education Complete 6. Social Science Plus 7. Grolier Online 8. LEXIS-NEXIS Academic Universe. In terms of satisfaction of the service, most users were satisfied with the databases that are helpful, practical, updated, and reliable. The problems that users encountered involved the slow downloading speed. Therefore, they recommended Chiang Mai University improve the speed of the Internet and online search, and also subscribe more full-text types of online databases. They also wanted, at a high level, that the library extend membership for the current online database services.

Through the review of related works concerning the use of online databases in many areas, it is evident that the needs of online database are gradually increasing. While many institutes realize this fact and respond effectively, there are only a few organizations in Chiang Mai University that really have an understanding about online databases service and the nature of users needs. Though several studies have been directly conducted at the Main Library, the online databases were partially surveyed and essentially the results need to be updated in order to improve the service. Of All 30 databases available, 9 of them are multidisciplinary databases which can be used by most students as they contain contents from different fields of study.