PROVISION OF ACCESS TO ONLINE DATABASES FOR UNDERGRADUATES OF LOCAL PRIVATE HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The study investigated the provision of access to online databases for undergraduates of selected local private higher education institutions (PHEIs). The study was carried out in two phases. The first being an investigation on the types of access and usage supporting facilities that the sampled PHEIs are providing for their undergraduates. A questionnaire-based survey on 33 PHEIs consisting of 4 local private universities, 4 branch campuses of foreign universities and 25 colleges was conducted. Main findings from the study indicate the different types of access models adopted by the PHEIs are affected by the types of status of the PHEIs, their existing collaborations with their foreign programme partners and the utilization of different types of users' access controls, such as user authentication through username and password and computer IP based access controls. The second phase of the study focused on the users' awareness and perception towards the usage of online databases. A total of 451 undergraduates from two selected PHEIs participated in a questionnaire-based survey to determine their awareness and perception on using online databases provided by their respective PHEIs. Main findings indicate that while the majority of respondents are satisfied and placed importance on the usage of online databases, not all are fully aware of the existing types of online databases and the access controls that are provided by their PHEIs. Highly ranked useful features of online database include useful search options and allowable simultaneous multiple searches while inadequate computing and networking line were ranked as usage barriers. The responses suggest the need for continuous promotion of user awareness of available resources, provision of training for user skills and provision of adequate usage supporting facilities such as computing and networking facilities.

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CHAPTER I

INTRODUCTION

1.1. The New Meaning of "Access"

The meaning of the term "access" in the information world is constantly changing and undoubtedly will not stop evolving. The dynamic meaning of "access" also exists in parallel with the emergence and various convergences of new technologies in the world telecommunication infrastructure. Dougherty et al. (1991) explains the concept of access, and its relationship with libraries, "as agents standing between the information producers and information consumers, academic libraries should support electronic journals. The fundamental reason for this is simply that libraries exist as conveyors of academically relevant information. We have not previously discriminated against information because of its format, and this is not the time to start."

Access represents the challenges that academic libraries are facing in the new information world. It also serves as a basis for the discussion on how developments in electronic publishing are affecting the academic libraries of the local private higher education institutions (PHEIs) in the provision of access to online databases for their library users.

Budd (1998) observes that the majority of the history of academic libraries entails the organization and control of print on paper. However, although print remains an important and a pervasive medium, electronic information over time emerges and grows as a viable medium of communication.

The diversity of media increases the responsibilities of academic libraries. There is now an urgent need for librarians to provide access to materials outside the confines of the library walls, for print no longer controls the collections and the type of services offered by modern libraries. The advantages of electronic publishing such as the "24 hours, 7 days a week" availability exposes the many limitations of the traditional print journal subscriptions. The escalating price of print journals in the early 1980s successfully awakened library management on the importance of the balancing act between books and journals. However, the emergence of the Internet technology and its capabilities make the dilemma between ownership versus access appears even more crucial in recent years.

Wilson (1998) suggests that "the new information technologies and the new knowledge transfer processes based upon those technologies, now offer libraries the opportunity to review their processes and, indeed, require them to do so". One would also positively agrees with Anderson (1991) that "the access/ownership dynamic encourages us to look at ourselves more creatively; we focus on functions rather than organization, on content rather than medium, and on services rather than tradition." Librarians are expected to take on new roles and modern libraries are expected to capitalize on the convenience that new technologies offer. After all, as Anderson (1991) rightly puts it, " the primary purpose of information services has always been and will always be to reduce to a minimum the amount of time required by local users to obtain access to that information they need to do their work".

Okerson (2000) observes that "today, we find ourselves moving into a user-centered, rather than a collection centered, world. Librarians are already finding that their

mission lies in customizing information for their users and publishers are seeing a similar role for themselves."

Thus, it is quite obvious that libraries are no longer only in the business of providing library materials (ownership) but moving towards playing the role of provision of access to library materials for their users. Facilitating access and making creative use of a variety of communicational technologies have now been accepted as becoming an even more apparent role of libraries in the future. Electronic journals that come in the form of online databases raise many new opportunities for academic libraries in playing this new role.

1.1.1. Why Online Databases?

Branin (1998), presents an overview of collection development since the 1950's and notes that the primary challenges of the last ten years have been " a weak library's economy, a new digital information system, and pervasive change". Branin observes that libraries now face two information systems, the print and electronic and the emphasis shifts to management of access to remote materials for current use instead of building strong local collections for long term use.

One other striking observation from Branin is that the focus of library management is now on maximizing online access from multiple remote locations. Barriers of space and distance are becoming invisible in library services. Implementing access control and the authenticating process of users eligibility to access information are now given more attention by library management. Branin's statements bring us to the justification on why this research should focus on the provision of online databases. Online databases, which traditionally provides only bibliographic information, have now emerge as one of the fastest way to search for full text articles that can instantly satisfy the needs of the user. Lonberger (1991) has recognized this situation a decade ago and remarked that "online full text retrieval is now viewed by a growing segment of library professionals as a viable alternative to ownership of print journals and as the logical extension of the now familiar online bibliographic database."

1.1.2. The Developments of the Online Database Industry

The *Gale Directory of Databases* published for the year 2000, records the existence of 6333 types of databases in the international market. The directory also highlights the growth in online database use of major US systems offering word oriented databases increasing from 750,000 searches per year in 1974 to a high of 90.30 million searches per year in 1998. Online databases as a medium for access has maintained since the past decade, an average of 50% of the total databases available, although the number of the total databases increased more than 100%.

Year	Total Databases	Online Databases	Percentage
1989	6221	3524	57
1990	7517	4018	53
1991	8159	4170	51
1992	8495	- 5486	65
1993	9131	5564	61
1994	9869	5646	57
1995	10484	5801	55
1996	11337	5950	- 52
1997	12141	5926	49
1998	11918	5279	44
1999	12615	5489	44
2000	13854	6333	46

Table 1.1: Growth of Online Databases

Source : Gale Directory of Databases, Vol: 1 : Online databases, USA : Gale Group, 2000, pg. x.

The growth of the Internet and the encouraging growth of online databases produce various opportunities for the publishers to enhance access to their electronic journals. Providing seamless access to a broader range of information is being made increasingly possible through the various linking initiatives such as *CrossRef.* This service allows links from article references or citations to the cited article, which is usually hosted on the publisher's web site. At the publisher's web site, the publisher determines the access level of the users to the full text articles. Powerful linking convenience such as *CrossRef* changes and enhances the traditional structure of scholarly communication and also the way librarians work.

1.1.3. Two Edged Sword : Access vs Barriers of Access

While technology paves the way for more exciting opportunities for librarians in providing access to information for their library users, it also effectively creates possible barriers of access for the library users. The *Gale Directory of Databases* highlights the growth of commercial databases which is constantly on the rise,

increasing from 22% in 1977 to 81% in 2000 and have held the market share since then. The growth of commercial databases poses a significant impact on the access control of the online databases subscribed by libraries.

The publishers or vendors determine access to commercial online databases rather than the librarians. Krieb (1999) highlights a few types of models of access control namely:

- a. Username/password;
- b. IP based filtering;
- c. Certificate-based authentication; and
- d. Proxy server.

The different models identified above have strong implications on the level of access by the users and can easily define various other issues in the management of the usage of online databases. These access control models are able to create effective barriers of access in the usage of online databases in order to protect the commercial profitability of the vendors or publishers. It is now the duty of the librarians to ensure that all library users get access to the materials they are entitled to use through cautious license negotiations with vendors or publishers.

However, even after identifying the user eligibility and allowing users to have access to the online databases, there are still many issues that librarians have to undertake to ensure that their users get to know what the library have for them and how to find it. Joint, et al. (1997) highlighted that, "one paramount difficulty is that electronic journals present themselves as a fragmented and confusing landscape to the user. Whereas for the hard copy journal, user can rely on the familiar tool of a unified local library holdings catalogue with the title and subject access, the would be user of electronic journals confronts a situation where many electronic journals are offering as disparate networked services from a variety of publishers."

According to Woodward and McKnight (1995), there are three levels of access to electronic journals. The first level is access to information about what titles are available, name and address of publisher, publication start date, frequency, and subscriptions cost (if any). This is also known as the basic bibliographical data. The second level is access to information about the articles within individual journal issues, that is, what is being published by whom. The third level is access to the actual text of the journal, meaning how access can be made quickly and easily for the end-user.

Many libraries have started creating portals and gateways as the "one stop shopping centre" to prompt users to the existence of the various electronic resources that they have access to. The common user interface is indeed very much desired. Payette and Reiger (1997) report that Cornell had initiated a study in 1997 to examine what the perception of a common user interface might be and found that 89% of the faculty and 100% of the students expressed the view that a common user interface would significantly improve their database search experiences. According to Ashcroft and Langdon (1999), promotion plays an important role in ensuring that the users are aware of what they can get access to and how to get access to the electronic journals. Since each online database has its own search engine and possess different characteristics, training of users skilled in online database searching is crucial to maximize utilization by the users. All these issues prompt us to one observation, that is, the skills of the librarians are still very much needed in the era of technology,

serving as a faithful navigator to library users who may be possibly lost in the sea of online information. Librarians must work closely with the computer departments in their institutions to help increase access level whenever allowed by technological advancement.

1.2. Statement of Problem

With the above issues in mind, the main purpose of this study is to examine the provision of access to online databases to undergraduates of private higher education institutions (PHEIs) in Malaysia. For the purpose of this study, three types of PHEIs are examined.

The first two types would include PHEIs that have foreign business partners such as:

- a. private colleges that offer franchised undergraduate programmes in collaboration with foreign institutions (for example, Inti College)
 - b. institutions that are branch campuses of foreign universities (for example, University of Nottingham Malaysia)
- c. local private universities that are privately run by business organizations (for example, Multimedia University Malaysia)

For institutions that have foreign business partners, (a) and (b), the study will focus on the types of collaboration between these institutions and their program partners in the provision of access to online databases to their registered undergraduate students. The examination of such collaboration between the PHEIs and their program partners will focus on the opportunities provided by the developments in the local private higher education sector as a whole and in parallel with the impact of technological advancement in electronic publishing. It would also include the provision of access to online databases that are subscribed by these local institutions from their own funding.

For the local private universities running on their own without foreign partners, focus will be towards the provision of access to online databases that they provide for their users.

1.2.1. Why PHEIs?

As a background to the study, an understanding on the developments of the private higher education sector in Malaysia is crucial as it will allow an understanding of how it affects the developments and the workings of the academic libraries in these PHEIs. The *Education Quarterly* (Disney, 2000a, 2000b) indicates that there are about 600 PHEIs in Malaysia that are offering various types of undergraduate programmes. The developments of academic libraries and their services in these PHEIs are directly linked to the developments of PHEIs itself and therefore, in examining the services offered by these libraries, it is inevitable to first examine the developments of the PHEIs.

The nature and developments of academic libraries in PHEIs is a new area of research interest. As academic libraries, they share many common features in terms of playing their supporting role to the teaching, learning and research activities of their parent institution. Similar to any other academic library in existence, the workings and developments of these academic libraries in local PHEIs are dependent on the purpose and objectives of the parent institution they are attached to. These academic libraries face many challenges, depending on the technical, intellectual and social settings they are in and by the progress of the educational sector in the country as a whole.

At the same time, the developments of electronic journals in the form of online databases have significant impact on the types of library services that academic libraries in the PHEIs are able to provide to their users with regards to the academic needs of the parent institution.

The ultimate aim of this study is to seek how the nature of the private higher education industry and the developments of electronic publishing have affected the academic libraries in PHEIs in the provision of access to online databases for their users.

1.2.2. Why undergraduates?

With online databases showing up in the library world, the demands of users are also changing. The availability of online full text journals puts a poor shadow to the traditional print journals and the importance of services such as abstracting and indexing. Information sources that do not produce full text from users can get right away with a click of a button will certainly not be as popular as the online version. In fact, these traditional tools will most probably be viewed by the users as second rate. The depiction of this scenario is quite acceptable and can be treated as a fair observation on the expected demands by the "new age" library users. Students entering their tertiary education appear to have high expectations about the capabilities of electronic resources. This new generation of users who are adept in using the Internet exhibits different needs and demands from the traditional students. Budd (1998) finds these new demands a pressing factor for libraries to seek various new means to serve their users' needs.

Hunter (1998) indicates that, "the developments of the era of new electronic publishing produces many aggregators who have been trying to bring together collections of serials for user groups that are most successful among the undergraduates". Hunter termed these undergraduates as perhaps the laziest or simply least experienced users and therefore the group most appreciative of increased convenience.

In a study done by Tenopir (1999), academic librarians were asked to speculate on what influences their constituents when choosing an online database to search and found that among other factors, the convenience of access to full text articles from online databases often overrides all factors, in particular for undergraduates. This finding was supported by Barker (1999) when he found that the characteristics of assignment topics that undergraduate students work on was not as complete as the assignment undertaken by graduate and faculty researchers. Undergraduate assignments tended to be original, broad and involving inter-disciplinary subjects, focused on specific issues and most importantly time pressured. Barker concluded that undergraduates now have little tolerance to long tiring searches and for technologies that fail to perform. Thus, convenience of access to information through the capabilities of online databases is much demanded by this group of users.

Statistics from the Education Ministry as quoted in *Education Quarterly* (Disney 2000a, 2000b) showed that there is a total undergraduate student enrolment of

203,391 in the PHEIs for various types of programmes offered. The number of undergraduate students that we currently have at the current moment warrants us to take them as a target group for this study.

1.3. Research Questions

The aim of this study is to seek answers to the following questions :

- a. To determine the types of access to online databases that undergraduates in different study programs have
 - b. To determine how academic libraries in PHEIs with franchised undergraduate programmes are collaborating with their program partners in terms of providing access to online databases to undergraduates?
- c. To determine the types of access to online databases that academic libraries in PHEIs are providing from their own funding.
- d. To investigate the awareness and perception of undergraduates towards the online databases provided by the institutions they are attached to.

The rationale behind the research questions is based on three different preliminary observations. Questions (a) and (b) are based on the observations that there exist various types of programmes that are being offered by the PHEIs. It is not uncommon among PHEIs to have various programmes partners with foreign institutions from various regions of the world. The more popular ones would include those from the United Kingdom, the United States of America and Australia. Thus, registered students in a PHEI may constitute students from different programmes and have different library privileges given to them. The aim of these two questions is to determine the types and differences of access that undergraduates in different study

programs have to online databases. The study also determines how academic libraries in PHEIs are collaborating with their programme partners in terms of providing access to online databases to the respective undergraduates in the different programmes.

Question (c) seeks to find answers to the types of access to online databases that academic libraries in all types of PHEIs are providing through their own funded subscriptions. The ultimate aim is to find the type of access that undergraduates have to online databases in all the PHEIs examined and how they are supporting the usage of online databases.

Question (d) attempts to investigate the user perspective towards the usage of the online databases that are accessible to them. An investigation based on the user perspective is essential as effective usage of the online databases can only happen if users' needs are properly understood and matched to the resources that the library is providing. Some of the areas of investigation would include users' awareness and perception, purpose of usage and their response towards training sessions provided for them on the online databases available. For this purpose, a case study of the Tun Hussein Onn Library which serves both Sunway College and Monash University Malaysia will be done.

1.4. Significance of the Study

No research has been done on academic libraries in the PHEIs and how these libraries make provisions for online databases. The public universities such as University of Malaya (UM) and the National University of Malaysia (UKM) have always been providing access to the online databases for their users. All undergraduates at the

public universities have access to online databases and undergraduates at private higher education institutions should be provided with similar facilities.

The results of the study would be useful to:

- provide an insight to the different types of access that undergraduates have towards online databases in PHEIs and to see how they differ.
- b. provide an insight to the roles held by the academic libraries in providing access to online databases to undergraduates who are in different types of programmes run by the PHEIs.
- c. find out how these PHEIs facilitate and promote the usage of online database and what are the more commonly used promotional tools by the PHEIs.
- d. provide an understanding of the level of awareness and perception of undergraduates towards the usage of online databases provided for by the PHEIs. Results from the study can be used to allow the PHEIs to identify issues/factors that affects the effective usage of online databases by the undergraduates.

1.5. Assumptions

This study makes the following assumptions:

i. All PHEIs have some form of academic libraries, although they may exist at different levels and providing different forms of library services

PHEIs are required to provide adequate library support for the teaching and learning activities in the institution and are subjected to the examination by the enforcing local officers such as the National Accreditation Board. The PHEIs which have foreign programme partners are also subjected to external examiners from overseas. As such, this study assumes that academic libraries exist in all PHEIs, although they may differ in size and working budget.

ii. Academic libraries of PHEIs with franchised program partners cooperate with their local and foreign business partners in providing services to the students enrolled in the respective programs offered.

Due to the business nature of the PHEIs, there exist established agreements by both programme partners in terms of sharing of responsibilities and resources to ensure an effective implementation of an educational program run by the PHEIs. As such, it is reasonable to assume that there would be in existence some form of resource sharing and support from both programme partners for their registered students. This study assumes that library support are offered to the students.

iii. PHEIs do not have an established resource sharing efforts among themselves.

It is assumed that the there is minimal effort taken by the PHEI's themselves, in terms of resource sharing and that library resources are strictly confined to their registered users. Therefore, access to online databases are not opened to students from other PHEIs.

1.6. Limitations of the research

This study was carried out in two phases. The first phase focuses on obtaining data from the selected PHEIs and respondents targeted are the librarians and administrators from selected PHEIs. Due to the competitive nature of the higher education industry in Malaysia, many librarians and administrators of the PHEIs are expected to be reluctant to contribute information to the study for fear of disclosing business information to their competitors. This is expected even though part of the answers to questions that will be asked in the survey can be obtained from the institution's marketing brochures and promotional articles in magazines and newspapers. The second phase of the study is in the form of a case study on two of the PHEIs. The case study method is applied to a sample population of undergraduates from the two PHEIs. It should be noted that, the results of the case study would provide an insight to the existing situation of the sample being studied. However, the results obtained cannot be generalized to the rest of the groups of undergraduates in the other PHEIs.

CHAPTER 2

LITERATURE REVIEW

2.1. Overview

In reviewing past literature on online databases, it is found that the term "online databases" has been used interchangeably with other terms such as electronic journals or e-journals, electronic serials and electronic databases. The variety of terms that have emerged and the expectation that more would come is reasonable as patterns in electronic publishing continues to evolve and capabilities of technology advancement continue to take place. As Nisonger (1996) pointed out that "the diversity of electronic publishing and the rapid changes they are undergoing in terms of technology, what is available, and the social, economic and psychological acceptance of electronic journals makes planning by librarians for electronic journals management exceedingly challenging. In fact, a number of people have commented that planning for electronic journals is like shooting at a moving target". As such, for the purpose of this study these terms will also be used interchangeably but the main focus of the study will be towards online databases that are subscribed by libraries and comprise databases that are providing full text articles.

The first part of the literature review will discuss the developments of online databases. This will be supplemented by short highlights on the benefits, preference and concerns for selecting electronic resources over print journals. The introduction to the types of online databases available with focus to the full text databases models, options for the types of access control offered by the database producers/vendors and their impact on libraries in providing access to their users will follow.

Subscriptions to online databases entail a far more complex form of serials management. Libraries should be prepared to provide the appropriate access for their users through new means of technology such as making use of the Web linking capabilities through the MARC Tag 856 at the cataloguing level and enhancing easy access through library home page. Other means include working closely with vendors in optimizing access points, promotional efforts to create awareness of these resources for users and placing importance on educating users on how to use these resources. These issues on options available for libraries in facilitating access to the online databases for their users will be the focus in the second part of the literature review.

The discussion in the third part of the literature review will be taken from the users point of view. While libraries continue to catch up with the provision of electronic resources, efforts must also be taken to find out what do users really need and whether users are able to maximize the utilization of resources that are provided for them. Access must work both ways with libraries and the publishers/vendors as the facilitators and the users as the end beneficiary. As such, the needs and requirements of end users must be considered at all levels when libraries are planning the provision of online databases. This section will highlight previous researches done on databases usage patterns and perceptions of users towards online databases.

Finally, a discussion on the current settings of the Malaysian education industry will be made to provide the background for this study.

2.2. The Developments Of Online Databases

Databases have been in existence for many years but its definition has gone through an evolutionary process in accordance with the developments of technology. As highlighted by Tenopir (2001); according to the *ODLIS : Online Dictionary of Library and Information Science* (<u>www.wcsu.ctstateu.edu/library/odlis.html</u>), a database was defined as " a continuously updated computer file of related information, abstracts, or references on a particular subject, arranged for ease and speed of search and retrieval." However, Tenopir has found that the traditional definition by *ODLIS* that has served the information industry well since the 1970s has evolved and it is now difficult to even define the meaning of a database due to the continuous progress that have taken place in the electronic publishing world.

The use of this definition has expanded according to the market offerings by publishers/vendors. For example, in the *Harrod's Librarian Glossary*, Prytherch (1995) defined the term "database" as, "any grouping of data for a particular purpose or for use of a particular set of end users, usually organized via fields, and providing tools to enable manipulation of the data such as sorting, grouping and extraction. Normally stored on computer files, or on CD ROM, a database might contain bibliographic data, or numerical, statistical material etc., and may be assembled and marketed commercially, or by an organization, library or individual. Access to online database may be obtained via a Host."

Currently, new terms such as megadatabases (databases of many databases) have already emerged and used by vendors such as the *Gale Group* when they announced the offering of *OneFile*, a megadatabase consisting of bibliographic records from over 6200 magazines, journals, newswires, newspapers and with over 2700 of the periodicals offering full text articles.

Tenopir's concerns are very close to the hearts of librarians for there are indeed many types of databases available in the international market. For librarians to choose from the 6333 types of databases listed in the *Gale Directory of Databases* and to justify why they have chosen a particular database for their users is not an easy task.

However, in order to understand the databases, it is good to first understand that there are also many ways of identifying these databases. One method of classification of databases used by the *Gale Directory of Databases* is by form of representation. Data may be in the form of words, numbers, images or sounds and therefore databases may be considered to be word oriented, number oriented, image-oriented or sound oriented. Databases may also be classified according to two other classes such as electronic services and software.

Word oriented databases can be further subdivided into the following categories: bibliographic, directory, dictionary, full text and patent/trademark. The first publicly available databases were word oriented. Table 2.1 shows the development of the percentage of word oriented databases available throughout the last 15 years.

Year	Number	Percentage of total Databases
1985	1728	64
1988	2797	69
1989	3370	70
1990	4080	72
1991	4491	72
1992	4925	70
1993	5421	72
1994	5729	72
1995	6044	71
1996	6467	70
1997	6764	70
1998	7468	70
1999	7672	70
2000	7716	66

Table 2.1 : Developments of Word Oriented Databases

Source: Gale Directory of Databases, Vol: 1 : Online databases, USA : Gale Group, 2000, pg. xxii.

In the 1960s and 1970s, most databases fell within the word-oriented class and most word-oriented databases were bibliographic. These bibliographic databases provided a first level access to the information seekers for getting access to the original materials by providing enough bibliographic information that prompt them to the source of the original text. This type of traditional database has been used online for over twenty years by professional online searchers and librarians at that time played an important intermediary role for the information seekers.

Later in the 1980s, librarians experienced an increased emphasis of databases usage through the CD ROM format. This technology successfully brought the users closer to the original source. The CD ROM technology however, did not survive long when its limited usefulness was wiped off by the capabilities of the Internet technology. The Internet technology revolutionized the electronic publishing efforts and pushed up the supply for more online direct access for the users to what they are looking for. Network publishing then took on a new meaning in the realm of scholarly communication.

The developments of network publishing sped up tremendously with the emergence of the SGML and HTML standards, providing capabilities such as searchable items and hyperlinks that can be accessible from PCs anywhere in the world. Such developments allow publishers to produce journals that are accessible from various remote locations.

These developments can also be traced from previous writings of Lancaster (1995) who observed that in the first phase of electronic publishing, electronic technology is used either to produce presentation of existing text and graphics in various innovative ways. Information technology then has little effect on the way information is organized and presented. In the second phase however, electronic technology was used to maneuver the display or presentation of information. Technology was used to exploit the full electronic capabilities. At this second stage, fundamental changes in the way information is packaged and presented began to take place.

Full text online databases, a subclass of the word-oriented databases then started capturing the information market and in fact have since 1988, increasing became a major component of the online databases currently available. Packaging of direct access to full text journals that satisfies the need of users became very attractive to the libraries. Table 2.2 depicts the developments of market share by the full text online databases in the last 15 years.

Year	Total Word- Oriented Databases	Number of Full Text Databases	Percentage of Full Text Databases
1985	1926	535	28
1988	3147	1285	41
1989	3409	1412	41
1990	4212	1786	42
1991	4661	2040	44
1992	6497	3077	47
1993	6652	3155	48
1994	7138	3462	49
1995	7709	3895	50
1996	8594	4392	50
1997	10380	5353	51
1998	9149	4735	52
1999	10056	5398	54
2000	10570	5855	55

Table 2.2 : Total Full Text Databases Against Total Word-Oriented Databases

Source: Gale Directory of Databases, Vol: 1: Online databases, USA : Gale Group, 2000, pg. xxiv.

The new way of packaging and presenting information helps users gain access to the serials world and this is fully exploited and strongly supported by the roles of the intermediaries or database publishers/vendors.

EBSCONET for example allowed serials librarians for price checking or searching for the existence of a title (Prior, 2001). This was then superceded by the CD ROMs technology and Electronic Tables Of Contents (ETOCs) which was introduced to meet new demands for electronic current awareness by major subscription agents such as Blackwell with its *Uncover Service*, Swet with *SwetScan*, Faxon with *Faxon Finder* and EBSCO which gave a range of information and document delivery services. Therefore, progressing to the business of offering full text online databases is just a natural progression that is economically and technologically justified for the databases producers/vendors. This is especially so for the commercial online database vendors who held 81% of the market share of the database industry in the year 2000. These commercial database vendors do more than just distribute database products to the libraries. They provide many value added services such as storing databases at their server, developing search engines, providing related services such as online document ordering, email, SDI/current awareness and linking or grouping with other databases. Other services include providing patrons' usage reports. For example, online databases such as *Gale Group's Infotrac* provides detailed breakdown of data such as total sessions, total connect time, average session time, total views, total retrievals and total searches just by a click of the button. *LINK Alert* from Springer provides the table of contents with direct link to the abstracts as soon as a new issue of a journal users are interested in is available in the LINK. The *Link Alert* service is a free information service.

2.3. Preference For Online Databases

With all these offerings, libraries started to facilitate access to these online resources for their users. Benefits of migrating to more electronic resources for the library collection are quite obvious. Moreover, users now demand nothing less than quick and high quality access that provides instant gratification.

Monash University Australia for example, currently provides access to more than 250 online databases to their constituents at various local and foreign campuses in Australia, Malaysia and South Africa. The Library's Print and Electronic Serials Working Party raised the following comparison between electronic and print journals when they presented the recommendations on the University's policy regarding the

preference for electronic access to journals than to print journals (Table 2.3). The considerations were categorized into user considerations, management considerations and academic considerations.

Table 2.3 : Monash University Australia Considerations for Preference for Electronic Journals over Print Journals

	USER CONSID	DERATIONS
_	Electronic	Print
1	Retrieval is virtual	Retrieval subject to item being on the shelf and correctly locate d on the shelf
2	Available when network is available	Only available during Library opening hours
3	Remote access : can be accessed by the user wherever the user is located, given the equipment	Personal access requires visit to library shelves and retrieval
4	Simultaneous user access, as licensed	Single user access for the same item
5	Can be hot linked to catalogue records	Catalogue record and resource not directly linked
6	Full text can be directly linked to indexing and abstracting services	Indexing and abstracting services not directly linked to full text
7	Additional search modes on full text	No direct searching possible on inert text
8	Desktop downloading text possible	Reproduction requires time consuming photocopying operation
9	Cut and paste of downloaded text possible	Photocopying reproduces inert text
10	Individual serial article may be directly retrieved	Individual article retrieved via the issue
11	Electronic versions may not include all features of print version (eg. Correspondence, reviews, editorial, advertisement)	May include additional content (reviews, editorials, letters, advertisements)
12	On screen browsing	In hand browsing
13	Unmediated access – no loans and no document delivery or intercampus loan required for the reader not located where the physical item is located	Document delivery or intercampus loan required for the reader not located where the physical item is located
14	Time saving – physical desk top retrieval and display, subject to network availability	Time delay in physical retrieval
15	Less delay in delivery and in some cases articles posted to Web ahead of print publication	Delay in delivery by mail plus serial check in. Cost of airmail for expedited delivery
16	Some documents are too large for effective on line access and downloading, or too large and complex to print	
17	Necessary equipment (adequate PC) must be available	No equipment costs

MANAGEMENT CONSIDERATIONS Electronic Print No binding required Binding for preservation / control 18 No physical mutilation or damage Damage, mutilation, loss, theft 19 No physical handling costs Physical handling costs 20 21 Space saving Space consuming Shelving task and user reliance on item No shelving task 22 being on shelf and correctly shelved Binding / physical maintenance 23 No binding / physical maintenance 24 Loan transactions No loan transactions Some publishers now allowing course Digitization is an addition task 25 which removes the pack usage photocopying / scanning task for electronic reserve Location (URL) changes may be beyond Location changes are within the control of 26 control of the library the Library Requires future access / archiving / Owned and may be archived for future use, 27 preservation issues but with paper preservation issues and costs Usage statistics may be easily recorded Gathering of usage statistics labor intensive 28 per title / article which allows easier and difficult at both title and article level evaluation of value of the subscription Cost of airmail for expedited delivery 29 No expedited delivery costs Pricing less stable and predictable, Pricing structures relatively well 30 requiring license negotiation established for budgeting purposes 31 Subscription may require acceptance of Electronic may be free but not required with print print Single subscription serves all Multiple subscriptions may be required 32 Bundling of titles Individual title can be subscribed 33 Cataloguing and bibliographic control Cataloguing and bibliographic control more 34 standards are less stable and require stable and standardized more local editing / updating of records Library budget structure for handling Budget structure for print subscriptions 35 electronic resources are still contentious relatively well established and complex since they are frequently cross disciplinary boundaries and require off the top funding or faculty vote contributions Demands from publishers for longer Annual subscription normal 36 commitments term than print subscriptions 37 Aggregate databases and titles suites Catalogue record provision better require development of less labor developed intensive MARC catalogue record provision Serial check in control 38 Difficulty of serial issue control? Electronic titles still need following up. How do we get the benefit of claiming without checking in and how do we check in without a physical item.

	Automatic? Claims/follow up on electronic items have tended to stem from academic / staff inquiry	alar a projet we are all these listenses
39	Frequently not licensed document delivery to other libraries	Document delivery permitted to other libraries
40	Funding required for additional equipment (PCs and Printers) for in library users and provision of technical support	No equipment for print consultation
	ACADEMIC CON	SIDERATIONS

	Electronic	Print
41	Text can be subject to interference	Definitive text
42	Earlier access to electronic texts	Access requires the print production and distribution process
43	Potential for linking directly to an academic's cited papers	Cited article have to be looked up manually

Source: "Print and Electronic Serials Working Group Report", Monash University Library, Monash University Australia, August 2000.

(http://www.lib.monash.edu.au/reports/Print&ElectronicSerials/PAP3.html).

The points raised by the Monash Working Party summarized some of the various concerns that libraries need to address when they embark on subscribing to online databases. All these issues will directly or indirectly affects the usage of the online databases by the users and factors that may influence usage by users should remain as the core aim of the library management when decisions are made in providing the online resources.

In a study done by Tenopir (1999), librarians at academic libraries were asked to speculate on what influences their constituents when choosing an online database to search. It was found that from the librarians perspective, factors influencing database use in academic libraries include the number of workstations, locations of workstations, library opening hours, availability of remote login, usefulness of content, quality of content, lack of other databases, lack of print resources and the

importance of the concept of one stop information shopping. Among all these factors, almost all of the librarians agreed that the availability of full text journals that can be delivered over a web interface and having the flexibility of a variety of output and access points were the most important factors for the users.

These findings concur with the description made by Pagell (1993) on the new trend of information seeking as " no longer do users think that the ability to get a list of citations online is a wondrous thing, and getting a summary of the article is no longer a miracle but a nuisance. Users now want the full text, and they want it now, at their terminals, with graphics image output capability --- and of course searchable as well."

However, this new trend of end users are also faced with different set of access problems, For example, Shemberg and Grossman (1999) raised the concerns of whether patrons can easily print, download, access sources remotely, rely on standardized interfaces and depend on the reliability of systems and connections. This is true especially in times where downtime of web access and server problems may also post as a problem. However, these downtime problems caused by any factor whether internal or external to the institution are quite irrelevant to the user. Librarians will have to deal with frustrated users when they cannot get what they want and constantly ensure that the facilities in terms of hardware and software are in place to provide access for the users.

2.4. Facilitating Access to Users

The first level of access for users begins with the library's subscription. Unlike the traditional serials subscriptions, the electronic publishing world provides more than
one model of providing electronic journals. Machovec (1997) in his review of the electronic market, presented that two primary delivery models of electronic periodical products have emerged. Electronic journals were offered by either :

- a. Publishers: where some of the larger or more progressive publishers have decided to offer their journals through the Internet directly by themselves. This offers the opportunity for total control, value-added features and no intermediaries.
- b. Aggregators: where many publishers have decided to offer their electronic journals through an intermediary service which aggregates the titles from many different publishers under one interface or search system. This means that the publisher does not have to create and maintain their own separate system and that the end-user may go to an aggregator for many different titles under a common point of presence.

Brunelle (1999) later expanded these two models and presented three basic models of full text databases such as follows:

2.4.1. Publisher-Supplied Full Text Databases

In this model, the publishers of traditional print journals merely convert the original printed text into the electronic format for distribution on the web in either the PDF, HTML or the SGML formats. Full text electronic journals from this model are accessible to the users even before the print copy is officially published. Some examples of publisher-supplier full text databases include the electronic journals of *The Royal Society of Chemistry*, the ACM Digital Library (from the Association of Computing Machinery, APA(American Psychology Association) and IEEE. These

electronic collections may be tied in some advantageous way to maintaining print subscriptions. They may be bundled free or charged as an extra cost with the print subscriptions. While it is now a trend that libraries are taking the electronic version without having to subscribe to the print collection, the main concern for this model is that libraries would have to do separate subscription arrangements with many different publishers.

2.4.2. Third Party of Aggregator Supplying Full Text Databases

This model on the other hand works through the arrangement of vendors with the publishers to provide links from abstracting and indexing citations to the full text article. This model evolved from the first model that is from a single journal model to a journal cluster model. By aggregating titles, publishers are able to tag their single titles to a package and offer it to libraries that may never have wanted the single journal on its own. Libraries on the other hand by only paying a single fee, can have access to various journals at once at a lower cost than if they were to buy every single title separately. Some examples of major aggregators include <u>Journals@Ovid</u> by Ovid, Proquest (by Bell & Howell and EBSCO).

One advantage of this model is that smaller libraries may have an opportunity to access serial titles they never could before, especially if they are able to participate in consortial purchasing plans. Aggregators of electronic collections and services may include document delivery services such as offered by *Emerald Intelligence* + *Full Text* (offered by *MCB University Press*). But aggregated collections can also mean that local libraries have less selection control than when selection was made title by title. Titles are duplicated in separate collections or desirable titles bundled with ones

of little value. As such, libraries would have to do comprehensive evaluation before they decide to subscribe to aggregated packages.

2.4.3. Distributed or "Linked" Full Text

This new model provides seamless access to a broader range of related information through exploiting the linking capabilities of the Web. Grogg and Tenopir (2000) provided three types of access to the full text that involves linking:

- i. Between aggregators and publishers
- ii. Between primary publishers
- iii. Between secondary publishers and primary publishers

Prior (2001) discussed on the growth of this model by highlighting an example of the service provided by *SwetsnetNavigator* (offered by Swets Blackwell) and *SilverLinker* (offered by SilverPlatter). In this new approach, researchers are able to link directly from their library OPACs into articles that are included in the service while users who are searching secondary databases, such as those available through the *SilverPlatter* service can also link from their search results in these databases into the full text in *SwetsNavigator*, using technology developed by both parties.

Another new trend of linking that has been developed is "Reference Linking". Grogg and Tenopir (2000) described the various ways of the reference linking capabilities:

- Reference linking includes moving either internally or externally from a record within a database directly to the primary content.
 - ii. Reference linking also includes moving from a record within a database to the holdings of a particular library, holdings that may be print or electronic

Reference linking also includes moving from a citation within an article, such as footnote or endnote, to its full text.

Prior (2001) also suggested that the growth of reference linking gathered considerable pace with the launch of *CrossRef* (http://www.crossref.org). *CrossRef* is operated by the *Publishers International Linking Association (PILA)*, a non-profit independent organization. *CrossRef* holds no full text content but functions as a digital switchboard that effects linkages to full text articles for users through the Digital Object Identifiers, (DOI) which are tagged to the article metadata supplied by the publisher. With *CrossRef*, researchers are able to move easily from a citation in a journal article to the full text of the article, typically located on a different server and published by a different publisher. The reader can then access the full text article through the appropriate mechanism; subscribers will generally go straight to the text, while others will receive information on access via subscription, document delivery or pay per view.

There are now over 84 publishers participating in *CrossRef*, including Academic Press, Springer, Wiley, Elsevier Science, Kluwer accounting over 5245 journals with about 3.5 million article records in the database.

According to Brunelle (1999), this linking model is appealing from the user's stand point because it is conforming to what the WWW has already in effect trained users to expect, that is linking from one resource to another. However, Grogg and Tenopir (2000) warned that while these links make research faster and easier for experienced searchers, for the uninitiated these services can represent a maze of confusion as they face complex, but not yet fully standardized, linking practices.

2.5. Access Control To Online Databases

With so many models available at the market, McKay (1999) reminded librarians that the realistic difference between print journals and electronic journals, is that electronic journals are not received, but they are accessed. This statement is very true because management of library subscriptions to various online databases have become more challenging, as tagging along with the subscriptions are different types of access and users restrictions introduced by publishers/vendors. In a traditional print environment, library provides service to a well-defined clientele and access through the collection is also well defined but this is no longer applicable in the electronic environment. The question of "who has access?" is an important question in the electronic environment when it has to correspond with the access control arrangements agreed between the libraries and publishers/vendors.

2.5.1. Username/Password

Krieb (1999) divided access control into two general categories. The first method is handled completely by the vendor, with the dissemination of usernames and passwords to eligible users. The advantage of the username/password model is that it allows users to access the online databases from any location. Username/Password model shifts the burden of authentication to the vendor but the library is responsible for controlling the dissemination of username/password to their eligible users.

2.5.2. IP based model

The second type is the IP based model where access is only allowed through the recognition of IP addresses set by the vendors. This method is also commonly known as IP filtering. IP based model effectively allows a user to get access as long as the institution has given the IP addresses to the vendor, and thus users do not get access from their home or anywhere else if the IP address is not recognized. The IP based model on the other hand frees the vendor from the fear that users give away their username/passwords to non eligible users (and thus not losing in terms of their profits) but in this case, users can only access through computer terminal for which the IP address is recognized.

2.5.3. Credential-based authentication and Proxy Server

The other type of access control is the credential-based authentication model. Credential-based authentication involves providing the end user with a certificate or token that certifies their identity within a community, sometimes through an intermediary server. When the identity of the user is verified, the user is passed on either to the server that houses the electronic resources desired or to a server that acts as a proxy.

Proxy server works by masking remote users with the accepted IP address needed to access online databases restricted by an IP address. Users configure their browsers to access a proxy server and then use either the user's name, student identification number or any other unique information to authenticate themselves.

Decision on which model to be adopted is usually made upon evaluating the needs and constraints faced by the library management and the type of access control imposed by the publishers/vendors. The username/password model allows users access from any location but the library will have to manage the distribution of the username/password to the users. Libraries often need to keep track of the changes of username/password by the publishers/vendors in order to ensure that users are aware of the changes made. The IP based model on the other hand provides assurance to both the library and the vendor that users only get accessed to the resources provided through legitimate IP addresses. This lessen the burden on both the library and the vendor in controlling the username/password but is done at the expense of not allowing users from getting access from remote locations and confining usage only through the identified IP addresses. Libraries that subscribe to this model also need to ensure that sufficient allocation and maintenance of appropriate hardware within the IP addresses identified is provided for the users.

The proxy server model has been found to be a compromise between these two earlier models and is an attractive option for remote library support. However, despite the benefits, a proxy server can also be a potential bottleneck for access as all web traffic will have to go via a single point of access before linking to any other resources. Access failure at this point of entrance will give immediate access failure to users.

All these options available will affect the range of access that libraries can give to their users and libraries will have to work closely with publishers/vendors to ensure that their users get maximum benefits from the subscriptions.

2.6. Access Through OPAC And Library Web Page

There are two course of actions that libraries may take to enhance access to electronic journals available from the online databases upon subscribing to online databases. Firstly, by providing links from the OPAC and secondly by providing links from the library home page.

The first method was mentioned by Woodward and McKnight (1995) when they highlighted that many libraries have added electronic journals to their collections and use different technologies and different processing procedures in order to allow their users access to electronic journals such as linking the online databases to the library's OPAC.

As highlighted by Arant and Payne (2001), "there are almost as many interfaces as there are publishers of information, each with its own features and idiosyncrasies, and very few are compatible enough to be instantly integrated with the library catalog or other library resources to provide continuity and simplicity for users in an otherwise intricate research process". They suggested that a seamless interface to all the resources that a library owns is the most useful resource that a library can provide to its patrons.

Woodward and Knight proposed that if links are placed in the library's OPAC or web sites, the user would be assured that any journal in the catalog will be available through current subscription. Following a link from the OPAC to the electronic journal is seen as a simpler and more direct way of retrieving electronic articles. Arant and Payne on the other hand also suggested that by using a common user interface, links from the full text resource to the catalog should also be provided for volumes which are not available in full text. The use of the OPAC remains as an important tool to provide a "one stop shopping" convenience to the users when there are numerous formats and disparate information resources.

As for the second method, there were various researches done on enhancing access to electronic resources through providing link at the library home page. Rich and Rabine (1999) examined the content, organization and features of 114 academic library electronic journal Web pages in North America and found that while subscription agents provide searchable web site of the database they are offering, libraries remain independent in their efforts to amalgamate this various database services by constructing their own electronic journal Web sites. The examination found that these web sites usually have the following typical characteristics:

- a. Offer access only one or two "clicks" away from the library home page (92%)
- b. Offer annotative information for individual titles (77%)
- c. List individual titles alphabetically (74%)
- d. Provide access to both free-access and restricted-access e-journals (65%)
- e. Provide links to other library / institutional e-journal collections

Rich and Rabine found that an important consideration in designing electronic journal page is how the journals will be arranged to provide access and the most popular categories : alphabetical by title, grouped by publisher and arranged by either narrow subject or broad subject. One of their final recommendations as a result of their survey is that, to increase patron access, it is advisable to link to an e-journal site from more than one page without the library's site, especially if it isn't linked directly from the home page.

Subsequent studies done by Bao (2000) further proposed that in competing for attention along with a variety of institutional information resources on the Web, the location of the library home page link on its parent institution's home page, and whether or not the library provides online databases, becomes a problem that will affect how the faculty and students access and use library resources. Bao suggested that because library home pages represents a new platform for the delivery of library services, providing first level access to library resources through links from their parent institution's home page will determine the visibility of a library and will affect the effective use of the library's online, Web based resources.

Enhancing access to the online databases can also be done through effective promotions on the resources available to the users. Research done by Ashcroft and Langdon (1999) with higher education institutions in UK and USA showed that three quarters of the respondents promote electronic journals through the use of printed guides and via the library web pages. The use of workshops was less popular, followed by promotion during the library induction process.

Ashcroft (2000) later raised the concern that to ensure user needs are being met, it is essential not only to evaluate electronic journals, but also that access for users is assured through effective promotion that is beyond mere notification to users. Ashcroft also suggested that promotional efforts are responsive to the fact that the environment of electronic journals is still in the process of rapid development and change, and is sensitive to the needs of users who may easily become confused if these changes are not promoted in a clear and coherent manner. Ashcroft concluded that a win-win-win situation has to be applied for the providers, information professional and the users to ensure that ultimately the user stands to benefit.

Weingart and Anderson (2000) supported the promotion of electronic resources at the Utah State University (USU) Libraries and investigated electronic database awareness and use by 856 USU administrators and teaching faculty. The results revealed the need for greater publicity regarding new acquisitions, training opportunities and methods of remote access. They found that the University Libraries would need to work harder to publicize the available electronic resources, how to access them and what each database has to offer. This study itself was later also found to be a successful promotional tool as respondents raised their appreciation for the full listing of available electronic resources distributed to them as part of the survey form for the respondents to fill in.

Blieler and Plum (1999) surveyed all ARL libraries to determine how libraries have structured themselves to identify, evaluate, purchase and publicize all types of networked information resources including databases, full text, and e-journals and found a number of approaches but most commonly, that reference librarians and subject bibliographers play a dominant role in these approaches.

A later study by Tenopir and Read (2000) supports this statement when they found that librarians could influence usage of online databases in a variety of subtle and obvious ways. They include mentioning specific products in a user instruction class, advocating use of a specific database in specific class assignments, referring to a database on a library's welcome screen, or otherwise reminding users about a specific database.

However, effective promotion must also be supported by sufficient user's information searching skills. As stated by Mercado (1999), "if a student is not on campus and does not have access to the services of a librarian, he or she has to still learn how to apply the increasingly sophisticated and sometimes complicated online search methods of the various information sources available online. The most complete full text online databases are useless unless the student knows how to find and retrieve the information."

Librarians themselves at times find it difficult to keep up with the various types of search engine and interfaces and what more with the novice users. As already suggested much earlier by Dutton (1990), the skills required to maximize the potential of electronic resources are much greater than those required for searching printed resources. 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. Unfortunately many a times, students do not often appreciate the skills required to search these sources, stating they are deceptively easy to use (Brophy, 1993). The importance of user education remains crucial in facilitating the users' information seeking process.

2.7. Online Databases and Users' Needs

In addition to user education, it is also important that the users' needs are not neglected. Contents of user education must address the needs of the users on top of what the librarians think users need to know. As Owens (1996) mentioned, "libraries will survive not in spite of but because of technology. Even in a fully digital environment, scholars will require assistance which machines simply can't offer. They will need librarians' interpretive skills but libraries in turn, must focus on users' needs".

Provision of easy access has not only brought us greater usage but it is also changing the patterns of use among library users. Ray and Day (1998) states that while universities use considerable proportions of their budgets to provide this technology for their students to assist in the learning process, little is known about students attitudes towards this form of information provision Ray and Day suggests that without a better understanding on how students perceive the availability of these electronic resources, which may require the acquisitions of new skills to utilize effectively and their attitudes towards this form of information provision, it would be difficult for librarians to know if they are meeting the needs of students.

Hawbaker and Wagner (1996) on the other hand also warned us of the risks involved with users moving towards electronic access. They suggested that even though full text provides users with access to a wider range of materials, a growing dependence on what is easily available electronically may well become a disincentive to pursuing other sources of relevant data. These other sources, though not available electronically, may be more germane to a research topic and/or more scholarly in content. Moreover, the intangible benefits of browsing through journals in a library's current periodicals section are dampened considerably with the introduction of electronic journals.

Sprague and Chambers (2000) suggested that research into the ways in which students conduct research would also be useful. Some of the concerns as highlighted by Sprague and Chambers include the followings :

- a. Do these full text databases in fact lead to poor research habits because students only take what they can find in full text rather than conducting more thorough research?
- b. Are full text indexing and abstracting databases used more for general searching, or are they used for specific full text title availability?
- c. How important is the backfile issue for users?
- d. Do users tend to want only the most current information, or does this depend upon areas of research? In academic libraries, how do faculty and graduate students fare in the online, full text environment?

These issues are very critical as with the advent of technology, the users of information, and their information seeking process have changed accordingly. Easier access implies not only greater use but also changing patterns of use and it would be troubling for librarians if these surrogate convenience that online resources provide may eventually be a potential barrier to the user in the information seeking process. This will happen if users are only attuned to what they can search online and neglect the other non online but useful resources that may need more searching efforts.

This research will attempt to seek the current position of some of the Malaysian higher education institutions with regards to all the above highlighted issues and concerns on the provision of access to online databases. This will be done through a survey on selected private higher education institutions in the Klang Valley and a case study of the users at one of the libraries. For the purpose of these intentions, a short discussion on the developments of the private higher education sector in Malaysia will follow.

2.8. The Malaysian Private Higher Education Institutions

The developments of the private higher education sector have sparked off a tremendous amount of interest and enthusiasm among many private companies and academicians. The introduction of the concept of making Malaysia as a regional education hub has effectively spurred the growth of the private higher education sector in the last five years. Although it has been noted for its role in the social development of the country in the earlier years, the recent developments in this sector is playing an increasing role in terms of financial contribution to the country's economy.

However, this was not without some constraints imposed by the earlier governmental policies. Lee (1997a) found that since the mid 1980s, many PHEIs have been offering foreign linked programmes leading to both academic and professional qualifications as the result of the Essential (Higher Education Institution) Regulations 1969. The regulation stated that PHEIs were not allowed to confer nor can foreign universities set up branch campuses in Malaysia. As such the types of programmes offered to

students were limited to diploma levels. To overcome this constraint, many PHEIs then forged various international linkages with foreign universities to offer different types of degree programme and professional qualifications and performed the role as an intermediary between the students and their foreign partners. Therefore, private higher education in the 1980s grew as a response to meet the increasing demand in education as a supplement to the limited access to the local public universities and provided options to study programmes that are not offered locally.

In the year 1996 however, began the changing trend in the developments of the private higher education sector. The reform of higher education sector started taking place and liberalization on the educational regulations in the private sector were introduced. The then Minister of Education, Tan Sri Najib Razak identified two goals of the reform of the Malaysian education system. The Ministry is set to achieve the establishment of a world class education system in Malaysia and aims to make Malaysia a regional center for education excellence (Malaysia, 1996).

With the establishment of these goals, it had immediately enhanced the role of the private education sector as not only supplementing public education but as pivotal tool for Malaysia to promote the nation's education system regionally. This concept was very much in line with the globalization of the education sector that was taking place worldwide and the increasing focus on the many economic benefits of transnational education. As Lee (1997b) puts it, " educational providers are encouraged to "export" education either by setting up branch campuses in neighbouring countries or to attract foreign students to pursue their education in Malaysia.

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The enactment of the Private Higher Education Institutions Act, 1996 provides for the establishment of private universities and foreign university off shore campuses in Malaysia at the invitation of the Minister of Education (Malaysia, 1996). Consequently, in 1997 the first few private universities were established comprising Universiti Telekom (UNITEL) in Melaka, Universiti Tenaga National (UNITEN) in Kajang, Selangor and Universiti Teknologi PETRONAS (UNITEP) in Tronoh, Perak (Malaysia, 1997).

In 1998, the Ministry of Education extended the invitation to the establishment of another private university which was the International Medical University and two branch campuses ie the Monash University, Australia in Bandar Sunway, Selangor and Curtin University of Technology, Australia in Sarawak (Malaysia, 1998).

In the same year, the Ministry also granted approval of the full twinning programme or more commonly known as the "3 + 0" programme to 19 PHEIs in various fields of study. The grant involved 10 universities from Australia and 11 universities from United Kingdom.

The Government's decision to grant the approval was also taken as a response to the economic downturn where many students were forced to discontinue their studies overseas. The "3 + 0 " programmes were seen as a remedy to allow the students to continue their studies at the local PHEIs. And in 1999 saw the establishment of the third foreign university branch campus, University of Nottingham, UK located in Kuala Lumpur and the fourth foreign branch campus, from De Monfort University, UK came by in the year 2000 (Malaysia, 1999c).

As a result of all these developments, there exists now a variety of programmes offered at PHEIs such as branch campus, "3+0", twinning of "2 + 1" and "1 + 2", credit transfer, distance learning and online or e-courses. These programmes are mostly offered in the form of partnerships with overseas higher education institutions in the UK, Australia and USA and some with Canada and New Zealand. As highlighted by *Education Quarterly* (Disney, 2001) in year 2001, there were 32 private colleges with the approval to run "3 + 0" programmes, 4 branch campuses of foreign universities and 7 private local universities. The definitions of the various educational programmes offered by the PHEIs are as indicated in Table 2.4.

Table 2.4 : Definitions of Educational Programmes Offered at PHEIs

FRANCHISED PROGRAMMES 1. 3 + 0 Foreign University Degree Franchised Programme a. Under this arrangement, the PHEI is allowed by the foreign partner university to conduct the entire degree programme for the university in Malaysia. Up to year 2000, the Malaysia Government has approved 32 major PHEIs to conduct such programme. Local University Degree Franchised Programme b. Similar to the foreign partner programme, the local university franchised programme also allows the PHEI to acquire a Malaysian public university degree by studying entirely in the designated PHEI. **External Programme** c. In external programmes available with the foreign and local universities, PHEIs function as a tutorial center for the course offered. The student is directly enrolled as an external student at the programme partner and there is no formal linkage between the PHEI and the qualification awarding universities concerned. **Distance Learning Programme** d. Similar to the external degree programme, students are admitted directly to the university and the PHEI provides the tutorial support and acts as a support center to the qualification awarding universities. Usually there is some formal arrangement between the PHEI and the local or overseas universities concerned.

e.	Split Degree Programme The split degree programme arrangement allows partial completion of the degree programme in the local PHEIs and the final part of the programme be done at the local of foreign university, which is conferring the awards.
f.	Twinning Programme The twinning programme concept allows student to attend part of the course in the PHEI and the balance at the main university overseas. It may take the form of $1 + 2$ meaning 1 year done locally and 2 years at the twinning university or $2 + 1$, where 2 years of study is done at the PHEI and the final year at the twinning university or $a + 2$ programme.
g.	Credit Transfer Programme The transfer of credits programme is a degree study arrangement designed to link p a PHEI with a range of foreign universities. Under the arrangement, the student of the local PHEI transfer the subjects studied locally (subject to the acceptance by the host university) to one of the overseas linked universities to complete the degree programme.
h.	Advanced Standing Programme Similar to the twinning degree programme in terms of concept and objective, this linkage programme also requires students to do the initial 1 – 2 years study in the PHEI but instead of linking to one of the overseas universities, the PHEI's course is moderated and granted with advance standing status by a group of universities, meaning as a recognition for a partial of full admission into the university concerned.

2.	BRANCH CAMPUS		
	Branch campus of foreign university that offers selection of courses and awards		
	delivered to the same standards as the parent campus in the home country.		
3.	PRIVATE UNIVERSITY		
	Local set ups by private business organizations such Multimedia University (MMU),		
	Tanaga National University (UNITEN) and Petronas University of Technolomy		

With all these programmes being offered, undergraduates at the private higher education institutions (PHEIs) form a big portion of the institutions' student population. Many PHEIs have invested in a variety of electronic resources to support their learning activities. However, how often the students use these resources is a question that needs to be analyzed. To ensure a maximum rate of investment in these facilities and whether they are meeting the users' needs and to analyze why they are not using them is very critical to the library management.

As for online databases, which form a major percentage of electronic resources, capturing data on whether students are using them can be easily done through usage reports that can be churned out at any necessary period. These usage reports provide a very good basis for the librarian to gauge which are the more popular databases among the users, how often they are being used and types of journals that are accessed by the users. However, these data only provide the library's perspective of the usage investigation. A more wholistic investigation that include the perceptions of students, their preferences and their reservations, if any, on the usage of these resources is

needed and would help to provide a more complete picture and this will be attempted by the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Overview of the Research Methodology

The overall research began with an analysis of the selected library and information science literature for the past 10 years. This was done to obtain an overview of the current trends and developments in the integration of electronic publishing and library services among academic libraries. The information obtained was then used to identify the area of study and potential target groups for the study. The final decision of the topic selected was to study the provision of access to online databases for undergraduate students of Malaysian private higher education institutions.

3.2. Type of Research and Selection of Research Instrument

This study uses descriptive approach, which as stated by Salkind (1997), describes the characteristics of an existing phenomenon. A descriptive research provides information that can stand on its own and can also serve as a basis for other types of research.

This research consists of two main aims. The first is to determine how private higher education institutions (PHEIs) provide access to online databases for their undergraduates and the second, to investigate the level of awareness and perceptions of undergraduates towards the usage of the online databases provided for them.

The study uses two questionnaire-based surveys for data collection. Sekaran (2000a) defines a questionnaire as a pre formulated written set of questions to which respondents record their answers, usually within rather closed defined alternatives.

The questionnaire is an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest.

The decision to use the questionnaire as the survey instrument is based on the followings reasons:

- a. Questionnaires save time since they allow individuals to complete them without any direct assistance or intervention from the researcher. Answering the questions by the respondent is self-administered.
- b. Since it is self administered, questionnaires can go through mail, email, and face-to-face answering when there is a need. By using mail or email, the survey can be extended to a broader geographical area.
- c. People are more willing to be truthful because anonymity is guaranteed.
- d. Questionnaires do not make unreasonable demands on the respondent, questions are objective, straight forward, can be answered and requires information that respondents presumably have.
- e. The objectivity of the data also makes it easy to share with other researchers and can be use for additional analysis.

In both surveys, the questionnaires are designed in the form of structured questions and "closed" in nature.

3.3. The First Survey

3.3.1. Sample Selection

The first objective of the study is to explore the type of access to online databases offered by the PHEIs. Thus, the objective of the first survey is to obtain answers to the first three aims of the research, as follows:

- To determine the types of access that undergraduates in different study programs have on online databases
- b. To determine how academic libraries in PHEIs (who are running franchised undergraduate programmes) are collaborating with their program partners in terms of providing access to online databases to undergraduates
- c. To determine the types of access to online databases that academic libraries in PHEIs are providing from their own funding.

The first survey was designed and targeted at different types of PHEIs offering undergraduate programmes and to be responded by the librarians or administrators of these PHEIs. The study uses the "purposive sampling" (Bouma, 2000) method, which identifies the target group from the *Education Guide* (2000) and then selecting the PHEIs based on the following criteria:

i. Type of status

The PHEI should be in either one of the following types:

- a. Local set up college
- b. Local private university
- c. Foreign university branch campus

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ii. Types of undergraduate programmes offered

The PHEI should be offering at least one of the following types of undergraduate programmes, as per identified in the literature review:

- a. 3 + 0 foreign university degree franchised programme
- b. Local university degree franchised programme
- c. Franchised external programme
- d. Franchised distance learning programme
- e. Franchised split degree programme
- f. Franchised twinning programme
- g. Credit transfer programme
- h. Advanced standing programme
- i. Foreign branch campus programme
- j. Private university programme

Table 3.1 depicts the list of PHEIs that were approached for the survey and the type of status of the PHEIs. The list includes a total of 33 PHEIs with 25 colleges, 4 private universities and 4 branch campuses of foreign universities.

No	PHEI	Type of Status
1	Asia Pacific Institute of Information Technology	College
2	Berjaya International College	College
3	Binary College	College
4	Informatics Klang Centre	College
5	INTI College	College
6	INTI International College Penang	College
7	Kolej Bandar Utama	College
8	Kolej Damansara Utama	College
9	Kolej Disted Stamford	College
10	Kolej Teknologi Cybernetics	College
11	Kolej Uniti	College
12	L & G Twintech Institute of Technology	College
13	LimKokWing Institute of Creative Technology	College
14	Metropolitan College	College
15	Nilai College	College
16	Perak College of Medicine	College
17	PJ Community College	College
18	Prime College	College
19	PTPL College	College
20	Sedaya College	College
21	Sepang Institute of Technology (S.I.T.)	College
22	Sunway College	College
23	Systematic Management Resource Center	College
24	Taylor's College	College
25	Terengganu Advanced Technical Institute	College
26	International Medical University (IMU)	Local Private University
27	Multimedia University (MMU)	Local Private University
28	Universiti Tenaga Nasional (UNITEN)	Local Private University
29	Universiti Tun Abdul Razak (UNITAR)	Local Private University
30	Curtin University of Technology Sarawak Campus Malaysia	Foreign Branch Campus
31	FTMS - De Monfort University	Foreign Branch Campus
32	Monash University Malaysia	Foreign Branch Campus
33	Nottingham University of Malaysia (UniM)	Foreign Branch Campus

Table 3.1: List of PHEIs and Type of Status

3.3.2. Rationale and Purpose of the Survey Questions

The questionaire presented to the respondents is carefully selected after reviewing library surveys conducted by other academic libraries and those obtained from the World Wide Web.

Questions are grouped in different sections to solicit specific responses from the target group. According to Alreck and Settle (1995), grouping of the questionnaire into sections by topics simplifies the task of asking and answering the questions. This also allows the task to appear simpler, easier and logical to the respondents. The respondents are presented with various options and are required to select the answer most appropriate to them.

The survey questionnaire is categorized into 8 sections:

- i. Section A: Information on study courses offered by the institution.
- Section B: Access to online database(s) subscribed by local or foreign program partners.
- iii. Section C: Access to online database(s) subscribed by individual PHEI.
- iv. Section D: Computer facilities and library website
- v. Section E: Promotion of usage of online databases
- vi. Section F: Integration of online databases into library OPAC
- vii. Section G: Charges for accessing online database(s)
- viii. Section H: Output options

Sections A, B and C deal with subscription to online databases. Sections D - H deal with the availability of other facilities that support and enhance the level of usage of the online databases by the users, such as computing facilities, promotional efforts

taken by the PHEIs in raising awareness among users on the availability of the online databases, links from library website and library's OPAC, printing facilities etc.

The questions in Sections A - C are tailored according to the nature of the PHEIs, ie, that is whether the PHEI is a college, private university or branch campus. The questions in Sections D - H apply to all three types of PHEIs.

The slight difference in the types of questions in sections A - C is necessary as the nature of undergraduates programmes offered by these different types of PHEIs are different. For example, colleges such as Sunway College and INTI College offer various programmes such as the 3 + 0 and twinning programmes, advanced standing programmes and split degree programmes. These types of PHEIs have various collaborations with different foreign business partners in offering these programmes. Private universities offer programmes that are developed by the universities itself. The foreign branch campuses such as Monash University Malaysia on the other hand offers the programmes mirroring the programmes developed by the parent institution, Monash University in Australia. These differences among the three types of institutions subject them to different arrangements in terms of library resources available to their students, which may include the provision of the online databases. As such, three types of questionnaires are designed to accommodate these differences and in order not to confuse the respondents in answering the questions. The three different questionnaires developed are:

- a. Survey 1 Colleges (Please refer to Appendix A)
- b. Survey 2 Private Universities (Please refer Appendix B)
- c. Survey 3 Foreign Branch Campus (Please refer Appendix C)

In Section A, the first question aims to solicit information on the type of courses offered by the institution. In order to assist the respondents, undergraduate programmes offered by the PHEIs are pre-listed in an appendix (Appendix A) and respondents are required to amend the list of programmes where necessary.

The following question aims to find out the type of access the PHEIs are offering to their students. For the first group of PHEIs (College), the respondents are asked to provide information on the types of access to online database(s) that were subscribed by their local or foreign programme partners and the online database(s) subscribed by the PHEI itself. In both cases, information focused on the type of access control that applies to each of the online database(s) provided. Options required for the various types of access controls included username/password, IP based and others.

For the second group of PHEIs (Private Universities), the respondents are asked to provide information on the types of access to online database(s) and the type of access control that applies to the online database(s) provided.

For the third group of PHEIs (Branch Campus), the respondents are asked to provide information on the types of access to online database(s) that were subscribed by their parent institution (main campus) and the types of online database(s) that are subscribed by the PHEI itself. The respondents are also asked to indicate the type of access control provided by the databases.

Section D of the questionnaires focuses on computer facilities offered by the PHEIs in supporting the usage of the online database(s), the availability of a library website and links from the website to the online database(s).

Section E aims to obtain information on how the library promotes the usage of online database(s) available to its students. A list of common promotional options used by many academic libraries is presented to the respondents. These options include library induction / orientation, one to one training session, library brochures, notice board in the library, notice board within the campus and an option for any other promotional effort taken by the PHEIs.

Section F aims to ascertain whether there are links provided to the electronic journals in the online database(s) from the library's OPAC. Section G asks the respondent to state if the users are charged for accessing the online database(s) and how they are charged. Lastly, Section H asks whether users are allowed to print, download or email for articles in the electronic journals accessed and the cost charged for printing.

3.3.3. Distribution of Survey Forms

The survey forms are sent to the selected librarians or administrators through email between the period of January 2001 to February 2002. Follow-ups are made to obtain further information from the respondents. Responses from the target group is slow and some librarians or administrators of the private colleges are quite reluctant to respond. Despite the various attempts by the researcher in explaining the nature and aims of the research, the respondents were very cautious in their responses. Constant follow-ups are necessary to allow the researcher to persuade the librarians or administrator to give their responses. This situation is expected due to the competitive nature of the PHEI industry. Institutions that have branches are also difficult respondents. The study received 26 responses out of the 33 PHEIs approached (78%).

3.4. The Second Survey

In a study done by Ray and Day (1998) on the usage of electronic resources, views of users provide vital information on the effectiveness of the resources, as well as the varying needs of students. This finding is be supported by Fairies (1992) who mentions that "while user surveys can never tell the whole story of how patrons are responding to a library service, they provide valuable ideas about what does and does not work". The first survey investigates undergraduates' usage of the online databases in the PHEIs. The user's awareness on the resources available, preference and habits of usage, effectiveness of information searching skills and skills of evaluations of information solicited are as important as having access to the online databases itself. As such, the second survey investigates the level of awareness and perception of undergraduates towards the usage of online databases provided by the institutions they are attached to.

3.4.1. Sample Selection

Undergraduates at two of the PHEIs form the target group of the case study of this study. A case study is a method used to study an individual or institution in a unique setting or situation (Salkind, 1997b). In its more limited term, it refers to an exploratory study in which no hypotheses is tested, thus allowing the researcher to take a very broad outlook at a phenomenon (Bouma, 2000b). A case study is useful for gathering information which can be used to build a description of what is going on inside the entity being studied.

The sample group selected in the second survey are undergraduates from Monash University Malaysia and Sunway College. These two PHEIs are chosen because both PHEIs were set up as part of the business conglomerate, the Sunway Group. In this situation, there exists a unique arrangement in the sharing of library resources between the two PHEIs. Library services were offered to both PHEIs through the Tun Hussein Onn Library.

Due to this unique arrangement, it is observed that there are three distinct groups of undergraduates who have different access privileges to the online databases offered by the two PHEIs, namely:

- i. Undergraduates of Monash University Malaysia who have access to:
 - a. Online databases subscribed by Tun Hussein Onn Library, and
 - b. Online databases subscribed by Monash University Library, Australia
- Undergraduates of Sunway College Victoria University Programme who have access to:
 - a. Online databases provided by Tun Hussein Onn Library and
 - b. Online databases subscribed by the Victoria University Library, Australia
- iii. Other undergraduates of Sunway College who are not in the Victoria University Programme who have access only to online databases subscribed by Tun Hussein Onn Library.

The existence of these three distinct groups makes them an interesting case study for the research.

Similar to the first survey, questions in the second survey is designed after reviewing the various library surveys on database awareness carried out by other academic

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libraries (Weingart and Anderson, 2000). Other studies include Huggard et al. (2002) entitled "Monash University Database Usage Survey" and Chern, Foo and Chennupati's (2001) study of graduate student end-users use and perception of electronic journals. In the study done by Weingart and Anderson (2000), the use of the survey form that listed the databases and access methods unexpectedly became an awareness promotion tool to the non-users when they were responding to the survey. The current study hopes that the survey questionnaire distributed would achieve similar achievements.

3.4.2. Rationale and Purpose of Survey Questions

For easy administration, three different questionnaires are developed:

- a. Survey Form 01 Monash University Malaysia (Appendix D)
- b. Survey Form 02 Sunway College (Appendix E)
- c. Survey Form 03 Victoria University (Appendix F)

All three survey questionnaires listed above are categorized into 3 parts to obtain data on the following subtopics:

- i. Part I : General information on respondents
- ii. Part II: Respondent's awareness and usage of online databases
- iii. Part III: Perception towards accessing online databases

In almost all questions, the respondents are presented with options and asked to select the answer most appropriate to them. When more than one choice is acceptable, the respondent are asked to check all choices that apply. Part I (General information on respondent) aims to solicit demographic information about the respondents, comprising their name and email address while the second question asked if the respondent would be willing to respond to any follow up questions that may be necessary to establish further clarifications to the answers that the respondent has provided. The following two questions were on the programme and which year of study the respondent is enrolled in.

Part II (Respondent's awareness and usage of online databases) attempts to obtain data on the level of respondent's awareness on the accessibility to online databases provided by the institution they are enrolled in.

Questions presented in Part II asks respondents from Monash University Malaysia and Sunway College-Victoria University if they are aware that they can access online databases provided by the Monash University Library, Australia or Victoria University Library, Australia and whether they are aware of how or where the online databases are accessible from, how often they are accessed and to list down the names of three of the most used online databases they usually access.

In the above two cases, the questions are essential to ascertain respondent's awareness towards the accessibility to online databases provided by the parent university in Australia. Those respondents targeted to answer Survey Form 02 are not required to answer similar questions since their programme is conducted by Sunway College. Except for the above two different questions, the remainder of the questions asked are in all three survey forms. This includes questions regarding respondent's awareness on the online databases provided by the Tun Hussein Onn Library, whether they know that these databases are only accessible from within the campus and not from anywhere else, and how often do they are access the online databases. The respondents are also asked to list one of the most used online database. Since the online databases provided for by Tun Hussein Onn Library are IP based, the respondents are also requested to provide their response on the usefulness of the online databases.

Respondents are also asked to indicate the length of experience of the respondent in using online databases and whether they perceive themselves as novices, competent or a very competent users.

Respondents are asked to indicate the means by which they learn to use the online databases. The learning options listed are:

- a. Library orientation
- b. Formal classes (applies only to Monash University Malaysia Engineering students)
- c. Printed guides provided by the library
- d. Independent learning through the trial and error method
- e. Guidance from friends
- f. Guidance from library staff
- g. Guidance from lecturers
- h. Other means
In terms of the options on library orientation and formal classes, respondents are also asked to rate the adequacy of the training session in terms of gaining knowledge and using the online databases.

Part III (Perception towards accessing online databases) focuses on obtaining data on the preference and habits of the users in using the online databases. The respondents are asked on the purpose of using the online databases, to rate their level of satisfaction in using the online databases and indicate their preference for reading the articles found on screen or to print out the article.

In Part III, respondents are also requested to select the reason(s) they find online databases to be useful. The options given are as follows:

- a. Allow multiple journal titles / issues to be searched at the same time
- b. Provide timely access
- c. Allow remote access
- d. Are easy to use
- e. Provide useful search options (eg, keyword search, article title, author, subject citation search)
- f. Allow articles to be downloaded and saved digitally
- g. Find specific information (ie. appropriate articles)
- h. Easier than printed journals
- i. Able to manipulate the information obtained
- j. Have hyperlinks that provide access to additional information
- k. Support serendipity search
- I. Any other reason

The respondents are also asked to rank the options selected (Rank 1 - 3) which they find most crucial in accessing online databases.

Respondents are also asked to indicate the types of non usefulness they found when using online databases. The options listed are:

- a. They are more difficult to browse than printed journals
- b. Searching them result in excessive printing
- c. Slowness in Internet line delays information searching efforts
- d. Reading from the screen is less pleasant than reading the print copy
- e. Any other reason

Similarly to the previous question, the respondents are also asked to rank the options selected (Rank 1-3) in terms of degree of the problems.

The respondents are also asked to indicate the difficulties encountered when accessing the online databases. The options provided include:

- a. Confusion in the use of different search engines for different databases
- b. Time consuming due to slowness of Internet line
- c. Time consuming due to PC hardware problems
- d. Too much information retrieved
- e. Irrelevant information is also retrieved at times
- f. Never encountered any difficulty
- g. Any other difficulty

Finally, the last two questions requested the respondent to rate the importance of the online databases in their studies and to provide any further comment that he may have on the usage of online databases.

3.4.3. Pretesting of Survey Form

As highlighted by Sekaran (2000b), it is important to pretest the survey instrument to ensure that the questions posed are understood by the respondents and that there are no problems with the wording or measurement. Pretesting serves as a means of increasing validity of the instrument, by helping to rectify the inadequacies in time, before administering the instrument and thus help reduces biasness. Pretesting was done on a few respondents who were asked to provide feedback on their understanding of the contents of the questionnaire. The researcher also reviewed the proposed questionnaires with the Chief Librarian of the Tun Hussein Onn Library. After analyzing the data obtained from the pretest and the pretest respondents' comments, necessary amendments were done to the questionnaire. As the survey form was to be self administered, a cover letter was attached to each survey form to explain to the potential respondents the purpose of the survey and some simple instructions to be followed by the respondents when responding to the questions presented.

3.4.4. Distribution of Survey Forms

The survey questionnaires were distributed from the period of February 2002 to April 2002. In order to ensure a more immediate and effective response, it was decided to have the survey forms distributed through the in-class administration method, which helped to maximize the response and minimize self-selection bias. This option ensures that both library users and non-users are sampled and the in-class administration help reduce the cost of printing and distributing the survey forms.

The classes were identified from school / programme listings and Heads of Schools / Directors of Programmes and lecturers were approached to seek permission for the researcher to distribute the questionnaires. The questionnaires were distributed to the targeted groups at the end of their lectures or tutorials. This method proved to be an effective way to capture the target groups, maximize the response rate and avoid duplicated responses from the same students in different classes since lecturers were asked to remind the students to not respond for a second time if they have responded earlier on.

Another method of distribution was through sending emails to a group of undergraduates from the School of Information Technology and Multimedia, Sunway College who were then having their semester break. Students' email addresses were obtained with permission from the Director of Programme and a copy of the survey form was sent to each student. However, disappointingly, only one student responded after a period of two weeks. The survey forms were then again distributed by the lecturers to the same group of students after they returned from the semester break. The high response rate obtained through in-class administration again proved this method to be a more effective choice of obtaining response from the target group. In total, 1128 sets of questionnaires were distributed with a total response rate of 501 sets (44%). Table 3.2 depicts the breakdown of the total sample and response rate of each target group.

Programme / School	Total survey forms distributed	Total Response	% of Response
Monash University Malaysia (MUM)	318	157	49
Sunway College - Victoria University (SYC-VU)	450	149	33
Sunway College – Western Michigan University (SYC-WMU)	280	131	47
Sunway College – School of IT and Multimedia (SYC-SITM)	80	64	89
Grand Total	1128	501	44

Table 3.2: Total Response According to Programme / School Enrollment

3.5. Analysis of Data

For both surveys, data obtained from the respondents was processed and analyzed using SPSS (Statistical Package for the Social Sciences) and Microsoft Excel. In both surveys, although the target groups selected were not comprehensive and bearing in mind that the data obtained in both surveys cannot be extrapolated to a bigger population, it is believed that they can still represent a reasonable sample for discussions on various topics which will be presented in Chapter Four.

CHAPTER 4

DATA ANALYSIS

4.1. Introduction

The analysis of data collected from the first survey uses the Microsoft Excel spreadsheet. The analysis of data collected from the second survey uses SPSS (Statistical Package for the Social Sciences) and Microsoft Excel. The results are presented in terms of frequencies and cross tabulations. The results and discussions for both surveys are presented according to the sections/topics defined in the survey questionnaires.

4.2. Results of the First Survey

4.2.1. Provision of Access to Online Databases by PHEIs Undergraduates

The first survey aims to determine the types of access that undergraduates in different study programmes in the Malaysian PHEIs have on online databases. Out of the 33 PHEIs approached, a total of 26 (78%) responses were obtained. The total response from the PHEIs to the questionnaire is depicted by Table 4.1.

Types of PHEI	College	Local Private University	Branch Campus of Foreign University	Total	
Total PHEIs Approached	25	4	4	33	
Total responses	19	3	4	26 (78%)	

Table 4.1: Total Responses From PHEIs

The list of PHEIs, which responded is given in Table 4.2.

No	Name of PHEI	Type of Status
1	Informatics Klang Centre	College
2	INTI College, Nilai	College
3	INTI International College Penang	College
4	Kolej Bandar Utama	College
5	Kolej Damansara Utama	College
6	Kolej Disted Stamford	College
7	Kolej Teknologi Cybernetics	College
8	Kolej Uniti	College
9	L & G Twintech Institute of Technology	College
10	LimKokWing Institute of Creative Technology	College
11	Metropolitan College	College
12	Nilai College	College
13	Perak College of Medicine	College
14	PJ Community College	College
15	PTPL College	College
16	Sedaya College	College
17	Sunway College	College
18	Systematic Management Resource Center	College
19	Taylor's College	College
20	International Medical University (IMU)	Local Private University
21	Multimedia University (MMU)	Local Private University
22	Universiti Tun Abdul Razak (UNITAR)	Local Private University
23	Curtin University of Technology Sarawak	Foreign Branch Campus
24	ETMS - De Monfort University	Foreign Branch Campus
24	Monash University Malaysia	Foreign Branch Campus
26	Nottingham University of Malaysia (UniM)	Foreign Branch Campus

Table 4.2: List Of Responding PHEIs

i. Provision of Access to Online Databases by the PHEIs

Out of the 26 PHEIs approached, a total of 8 (42%) PHEIs in the "College" category provide access to online databases, while 11 (58%) other colleges did not. All 7 (100%) PHEIs in the "Local Private University" and the "Branch Campus of Foreign University" categories provide access to online databases to their students. The breakdown of the PHEIs offering online databases is given in Table 4.3.

Types of PHEI	Local Private University	Branch Campus of Foreign University	College
Total PHEIs Responded	3	4	19
Total PHEIs providing access to online database(s)	3 (100%)	4 (100%)	8 (42%)

Table 4.3: Total PHEIs Providing Access to Online Database

a. Local Private Universities

The 3 private universities that responded are International Medical University, Multimedia University and Universiti Tun Abdul Razak. Provision of access to online databases by the 3 private universities for their undergraduates use the "access by subscription" model. The three institutions subscribe to the online databases through their own funding and access is given to all their undergraduates. The access to the online databases is controlled by using a mixture of username/password and IP based access.

b. Branch Campuses of Foreign Universities

Responses from the branch campuses revealed that there are in existence three types of access that a branch campus can offer to its undergraduates and they are:

- Provision of access to online databases by the branch campus through its own subscriptions from its own funding.
- ii. The branch campus performs the role of a surrogate center for the users to have access to the online databases that are subscribed by the parent university.
- iii. Provision of access to online databases by the branch campus through its own subscriptions and performing the role of a surrogate center for the users to have access to the online databases that are subscribed by the parent university.

Results of the first survey show that all the 4 branch campuses of foreign universities offer access to their undergraduates. Two branch campuses (Monash University Malaysia and Nottingham University of Malaysia) provide access to online databases through their own funding as well as access to online databases provided for by the parent university through remote access. The third branch campus (FTMS-De Monfort University), provides access to online databases provided for by the parent university and the fourth branch campus (Curtin University of Technology Sarawak Campus Malaysia) indicates only providing access to online databases subscribed locally.

c. Colleges

The PHEIs with college status that were selected offer at least one of the following undergraduate programmes:

- i. 3+0 foreign university degree franchised programme
- ii. Local university degree franchised programme
- iii. Franchised external programme
- iv. Franchised distance learning programme
- v. Franchised split degree programme
- vi. Franchised twinning programme
- vii. Credit transfer programme
- viii. Advanced standing programme

It is interesting to observe that because of the myriad of types of programmes offered by these PHEIs, the access to online databases offered by the PHEIs also varied considerably in types and access controls. Findings show that 11 (58%) out of the 19 colleges do not provide any form of access to online databases for their undergraduates, and the other 8 (42%) colleges provide access to the following types of online databases for their undergraduates (Table 4.4).

i. Provision of access to online databases by the college through its own subscriptions

- ii. Provision of access to online databases subscribed by the programme partner
- iii. Provision of access to online databases subscribed by the programme partner

and through the PHEI's own subscription

Type of Access	Total Colleges
Colleges providing access through own subscriptions:	5
 Inti College Perak College of Medicine Sedaya College Sunway College Taylor's College 	
Colleges providing access through partnership with programme partners:	5
- Informatics College, Klang	
- Inti College	
- Sunway College	
- Systematic Management Resource Center	
Colleges providing access through own subscription and through programme partners:	2
- Sunway College	
- Inti College	

Fable 4.4: Provision o	f Access	to Online	Databases	by	Colleges
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The findings show that five colleges provide access to the online databases through their own subscriptions and these online databases are accessible to all their undergraduates. All these colleges use username and password or IP Based access control (Table 4.4).

Five colleges indicate that they provide access to online databases subscribed by their programme partners and similarly uses username and password or IP based access method for their undergraduates. Two colleges (Sunway College and INTI College) provide access to online databases through its own subscriptions as well those databases provided for by the college's programme partners. For colleges which are providing access to online databases subscribed by their programme partners, they indicate giving access to undergraduates enrolled under the specific programme that they are offering and not to the rest of the library users (Table 4.4).

For example, the Informatics College provides access to online databases only for their undergraduates who are enrolled for the University of Southern Queensland, Australia (USQ) programme for databases subscribed by USQ. While, only undergraduates who are enrolled with the Bolton Institute (UK) Business Programme at the Systematic Management Resource Center get access to the online databases subscribed by Bolton Institute and only Sunway College's undergraduates who are enrolled in the Victoria University (Australia) programme have access to the online databases subscribed by the Victoria University Library in Australia. The findings suggest that the question of "who you are" is crucial in determining who accesses what in terms of access to the online databases provided by their institutions. Two of the PHEIs surveyed provide distinct features in the provision of access to online databases for their undergraduates and they are Sunway College and Monash University Malaysia. These PHEIs were set up as part of the business conglomerate, the Sunway Group, and there exists a unique arrangement in the sharing of library resources between the two PHEIs. Library services are offered to both PHEIs through the Tun Hussein Onn Library. Due to this unique arrangement, the Tun Hussein Onn Library manages three types of access to online databases to 3 different user groups within the same campus, and they are:

- i. Undergraduates of Monash University Malaysia who have access to:
 - c. Online databases subscribed by Tun Hussein Onn Library and
 - d. Online databases subscribed by Monash University Library, Australia
- Undergraduates of Sunway College Victoria University Programme who have access to:
 - c. Online databases provided by Tun Hussein Onn Library and
 - d. Online databases subscribed by the Victoria University Library, Australia
- Other undergraduates of Sunway College who are not in the Victoria
 University Programme who have access only to online databases subscribed
 by Tun Hussein Onn Library.

In the case of Monash University Malaysia and Victoria University, Australia, local undergraduates at the Malaysian branch campus are given access to the online databases provided by both universities as off campus undergraduates. In both cases, the access given to the respective online databases by the two institutions are controlled by using the user authenticating system, that requires username and password. At the same time, Tun Hussein Onn Library provides access to all its undergraduates, which includes the undergraduates of Monash University Malaysia, undergraduates of Sunway College-Victoria University Programme and the rest of the undergraduates of Sunway College who are enrolled in the other programmes that are being offered by Sunway College. In the case of the Tun Hussein Onn Library online databases, the access is IP based controlled.

The access model provided by the Tun Hussein Onn Library epitomizes the kind of technological convenience that online databases can offer. Subscription to online databases may be the fundamental means of getting access to a specific online database. However, findings in this research shows that by capitalizing the convenience of remote access that is allowed by the online databases technology and the smart management of the access controls, the usage of the online database can be extended to a wider group of users while effectively maintaining the access control. Based on the research findings, it is obvious that the complexity of who have access to the online databases subscribed by the institutions very much depends on how the PHEIs maximize the convenience of online databases for their undergraduates.

ii. Provision of Computer Facilities

In providing electronic resources, the provision of computing facilities affect usage at a greater level than with printed resources. The number and types of computing facilities can enhance usage as well as becomes a barrier to usage of the online resources. This is especially important if the provision of access to the online databases is IP based controlled. Results from the first survey revealed that almost all of the PHEIs provide access to both of the online databases and computing facilities to their users. Findings also show that the number of computers provided for by the PHEIs ranges from 0 to more than 500 units. Only one PHEI indicate not providing their undergraduates with computer facilities because their undergraduates are pursuing a distance-learning programme, where remote access to the online databases is already given. Undergraduates are expected to rely on their own computing facilities at remote locations.

iii. Promotion of Usage of Online Database

The PHEIs are asked to indicate the types of methods employed in promoting usage of the online databases among their undergraduates. Table 4.5 shows that generally, the responding PHEIs use a variety of methods to promote the usage of online databases. The more popular methods include library induction / orientation sessions, library brochures, notices in the library and notices within campus. Other methods used include sending notices to undergraduates through email, working together with the lecturers to hold special classes for the students and providing online interactive tutorial for its undergraduates. The various methods of promoting usage of online databases employed by the PHEIs can affect the level of usage of the online databases by the undergraduates and it is encouraging to find that the PHEIs do offer several different methods simultaneously in order to satisfy the divergent learning methods of the undergraduates.

Method of Promotion	No of PHEIs
Library Induction / Orientation	12
One to One Training	8
Library Brochures	10
Notice Board In Library	10
Notice Board Within Campus	4
Others	8

Table 4.5: Methods Used in Promoting Usage of Online Database

iv. Links from Library Homepages to Online Databases and OPAC

Not all the responding PHEIs have their own library homepage although all of the PHEIs have their own institutional homepage (Table 4.6). Findings indicated that for the private universities, 3 out of the 4 branch campuses have a library homepage and only 4 out of the 8 colleges have library homepages. All of the 10 PHEIs who have library homepages make use of the homepage to provide links to the online databases for their users.

Type of PHEIs	Total Respondents	With library homepage	Without library homepage
Private Universities	3	3	0
Branch Campuses	4	3	1
Colleges	8	4	4
Total	15	10	5

Table 4.6: Total PHEIs With Library Homepage (n = 15)

Integration of online databases into the library's OPAC is almost not practiced at all by most of the PHEIs. Only 2 PHEIs; Multimedia University and Monash University Malaysia, have records of the online databases in their library OPAC.

However, in the case of the Monash University Malaysia for example, the undergraduates are presented with two library OPACs which can be rather confusing for the undergraduates when they are searching for records of online databases from the library OPACs. As previously explained, undergraduates of Monash University Malaysia have access to both online databases subscribed by Tun Hussein Onn Library and online databases subscribed by Monash University Library, Australia. The two libraries have their own separate library systems. Monash University Library, Australia (MUL) uses Voyager while Tun Hussein Onn library uses the Geac Advance library system and the OPAC is known as Geoweb. Both the OPACs are web based, allowing remote access for their undergraduates. Users are able to search for journal titles in Voyager when there is an electronic version to the title. Voyager will prompt the user to a web link. This is done with the MUL online databases. However, Geoweb does not provide the same facilities and undergraduates of Monash University Malaysia do not get the same convenience when it comes to the online databases provided for by Tun Hussein Onn Library. Users are faced with two OPACs, two sets of online databases and certainly potential confusion when it comes to doing information searching.

v. Charges for Accessing Online Databases and Output Options

Most of the PHEIs do not charge their undergraduates for accessing the online databases. Most PHEIs consider online databases as a part of the total library services provided for the undergraduates. However, 3 PHEIs; Sunway College, Taylor's College and Monash University Malaysia, which provide access to the NSTP E Media database, impose a charge for articles only when the user needs to download full-text articles from the database.

All the PHEIs provide output options for information obtained by the users from the online databases such as printing, downloading into diskette and emailing to the user's email address. However, out of 9 PHEIs, 7 PHEIs charge their undergraduates for printing facilities and charges can range from 10 sen to 50 sen per page for the articles printed out. One PHEI indicate that while they do not charge for printing facilities, the user would have to bring their own paper if they wish to print.

The findings from the first survey provided information on the types of online databases that are offered by the PHEIs and the supporting facilities required for their usage for their undergraduates. The following sections will discuss the findings from the second survey, which focuses on the awareness and perception of undergraduates towards the usage of online databases provided by the institutions they are attached to.

4.3. Results of the Second Survey

4.3.1. Awareness and Perception of Undergraduates Towards Usage of Online Databases

A total of 1128 survey forms were distributed to the undergraduates of Sunway College and Monash University Malaysia. A total of 501 forms (44%) was obtained from respondents (Table 4.7) A total of 50 invalid survey forms had to be discarded due to incomplete responses. Finally, a total of 451 forms (40%) are used for analysis. (Table 4.8).

Programme / School	Total survey forms distributed	Total Response	% of Response
Monash University Malaysia (MUM)	318	157	49%
Sunway College - Victoria University (SYC-VU)	450	149	33%
Sunway College – Other Programmes - Western Michigan University (SYC-WMU)	280	131	47%
- School of IT and Multimedia (SYC-SITM)	80	64	80%
Total	1128	501	44%

Table 4.7: Total Responses According to Programme / School Enrollment

Programme / School	Total Survey Forms Distributed	Total Valid Response	% of Response
мим	318	133	42%
SYC-VU	450	136	30%
SYC-WMU	280	- 118	42%
SYC-SITM	80	64	80%
Total	1128	451	. 40%

Table 4.8: Total Valid Responses According to Programme / School Enrolment

The profile of the respondents in terms of their year of study is given in Table 4.9. The undergraduates are asked about their awareness of the accessibility of the online databases provided for by the PHEIs they are enrolled in and the responses are described in subsequent sections.

Programme/School enrolled	First Year Student	Second Year Student	Third Year Student	Honours Student	Others	Total
MUM	14 (11%)	62 (47%)	19 (14%)	23 (17%)	15 (11%)	133
SYC-VU	61 (45%)	64 (47%)	10 (7%)	0 (0%)	1 (0.7%)	136
SYC-WMU	82 (69%)	29 (25%)	2 (2%)	0 (0%)	5 (4%)	118
SYC-SITM	0 (0%)	0 (0%)	37 (58%)	27 (42%)	0 (0%)	64
Total	157	155	68	50	21	451

Table 4.9: Profile of Respondents by Enrolment

4.3.2 Online Databases Provided for Undergraduates of Monash University

Malaysia (MUM)

MUM undergraduates have access to more than 250 online databases provided by the Monash University Library (MUL), Australia. Each student is given an Authcate username and password (student's authenticated identity provided for them by the MUL). Using the Authcate username and password, MUM undergraduates are able to have remote access to a variety of online databases from MUL. On top of that, MUM undergraduates can also access all the online databases subscribed by the Tun Hussein Onn Library (THOL). However, the access to the THOL online databases are IP based controlled and can only be accessed from within the campus. The following findings obtained from the MUM undergraduates provided some interesting insights to their level of awareness on the existence of these different online databases and the differing access controls adopted by MUL and THOL.

i. Awareness on the Availability of Online Databases

The results indicate that out of the total 133 MUM undergraduates who responded to the survey, a total of 89 (67%) undergraduates are aware that they can access the online databases provided by Monash University Library, Australia. However, it was found that more undergraduates (72%) are aware that they can access the online databases provided for by Tun Hussein Onn Library (Table 4.10).

Table 4.10: Awareness of Availability Of Online Databases Provided by

Not Aware	Aware	Total
44 (33%)	89(67%)	133
37(28%)	96(72%)	133
	Not Aware 44 (33%) 37(28%)	Not Aware Aware 44 (33%) 89(67%) 37(28%) 96(72%)

Monash University Library, Australia and Tun Hussein Onn Library

Findings also indicate that 17% (23) undergraduates are unaware of both types of online databases (Table 4.11).

Table 4.11: Awareness on Accessibility to Online Databases Provided for by both

		Awareness of to THOL onl	n accessibility ine databases	
		No	Yes	Total
Awareness on accessibility to	No	23	21	44
MUL online databases	Yes	14	75	89
Total Under	rgraduates	37	96	133

Monash University Library and Tun Hussein Onn Library

ii. Awareness on the Accessibility of MUL Online Databases from Different

Locations

Out of the 89 undergraduates who responded that they are aware of the accessibility to the MUL online database, 89% undergraduates said that they are aware that they can access them from within the campus using their Authcate username and password while 11% undergraduates said no. However, only 81% undergraduates claimed that they are aware that they can access the online databases from elsewhere.

As for the THOL databases, 40% undergraduates responded that they are aware that they can access the online databases from within the campus while a larger group of 60% undergraduates stated that they are unaware (Table 4.12).

Access Location and Type of Access Control	Level of Awareness on Access Location			
	No	Yes		
Accessibility of MUL Online Databases from within the campus using Authcate Username and Password (Total respondents = 89)	10 (11%)	79 (89%)		
Accessibility of MUL Online Databases from any other locations apart from campus using Authcate Username and Password (Total respondents = 89)	17 (19%)	72 (81%)		
Accessibility of THOL Online Databases Only Within The Campus Using IP Based Access Control (Total respondents = 102)	61 (60%)	41 (40%)		

Table 4.12: Awareness of Accessibility to Online Databases Provided for by MUL and THOL and Access Location

iii. Frequency of Usage

In terms of frequency of usage, it was found that a large group of the MUM undergraduates are not utilizing the online databases provided for by both MUL and THOL despite being aware of the accessibility (Table 4.13). Out of the 89 undergraduates who are aware of the MUL online databases, 73% claimed that they rarely or never use the online databases at all. As for the THOL online databases, out of the 105 undergraduates who are aware of the accessibility to the THOL online

databases, 80% stated that they rarely or never use them at all. Some of the reasons cited for not using the online databases include "Do not know how to access them", "Prefer print resources" and "Online databases accessible are not useful to studies".

Online Database	Very Often	Often	Rarely	Never	Total
MUL online databases	1 (1%)	23 (26%)	43 (48%)	22 (25%)	89
THOL online databases	8 (8%)	13 (12%)	53 (50%)	31 (30%)	105

Table 4.13: Frequency in Accessing the MUL Online Databases

iv. Location of Usage of Online Databases

When asked where the undergraduates would usually access the MUL online databases, only 77 respondents answered. It was found that the respondents use differing means of accessing the databases (Table 4.14). The largest number prefer to access from computer laboratories within the campus (44), followed by accessing from the Tun Hussein Onn Library (40) and thirdly from home (32). Findings also showed that some respondents are using various locations when accessing the MUL online databases.

Location of Usage	Total Respondents
Tun Hussein Onn Library	40
Computer Laboratories Within The Campus	44
Home	32
Tun Hussein Onn Library Only	12
Computer Laboratories Within The Campus Only	32
Home Only	19
Computer Laboratories Within The Campus and Home	10
Tun Hussein Onn Library and Home	9
Tun Hussein Onn Library, Computer Laboratories Within The Campus and Home	2
Other location	1

Table 4.14: Location of Access the MUL Online Databases

4.3.3. Online Databases Provided for Undergraduates of Sunway College – Victoria University Programme

The undergraduates enrolled in the Sunway College – Victoria University(SYC-VU) "3 +0" Programme have access to online databases provided for by the parent university in Australia as well as to the THOL online databases, which are IP based controlled.

i. Awareness on the Availability of VUL Online Databases

From the 136 (SYC-VU) respondents, findings indicate a high level of awareness of the undergraduates towards the accessibility to both the VUL and THOL online databases. About 79% of the SYC-VU undergraduates indicate that they are aware of the accessibility to the VUL online databases while 90% are aware that they can access the online databases provided for by Tun Hussein Onn Library (Table 4.15).

Online Databases	Not Aware	Aware	Total
VUL online databases	28 (21%)	108 (79%)	136
THOL online databases	13 (10%)	123 (90%)	136
Both VUL and THOL online databases	8 (6%)	103 (76%)	2

Table 4.15: Awareness of Accessibility to Online Databases Provided for by Victoria University Library, Australia and Tun Hussein Onn Library

The cross tabulation analysis observe that a total of 6% undergraduates were unaware of the accessibility to both the VUL and THOL online databases while 76% undergraduates are aware of both the VUL and THOL online databases (Table 4.15).

ii. Awareness on the Accessibility of VUL Online Databases from Different Locations

Findings showed that 84% out of 103 SYC-VU undergraduates who responded that they are aware of the accessibility to the VUL online database, are also aware that they can access the VUL online databases from within the campus using their Student ID and password and 16% others responded no. Further, only 62% responding undergraduates claimed that they are aware that they can access the online databases from anywhere else apart from within the campus. As for the THOL databases, 60% of the undergraduates were aware that they can access THOL databases from within the campus and the other 40% undergraduates stated that they were unaware (Table 4.16).

Table 4.16: /	Awareness of the Accessibility to Online Databases Provided	
	by VUL and THOL and Access Location	

Access Location and Type of Access Control	Level of Awareness on Access Location			
	No	Yes		
Accessibility of VUL Online Databases from within the campus using Student ID and Password (Total respondents = 103)	16 (16%)	87 (84%)		
Accessibility of VUL Online Databases from any other locations apart from campus using Student ID and Password (Total respondents = 104)	39 (38%)	65 (62%)		
Accessibility of THOL Online Databases Only Within The Campus Using IP Based Access Control (Total respondents = 126)	50 (40%)	76 (60%)		

iii. Frequency of Usage

Table 4.17: Frequency in Accessing the VUL Online Databases

U'	Very Often	Often	Rarely	Never	Total
VUL online databases	7 (6%)	26 (24%)	64 (60%)	11(10%)	108
THOL online databases	2 (1%)	24 (19%)	80 (63%)	21 (17%)	127

In terms of frequency of usage, it was found that a large group of the undergraduates are not utilizing the online databases provided for by both VUL and THOL despite being aware of their accessibility (Table 4.17). Out of the 108 undergraduates, 70% claim that they rarely or never use the online databases at all. As for the THOL online databases, out of the 127 responding undergraduates a high level of 80% of the undergraduates stated that they rarely or never use them at all. Among some of the reasons cited for not using the VUL or the THOL online databases are preference for print resources and not having the knowledge on how to access the online databases. One of the undergraduates who has never used the THOL online databases responded that the online databases accessible are not useful to his studies.

iv. Location of Usage of Online Databases

When asked where the undergraduates would usually access the VUL online databases, a total of 104 respondents answered. Based on 104 respondents, the results indicate 60% of the undergraduates prefer to access the VUL online databases from the Tun Hussein Onn Library, 36% from home and 11% from the computer laboratories within the campus. Further examination shows that 52% undergraduates only access the VUL databases from the Tun Hussein Onn Library and 30% undergraduates only access from home. Respondents are using various locations when accessing the VUL databases (Table 4.18).

Location of Usage	Total Undergraduates
Tun Hussein Onn Library	62
Computer Laboratories Within The Campus	11
Home	37
Tun Hussein Onn Library Only	54
Computer Laboratories Within The Campus Only	7
Home Only	31
Tun Hussein Onn Library and Computer Laboratories Within The Campus	2
Computer Laboratories Within The Campus and Home	01
Tun Hussein Onn Library and Home	4
Tun Hussein Onn Library, Computer Laboratories Within The Campus and Home	1
Tun Hussein Onn Library and other location	1
Other location	4

Table 4.18: Location of Access the VUL Online Databases

4.3.4. Online Databases Provide for Undergraduates of Sunway College – Other Programmes

The last subgroup targeted in the survey was the undergraduates of Sunway College who are not enrolled in the Sunway College – Victoria University "3+0" Programme. Respondents from this subgroup are undergraduates from the Western Michigan University (SYC-WMU) Programme and the School of Information Technology and Multimedia (SYC-SITM). Unlike the two previous subgroups, these undergraduates have access only to the THOL online databases and not from their respective parent universities. Similar to the previous two subgroups, the access to the THOL online

databases for these undergraduates is also IP based controlled. For easier administration, the respondents from both the SYC-SITM and SYC-WMU will be combined for data analysis. The findings of the analysis is presented in subsequent subsections.

i. Awareness on the Accessibility of THOL Online Databases

Out of a total of 182 valid survey forms collected from the SYC-WMU and SYC-SITM groups, a total of 144 (79%) respondents are aware that they can access the online databases provided for by Tun Hussein Onn Library (Table 4.19).

Programme	Awareness on Accessibility	y of THOL Online Databases	
/ School Enrolled	No	Yes	Total
SYC-WMU	24 (20%)	94 (80%)	118
SYC-SITM	14 (22%)	50 (78%)	64
Total	38 (21%)	144 (79%)	182

Table 4.19: Awareness of Accessibility to THOL Online Databases (n=182)

Out of the 144 undergraduates, only 107(74%) are aware and the other 37 (26%) are unaware that access is IP based controlled.

ii. Frequency of Usage

Table 4.20: Frequency in Accessing the THOL Online Databases (n-14	Fabl	e 4.20:	Frequency	in	Accessing	the	THOL	Online	Databases	(n=144)	0
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	Very Often	Often	Rarely	Never	Total
No. of Undergraduates	16 (11%)	32 (22%)	76 (53%)	20 (14%)	144

In terms of frequency of usage, the results indicate that a large group of the undergraduates are not utilizing the THOL online databases. A total of 67% undergraduates from a total of 144 respondents stated that they rarely or never used the online databases provided for them. A total of 14% of the undergraduates who have never accessed the THOL online databases stated the reasons for not accessing being "Do not know how to access them" and "Prefer print resources".

4.3.5. Overall Response From All Groups

As the remainder of the questions presented in the survey forms applies to all the three subgroups of undergraduates, the data collected from the respondents will be discussed as a total group.

i. Location of Usage of THOL Online Databases

The first question which applies to all three subgroups of undergraduates is on the location of usage of THOL online databases. Table 4.21 provides a cumulative result of the data collected from all the 334 respondents from the 3 subgroups who have responded to the question. The results show that the respondents have a very high preference for accessing the THOL online databases from the library itself. It was found that among all of the subgroups, 243 (73%) of the undergraduates usually only access the THOL online databases from the library itself while 59 (18%) undergraduates only access from the computer laboratories within the campus.

Location of Usage	MUM	VUT	THOL	Total
Tun Hussein Onn Library	12 (5%)	105 (43%)	128 (52%)	245
Computer Laboratories Within the Campus	32 (53%)	19 (31%)	10 (16%)	61
Tun Hussein Onn Library Only	12 (5%)	104 (43%)	127 (52%)	243
Computer Laboratories Within The Campus Only	32 (54%)	18 (31%)	9 (15%)	59
Tun Hussein Onn Library and Computer Laboratories Within The Campus	19 (86%)	. 1 (5%)	2 (9%)	22

Table 4.21: Location of Access the THOL Online Databases for All Three Subgroups

ii. More Useful if THOL Online Databases Can Be Accessed From Home

As the THOL online databases are IP based controlled, the respondents were asked if they would find it more useful if the THOL online databases are also accessible from home. Almost 93% of the 368 respondents chose "Yes" as the answer, suggesting a need to have remote access to the THOL online databases (Table 4.22).

Table 4.22: Accessing THOL Online Databases From Home (n=368)

More Useful If Able to Access THOL Online Databases from Home	Total	Percentage
No	26	7%
Yes	342	93 %

iii. Most Used Online Databases

The MUM undergraduates are asked to list the three most used online databases from the list of MUL online databases while the SYC-VU undergraduates were asked to list down three most used online databases from the list of VUL online databases. Finally, all of the respondents were asked to state one of the most used THOL online databases.

As these are open-ended questions, the respondents also list a variety of unexpected responses. The researcher therefore categorize the responses into the following categories.

- a. Online databases that provide electronic journals
- b. OPAC related functions
- c. Other types of databases

A total of 46 (35%) MUM undergraduates responded to the question suggesting a variety of online databases but there was no dominant use of any one. Responses also include other choices that are not online databases such as the library OPAC, exam papers database and Monash University student's portal.

As for the SYC-VU undergraduates, a total of 64 (47%) undergraduates respond to this question, indicating that the three most used VUL online databases are Emerald, Education Online and EBSCO Host from out of 37 different online databases listed. Similar to the MUM undergraduates, the SYC-VU respondents also indicate nine other choices which include the library OPAC, exam papers database and even names of different websites. Last but not least, a total of 65% respondents (293 from the total of 451 respondents) answer the question on the most used THOL online databases. Findings show that the most popular database is Computer Databases and again many of the respondents also indicated the library OPAC as the most used THOL online database.

Allowing for a number of these respondents failing to answer this question, the above findings did raise some concern over whether some of the respondents did not fully understand the question presented or simply because the respondents are in fact not differentiating the online databases that provide electronic journals to other types of online databases, such as online OPAC or links to websites, as long as they are accessible electronically.

iv. Length of Experience and Competency in Using Online Databases

The undergraduates are asked to indicate how long they have been using the online database and how they perceive their level of competency using the databases. Table 4.23 shows the findings on the respondents' length of experience based on the data obtained from 371 undergraduates (82% of the total respondents). The data suggests that more than 54% of the respondents fall under the "less than 1 year" grouping. About 28% have been using the online databases for 1-2 years and the rest of the students have been an online database user for 3 years and above.

Length of Experience	No of Respondent	Percentage
<1 year	202	54%
1-2 years	103	28%
3 years	33	9%
>3 years	33	9%

Table 4.23: Length of Experience in Using Online Databases (n=371)

About 61% of the respondents perceive themselves as novice users, and 36% respondents consider themselves to be a competent online database user (Table 4.24). Only 3% of the respondents claim that they are very competent in using online databases.

Level of competencyFrequencyPercentageNovice user (new user)22561%Competent user13436%Very competent user103%

Table 4.24: Level of Competency in Using Online Databases (n=369)

Further analysis indicate that most of the undergraduates who perceive themselves as novice users have only less than a year of experience in using the online databases (Table 4.25). However, it is interesting to note that there are a small percentage of respondents who still consider themselves as novice users despite having experience of 3 years and above. There are high level of confidence in using the online databases among 3 respondents who claim to be a very competent user although having only used the online databases for less than a year.

and the second	Level of Competency			
Length of experience	Novice User	Competent User	Very competent user	
< 1 year	163 (44%)	35 (9%)	3 (0.8%)	
1-2 years	50 (14%)	52 (14%)	1 (0.2%)	
3 years	9 (2%)	21 (6%)	2 (0.5%)	
>3 years	3 (0.8%)	26 (7%) .	4 (1%)	

Table 4.25: Length of Experience and Level of Competency in Using Online Databases (n=369)

v. How Respondents Learn to Use Online Databases

Table 4.26: Methods Respondents Use to Learn About Online Databases

Source of learning	Total Respondents	
Library orientation	181	
Formal class (applicable to MUM Engineering students only)	16	
Printed guides provided by library	49	
Independent Learning Through Trial and Error Method	127	
Guidance from friends	123	
Guidance from library staff	34	
Guidance from lecturers	27	
Others	4	

Findings show that the undergraduates acquire knowledge on how to use the online databases from a variety of methods. Table 4.26 shows that the most frequent method of acquiring the necessary skills to use online databases is through library orientation sessions. This response is expected as the Tun Hussein Onn Library offers every new undergraduate library orientation sessions at the beginning of the semester as well as throughout the year. However, 66% of the 136 respondents to the questions indicate that the library training they received is "adequate" and 34% rate it as "not adequate".

Many respondents approach the learning process as individuals, learning through the trial and error method and through guidance from their friends. Surprisingly, printed guides published by the library was not a popular choice. Some respondents also indicate that they receive guidance from the library staff and their lecturers.

The mixed responses to this question suggests that a broad range of instructional tools and programs is required to satisfy divergent user needs. Since a high number of respondents learn on their own or through friends, this may suggests that the library should also put in more efforts in producing self-administered learning tools for the online databases users. The quantity and quality of online help can position itself as an important learning tool for the users population who finds them helpful.
vi. Purpose of Using Online Databases and Preference for Reading Online

Out of the 372 respondents who answer this question, 276 (74%) indicate that they use the online databases to search for specific articles. Many of the respondents also use the online databases to browse articles and to check citations of specific articles.

Table 4.27: Purpose of Using Online Databases (n=372).

Purpose of usage	Total Respondents		
Browsing articles	129 (35%)		
Searching specific articles	. 276 (74%)		
Checking citations of articles	27 (7%)		
Others	14 (4%)		

About 64% of the 372 respondents still prefer to print out the articles obtained for reading purpose while 35% of the responses indicated that online reading would be done (Table 4.28).

Fable 4.28 :	Methods	Used t	o Handle	Article	Obtained	Online	(n=372)	
1 abic 4.20.	methous	Coca .	· · · · · · · · · · · · · · · · · · ·		O'Denneu	Omme !		

Methods Used to handle Articles Obtained	Total Respondents
On Screen Reading	134
Print Out	243
On Screen Reading Only	130
Print Out Only	239
On Screen Reading and Print Out	4

vii. Usage Satisfaction Level

Level of Satisfaction	Frequency	Percentage
Dissatisfied	68	18%
Satisfied	296	80%
Very Satisfied	8	2%

Table 4.29: Usage Satisfaction Level (n=372)

It is encouraging to note that more about 80% of the 372 respondents express satisfaction with the usage of the online databases (Table 4.29). However, this figure should be treated with caution since the high level of satisfaction may merely show that the respondents are happy with the online databases service but not necessarily reflect true success rates of the searches done by the respondents.

The undergraduates are asked to indicate why they find the online databases useful or not useful. Respondents are also asked to rank the 3 most important items that they thought are most crucial in accessing online databases. The findings are discussed in the following section.

viii. Reasons Why Online Databases Are Useful or Not Useful

Usefulness of Online Databases	Ranking	(n = 311) Total respondents
Provide useful search options	-1	241
Allow multiple journal titles / issues to be searched at the same time	2	200
Finding specific information (ie. appropriate articles)	3	178
Easy to use	4	156
Can be downloaded saved digitally	5	145
Provide timely access	6	124
Allow remote access	7	108
Is easier than printed journals	8	96
Hyperlinks- access to additional information	9	90
Can manipulate the information obtained	10	56
Serendipity search is supported	n	42

Table 4.30: Usefulness of Online Databases

Table 4.30 reveals that generally, the convenience offered by online databases in articles searching activities dominates the ranking of the various perceived benefits listed. The top three rankings based on the total responses received are as follows:

- a. Provide useful search options
- b. Allow multiple journal titles / issues to be searched at the same time
- c. Finding specific information (ie. appropriate articles)

All the top three reasons reveal the preference for simultaneous accessibility to needed information. Other aspects of online databases chosen as being useful to the

undergraduates include "easy to use" (156 respondents), "can be downloaded saved digitally" (145 respondents), "provide timely access" (124 respondents) and "allow remote access" (108 respondents). Table 4.31 indicates the non useful features of online databases ranked by respondents.

Non Usefulness of Online Databases	Ranking	(n = 309) Total respondents		
Slowness in Internet line delays information searching efforts	1	273		
Reading from screen is less pleasant	2	205		
Result in excessive printing	3	131		
More difficult to browse than printed journals	4	108		

Table 4.31: Non Usefulness of Online Databases

The results indicate the importance of having adequate computing and networking facilities in order to support the high speed access to online databases. The other unpleasant features mentioned are having to read contents of articles from the computer screen and finding it more difficult to browse the online journals compared to printed journals. These two factors may have in turn prompted users to print articles for reading purpose and therefore cause excessive printing, a task not liked by the respondents.

ix. Difficulties Encountered in Using Online Databases

The undergraduates are also asked to indicate some of the difficulties that they encounter when accessing the online databases. A total of 11 respondents indicate that they have never encountered any difficulty in using the online databases (Table 4.32). A large majority (243 respondents) indicates that it is very time consuming to use online databases due to the slowness of the Internet line provided for them. The other

major difficulty is obtaining irrelevant or too much information from the searches done. As expected, many respondents choose confusion in the use of different search engines for different databases as one of the difficulty in using online databases. This is an important aspect that should be looked at by the publishers / aggregators as it could present as a barrier to new users and affect their usage. Many respondents also indicate that the usage of online databases could be hampered by the PC hardware problems.

The responses obtained from the undergraduates imply two aspects of the problems. One is the computing and networking problem which can only be solved by upgrading the computing facilities by the PHEIs and secondly, the inadequacy of the undergraduates information searching skills that are required when they use the online databases. This problem, on the other hand, could of course be reduced if publishers / aggregators produce easier or a standardized search engines for the users.

Difficulties Encountered in Using Online Databases	(n = 377) Total respondents
Time consuming due to slowness of Internet line	243
Irrelevant information is also retrieved at times	173
Confusion in the use of different search engines for different databases	164
Time consuming due to PC hardware problems	152
Too much information retrieved	100
Never encountered any difficulty	11

Table 4.32: Difficulties Encountered in Using Online Databases

x. Importance of Online Databases To Undergraduate's Studies

Rate of Importance	Total respondents
Highly Important	107 (28%)
Moderately Importance	256 (67%)
Not Important	18 (5%)

Table 4.33: Rate of Importance of Online Databases to Undergraduate's Studies (n=381)

Table 4.33 indicates the respondents ratings on the degree of importance they place on the online databases. The findings is encouraging as it indicates that while the use of online databases at the moment is comparatively low among all three subgroups and respondents face various difficulties while accessing online databases, there is nevertheless significant recognition by the respondents of its importance and its potential of becoming an important information source in their studies.

xi. Further Comments On The Usage Of Online Databases

Respondents volunteer comments on the usage of online databases and the responses are summarized in the following sections.

 Many individuals express the wish for the institution to upgrade the computing facilities in the campus, in terms of quantity as well as to the speed of the computers and Internet lines provided.

- Some respondents have expressed that they would appreciate if remote access is be provided for the THOL Online Databases as it would enhance the usage of the online databases outside campus.
- Some of the respondents have raised specific concerns to have the online databases categorized for easier usage.
- Respondents also want more guidance on using the online databases, through awareness promotion activities on the availability of the online databases as well as teaching information searching skills.
- Respondents also commented on the many benefits that online databases can
 offer to them, in terms of convenience in researching activities and the vast
 range of information that they can obtained for their studies.

CHAPTER 5

CONCLUSION

5.1. Introduction

The information obtained from respondents in the two surveys provide some interesting insights on the provision of access to online databases by selected PHEIs in Malaysia. The results also provide a better understanding of the level of awareness and perception of a selected group of undergraduates from two selected PHEIs towards the usage of online databases provided for them by their institutions.

However, given the small number of respondents included in both surveys and the fact that the respondents are not randomly selected, the results may not be extrapolated to a larger population. Nevertheless, the findings could still be utilized for further studies with regards to the usage of online databases.

It is also important to reemphasize that the results obtained is not meant to be used to compare the library services that the PHEIs are offering to their undergraduates. Instead, results of the survey from this exploratory research provide some information of the provision of online databases at some of our Malaysian PHEIs.

To summarize, the aims of the two surveys are:

- To determine the types of access that undergraduates in different study programmes have on online databases
- b. To determine how academic libraries in PHEIs (who are running franchised undergraduate programmes) are collaborating with their programme partners in terms of providing access to online databases to undergraduates

- c. To determine the types of access to online databases that academic libraries in PHEIs are providing from their own funding.
- d. To investigate the awareness and perception of undergraduates towards the online databases provided by the institutions they are attached to.

5.2. Provision of Access To Online Databases To Undergraduates of PHEIs

Based on the first survey, the research has explored 3 different types of PHEIs which include local private universities, branch campuses of foreign universities and colleges that are running different types of franchised programmes. The results show different access models to online databases that are offered by our Malaysian PHEIs to their undergraduates and this provision is affected by two factors:

- a. the status of the PHEIs; and
- b. the existing technological capabilities offered by online databases.

For local private universities, the traditional "access by subscription" model still prevails. However, for branch campuses and colleges, the access model appears to be more complex, focusing on the availability of access provided by the local PHEIs and their programme partners. It is evident from the findings that since online databases are accessed electronically, they can provide vast opportunities for the PHEIs to expand their library online resources to a wider group of users by maximizing access for users at multiple remote locations. Results from the survey suggest that since both the branch campuses and the colleges are dealing with external programme partners, it is possible for the provision of access to be wider than those provided by private universities. Based on the results obtained, a model of access to online databases for the undergraduates of branch campuses and colleges is developed to represent the matrices on how an undergraduate obtains access to online databases that may be provided by the parent university and/or the local PHEIs. The model of access as shown by Table 5.1 will also show the implications these matrices have on library management.

Undergraduates of branch campuses of foreign universities and colleges attain two student's status, namely as local student of the PHEI and as off campus student of the parent university for the programme they are enrolled in. The model shows that where there is provision of access given by the parent university and the local PHEI, the undergraduate gains two types of access; access to online databases subscribed by the parent university as an off campus student and access to online databases subscribed by the local PHEI as a local student.

Table 5.1: Access Models to Online Databases For Undergraduates at Branch

Provision Of Access	Parent University Provides Access	Parent University Does Not Provide Access
PHEIs Provides Access	Undergraduate: Access obtained as local and off campus student Library: Library manages own subscriptions to online databases	Undergraduate: Access obtained as local student Library: Library manages own subscriptions to online databases
	Library is not involved in the subscription process of online databases subscribed by parent university but acts as surrogate center for access to online databases subscribed by the parent university	North
PHEIs Does Not Provide Access	Undergraduate: Access Obtained As Off Campus Student	Undergraduate: No access at all
	Library: Library does not manage any own subscriptions to online databases	Library: Library does not perform any role at all.
	Library is not involved in the subscription process of online databases subscribed by parent university but acts as surrogate center for access to online databases subscribed by parent university	

Campuses of Foreign Universities and Colleges

When access to online databases are provided by both the parent university and the local PHEI, the library at the local PHEI manages the access to online databases, which are subscribed locally and acts as a surrogate center for the provision of access

to the online databases provided by the parent university. The library however, is not involved in the subscription process of the online databases provided by the parent university. Provision of access in this manner is maximized by both parties to the benefits of the undergraduates.

However, when access to online databases is given by either the parent university or the local PHEIs, the undergraduate will only gain one type of access. In this case, the library management at the local PHEI will then focus on either performing the role of a surrogate center of access to the online databases provided by the parent university or becomes the sole provider of access to the online databases through their own subscriptions. Where access is not provided by neither the parent university nor the local PHEIs, the undergraduate has no access at all to any online database and the library management does not perform any role.

The above access model shows it is possible for online databases to be used to create a win-win-win situation for all 4 parties: online databases publisher / subscription agents, external programme partner, the local PHEIs and the undergraduates at local PHEIs. The publisher/subscription agents can expand their product market value by allowing wider user base through remote access from multiple locations, external programme partners can extend the library resources to their eligible off campus students while maintaining effective users access control, the local PHEIs can tap on the online resources provided by their programme partners and avoid duplication costs and most importantly, the undergraduates are obtaining wider access to the online databases. With the above findings, it is reasonable to conclude that where access to online databases is provided, there exist two types of access models that is adopted by the sample PHEIs studied:

- a. Provision of access through PHEIs subscription
- b. Provision of access through collaborations with external programme partners

However, whichever access model is adopted by the PHEIs, the fact remains that for the provision of access to be effectively implemented, it would require more efforts than just having the access itself. Equal attention has to be given to the provision of adequate computing and networking facilities, promotion of user awareness, training of users skills, the creation of easy links to online databases from library OPAC and library homepages.

The feedback obtained encouragingly show that computing facilities are already in place at most of the PHEIs, although the level of provision depend on the needs of users, especially when the access to online databases are IP based controlled. The responding PHEIs also indicate that printing facilities are provided for their undergraduates and the charges imposed are found to be reasonable.

The PHEIs are practicing some common methods of promoting the user awareness towards the availability of the online databases. These methods include library induction/orientation sessions, one to one training, library brochures, notice boards and these methods are mostly used simultaneously to target different user groups. However, it is evident from the findings that the usage of library home pages and OPAC in providing links to the online database are relatively poorly explored by the local PHEIs. The lack of linking facilities to the online databases provided by the PHEIs implies that they may be missing out one of the benefits of online databases – web linking capabilities, in facilitating usage for their undergraduates. Woodward and Knight (1995) highlight that a link from the OPAC to the electronic journal *(of the online database)* is seen as a simpler and more direct method of retrieving electronic articles, echoing the use of the OPAC to remain as an important tool to provide a "one stop shopping" convenience to the users, especially when there are numerous formats and disparate information resources. In fact, Arant and Payne (2001) suggest that a seamless interface to all the resources that a library owns is the most useful resource that a library can provide to its patrons. Usage of library home pages should also be emphasized as it can represent a new platform for the delivery of library services in giving the users a constant overview of what is available for them where links are provided for easy access to online databases (Bao, 2000). These are some of the tools that should be explored further by our local PHEIs.

5.3. Awareness and Perception of Undergraduates Towards the Usage of

Online Databases

Findings obtained from the study of undergraduates of Monash University Malaysia and Sunway College highlight many challenges faced by the undergraduates in using online databases from the user's point of view.

i. Perceptions on Usage of Online Databases

The major perceptions that the respondents have on the usage of online databases are as follows:

- a. Respondents perceive the usage of online databases to be highly important to their studies by 28% of respondents and as moderately important by 67% of the respondents.
- b. The two main use of online databases are to locate specific articles and to browse articles. Using online databases to check citations of articles was not common among the respondents.
- c. About 64% of respondents still prefer to print out articles found from the online databases for reading purposes, although about 35% respondents indicated that on screen reading is preferred.
 - d. More than 80% of the total respondents claim that they are satisfied with the usage of online databases.
 - e. A large majority of respondents consider themselves as novice users, considering the length of experience that they have.
 - f. About 93% respondents agree that it would be more useful if access outside campus is given for online databases which are IP based and only accessible within campus.
 - g. Users perceive online databases to be useful mainly because online databases allow useful search options, allow multiple journal titles / issues to be searched at the same time and allow users to find specific information when they want to.
 - h. Users perceived online databases as not useful mainly because of slowness in Internet line delays information searching efforts, reading from screen is less pleasant and online databases result in excessive printing.

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The above findings show that the undergraduates are generally receptive to the usage of online databases and appreciative of the importance of the online databases in their studies. They acknowledge the benefits of online databases and are generally satisfied with the usage even though they endure some of the its drawbacks. However, despite all the positive perception and the conveniences that online databases can offer, such as remote access, multiple user access, etc., the provision of access to the online databases alone does not necessarily bring effective usage among the respondents. In fact, one major finding among the sample population studied, is that all 3 subgroups recorded a low level of usage of the online databases provided for them.

ii. Awareness on the Availability of Online Databases and Types of Access Controls

It is evident that not all of the respondents are fully aware of the types of online databases that are provided for them or of the existence of types of access controls that accompanied the online databases.

iii. The Need to Promote User Awareness

The feedback gathered from the respondents in the second survey clearly substantiate the need for more promotion of user awareness of the online databases provided by the PHEIs. If effective usage is to be obtained, users need to be aware of the following:

- a. The existence and accessibility of the online databases
- b. The type of access control which facilitates the usage, that is, whether the online database requires a username/password and where can the user obtain the username/password
- c. The location where the online databases can be accessed, whether it is within campus or remote access

- The types of information offered by the online database (citations, abstracts, full text)
- e. The types of search engine required by a particular online database

Traditional promotional methods such as library orientation and printed guides should be continued but newer ways of promoting usage should also be explored, such as sending emails and updates to various user groups and flashing new information on online databases in the library home page or OPAC. Librarians could influence usage of online databases by mentioning specific products in a user instruction class, advocating use of a specific database in specific class assignments, referring to a database on a library's welcome screen, or otherwise reminding users about a specific database (Tenopir and Read, 2000).

iv. User Training Skills

An effective usage promotion must also be supported by sufficient user's information searching skills. Mercado (1999) states that "if a student is not on campus and does not have access to the services of a librarian, he or she has to still learn how to apply the increasingly sophisticated and sometimes complicated online search methods of the various information sources available online. The most complete full-text online databases are useless unless the student knows how to find and retrieve the information." This is very true with the respondents who indicate that the two main difficulties they face in using online databases include confusions in the use of different search engines for different databases and having irrelevant information retrieved for searches done. Apart from that, undergraduates are confused about the definition of online databases. The undergraduates are unable to differentiate between online databases, the library web based OPAC and the other databases accessible through the Internet. These findings are consistent with the observations made by Joint et al. (1997) that "one paramount difficulty is that electronic journals present themselves as a fragmented and confusing landscape to the user".

Training of user skills will only be effective if the library knows what are the learning habits of the users. The respondents indicate that they acquire knowledge on how to use online databases from a variety of methods, with library orientation ranked highly on the list. However, one important finding is that a relatively high percentage of respondents also claim that they acquire the skills on their own, relying on trials and errors and through guidance from their peers. The desire for independent self-study and the trend of having more and more library users accessing library services through electronic intermediaries raise the need for the librarians to be more creative in designing the instructional tools for their users. New instructional tools such as web based interactive tutorials and the creation of more online help at the library home page, should be explored by the library to address the various needs of the users.

v. Barriers to Using Online Databases

The provision of adequate computing and networking facilities in the electronic environment is a prerequisite rather than a privilege for the users. Baker and Shrode (1999) note that the importance of having an understanding that the computing and networking environment is vital to integrating electronic resources successfully into the mainstream of the library and campus because insufficient networking and computing support hampers delivery of electronic information sources. Findings show that a large majority of the respondents access the online databases from within the campus. The respondents have expressed that frustrations encountered while using online databases due to the inadequacy of computing and networking facilities is one of the main obstacles that affect their usage of online databases. Respondents expressed their frustration that inadequate computing and networking facilities would make using online databases a very time consuming process.

The findings also indicate that 64% of respondents still prefer to print out articles found from the online databases for reading purposes. This finding is understandable as reading an article online takes more time than printing or noting citations to view later. Therefore, if the computer serves the dual functions of being a finding tool and an end source, attention must be given to the provision of adequate computing and networking facilities.

5.4. Recommendations and Suggestions for Further Studies

In conclusion, the research findings suggest that the role of our local libraries and librarians remains challenging in the electronic world. With the developments of the Malaysian education industry, more and more PHEIs are developing smart partnerships with external universities, be it local or foreign higher education institutions and such collaborations may involve sharing of library resources. Provision of access to online databases can be a very important by-product of these smart partnerships. In order to maximize the provision of online databases to the undergraduates, local PHEIs should further collaborate with their programme partners

(if any) to fully exploit the fundamental property of the online databases – that is, electronic access from multiple remote locations. Further studies on how the PHEIs can deliver an integrated and a more user-friendly system for accessing the electronic resources should also be attempted.

Librarians have to work hard on new issues faced in the electronic environment. The benefits on providing access to online databases are obvious but so are the issues and problems that arise in supporting the usage of online databases. As highlighted by Kebede (2002), major steps need to be taken in order to continue identifying and meeting users' needs in electronic environments primarily should involve:

- a. keeping users informed of requirements of electronic information sources (EISs), assessing existing capabilities of users, both personal and environmental on a continuous basis,
- b. determining the difference between users' capabilities and requirements of EISs, and
- c. determining the nature of EISs to be provided so that they are accessible and usable within the capabilities of the users.

Further studies on user's needs have to be continuously maintained to identify the diversity of user's needs. However, users will still need help from the librarians especially in selecting online database to be used and evaluating their search results. Training on information searching skills should focus on delivering the skills that is appropriate to the individual needs of the user. Research into the ways in which users conduct research would also be useful to identify the real needs of the users. As highlighted by Mercado (1999), "teaching should be based on concepts that address

users' greatest difficulties: formalizing their information needs, selecting appropriate terminology, and developing search strategies that can exploit the interactive power of any system".

While planning for the provision of electronic journals will continue to be like "shooting a moving target" (Nisonger, 1996), librarians will have to adapt to it and make the best out of every moving target they face, as they have always done.

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APPENDIX A

SURVEY 1 - COLLEGE

[SURVEY 1]

A SURVEY ON

THE PROVISION OF ACCESS TO ONLINE DATABASES TO UNDERGRADUATE STUDENTS OF PRIVATE HIGHER EDUCATION INSTITUTIONS

Dear Sir / Madam,

Thank you very much for participating in this survey.

This research is done as part of the requirements for the Master of Library and Information Science Program undertaken by the researcher at the Faculty of Computer Science and Information Technology, University of Malaya.

Allow me to highlight some information on the study that may be helpful for you to know before filling in the survey form.

[Note : PHEIs = Private Higher Education Institutions]

Aims of study

- To determine the types of access that undergraduates in different study programs in PHEIs have on online database(s).
- b. To determine how academic libraries in PHEIs are collaborating with their local or foreign program partners in terms of providing access to online database(s) to undergraduates?
- c. To determine the types of access to online database(s) that academic libraries in PHEIs are providing from their own funds.

Should you have any enquiry on the survey form, please do not hesitate to contact the researcher at the following contact:

TEOW POH LIN

Email address: socrates97@hotmail.com or plteow@sunway.edu.my

Office phone no.: 03-735 8623 ext. 144

Name Of Interviewee	:		10.0	1000	1.79	1000	101
Designation	:_	*			1		
Name of Institution	:						

** For Question (1) - (3), kindly refer to Appendix A.

Section A.

Information of study courses offered by the institution.

 Please state the types of program offered for Bachelor degree level: (Kindly refer to Appendix A. Data of programs offered was taken from the Education Guide 2000. Kindly amend if necessary.)

Section B.

Access to online database(s) subscribed by local or foreign program partners.

- Among all programs offered, kindly state programs that provide enrolled students with access to online database(s) subscribed by the local or foreign program partners. (Kindly refer to Appendix A)
- How do the students access the online database(s) subscribed by the local or foreign program partners?
 (Kindly refer to Appendix A)

Section C.

Access to online database(s) subscribed by individual PHEI.

4. Does the library subscribe to online database(s) through its own funds?

Yes. Kindly state the type of online database(s) subscribed.
 (Kindly refer to Appendix B)

If Yes, how do the students access the online database(s) subscribed by the library? (Kindly refer to Appendix B)

□ No.

If No, does the library intend to subscribe to online database(s) in the future?

Yes.

No.

Section D

Computer Facilities and Library Website

5. How many computers are there available at the institution for students to access the

online database(s) _____

6. Does the library have an Internet homepage?

□ No.

Yes, please state URL: _____

If yes, does the library homepage provide links to the online database(s)?

- Yes.
- □ No.

Section E Promotion of usage of online database(s)

7. How does the library promote the usage of online database(s) available to the students?

- Library induction / orientation
- One to one training session
- Library brochures
- Notice board in the library
- Notice board within the campus
- Others, please state _____

Section F Integration of online database(s) into Library OPAC

- 8. Are the links of the electronic journals in the online database(s) integrated to the library's OPAC?
 - Yes.
 - No.

Section G Charges for accessing online database(s)

- 9. Are users charged for accessing the online database(s)?
 - Yes.

If yes, how is it charged?

- Integrated into library fees
- Pay per use. Please state the charge rate :
- No.

Section H Output options

- 10. What are some of the output options available to students when accessing the online database(s)?
 - D Print

For printing, is the user charged?

I Yes.

If yes, how is it charged?

Integrated into library fees

Pay per use. Please state the charge rate :_

No.

- Download to diskette
- Emailing

**** THE END ****

APPENDIX A

KOLEJ BANDAR UTAMA

British University Bachelor Degree Program

PROGRAM PARTNERS	PROGRAMS OFFERED	ONLINE DATABASE(\$)		TYPE OF ACCESS			
		PROVIDED BY PROGRAM PARTNERS	USERNAME / PASSWORD	IP BASED	OTHERS, PLEASE STATE		
Nottingham Trent University	Bachelor of Arts (Hons) in Business Information System	and the second					
3 + 0 British University Degree Program							
Anglia Polytechnic University	Bachelor of Arts (Hons) Business Administratioin	10					
Nottingham Trent University	Bachelor of Engineering (Hons) Electrical & Electronics Engineering Bachelor of Engineering (Hons) Electrical & Computing Bachelor of Science (Hons) Computer Studies Bachelor of Arts (Hons) Graphic Design Bachelor of Arts (Hons) Architecture & Design	0					

SUBSCRIPTION ON ONLINE DATABASE(S) BY INDIVIDUAL PHEI

ONLINE DATABASE(S)	TYPE OF ACCESS				
SUBSCRIBED	USERNAME / PASSWORD	IP BASED	OTHERS, PLEASE STATE		
		NO.			

APPENDIX B

SURVEY 2 – PRIVATE UNIVERSITIES

[SURVEY 2 - PRIVATE UNIVERSITIES]

A SURVEY ON

THE PROVISION OF ACCESS TO ONLINE DATABASES TO UNDERGRADUATE STUDENTS OF PRIVATE HIGHER EDUCATION INSTITUTIONS
Dear Sir / Madam,

Thank you very much for participating in this survey.

This research is done as part of the requirements for the Master of Library and Information Science Program undertaken by the researcher at the Faculty of Computer Science and Information Technology, University of Malaya.

Allow me to highlight some information on the study that may be helpful for you to know before filling in the survey form.

[Note : PHEIs = Private Higher Education Institutions]

Aims of study

- a. To determine the types of access that undergraduates in different study programs in PHEIs have on online database(s).
- b. To determine the types of access to online database(s) that academic libraries in PHEIs are providing from their own funds.

Should you have any enquiry on the survey form, please do not hesitate to contact the researcher at the following contact:

TEOW POH LIN

Email address: socrates97@hotmail.com or plteow@sunway.edu.my

Office phone no.: 03-735 8623 ext. 144

Name Of Interviewee	:			_	
Designation	:	4	ŝ		
Name of Institution	:	-			

** For Question (1) - (3), kindly refer to Appendix A.

Section A.

Information of study courses offered by the institution.

 Please state the types of program offered for Bachelor degree level: (Kindly refer to Appendix A. Data of programs offered was taken from the Education Guide 2000. Kindly amend if necessary.)

Section B. Access to online database(s) subscribed by individual PHEI.

- 2. Does the library subscribe to online database(s)?
 - Yes. Kindly state the type of database(s) subscribed.
 (Kindly refer to Appendix A)

If Yes, how do the students access the online database(s) subscribed by the library? (Kindly refer to Appendix A. Please mark "X" at the appropriate column)

□ No.

If No, does the library intend to subscribe to online database(s) in the future?

- □ Yes.
- □ No.

Section C Computer Facilities and Library Website

3. How many computers are there available at the institution for students to access the

online database(s)

- 4. Does the library have an Internet homepage?
 - No.
 - Yes, please state URL: _____

If yes, does the library homepage provide links to the online database(s)?

- Yes.
- □ No.

Section D Promotion of usage of online database(s)

- 5. How does the library promote the usage of online database(s) available to the students?
 - Library induction / orientation
 - One to one training session
 - Library brochures
 - Notice board in the library
 - Notice board within the campus
 - Others, please state _

Section E

Integration of online database(s) into Library OPAC

- 6. Are the links of the electronic journals in the online database(s) integrated to the library's OPAC?
 - □ Yes.
 - □ No.

Section F Charges for accessing online database(s)

- 7. Are users charged for accessing the online database(s)?
 - Yes.

If yes, how is it charged?

- Integrated into library fees
- Pay per use. Please state the charge rate :____
- □ No.

Section G Output options

- 8. What are some of the output options available to students when accessing the online database(s)?
 - □ Print

For printing, is the user charged?

□ Yes.

If yes, how is it charged?

Integrated into library fees

Pay per use. Please state the charge rate :_____

🗆 No.

Download to diskette

□ Emailing

**** THE END ****

UNIVERSITI TUN ABDUL RAZAK

	PROGRAMS OFFERED		TYPE OF ACCESS			
		ONLINE DATABASE(S)	USERNAME / PASSWORD	IP BASED	OTHERS, PLEASE STATE	
Business	Bachelor of Business Administration					
Information Technology	Bachelor of Information Technology					

APPENDIX C

SURVEY 3 – BRANCH CAMPUS

[SURVEY 3 - BRANCH CAMPUS]

A SURVEY ON

THE PROVISION OF ACCESS TO ONLINE DATABASES TO UNDERGRADUATE STUDENTS OF PRIVATE HIGHER EDUCATION INSTITUTIONS

Dear Sir / Madam,

Thank you very much for participating in this survey.

This research is done as part of the requirements for the Master of Library and Information Science Program undertaken by the researcher at the Faculty of Computer Science and Information Technology, University of Malaya.

Allow me to highlight some information on the study that may be helpful for you to know before filling in the survey form.

[Note : PHEIs = Private Higher Education Institutions]

Aims of study

- To determine the types of access that undergraduates in PHEIs have on online database(s).
- b. To determine the types of access to online database(s) that academic libraries in PHEIs are providing from their own funds.

Should you have any enquiry on the survey form, please do not hesitate to contact the researcher at the following contact:

TEOW POH LIN

Email address:

socrates97@hotmail.com or plteow@sunway.edu.my

Office phone no.: 03-735 8623 ext. 144

Name Of Interviewee	÷	
Designation	:	
Name of Institution	:	•

** For Question (1) - (3), kindly refer to Appendix A.

Section A.

Information of study courses offered by the institution.

 Please state the types of program offered for Bachelor degree level: (Kindly refer to Appendix A. Data of programs offered was taken from the Education Guide 2000. Kindly amend if necessary.)

Section B. Access to online database(s) subscribed by the main campus.

- Please state the types of online database(s) subscribed by the main campus that are accessible to the students enrolled in your institution.
 (Kindly refer to Appendix A)
- How do the students access the online database(s) ?
 (Kindly refer to Appendix A)

Section C.

Access to online database(s) subscribed by individual PHEI.

- 4. Does the library subscribe to online database(s) through its own funds?
 - Yes. Kindly state the type of online database(s) subscribed.
 (Kindly refer to Appendix B)

If Yes, how do the students access the online database(s) subscribed by the library? (Kindly refer to Appendix B)

No.

If No, does the library intend to subscribe to online database(s) in the future?

- □ Yes.
- □ No.

Section D Computer Facilities and Library Website

5. How many computers are there available at the institution for students to access the

online database(s) _____

- 6. Does the library have an Internet homepage?
 - No.
 - Yes, please state URL: _____

If yes, does the library homepage provide links to the online database(s)?

- Yes.
 - □ No.

Section E Promotion of usage of online database(s)

- 7. How does the library promote the usage of online database(s) available to the students?
 - Library induction / orientation
 - One to one training session
 - Library brochures
 - Notice board in the library
 - Notice board within the campus
 - Others, please state _____

Section F Integration of online database(s) into Library OPAC

8. Are the links of the electronic journals in the online database(s) integrated to the library's OPAC?

- Yes.
- □ No.

Section G Charges for accessing online database(s)

9. Are users charged for accessing the online database(s)?

Yes.

If yes, how is it charged?

Integrated into library fees

Pay per use. Please state the charge rate :_

□ No.

Section H Output options

10. What are some of the output options available to students when accessing the online database(s)?

D Print

For printing, is the user charged?

□ Yes.

If yes, how is it charged?

Integrated into library fees

Pay per use. Please state the charge rate :_____

No.

- Download to diskette
- □ Emailing

**** THE END ****

APPENDIX A

MONASH UNIVERSITY MALAYSIA

	PROGRAMS OFFERED	ONLINE DATABASE(S)	TYPE OF ACCESS		S
		PROVIDED BY MAIN CAMPUS	USERNAME / PASSWORD	IP BASED	OTHERS, PLEASE STATE
School of Engineering and Science	Bachelor of Science (Biotechnology) Bachelor of Science (Environmental Management) Bachelor of Engineering (Mechanical, Mechatronics, Electrical and Computer Systems) Bachelor of Communication	TOTO A COL			
School of Business and Information Technology	Bachelor of Business & Commerce Bachelor of Computer Science Bachelor of Business & Information Technology	0			

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Э.

APPENDIX B

SUBSCRIPTION ON ONLINE DATABASE(S) BY INDIVIDUAL PHEI

TYPE OF ACCESS				
USERNAME / PASSWORD	IP BASED	OTHERS, PLEASE STATE		
	USERNAME / PASSWORD	TYPE OF ACCESS USERNAME / PASSWORD IP BASED		

APPENDIX D

SURVEY FORM 01 – MONASH UNIVERSITY MALAYSIA

Dear participant,

The purpose of this survey is to find out the awareness and perception of undergraduates of Monash University Malaysia towards the usage of online databases provided by the Monash University Library in Australia and the Tun Hussein Onn Library in Malaysia. This survey is carried out as part of the requirements of the Master in Library and Information Science programme currently undertaken by the researcher in University of Malaya.

The results from this survey would be useful in enhancing the understanding of the usage of online databases by undergraduates, your awareness and perceptions towards this type of information source. Such an understanding would also be extremely useful for the future improvements of better library services for you as a library user.

I would be extremely grateful if you can go through the questions carefully and answer as truthfully as possible. This is not an exam paper and thus, there is no right or wrong answer to the questions. You are only required to indicate your choice of answers by putting a tick, eg. (\checkmark) within the boxes provided and where necessary, feel free to express your views on the blank spaces provided. To enhance the success of the survey, please respond to all the necessary questions presented to you.

In order to ensure anonymity, you are not required to sign or write your name in the questionnaire and your response would be treated with strict confidence.

Thank you very much for your time and participation.

Teow Poh Lin

PART 1 : GENERAL INFORMATION ON RESPONDENT

:	(#)		
2		and the party	
	۲ <u>ــــــــــــــــــــــــــــــــــــ</u>		

Q2. Would you be willing to respond to any follow up questions that may be necessary to establish further clarifications to the answers that you have provided?

Yes

No

Please answer all of the following questions.

Response to questions 1 & 2 are optional

Q3. Which program are you enrolled in?

- Bachelor of Communication
- Bachelor of Business and Information Technology
- Bachelor of Business and Commerce
- Bachelor of Computer Science
- Bachelor of Engineering
- Bachelor of Science (Biotechnology)
- Bachelor of Science (Environmental Management)
- Others, please state

Q4. Which of the following applies to you:

- First Year Student
- Second Year Student
- Third Year Student
- Honours Student
- Others, please state

PART II : AWARENESS AND USAGE OF ONLINE DATABASES

Q5. Are you aware that you are able to access online databases provided by the Monash University Library (MUL), Australia? (Please refer to the attached list of online databases provided by Monash University Library(MUL), Australia)

- Yes If Yes, please turn to question (6)
- No If No, please go to question (10)

Q6. If yes, are you aware that the online databases are accessible from:

Within the campus using your Authcate username and password?

Yes

No

From anywhere else as long as there is Internet access using your Authcate username and password?

- Yes
- No

Q7. How often do you access the online databases provided by MUL?

- Very often
 (Please turn to question (8)

 Often
 (Please turn to question (8)

 Rarely
 (Please turn to question (8)

 Never
 If Never, why?

 Do not know how to access them

 Online databases accessible are not useful / relevant to studies

 Prefer print resources

 Others :
 - (Please turn to question 19)

Q8. Please list 3 databases that are most used by you.



Q9. Where do you usually access the online databases?

- Tun Hussein Onn Library
- Computer laboratories within the campus
- Home
- Others, please state :

Q10. Are you aware that you are able to access online databases provided by Tun Hussein Onn Library(THOL)? (Please refer to the attached list of online databases subscribed by Tun Hussein Onn Library)

Yes

If Yes, please turn to question (11)

No (If you have answered "No" to both question (5) and question (10), please do not proceed with the following questions)

Yes

No

Q11. If Yes, are you aware that access to the online databases provided by Tun Hussein Onn Library are IP based and therefore <u>only</u> accessible from within the campus and <u>NOT</u> from anywhere else:

Q12. How often do you access the online databases provided by THOL?

 I Very often
 (Please turn to question (13)

 I Often
 (Please turn to question (13)

 I Rarely
 (Please turn to question (13)

 I Never
 If Never, why?

 I Do not know how to access them
 Online databases accessible not useful / relevant to studies

 I Prefer print resources
 Others :

 (Please turn to question (24))
 (24)

Q13. Please list I database that is most used by you:

Q14. Where do you usually access the THOL online databases while you are in campus?

Tun Hussein Onn Library

Computer Labs within the campus

Q15. Would you find it more useful if these databases are also accessible from home?

Yes No

Q16. What is the length of your experience in using online databases?

< 1 year
 1-2 years
 3 years
 > 3 years

Q17. Which of the following applies to you as an online database user?

Novice user (new user) Competent user

Very competent user

Q18. How did you learn to use online databases? (Please check all that apply)

Library orientation

How do you find the training session in terms of gaining knowledge on how to use the electronic databases?

Adequate Inadequate

Formal class ie. "Engineering Context" ? (Only applicable to students enrolled in the Engineering programme)

> How do you find the training session in terms of gaining knowledge on how to use the online databases?

- Adequate
- Inadequate
- II Printed guides provided by the Library
- I Independent learning through the Trial and Error method
- Guidance from friends
- Guidance from library staff
- Guidance from lecturers
- Others, please state

PART III : PERCEPTION TOWARDS ACCESSING ONLINE DATABASES

Q19. You would use the online databases for:

Browsing articles

- Searching specific articles
- Check citations of articles
- Others, please state

Q20. How would you rate the usage of online databases?

- Dissatisfied
- Satisfied
- Very satisfied

Q21. For the articles found, would you prefer to read them on screen or print out?

- On screen reading
- Print out

Q22. Online databases are useful because they : (Please check all that apply)

		(Ranking)
	Allow multiple journal titles / issues to be searched at the same time	()
6	Provide timely access	()
	Allow remote access	()
	Are easy to use	()
	Provide useful search options	()
	(eg, keyword search, article title, author, subject, citation search)	
1	Allows articles to be downloaded and saved digitally	()
	Finding specific information (ie. appropriate articles)	()
	Are easier than printed journals	()
	Can manipulate the information obtained	()
	Have hyperlinks that provide access to additional information	()
	Support serendipity search	()
	Other reasons, please specify :	

a._____ (b._____ (

Q23. Of all the reasons you have checked/specified above, <u>rank THREE reasons</u> that you think are the most crucial in accessing online database with (1) being the highest. Please put your ranking next to the reasons you have marked \checkmark .

		(Ra	nking)
Provide timely access		(3)
Allow remote access		()
Easy to use		(1)
Provide useful search options		(2)
Q24. Online databases are <u>NOT</u> useful because: ()	Please check all that apply)		
		(Ra	nking)
They are more difficult to browse than printed jo	ournals	()
Searching them result in excessive printing		()
Slowness in Internet line delays information sear	rching efforts	()
Reading from the screen is less pleasant than rea	ading the print copy	()
Other reasons, please specify :			
a		(.)
b		- ()

Q25. Of all the reasons you have checked / specified above, <u>rank THREE reasons</u> that you think are the most crucial in accessing online database with (1) being the highest. Please put your ranking next to the reasons you have marked \checkmark . Eg.

More difficult to browse than printed journals	(Ranking) (3)
Result in excessive printing	()
Slowness in Internet line delays information searching efforts	(1)
Reading from screen is less pleasant	(2)

Q26. What are some of the difficulties encountered when accessing the online databases?

- Confusion in the use of different search engines for different databases
- Time consuming due to slowness of Internet line
- Time consuming due to PC hardware problems
 - Too much information retrieved
- Irrelevant information is also retrieved at times
- Never encountered any difficulty
- Others :

Q27. How would you rate the importance of the online databases to your studies?

- Highly important
- Moderately important
- Not Important

Q28. Do you have any further comment on the usage of online databases?

THE END

LIST OF ONLINE DATABASES PROVIDED BY MONASH UNIVERSITY, AUSTRALIA

Engineering And Technology Databases

NO	DATABASE
1	ABI/Inform – Via Proquest
2	ACM Digital Library
3	Applied Science & Technology Plustext - Via Proquest
4	ARCH - Via Informit Online
5	ASCE Journals
6	ASME Journals
7	ATRI (Australian Transport Index) - Via Informit Online
8	Australian Engineering File Online
9	Australian Standards Online
10	Build-Via Informit Online
11	Cherub - Via Informit Online
12	Design And Applied Arts Index
13	Ei Compendex
14	ELIXIR (Electronic Library Exchange For Information Resources) -Via Informit Online
15	Engine-Via Informit Online
16	Engnetbase
17	Environmental Sciences & Pollution Management - Via Cambridge Scientific Abstracts
18	GeoRef
19	IEL : IEEE / IEE Electronic Library
20	Inspec
21	Kirk Othmer Encyclopedia Of Chemical Technology
22	MathSciNet
23	Proquest Computing - Via Proquest
24	Proquest Telecommunications - Via Proquest
25	Streamline-Via Informit Online
26	Ullmann's Encycylopedia Of Industrial Chemistry
27	Water Resources Abstracts
28	Wiley Encyclopedia Of Electrical & Electronics Engineering
29	Wilson Applied Science & Technology Abstracts
30	Wilson General Science Abstracts

Computing & Information Technology Online Databases

NO	DATABASE
1	ABI/Inform – Via Proquest
2	ACM Digital Library
_ 3	ALISA – Via Informit Online
4	Applied Science & Technology Plustext - Via Proquest
5	ARLIT - Via Informit Online
6	CIA – Via Infomit Online
7	Computer Database
8	Gartner Advisory Web
9	Ei Compendex
10	IEL: IEEE/ IEE Electronic Library
11	Inspec
12	Legaltrac
13	LISA
14	Mathscinet
15	Proquest Computing - Via Proquest
16	Proquest Telecommunications - Via Proquest
17	ScienceDirect
18	Wiley Encyclopedia Of Electrical & Electronics Engineering
19	Wilson Applied Science & Technology Abstracts

Business & Economics Online Databases

NO	DATABASE
1	AASB Authoritative Pronouncements On The Web
2	AATD-Via Informit Online (Australian Accounting And Taxation Database)
3	ABI/Inform Via Proquest
4	Accounting & Tax-Via Proquest
5	AGIS-Via Informit Online
6	AIMMAT-Via Informit Online
7	Annual Report Collection
8	APECLIT-Via Informit Online
9	Asian Business - Via Proquest
10	ATI-Via Informit Online
11	Ausstats
12	Australian Public Affairs (APAIS) - Full Text-Via Informit Online
13	Banking Information Source - Via Proquest
14	Business Who's Who Of Australia
15	Butterworths Online
16	CCH Online
17	CSI-Via Informit Online
18	Company Prospectuses On The Web
19	Connect 4 On The Web
20	Dow Jones Interactive
21	ECHO Index
22	Econlit-Via Ovid
23	Edge
24	EIU Country Reports & Profiles
25	Electric Library Australasia
26	Emerald Library (MCB Journals in Full Text)
27	European Business - Via Proquest
28	Gartner Advisory Intraweb
29	IBIS World
30	IBSS Online
31	INTAX-Via Informit Online
32	IREL-Via Informit Online
33	Jobson's Online
34	Kompass
35	Lawbook Online
36	Medge-Via Informit Online
37	Mergers & Acquisitions On The Web
38	NBER Working Papers
39	Proquest
40	Psycinfo
41	ScienceDirect
42	Social Science Research Network
43	Social Science Plustext - Via Proquest
44	TAXABS-Via Informit Online
45	VALISE-Via Informit Online
46	Wilson Business Abstracts
47	WORKLIT-Via Informit Online
48	World Trade Online

LIST OF ONLINE DATABASES PROVIDED BY MONASH UNIVERSITY, AUSTRALIA

Communication Online Databases

NO	DATABASE
1	AAPIS-Via Informit Online (Australian Public Affairs Information Service)
2	ARTBibliographies Modern On The Web
3	Arts & Humanities Citation Index-Via Firstsearch
4	Auschron – Via Informit Online
5	AusLit
6	Australian Public Affairs (APAIS) - Full Text-Via Informit Online
7	BAS (Bibliography Of Asian Studies)
8	BHinet
9	Chronicles – Via Informit
10	ciao - Columbia International Affairs Online
11	Dow Jones Interactive
12	Early English Books Online Via Proquest
13	Electric Library Australasia
14	HERA - Australian Heritage Information Database Via Informit Online
15	Historical Abstracts On The Web
16	IBBS Online
17	JHU Guide To Literary Theory And Criticism Online
18	Literature Online
19	MLA International Bibliography (Modern Languages Association)
20	New Grove II Dictionary Of Music And Musicians
21	New Grove Dictionary Of Opera
22	ODS Online
23	PAIS International-Via Ovid (Public Affairs Information Service)
24	Poole's Plus
25	Project Muse
26	Proquest Religion - Via Proquest
27	RILM – Abstracts Of Music Literature Via Firstsearch
28	SWA - Studies On Women And Gender Abstracts
29	Times Literary Supplement
30	Wilson Humanities Absracts Via Ovid
31	Worldwide Political Science Abstracts - Via Csa

Life Sciences & Psychology Online Databases

NO	DATABASE
1	Applied Science & Technology Plustext - Via Proquest
2	Biological Abstracts-Via Ovid
3	Bioethicsline
4	ELIXIR-Via Informit Online
5	Endanger – Via Informit Online
6	Environmental Sciences & Pollution Management -Via Csa
7	General Science Plustext - Via Proquest
8	Journals@Ovid Full Text
9	Journal Citation Reports (Jcr) - Science
10	Medline-Via Ovid
11	Mental Measurements Yearbook
12	OSH ROM
13	PsycInfo - Via Ovid
14	REEF-Via Informit Online
15	Sociofile Via Ovid (1974- Present)
16	Streamline-Via Informit Online (1982- Present)
17	VITIS Viticulture And Enology Abstracts
18	Wilson Applied Science & Technology-Via Ovid
19	Wilson General Science Abstracts-Via Ovid

Multidisciplinary Databases

DATABACE	
DATADASE	_
Academic Research Library-via Proquest	
2 CARL UnCover	
3 Current Contents	
4 Dissertation Abstracts	
5 Expanded Academic ASAP	
S JSTOR	
7 SIAL	
2 3 4 5 6 7	DATABASE Academic Research Library-via Proquest CARL UnCover Current Contents Dissertation Abstracts Expanded Academic ASAP JSTOR SIAL

LIST OF ONLINE DATABASES PROVIDED BY TUN HUSSEIN ONN LIBRARY

NO	DATABASE
1	ACM Digital Library
2	Computer Database
3	Emerald Library (MCB Journals In Full Text)
4	Expanded Academic ASAP
5	Lecture Notes in Computer Science
6	Inside British Library
7	NSTP e-media (News archive 1991-)

APPENDIX E

SURVEY FORM 02 – SUNWAY COLLEGE

Dear participant,

The purpose of this survey is to find out the awareness and perception of undergraduates of Sunway College towards the usage of online databases provided by the Tun Hussein Onn Library. This survey is carried out as part of the requirements of the Master in Library and Information Science programme currently undertaken by the researcher in University of Malaya.

The results from this survey would be useful in enhancing the understanding of the usage of online databases by undergraduates, your awareness and perceptions towards this type of information source. Such an understanding would also be extremely useful for the future improvements of better library services for you as a library user.

I would be extremely grateful if you can go through the questions carefully and answer as truthfully as possible. This is not an exam paper and thus, there is no right or wrong answer to the questions. You are only required to indicate your choice of answers by putting a tick, eg. (\checkmark) within the boxes provided and where necessary, feel free to express your views on the blank spaces provided. To enhance the success of the survey, please respond to all the necessary questions presented to you.

In order to ensure anonymity, you are not required to sign or write your name in the questionnaire and your response would be treated with strict confidence.

Thank you very much for your time and participation.

Teow Poh Lin

SURVEY FORM 02 - SUNWAY COLLEGE

PART 1 : GENERAL INFORMATION ON RESPONDENT

Response to questions 1 & 2 are optional						
Q1. Your name	-			Transfer 1		
Email address	1					

Q2. Would you be willing to respond to any follow up questions that may be necessary to establish further clarifications to the answers that you have provided?

- 🗆 Yes
- 🗆 No

Please answer all of the following questions.

Q3. Which school are you enrolled in?

Western Michigan University

- School of Information Technology and Multimedia
- School of Hospitality and Tourism Management
- Others, please state

Q4. Which of the following applies to you:

- First Year Student
- Second Year Student
- Third Year Student
- Honours Student
- Others, please state

PART II : AWARENESS AND USAGE OF ONLINE DATABASES

- Q1. Are you aware that you are able to access online databases provided by Tun Hussein Onn Library(THOL)? (Please refer to the attached list of online databases provided by Tun Hussein Onn Library)
 - Yes If Yes, please turn to question (11)

No (Please do not proceed if you have answered "NO")

Q2. If Yes, are you aware that access to the online databases provided by Tun Hussein Onn Library are IP based and therefore <u>only</u> accessible from within the campus and <u>NOT</u> from anywhere else:

Yes

No No

Q3. How often do you access the online databases provided by THOL?

Very often (Please turn to question (13)

Often(Please turn to question (13)Rarely(Please turn to question (13)NeverIf Never, why?

Q4. Please list 1 database that is most used by you:

Q5. Where do you usually access the THOL online databases while you are in campus?

- Tun Hussein Onn Library
- Computer laboratories within the campus

Q6. Would you find it more useful if these databases are also accessible from home?

□ Yes □ No

Q7. What is the length of your experience in using online databases?

< 1 year
 1-2 years
 3 years
 > 3 years

Q8. Which of the following applies to you as an online database user?

- Novice user (new user)
- Competent user
- Very competent user

Q9. How did you learn to use online databases? (Please check all that apply)

Library orientation

How do you find the training session in terms of gaining knowledge on how to use the online databases?

- Adequate
- Inadequate
- Printed guides provided by the Library
- Independent learning through the Trial and Error method
- Guidance from friends
- Guidance from library staff
- Guidance from lecturers
- Others, please state

PART III : PERCEPTION TOWARDS ACCESSING ONLINE DATABASES

Q10. You would use the online databases for :

- Browsing articles
- Searching specific articles
- Check citations of articles
- Others, please state

Q11. How would you rate the usage of online databases?

- Dissatisfied
- Satisfied
- U Very satisfied

Q12. For the articles found,, would you prefer to read them on screen or print out?

- On screen reading
- Print out

Ea

Q13. Online databases are useful because they : (Please check all that apply)

	(Rar	nking)
Allow multiple journal titles / issues to be searched at the same time	()
Provide timely access	()
Allow remote access	()
Are easy to use	()
Provide useful search options (eg, keyword search, article title, author, subject, citation search)	()
Allows articles to be downloaded and saved digitally	()
Finding specific information (ie. appropriate articles)	()
Are easier than printed journals	()
Can manipulate the information obtained	()
Have hyperlinks that provide access to additional information	()
Support serendipity search	()
Other reasons, please specify :		
a	()
b	()

Q14. Of all the reasons you have checked/specified above, <u>rank THREE reasons</u> that you think are the most crucial in accessing online database with (1) being the highest. Please put your ranking next to the reasons you have marked \checkmark .

Lg.	(Ranking)
Provide timely access	(3)
Allow remote access	()
Easy to use	(1)
Provide useful search options	(2)

SURVEY FORM 02 - SUNWAY COLLEGE

Q15. Online databases are NOT useful because: (Please check all that apply)

		(Ra	nking)	
They are more difficult to browse than printed joint of the printed in the pri	ournals	()	
Searching them result in excessive printing		()	
Slowness in Internet line delays information sea	rching efforts	()	
Reading from the screen is less pleasant than reading from the sc	ading the print copy	()	
Other reasons, please specify :				
a		()	
b		()	

Q16. Of all the reasons you have checked / specified above, <u>rank THREE reasons</u> that you think are the most crucial in accessing online database with (1) being the highest. Please put your ranking next to the reasons you have marked \checkmark .

	(Ranking)
More difficult to browse than printed journals	(3)
Result in excessive printing	· ()
Slowness in Internet line delays information searching efforts	(1)
☑ Reading from screen is less pleasant	(2)
M Reading from screen is less pleasant	(2)

Q17. What are some of the difficulties encountered when accessing the online databases?

- Confusion in the use of different search engines for different databases
- Time consuming due to slowness of Internet line
- Time consuming due to PC hardware problems
- Too much information retrieved
- Irrelevant information is also retrieved at times
- Never encountered any difficulty
- Others, please state

Eg.

Q18. How would you rate the importance of the online databases to your studies?

- Highly important
- Moderately important
- Not Important

Q19. Do you have any further comment on the usage of online databases?

THE END

LIST OF ONLINE DATABASES PROVIDED BY TUN HUSSEIN ONN LIBRARY

NO	DATABASE	
1	ACM Digital Library	
2	Computer Database	
3	Emerald Library (MCB Journals In Full Text)	
4	Expanded Academic ASAP	
5	Lecture Notes in Computer Science	
6	Inside British Library	
7	NSTR a modia (News archive 1991.)	

APPENDIX F

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SURVEY FORM 03 – VICTORIA UNIVERSITY

Dear participant,

The purpose of this survey is to- find out the awareness and perception of undergraduates enrolled in the Sunway College – Victoria University Program towards the usage of online databases provided by the Victoria University Library in Australia and the Tun Hussein Onn Library in Malaysia. This survey is carried out as part of the requirements of the Master in Library and Information Science programme currently undertaken by the researcher in University of Malaya.

The results from this survey would be useful in enhancing the understanding of the usage of online databases by undergraduates, your awareness and perceptions towards this type of information source. Such an understanding would also be extremely useful for the future improvements of better library services for you as a library user.

I would be extremely grateful if you can go through the questions carefully and answer as truthfully as possible. This is not an exam paper and thus, there is no right or wrong answer to the questions. You are only required to indicate your choice of answers by putting a tick, eg. (\checkmark) within the boxes provided and where necessary, feel free to express your views on the blank spaces provided. To enhance the success of the survey, please respond to all the necessary questions presented to you.

In order to ensure anonymity, you are not required to sign or write your name in the questionnaire and your response would be treated with strict confidence.

Thank you very much for your time and participation.

Teow Poh Lin

SURVEY FORM 03 - VICTORIA UNIVERSITY

	Do not know how to access them
	Online databases accessible are not useful / relevant to studies
	Prefer print resources
	U Others :
	(Please turn to question 9)
Children and the Contraction	and a set of the set of
Q7. Please list 3 databas	ses that are most used by you.
a	
b.	
	the second se
c	
Q8. Where do you usuali	ly access the online databases?
C. Tur Human	One Library
Tun Hussein	Contractions within the computer
Computer la	poratories within the campus
Home	
Unders, pieas	e state :
Library(THOL)? (Pl Onn Library)	lease refer to the attached list of online databases provided by Tun Hussein
Yes	If Yes, please turn to question (10)
U No	(If you have answered "No" to both question (4) and question (9), please do not proceed with the following questions)
Q10. If Yes, are you awa are IP based and th	are that access to the online databases provided by Tun Hussein Onn Library berefore <u>only</u> accessible from within the campus and <u>NOT</u> from anywhere else:
🗆 Yes	
🗆 No	
Q11. How often do you d	access the online databases provided by THOL?
Very often	(Please turn to question (13)
11 Often	(Please turn to question (13)
Rarely	(Please turn to question (13)
1 Never	If Never, why?
	Do not know how to access them
	Online databases accessible are not useful / relevant to studies
	Prefer print resources
	Others :
	(Please turn to question (23))

Q12. Please list 1 database that is most used by you:

SURVEY FORM 03 - VICTORIA UNIVERSITY

Q13. Where do you usually access the THOL online databases while you are in campus?

- Tun Hussein Onn Library
- Computer laboratories within the campus

Q14. Would you find it more useful if these databases are also accessible from home?

Ves No

Q15. What is the length of your experience in using online databases?

< 1 year
 1-2 years
 3 years
 > 3 years

Q16. Which of the following applies to you as an online database user?

- Novice user (new user)
- Competent user
- Very competent user

Q17. How did you learn to use online databases? (Please check all that apply)

Library orientation

How do you find the training session in terms of gaining knowledge on how to use the online databases?

- Adequate
- Inadequate
- Printed guides provided by the Library
 - Independent learning through the Trial and Error method
- Guidance from friends
- Guidance from library staff
 - Guidance from lecturers
 - Others, please state

PART III : PERCEPTION TOWARDS ACCESSING ONLINE DATABASES

Q18. You would use the online databases for :

- Browsing articles
- Searching specific articles
- Check citations of articles
- Others, please state

Q19. How would you rate the usage of online databases?

- Dissatisfied
- Satisfied
- Very satisfied

Q20. For the articles found, would you prefer to read them on screen or print out?

- On screen reading
- Print out
- Q21. Online databases are useful because they: (Please check all that apply)

	(Ranking)
Allow multiple journal titles / issues to be searched at the same tim	e ()
Provide timely access	()
Allow remote access	()
Are easy to use	()
Provide useful search options	()
(eg, keyword search, article title, author, subject, citation search)	
Allows articles to be downloaded and saved digitally	()
Finding specific information (ie. appropriate articles)	()
Are easier than printed journals	()
Can manipulate the information obtained	().
Have hyperlinks that provide access to additional information	()
Support serendipity search	· · · · · ·
Other reasons, please specify :	
a	()
b	()

Q22. Of all the reasons you have checked/specified above, <u>rank three reasons</u> that you think are the most crucial in accessing online database with (1) being the highest. Please put your ranking next to the reasons you have marked \checkmark .

	(Ranking)
Provide timely access	(3)
Allow remote access	()
Easy to use	(1)
Provide useful search options	(2)

Q23. Online databases are NOT useful because: (Please check all that apply)

	(Ran	nking	3)
They are more difficult to browse than printed journals	()	
Searching them result in excessive printing	()	
Slowness in Internet line delays information searching efforts	()	
Reading from the screen is less pleasant than reading the print copy	()	
Other reasons, please specify :			
a	()	
b	()	

SURVEY FORM 03 - VICTORIA UNIVERSITY

Q24. Of all the reasons you have checked / specified above, rank three reasons that you think are the most crucial in accessing online database with (1) being the highest. Please put your ranking next to the reasons you have marked \checkmark .

Lg.	(Ranking)
More difficult to browse than printed journals	(3)
Result in excessive printing	 ()
Slowness in Internet line delays information searching efforts	(1)
Reading from screen is less pleasant	(2)

Q25. What are some of the difficulties encountered when accessing the online databases?

- Confusion in the use of different search engines for different databases
- Time consuming due to slowness of Internet line
- Time consuming due to PC hardware problems
- Too much information retrieved
- Irrelevant information is also retrieved at times
- Never encountered any difficulty
- Others, please state

Ea

Q26. How would you rate the importance of the online databases to your studies?

- □ Highly important
- Moderately important
- Not Important

Q27. Do you have any further comment on the usage of online databases?

THE END

LIST OF ONLINE DATABASES PROVIDED BY VICTORIA UNIVERSITY, AUSTRALIA

-			
NO	DATABASE	NO	DATABASE
1	AATD (Australian Accounting and Tax)	56	Education - line
2	ABI/ Inform	57	Emerald Fulltext
3	Academic Research Library	58	Emerald Reviews
4	Academic Search Elite - EBSCOHost	59	Encyclopedia Britannica
5	ACM Digital Library	60	Engine
6	ACS (American Chemical Society)	61	Engineering and Applied Science
7	AEI (Australian Education Index)	62	E-Psyche
8	AFPD (Australian Federal Police)	63	ERIC Database and Resources
9	AGIP (Australian Government Index of Publications)	64	Expanded Academic Index
10	AGIS with FullText	65	Family
11	Agricola	66	General Svience Plus
12		67	GND (clobal market information database)
12	ALISA / Australian Library and Information Science Abstracts)	68	Health Business Fulltext Filte
14	ALISA (Australianian Library and mormation Science Abstracts)	60	Health Source Nursing - EBSCOHost
19	Ami (Australiasian medical index)	70	Hein On Line
15	Annual Reports	1 70	Heiltest
16	Anstat		Heritage
17	APAIS (Australian Public Affairs Information Servcie)	12	
18	APA FullText (Australian Public Affairs Information)	73	Index to Legal Periodicals
19	Applied Science and Technology	74	Insitute of Physics
20	ARCH_Architecture	75	ILOLEX
21	AsiaRom	76	Kinetica Web
22	Ati (Australian Tourism Index)	177	Law Book Company Online
23	Ausport	78	LawLex
24	AustLit	79	LegalTrac
25	Australian Digital Thesis	80	Legal Research Network via Social Science Research Network
26	Australian Standards Online	81	Lexis.Com
27	AusStats	82	Masterfile - EBSCOHost
28	Austrom	83	MediText
29	BAILI	84	Medline
30	Bibliography of Asian Studies (BAS)	85	Microform Publications of Human Movement Studies
31	BIOETHICSLINE	86	National Bureau of Econoic Research
32	Biomedical Reference Collection	87	National Recreation Database
33	Blackwell Science Munksgaard	88	NCJRS
34	Build	89	NetLibrary
35	Business Australia	90	OSIRIS
36	Business Source Premier	91	Pacill
37	Butterworths Online	92	Professional Development Collection - EBSCHHost
38	Cambridge Scientific Abstracts	93	Project Muse
30	Cancerlit	94	Proquest 5000
40	CANLI	05	Proquest Medical Library
40	Capital Monitor	90	PavelNEO
42	CAPI Uncover	07	Dublied
42	CCH Collection	00	Public
43	Cinandi	98	POSICINGE PCAI Entre
	Cinanni Cinanni	99	Scalepids Colored
45	Cirkers Librar	100	ScienceDirect
45	Cochrane Library	101	Serials in Australian Libraries
47	Computer ASAP	102	Social Sciences Pluc
48	Current Contents	103	Sport Discus
49	Digital Dissertations - Proquest	104	TAXABS
50	Dissertation Abstracts via OCLC FirstSearch	105	ulrichweb
51	Dow Jones Interactive	106	VGP (Victoria Government Publications)
52	EBSCOHost databases	107	Wiley Interscience
53	ECO - Electronic Collections Online	108	Tour
54	ECONBase (Elsevier Press)	109	VOCED
55	Econlit	110	World Magazine Bank - EBSCOHost

LIST OF ONLINE DATABASES PROVIDED BY TUN HUSSEIN ONN LIBRARY

NO	DATABASE	
1	ACM Digital Library	
2	Computer Database	
3	Emerald Library (MCB Journals In Full Text)	_
4	Expanded Academic ASAP	
5	Lecture Notes in Computer Science	
6	Inside British Library	
7	NSTP e-media (News archive 1991-)	