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NSTP Online: database quality from the users' perspective

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ABSTRACT

NSTP Online is a news database produced by The New Straits Times Press (Kuala Lumpur, Malaysia). This service is comprised of two major components - Newsbase and Special Databases, which provide archival Malaysian information. NSTP Online is the trade name of the online database available commercially and internally to the organisation.

Quality issues are acknowledged by database producers but are often overlooked due to resource, technology and human constraints. The key quality issues include contents, data quality, customer support and database structure. The objective of investigating these issues from the users' perspective is because it is the major issue from the business point of view. The few database quality studies documented in the literature are limited to methodological development.

Quality issues from the users' perspective are difficult to measure due to the intangible nature of information, the researcher's dependence on the subjective opinions of the users and the variables associated with experience and costs. The aim of the study is to investigate the problems affecting the use of information and identify areas requiring further examination by the database producer.

The results of this investigation draw upon the writer's experience with NSTP Online and the feedback obtained from the questionnaire and interviews conducted in Malaysia. This paper examines the differences in usage, training, support and data retrieval among the external and internal users. Despite the fact that NSTP Online needs to be improved in terms of contents, currency, technology and telecommunication, the service is still regarded as an useful information tool by the users.

The paper highlights the many problems that require further planning and improvement for internal and external users. These include developing an appropriate channel of communication, an improved understanding of the requirements and expectations of the users, and an increased depth to the contents

available to the customers. It is recommended that future improvement be focused on the problems faced by the users and the way in which a number of these can be overcome with the use of more advanced technology.

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CHAPTER 1

INTRODUCTION AND BACKGROUND INFORMATION: THE NEW STRAITS TIMES PRESS AND NSTP ONLINE

1.1 Introduction

The aim of this study is to evaluate NSTP Online[1] from the users' viewpoint. NSTP Online is a business unit of The New Straits Times Press, Malaysia. The incentive to undertake this study came from the experience of working with NSTP Online users (1991-1995). There seemed to be a sense of discontent about the contents, support and technology provided by the service. These problematic issues included connection breakdowns, out of date data, a lack of an up-to-date user manual and difficulties with invoicing procedures.

Developing a large-scale database in Malaysia is a unique experience. The development was a quantum leap in terms of technology advancement. The New Straits Times Press has invested a large amount of capital into constructing a database to replace the labour intensive clipping service. BRS/Search has been selected as the software for operating NSTP Online. This development has attracted the attention of newspaper publishers from many Asian countries especially from ASEAN (Association of South East Asian Nations). This online retrieval service has been used as a showcase of news database development. Since the service was established in 1991, no other newspaper publisher in Malaysia has constructed a similar online database for internal or external users on the scale of NSTP Online.

The reasons for the lack of electronic information in Malaysia are varied. The most important reason is that to construct such a database requires intensive capital investment but a financial return is not guaranteed. The second reason is the market share of these newspaper publishers. The New Straits Times Press has the highest market share as a newspaper publisher in Malaysia (Jacobs, 1996). There is not

[1] NSTP Online is the tradename of the online database produced by The New Straits Times Press, Kuala Lumpur, Malaysia. Although NSTP is popularly used as the acronym for The New Straits Times Press, NSTP Online does not stand for 'The New Straits Times Press Online'.

another publisher which publishes as many titles in newspaper and magazines in the Malaysian printed media market.

In carrying out this study, tests have been undertaken as objectively as possible in evaluating the criteria for database quality. The findings of the tests are only a part of the results. Other tests were carried out in examining various online databases providing archival news service similar to NSTP Online. The other components comprise of interviews and questionnaire data gathered from NSTP Online users based in Malaysia.

This study focuses primarily on the elements that are significant to the two groups of users accessing the database, whether they are intermediary or end-users. The opinions of the staff involved in the production of the database were also obtained to provide another dimension to the quality evaluation process.

The study examines the issues of database quality of electronic information of an information provider originating from South East Asia. It explores aspects of an information provider of that region which have not been examined to date.

The objectives of the study are to:
1) examine previous research concerning database quality
2) identify, explore and evaluate the structure of NSTP Online
3) acquire insight into the issues from the users and the producer
4) discuss the current electronic information environment and telecommunication structure that affect the use of an online database service in Malaysia
5) present the results drawn from the investigation
6) make recommendations for the future improvement of NSTP Online

1.2 The background of The New Straits Times Press (Malaysia) Berhad

The New Straits Times Press (Malaysia) was established 150 years ago from a publication called *Strait Times and Singapore Journal of Commerce* originating in Singapore (Turnbull, 1995, pp10-17). The New Straits Times Press has expanded

tremendously since the relocation from Singapore to Kuala Lumpur in 1959 (Turnbull, 1995). Besides the flagship newspaper - *New Straits Times*, there are other newspaper titles published in English and Bahasa Malaysia. The list of the publication is as below:

- **English**

New Straits Times
New Sunday Times
The Malay Mail
Sunday Mail
Business Times
Computimes

- **Bahasa Malaysia**

Berita Harian
Berita Mingguan
Harian Metro
Minda Pelajar

Besides newspapers, The New Straits Times Press publishes a number of magazines under a subsidiary company called Berita Publishing. Two of these prominent magazines available online are:

Malaysian Business
Investor Digest

Besides publishing activities, The New Straits Times Press is involved in various business activities through a large number of subsidiaries and sister companies. These activities include telecommunications, computer software, computer hardware, property investment, travel, bookshops and power resources. One of the activities indirectly related to publishing is NSTP Online.

1.3 The background of NSTP Online

NSTP Online is part of a department of The New Straits Times Press known as Research and Information Services. The organisation chart for this section is as shown in Figure 1.1:

Research Services (RIS)	**Resource Centre (library)**	**NSTP Online (Marketing)**
- Editorial support	- Indexing Unit	- Marketing & Sales
- Special Databases	- Reference & clipping	- Training
- Subject specialists	- Photographs	- Customer support
	- Books	

Figure 1.1 The structure of Research and Information Services

The development of NSTP Online began in 1989 when the library service was investigating options to provide information electronically to the staff of The New Straits Times Press. The library not only served the staff members from the editorial departments but also provided services to the subsidiaries and sister companies. The most used library services were clippings and photographs. In view of the heavy usage and the pressure placed on library staff to provide accurate and up to date clippings, the management started planning for electronic data storage. The advantages of storing newspaper clippings in an electronic format are discussed by Arundale (1990), Bale (1997), Basch (1990b), Webb (1995) and Weiner (1994).

A team of staff was delegated to search for the appropriate software that would suit the needs of The New Straits Times Press. The software would need to be able to run on the different system platforms used in the various departments. The selected software would also need to be able to handle massive data storage and data transfer as utilised in The New Straits Times Press operation.

This team assigned to select the appropriate software encountered a few major problems, as this was the first large-scale database constructed in Malaysia. There was no example to look for locally in respect of database development. As a result,

Maxwell Online's BRS/SEARCH was found as the most suitable software for the project[2]. This software runs on a UNIX operating platform in a LAN (local area network) environment.

The online database project commenced in 1991 as the solution to information management, in order to reduce the in-house publication clippings and to encourage editorial staff (journalists and sub-editors) to a self-service news database. The database was made available internally in 1992 and was referred to as Library Online (LOL). The name NSTP Online was only adopted when the service was made available commercially in 1993. However, the informal name - LOL - is still used by the internal users. For the purpose of this research, the name LOL was used in the questionnaire and interviews for the internal users. However, the resulting quotes or comments from internal users have been standardised to NSTP Online, in order to avoid confusion.

At the introductory stage of the project, the objective of NSTP Online was to provide a self-help online library service to in-house staff. Selected news articles written by in-house reporters from *New Straits Times* were indexed by a small group of pioneering indexing staff who had neither the expertise nor the experience in constructing an online database. However, as the indexing project grew and the retrieval capacity was tested; the project was turned into a full-scale information retrieval tool for commercial and business activities; as well as for use by in-house staff. Hence, plans were made to incorporate all The New Straits Times Press group of publications and to implement appropriate technological support to provide the database online to internal and external users.

The number of newspapers covered by NSTP Online was gradually increased. The intention was to prevent any major problems from arising at this exploratory stage. The newly trained indexing staff needed the time and familiarity to master each publication. As the number of newspapers expanded, the number of staff members

[2] The recent ownership news and features of BRS/SEARCH is reported by Quint, 1995b.

increased to about twenty-four. They currently handle approximately one thousand items everyday.

Newsbase	**Special Databases**
1) English (ENGD)	- Company Profile (COMP)
- *New Straits Times & New Sunday Times* (three editions)	- Personality Profile (PSNL)
- *Business Times*	- Country Profile (COUN)
- *Malay Mail & Sunday Mail*	- Malaysian State Profile (MALY)
- *Computimes*	
2) Bahasa Malaysia (BHDB)	
- *Berita Harian & Berita Mingguan* (six editions)	
- *Harian Metro* (nine editions)	
3) Magazine (in English)	
- *Malaysian Business* (MBDB)	
- *Investor Digest* (ID)	

Figure 1.2 The list of Newsbase and Special Databases

The Research Services (RIS) section has also contributed to the service by developing four distinctive databases - the Special Databases. The information included in these databases was originally prepared for the in-house journalists. Information available in the Special Databases is researched, edited and collated by the RIS researchers. As a result, the service has developed into a massive information storage and retrieval system. The different databases available in NSTP Online are illustrated in Figure 1.2.

The databases mentioned are separated for working purposes, but to the end users a number of these databases are seen as a concatenated database. The detailed outline of NSTP Online is shown in Appendix 1.

1.4 The indexing process

This process commences with the input of the journalists from the Editorial departments before the data is transferred to the Indexing Unit. The researchers of RIS contribute to NSTP Online by compiling specific information to the various profiles.

1.4.1 Editorial departments

Many quality issues are relevant to the standard of the indexing provided for the information made available in full-text on NSTP Online. To understand the indexing process, it is necessary to understand the workflow of the editorial department in relation to the Indexing Unit. The indexing process starts as a by-product of the gigantic and complicated editorial departments. Each of the publications (ie *New Straits Times*, *Berita Harian* or *Business Times)* have separate editorial departments.

In the production of *New Straits Times* for example, there are a number of desks (units or teams), such as the news, lifestyle or the sports desks, within one editorial department. Each of these desks is allocated at least one directory or more by the Information Technology Department to facilitate the workload of reporters, news editors, data entry staff and sub editors. Directories are also referred to as 'queues'.

Besides publishing the daily national news, there are several publications which produce a variation of regional news by the means of editions (Figure 1.2). *New Straits Times* for example, has three editions to cater for the northern, central, southern and East Malaysia regions. *Berita Harian* and *Harian Metro* have more editions as they aim to capture the rural market, the majority of whom read Bahasa Malaysia. The complications caused by these regional editions will be explained below.

The dominant software and hardware used by most of these editorial departments is Atex. A number of the editorial departments or units within one department have,

however, opted to use other desktop publication software such as Pagemaker or Macintosh. This desktop publication software also requires separate system platform besides the DOS operating system. Thus, a number of platforms exist ie DOS, Macintosh and Unix, in order to facilitate the workflow. The Information Technology Department transfers data from the finished queues (Done-queues) of the Atex platform (the edited stories from the sub-editors' queues) to the Indexing Unit on a daily basis at an agreed deadline.

1.4.2 Indexing Unit

At the Indexing Unit, an in-house word processor based on DOS is used. The indexers select the stories according to the news stories printed on hardcopy on the next working day. It is not uncommon that one story could be sub-edited in several versions. Sub-editors may change their minds during the layout process and produce additional versions of the one story to fit onto the final page.

The Indexing Unit was introduced to the Library Services in 1991. Five staff members were recruited initially to start the indexing project. These staffs were required to experiment with the work process, the indexing procedure and to learn new software. The current staff size of twenty-four was established after the inclusion of all the publications mentioned previously. There are four levels of staff hierarchy in the Indexing Unit - Librarian level 1, Librarian level 2, Library Officer and Indexing Clerk. Each level has distinctive duties and responsibilities in order to assist with quality control.

The Librarian level 1 oversees the overall operation of the Indexing Unit. Each of the two level 2 Librarians is in charge of one language publications, English and Bahasa Malaysia. The level 2 Librarians maintain the quality control of data and indexing standards. The level 1 and 2 Librarians have to be multi-skilled as they need to be able to perform not only their own tasks but also their subordinates when there is a shortage of staff. The task of the Library Officers is to ensure that each of the publications they are responsible for is received and indexed according to established standards. They are also in charge of the first level of quality control.

The Indexing Clerks are responsible for indexing each article according to the specified requirements.

1.4.3 The indexing process

When a new publication is received, Library Officers are in charge of scanning respective news articles of the sections for which they are responsible. Accuracy in recording number of articles per page, identifying articles that need specific treatment and locating the articles are part of their responsibilities. Due to the various editions of *New Straits Times*, *Berita Harian* and *Harian Metro*, the guideline is to select articles by comparing all editions against the edition published for the central region. As a result, each of the stories needs to be compared to the versions in the central edition.

The Indexing Unit, however, does not usually receive all the editions on the same day. The delay could be as long as one to two weeks. Any delay affects the indexing flow. The longer the delay, the more likely that the indexers will have difficulty in tracing the stories. This is due to the fact the files residing in the Atex queues are being deleted on a daily basis, but the stories residing in Pagemaker may be kept up to a week. When the stories are a week old, the indexers are unlikely to trace them effectively. These stories would have to be typed, which is a time consuming job. Hence, these stories would be waiting to be typed, and meanwhile the users of NSTP Online would not have the chance to retrieve them.

Using the data from the editorial departments saves time and reduces the incidence of re-typing the news stories. However, not all stories are subedited on Done queues and a number of the editorial departments do not use the Atex platform. A portion of the indexing time is used to locate the stories from the correct platforms, drives and directories. The task of locating the stories is a time consuming one. This is due to the different systems used in editorial production. Not only do the indexers need to search on the normal Done queues, but they also need to find the files from the Pagemaker and Macintosh systems. At the time of interviews for this research, stories produced by Macintosh system still could not be transferred to the Indexing

Unit. Stories produced using Pagemaker need to be transferred manually from individual computers used by the sub-editors, to the Pagemaker system of the Indexing Unit. The stories are then re-transferred from the Pagemaker queue of the Indexing Unit to the word processor that is used for indexing.

The lack of communication between the Indexing Unit and the various editorial departments plays a major part in 'missing stories'. In order to ease the workload of the sub-editors, most of the feature stories are sub-edited a few days before they are due to be published. Stories from the supplement section especially, could have been sub-edited weeks before publication. This is because the supplement desk relies on the sub-editors from other desks to help them with sub-editing. It is up to the Indexing Unit, especially the Librarians level 1 and 2, to keep an eye on the current state of the news articles being sub-edited in advance.

In addition, there is a regular change of software and hardware within the editorial departments. For example, the Manager of Library Services pointed out that Pagemaker 5 had been upgraded to Pagemaker 6 recently. The Indexing Unit was not aware of the change. Thus, some stories were lost in the system and the Indexing Unit could not index the stories until Pagemaker 6 is installed at their section. The indexing team needs to be constantly alert to changes within the editorial department. This is necessary to enable them to be ahead of the change in technology in order to process the data. With on-going workloads and deadlines, however, it is difficult to maintain the desired level of communication.

When the required stories are available in the directories, a pre-programmed software is used to strip all the symbols and sub-editing format. The stories are then presented as ASCII text articles only. Then, the Indexing Clerks index the stories according to the fourteen standard indexing fields (see section 8.4.1). The indexers need to skim read the data paragraph by paragraph in order to ensure that they are complete and appear as on the hardcopy.

Besides indexing articles according to the defined requirements, the indexing schedule needs to fit into the data transfer time of the information vendors. The

Librarians level 1 and 2 are responsible for performing quality assurance, co-ordinating the indexing process and substituting for any Library Officers who are not on duty. As part of their responsibilities, they help the team to locate the stories that are scattered in various queues, platforms, drives and directories. In short, the indexing process is intense but attempts are made to ensure data accuracy.

The indexed data is then read by Library Officers at a later stage. The Library Officers ensure that the basic fields such as title, date, page number, editions, author's name and notes for photographs or any graphics are accurate. When this stage of quality control is carried out, the data is transferred to the NSTP Online platform (BRS/Search running on a Unix platform). Each batch of the data is sent in accordance with the title of the publication. In general, each batch consists of the daily stories plus data from the previous day or weeks if this data has been indexed late due to delay in receiving the editions or 'missing files'.

Unofficially this data is available on NSTP Online as soon as it is transferred from the indexing queues. However, to safeguard the reputation of the unit, the public is informed that the data is available at eight the next morning. Loading problems have happened on occasions which prevent the Indexing Unit from meeting the deadline.

On the other hand, the indexing process also makes exceptions for data that needs to be sent to contract information vendors who have an interest in regional new stories. Data from *Business Times* for example, is required by Reuters at a much earlier agreed time. Thus, all the indexers focus on indexing the required material in order to meet the deadline before continuing with their other responsibilities.

Once the data is transferred to NSTP Online, it is the responsibility of the Librarians level 2 to conduct quality control of the previous day's data. This stage of quality control is influenced by the data conversion from DOS to Unix. Moreover, it is a mechanism to ensure the work of different sections adheres to standards and is fit to be presented as a commercial product. One of their skills is to have a good eye for errors that have passed the Indexing Clerks and the Library Officers. Statistics are

recorded for the types of errors as well as to monitor the accuracy rate of the indexing process.

The format and presentation of each newspaper changes slightly over the years. It is the responsibility of the Library Officers and Librarians level 2 to keep up with the changes in the production of the newspapers. Usually the Indexing Unit is not informed of these changes. Therefore, it is necessary to identify the revised format such as new columns, new sections being introduced to the paper, or the merger of two sections of the newspaper. These changes are then incorporated into the existing working procedure.

The Indexing Unit is in operation whenever the editorial departments are in operation; that means almost 365 days a year. There are public holidays in Malaysia, which do not occur in the countries where the information providers are based. Therefore, the schedule of indexing occurs seven days a week. The Librarians level 1 and 2 are well trained to handle emergency situations especially on public holidays.

The operation of the Indexing Unit is intensive. Every news story has to be indexed and transferred to NSTP Online regardless of the daily volume, technical problem or personnel issues. This unit is also operating in a highly fluid environment where the technology and the format of the data presented change constantly.

1.4.4 Indexing of Special Databases

The other major section of NSTP Online is comprised of Special Databases, namely Company, Personality, Country and Malaysian State Profiles. These profiles are handled by the database section of the RIS department. The indexing process of Special Databases is not as intensive as the indexing for news articles as there is no external deadline.

According the Assistant Manager of RIS, there is not much indexing involved in the process of preparing Special Databases. Indexing is only required at the

commencement of the database when field names are required in order to input information. There is more of the process of compilation of data than indexing. This process only involves updating of information in each file. However, there are two types of editing required in this process. One is updating the existing field names; the other is adding new field names to the files when necessary.

For Company Profile, new data is compiled based on the prospectus of the companies to be listed on Kuala Lumpur Stock Exchange (KLSE). The researchers will add skeleton information and fit them into the different fields. When the company is officially listed on KLSE, the data will then be loaded to the database. The sources for updating Company Profile include annual reports, *KLSE Handbook*, *KLSE Daily Diary*, *Investor Digest* and current news announcements from the newspaper. Personnel changes in particular could be viewed from *KLSE Daily Diary*. However, for any update of profit and loss and interim reports, users are advised to refer to the newspapers.

A similar procedure is not applied to other types of Special Databases with the exception of Personality Profile. For Country and Malaysian States Profiles, the process only occurs once. For Country Profile, the data is acquired from *'Encyclopaedia of the Third World'*, *'Records of World Events'* and *'World Almanac'*, as well as any publications from embassies and newspapers. The Assistant Manager of RIS indicated that she plans to have these two databases updated on a regular basis. However, due to staffing constraints, these projects have not proceeded.

As for the Personality Profile, initially, the researchers need to send out a form to seek approval from the various Malaysian personalities. The updating of this database is based on sources from NSTP Online. Currently there are about 600 personalities available on Personality Profile which is managed by two researchers. The majority of the 600 personalities are politicians from Malaysia. As Personality Profile is expanding, the researchers are required to alternate the process of updating and data compilation every month. The assistant manager of RIS stresses that there are no copyright issues in regard to this database because the updating data is

available from the newspapers. The focus of Personality Profile will be shifted to corporate figures in the future. This proved to be a difficult task because corporate figures tended to be uncooperative. The next project for the Personality Profile will be the inclusion of Malaysian sports personalities.

The Special Databases enjoy a unique position in NSTP Online because there is no printed equivalent of this information available. Even though some users commented on the insufficient information in the Special Databases, there is no printed publication which provides all the four types of information in one volume. Therefore, the effort to improve these databases will continue despite personnel constraints and difficulties in obtaining information from the primary sources.

1.5 Multimedia Super Corridor (MSC)

The research on NSTP Online was timely as the service has been commercially available since 1993 and no technological improvement had been applied since then. There was a sense of the need to improve the product (from the producer as well as the users) to suit the current information technology environment and feedback from the clientele was invaluable. In general, Internet technology is proving to be a very promising network for exploring the development of digital services despite limitations (Reid, 1995). ASEAN countries (including Malaysia) have been consciously investing in the use of the Internet as a strategic information resource (Reid, 1995). NSTP Online, as the only commercial news database in Malaysia, has planned to improve its product using the new technology.

Coincidentally, this survey was carried out a week after the announcement of the vision of Multimedia Super Corridor (MSC) (Mohamad, 1996; Yeow, 1996). The MSC is designed as a special zone for information technology and multimedia development (Othman, 1997). It will house state-of-the-art "smart" buildings for software companies and a regional headquarter for multinational companies (D. Armstrong, 1997).

The companies that applied for special status under the MSC project since its commencement on 2 August 1996 have almost doubled (Othman, 1997). NSTP Online is the leading example in such a project. A further report stated that the MSC venture is expected to raise capital from foreign high-technology companies with a view to facilitating the transfer of their technology to Malaysia (Shamsuddin, 1997). However, Greenwald (1997, p102) reports that in reality there are obstacles confronting the scheme including "... Malaysia's lack of a robust telecom infrastructure or reliable power grid."

1.5.1 The future development of NSTP Online and MSC

The future plans to improve NSTP Online in terms of indexing and technology are closely related, as well as the technological development of The New Straits Times Press. The 'multimedia product' plan of NSTP Online management comprised of four categories :

1) Digital project - using Windows based and multimedia technology to allow a greater degree of automation; and using the technology to expedite the operation.
2) Thesaurus construction - this enables users to "zoom in" to relevant information. NSTP Online is aware of the current problem of retrieving irrelevant articles.
3) Imaging technology - displaying the whole page of the newspaper.
4) Picture data bank - all pictures will be fully automated to enable access from the users' workstations.

The completion of this project will enable NSTP Online to offer more by-products such as CD-Rom and Video CD (VCD). The staff of NSTP Online is excited about the project of this digital library, as it is a long-awaited improvement to their service. This project is compatible with the vision of MSC.

CHAPTER 2
RESEARCH METHODOLOGY

This chapter describes the objectives, parameters and approach to the research conducted in this study. It explains the methods used to explore the issues associated with the concept of database quality of NSTP Online.

Database quality has been an issue of concern in recent years for information professionals. In the early days of using online databases, any results were good results, but the times have changed. Users have grown to expect factual and reliable data. While information providers may have quality management procedures in place, it has been found that no methodology has surfaced to monitor database quality issues (Armstrong, 1995b).

2.1 Research approach

The preliminary literature search revealed that only a small amount of research has been conducted and published on the development of news databases and database quality issues. Literature about database development in South East Asia is scarce and, in general, has been ignored by the library science literature (Hepworth, 1995b). Substantial literature is available on the types of online databases and other relevant aspects, such as user behavioural studies and the mechanisms for information retrieval. Research and literature concerning the electronic information sources of the Asia Pacific region in particular was only available from the mid-1990s (Hepworth, 1995a; Yaacob, 1995; Yaacob and Abdullah, 1994).

This researcher's experience working as a pioneer member of NSTP Online was invaluable in gathering details and presenting the knowledge of editorial production, the indexing process and the delivery of the product. As observed by Rittberger and Rittberger (1997), an understanding of the "information chain" is essential in presenting the attributes responsible for quality. One of the limitations of this study was the sensitivity of examining NSTP Online by interviewing the end users.

Permission was sought from the Head of Departments involved to inform them about the objectives of the study.

In preparation for conducting the research, a thorough review of the literature on the subject of database quality was included. The results of the literature review are presented in Chapter 3.

2.2 Selection of research methods

A range of research methods was examined in order to fit into the scope of this study (Babbie, 1990; Creswell, 1994; Fowler, 1993; Glazier and Powell, 1992; Marshall and Rossman, 1989; Rea and Parker, 1992). As the study aims to seek insightful opinions from the users, a combination of methods - testing the database, questionnaire and interviews were applied.

It was necessary to be familiar with the contents and structure of NSTP Online as an external user before constructing the questionnaire and interview. This process served as the basis for structuring the questions and developing an understanding of the requirements of the participants. NSTP Online was subscribed to, and tests were conducted for three months in Perth. As the service is not available through the Internet, a connection to Auspac (packet switch service) was required.

The structure of the questionnaire and interview were based on the concept developed by The Southern California Online Users' Group (SCOUG) (Basch, 1989) and the criteria for comparing news databases was based on the work of Webber (1995). The design of the questionnaire and interview took into consideration the four major aspects of database quality issues : contents, data quality, support and database structure. Questions for the external and internal participants were not identical because of their different operating environments.

The questionnaire was used to collect factual data in regard to the demographic details of the participants and usage pattern, whereas, the interview was a mechanism for the participants to voice their opinions.

Three other sets of interview questions were structured for four staff members involved in the production and marketing of NSTP Online. These questions were more in depth, following the concept of Basch (1989) and Webber (1992). Webber's (1992, p541) criteria for quality assurance of a producer was highly relevant.

2.3 Selection of participants

There were a number of factors to be considered before conducting the survey. These included the background of the participants, their previous usage of NSTP Online and multi-lingual abilities. The data collection was conducted at the workplace of the participants in Kuala Lumpur and the surrounding areas. For the purpose of this research, it was decided that it was necessary to have participants who were sufficiently familiar with NSTP Online, as they are expected to be "critical" users of the system. It was also desirable to obtain responses from participants who represent the two major user groups - external and internal. A pilot study was not possible due to the geographical distance. The major problem hindering the collection of data from the two groups of users, was the time constraint on the participants.

The following criteria were applied in selecting potential participants:

* Thirty participants comprising fifteen external users and fifteen internal users.
* Both internal and external participants to be frequent users, that is, in the top twenty percent of the usage of NSTP Online.
* External participants to be working in different industry sectors; and in the case of internal participants, from different editorial departments.

These criteria were all fulfilled. The top twenty percent of external and internal participants were identified with the assistance of Research and Information Services

(RIS) for internal participants and Customer Support Unit (CS) for external participants. It was necessary to have an equal number of external and internal participants. The two user groups have different usage patterns due to monetary and time constraints.

2.3.1 External participants

The external participants comprised of the subscribers of NSTP Online who are bound with a contract of subscription. CS is responsible for this group of users. The external participants are concerned about the access time to NSTP Online as well as the cost of telecommunication connect time and network access time. Unlike the internal participants, they are accountable for their expenditure when accessing NSTP Online.

Not all the external participants are primary users of the service. NSTP Online is usually accessed in the library or by a computer that can be accessed by other customers. These primary users may use the service on their own or with the help of an intermediary. One participant mentioned that customers from other corporate services in the building are welcome to use the service. Only three external participants reported accessing NSTP Online for their own use of information. Thus, the feedback of the top twenty percent of external participants may be a mix of their opinions and those of their customers.

The external participants were from the following sectors:

- Accounting
- Banking and finance
- Government advisory body
- Construction and planning
- Higher education
- Hotels and investment
- Legal
- Manufacturing

- Media
- Securities
- Telecommunications

2.3.2 Internal participants

Internal participants do not have to be concerned about the cost involved in accessing NSTP Online. This service is installed at a number of designated terminals (usually the sub-editors). Therefore, internal participants do not have to know about telecommunication connection. However, the internal participants need to wait for their turn to use the terminals due to the shortage of designated terminals. In addition, downloading and printing instructions are not documented for the different platforms used in the editorial departments - DOS, Unix and Atex. It is by trial and error that the participants learn the commands.

The internal participants were selected from the different work units within The New Straits Times Press:

- *Berita Harian*
- Berita Publishing
- *Business Times*
- *Harian Metro*
- *Malay Mail*
- *New Straits Times*

2.4 The interview process

The participants worked in tight schedules (journalists in particular) and were reluctant to be involved at length. As a result, the questionnaire and interview sessions were arranged into one session. The design of the survey questions was planned to finish within forty-five minutes to an hour. A number of the sessions were conducted while the participants were working.

All the interviews were carried out at the participants' workplaces at an appointed time. Arranging the interviews with internal participants, however, proved to be a difficult task due to their unpredictable schedules and working hours. It was often a spontaneous appointment at the time of telephoning them. The external participants were able to arrange appointments as they had standard working hours. The majority of the regular external participants were located within the central business district of Kuala Lumpur.

As the survey was conducted in Malaysia, the opportunity for further contact with the participants was remote. Thus, the questionnaire and interview questions were planned to be as comprehensive as possible. A hundred percent response rate was achieved. All interviews were conducted during August 1996.

2.5 Interview with the production team

Besides the thirty most regular users, interviews were conducted with four key personnel involved with the production of NSTP Online. They were Madam Cecilia Tan, Manager of Information Services; Madam Huriah Ismail, Librarian level 1 of the Indexing Unit; Ms Wan Aziah Wan Ahmad, Assistant Manager of Research Services (RIS) and Mr Swaminathan MV, Marketing Manager of NSTP Online.

Questions about coverage, contents, accessibility, indexing, quality assurance and the future of NSTP Online were directed to the first three interviewees. Questions about aspects of customer support, quality assurance, cost and the future of NSTP Online were addressed to the Marketing Manager. Their feedback has provided invaluable information in regard to the management and projected development of the service.

2.6 Terminology

In order to clarify the identity of the interviewees, the term "participants" will be used for the respondents involved in the survey. The term "users" will be applied to

all generic users of NSTP Online. There are occasions that "external users" and "internal users" need to be identified to illustrate the differences.

2.7 Languages for conducting questionnaire and interviews

In the living and working environment of the multicultural and multilingual Malaysian society, conversing in two to three languages and using these languages interchangeably is a norm. Therefore, it was essential to be able to understand and to converse in Bahasa Malaysia and English fluently in order to carry out this survey. It was the participants' preference as to which language to use, or using the two languages interchangeably during the survey. The writer did not use an interpreter in conducting or transcribing the interviews.

The questionnaire and interviews were constructed in English. It was expected that participants who were less proficient in English would need assistance in answering the questionnaire. The interviews were then conducted in Bahasa Malaysia with these participants. Three participants responded to the interviews solely in Bahasa Malaysia and another eight participants required the explanation of certain terminology and phrases in Bahasa Malaysia. It was necessary to switch languages, especially for participants whose mother tongue was not English. These participants felt much more at ease when the two languages were used interchangeably. As a consequence, quotes which are selected from the interviews may not be grammatically correct.

2.8 Analysis of survey data

The fundamental principle of Plutchak's matrix (1989) (see section 3.6) has been a major concern when analysing the opinions of the participants.

Feedback from interviews was transcribed from the recorded conversation, and the results from the questionnaire were analysed and calculated. As qualitative and quantitative approaches were applied in this study, two appropriate analytical tools

were examined and learnt : QSR's NUD*IST for qualitative analysis and SPSS for quantitative analysis.

The interview feedback was used to determine the differences between the users and the producer. The qualitative information reinforced the points repeatedly discussed in the literature and also revealed findings which have not been previously discussed. The results served to demonstrate the inter-relationships between customer satisfaction, information needs and continuous product improvement. Moreover, the significance of appropriate evaluation and the requirement for more adequate measuring methods were reflected in the study.

Database users will decide to use a specific service once they are satisfied with the benefits derived from their search for information and the level of assistance they received, whereas benefits to the database producer is reflected through their gain in revenues and reputation as an information provider.

CHAPTER 3
LITERATURE REVIEW

3.1 Introduction

Online databases have been available to information professionals for over twenty years. The users' perception of quality in accessing databases has evolved considerably over these years. However, the investigation of issues related to quality of databases has only become a major concern in recent years. Although users have previously noticed errors in online database, it has taken time for them to raise the issue of correcting these errors or improving on the error rates from the source level. Hudnut's (1991) paper on "The nineties: decade of quality?" documented the emergence of a series of articles discussing database quality issues.

3.2 What is quality?

Quality is an intangible element and is difficult to define. The opinions as to what constitutes 'quality' vary according to an individual's perceptions. As Armstrong (1995a) describes, "one person's quality criteria will not match those of another" and the definitions of quality often tend to be "unhelpfully philosophical" (p221). O'Neill and Vizine-Goetz (1988) adopt the British Standard Institution's three concepts of quality for use in their studies, but other researchers, prefer to formulate their own definitions. In Jalkanen and Juntunen (1994, p52), Swindells defines quality as "the achievement of the satisfaction of the requirements of the customer at an economical cost which is acceptable to both the supplier and the customer".

Quality has also become an international concern as the manufacturing industry in particular has set up various quality specifications such as the ISO 9000 mandates (Medawar, 1995). Arnold (1992, p38) emphasises that "Quality is electronic publishing's golden idol". The concept of quality in the information sector is wider than that applied by the manufacturing industry (Arnold, 1992; Dolan, 1992). Therefore, continuous satisfactory customer service and improvement of product is

a fundamental requirement in the web of quality. These factors have been the main concern in obtaining the perspectives of database quality from the users of NSTP Online as a database producer.

The online database industry is basically a service, and the primary capital is intangible information. "Quality is not only difficult to define, it is also difficult to quantify" (Armstrong, 1995a, p221). Juntunen et al (1991) refine quality in the context of how the database can serve a professional information retriever in online searching. The determinants of quality are separate and different to the criteria list, they are "... validity, reliability and usability with respect to content, technical functioning and general ease of use" (Juntunen et al, 1991, p352). In a nutshell, Brophy (1998, p221) observes that "Basic quality is concerned with all those aspects of the service which are taken for granted ..."

Quality in the online database industry is different from other industries. The word 'quality' is not narrowed down as quality assurance, quality control or Total Quality Management (TQM) (Drummond, 1992). These terms may embrace the philosophical definition of quality but usually indicate a particular process used to achieve the ultimate aim. The party ultimately responsible for quality is the database producer. The responsibilities of the users will be to push for the need of evaluation of search performance, system evaluation and database understanding (Armstrong, 1995a).

The use of tangible factors as a guide to quality is used as the basis for studies by Parasuraman, Zeithaml and Berry (PZB) (1985, 1988, 1991) and Zeithaml, Berry and Parasuraman (1985). PZB (1985) suggest that a conceptual framework for the analysis of quality in services - which is later developed as a survey instrument called SERVQUAL using service gap as the measurement (PZB, 1988). This model is based on the belief that a service user brings to the service encounter a set of expectations that are then compared with the performance actually received during the service encounter. May (1994) recommends the SERVQUAL model as a

methodology that could be used for the measurement of quality of electronic databases.

A few lists of criteria have been developed (Basch, 1990; Juntunen et al, 1991; Medawar, 1995) to suggest that quality can be measured from the quantity of different attributes. The validity of quantitative measurement may be questionable even though each of the attributes contributes to the overall perception of quality. The question of which of these attributes contributes the most would be subjective to the users. Jacso's suggestion (1993a, 1993b) of a coalition of information professionals and trade journals to form a powerful body to disseminate guidelines, in order to persuade producers and publishers to comply voluntarily, is a workable idea towards better quality.

According to Medawar (1995), a quality database is an aspect of the producer's responsibility in Quality Control. The major issues in Quality Control consist of document errors, editorial errors, coverage policy and documentation production errors (Mintz, 1990). These issues are similar to those discussed by Basch (1990) and Juntunen et al (1991).

Besides the levels of coverage required in order to create a complete service, Beutler (1995) emphasises the need to verify source data and to ensure that the received material actually appeared in the database. For the latter, database producers need to initialise a tracking process or quality control mechanism to perform regular surveillance, with policy in place to deal with irregular issues and the nature of the editorial policy involved. The Quality Control of coverage and errors should be retrospective as well as current. Nicholas (1996b, p25) observes that "Assessments of the quality of information may be highly subjective, but, nevertheless, quality ranks very highly in the mind of the users ...".

Some researchers point out that quality is about people (Armstrong, 1995a). This is the main reason this study has been developed. The basis of quality is dependent on what people or users think about the system. In fact, no matter how excellent a

database is, it should be recognised as a tool, not a life-supporting machine of information and knowledge.

3.3 Quality assurance

Quick (1992, p57) relates the importance of quality assurance as the key feature of establishing a reputation, "A reputation for quality is hard won, but easily lost". The ideal situation for database producers and suppliers is to reduce errors in order to reduce complaints (Armstrong, 1994). Thus, quality issues can be used as a promotional tool.

The information manufacturing process should begin with the creation of accurate source documents, then the editorial and the production process of the database producer and finally the packaging and delivery of the physical products (Arnold, 1992). Data integrity is important when constructing a database because online searches are based on an exact match between search term and retrieved information and as a result any errors in the data will fail to locate relevant references (Beutler, 1995). Beutler utilises some of the key issues developed by SCOUG (Basch, 1990).

A document's errors could come from the original documents for which the producers do not have the authority to change the source data (Mintz, 1990). The editorial process is a crucial point where errors could happen. As far as the database production procedures, the indexers and the quality assurance team can only check and present errors from entering into the final products (Mintz, 1990). The whole quality assurance process must be seen in its commercial light (Quick, 1992), for as Arnold (1992, p36) highlights "a database producer has a direct impact on the marketing of the product."

3.4 Database quality

Database quality emerges as a topic due to two major factors: the high use of large databases; and the emphasis placed on quality by users in general (O'Neill & Vizine-Goetz, 1988). A fundamental problem of measuring quality is determining exactly what should be measured. From the user's perspective, quality indicates the ability to trust features such as reliability, currency and ease of access. From the supplier's (database producer) perspective, quality may indicate the speed of data delivery. These two aspects may not be mutually compatible. There have been limited attempts to create database evaluation systems due to the high cost of accessing databases (Jalkanen & Juntunen, 1994).

Database quality potentially includes all aspects of information handling from creation to final use. Jalkanen & Juntunen (1994) describe the cumulative problems of using online database services, which often fail due to unforeseeable difficulties: connection breakdowns, change of login procedure, unvalid password, and out-of-date data. There is usually no party who would claim responsibility for content quality in the product description and users are usually not warned of such issues (Tenopir, 1995).

Errors can be a costly affair as information liability has been used in lawsuits (O'Neill & Vizine-Goetz, 1988). To protect themselves, database producers include disclaimers as part of standard practice. Generally the disclaimer states the database producers do not guarantee matters regarding accuracy, completeness or fitness of purpose of their databases (O'Neill & Vizine-Goetz, 1988).

Armstrong (1995b) states that the majority of information products do not contain formal service-level agreements or specifications with customers. The consideration of legitimate quality issues should encompass not only the raw data, but also the retrieval software, documentation, help desk facilities and possibly the existence of a regular newsletter to update the users.

Armstrong (1995b) considers information culled from databases which is complete, timely, accurate, consistent and easily located as quality data. Thus, a database has to be defined as a package of data and access mechanism; as what the users see on the screen may not represent exactly what is in the database. In order to discuss database quality, the essential components to be taken into consideration are software, training, manual or online help (Armstrong, 1995a). Packaging information tailored to the needs of the users is emphasised by major information providers (Paul, 1994b).

Data validation procedures are essential to ensure reliability of the data (Quick, 1992). Automated validation is an effective and desirable technique for ensuring database quality (O'Neill & Vizine-Goetz, 1988). Database providers, however, will need to balance the time and cost spent on correcting errors and improving the database. Cost ratio in relation to profit will be a major consideration to database producers in making changes and the costs involved in data validation are discussed by Quick (1992).

In order to improve quality, Armstrong (1995b) suggests that accreditation by using labelling offers users a guarantee of quality and gives producers a 'kite mark' to mark their databases as trustworthy. A list of criteria has been drawn up orientated towards the 'fitness of purpose' definition of quality (Webber, 1992). These detailed criteria are particularly designed for news databases which have provision for database producer and host based on the criteria developed by SCOUG (Basch, 1990a). Tenopir (1995) prepared a list of advice to database producers in order to help them to maintain the quality and standard of a database.

The following list summarises the database quality guideline provided by Basch (1990), Juntunen et al (1991), and Armstrong (1994):

Basch / Armstrong	Juntunen et al
* Consistency * Documentation * Integration * Error rate /accuracy * Coverage and scope * Customer support and training * Output * Ease of use * Timeliness * Value to cost ratio	* Connecting to system and telecommunication * Search language and other technical aspects of the search - Effectiveness of search program * Contents quality * Practical aids to information retrieval * Costs

3.5 Database quality groups

The movement towards evaluating databases can be attributed to several factors: the increasingly experienced users; information professionals becoming more IT-literate and aware of database problems; and the shift from a 'product orientated' to a 'service-orientated' culture (Webber, 1992).

Quality assurance will always be an essential issue for the information profession. Chitty and Gelb (1987) report that one of the first committees formed by the New England Online Users Group (NENON) was the Quality Assurance Committee. The members of this committee found that tracking the source of online problems is like a 'merry circle' (Chitty & Gelb, 1987).

As quality is becoming an international issue, relevant organisations and interest groups have been formed including SCOUG from The United States, the Finnish Society for Information Services, and The Center for Information Quality Management (CIQM) from The United Kingdom. SCOUG was the one of the first groups to draw up guidelines for database evaluation (Basch, 1990). The Finnish Society for Information Services also formed a working group in 1989 and developed criteria for evaluating databases (Juntunen et al, 1991). The UK Online

User Group's (UKOLUG) focused on the issue of database quality (Armstrong & Hartley, 1992) and later formed the CIQM (Armstrong, 1994).

The SCOUG retreat decided that the goal of measuring quality was to develop a framework for judging the quality and reliability of databases in terms of their design, content and accessibility (Basch, 1990). This measurement should be based on the consumers' rating scale. The criteria developed by SCOUG take into account not only the three basic types of databases: bibliographic, directory and full-text, but also include different types of users ranging from beginner to experienced (Basch, 1990). The SCOUG criteria have been adopted by many library and information professionals and research has been undertaken relying upon those criteria (Armstrong, 1994; May, 1994; Medawar, 1995). However, the diversity of other types of databases including hierarchical, flat, relational, single object and multi-object have not been included (Arnold, 1992).

The Finnish Society for Information Services was formed in order to consider quality issues (Juntunen et al, 1991). The business idea of the evaluation project was to improve the quality of Finnish databases by evaluating them from a searcher's perspective. The findings were then reported to all parties involved in the database industry including users, producers, vendors and telecommunication suppliers (Jalkanen & Juntunen, 1994). This project has evolved into a system of continuous monitoring and requires a more sophisticated way to measure database quality. As a result, a prototype for a metrics evaluation system called Quality Assessment of Databases (QAD) was created (Jalkanen & Juntunen, 1994). QAD is a rule-based expert system which utilises fuzzy logic. QAD could be used as a tool to assess and compare the quality of databases and present the results numerically.

The establishment of CIQM is a landmark for the online industry. CIQM deals in depth with database quality issues, by acting as a clearing house between the database users and publishers in order to encourage these parties to maintain good quality (Armstrong, 1994). CIQM has chosen to utilise the matrix set up by SCOUG. The long-term objective of CIQM is to develop a set of metrics to measure

database quality. The principle in labelling databases is similar to the suggestion made by Jacso (1993a and 1993b). This label does not indicate a physical label on the product but rather information available to inform potential database subscribers. CIQM is in favour of product labelling which would provide qualitative and quantitative statements of coverage by the producers (Armstrong, 1993).

3.6 Users' behaviour and information needs

Hepworth (1992) and Medawar (1995) apply Plutchak's (1989) analysis of users' behaviour in online searching and identify them according to four major categories:

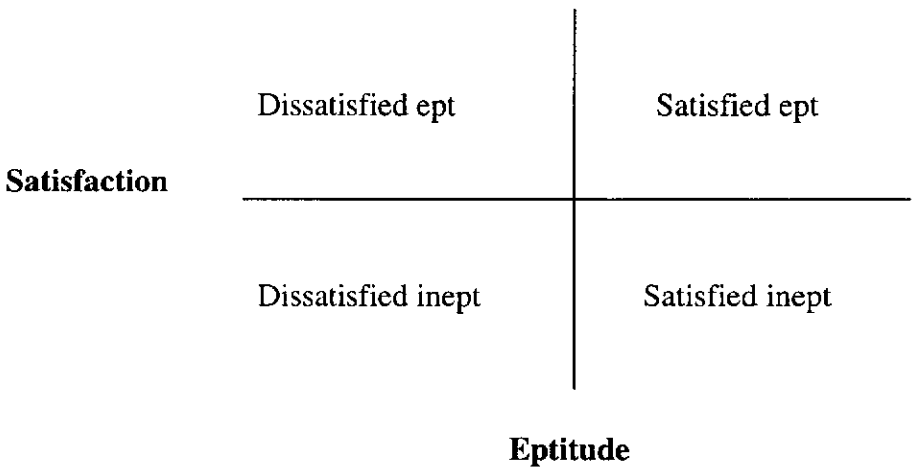

Figure 3.1 Plutchak's matrix

Plutchak (1989) recognises the potential real problem lies with the satisfied inept users. They probably would be pleased with a service without realising a search has not been conducted efficiently. However, unless an evaluation is carried on the eptitude of the users, it would be extremely difficult to judge their search efficiency. Most of the evaluations of users' eptitude (Hepworth, 1992; Lancaster, 1994) have been carried out in academic libraries. There is little evidence of any research being conducted by commercial online database hosts (such as NSTP Online and their clients). This is partly due to the expense of accessing online databases and difficulties in liaising with the users without the permission from the producer.

Tenopir (1996) discusses the three generations of online users and the evolution from traditional online databases to Internet search engines. There is often a gap between user expectations of a database and the reality of searching at a computer. Client expectations could often be fuelled by marketing claims and unsubstantiated fact sheets, which are not matched by the database capabilities (Armstrong, 1995b).

There are numerous studies on users' information needs, but surveys about information needs of journalists (Nicholas and Martin, 1997) and subscribers of an online database are lacking. Nicholas (1996b, p7) defines information needs as "... information that individuals ought to have to do their job effectively, solve a problem ...". There are two types of online database users : the intermediary and the end-users (Oppenheim, 1992). As half of the participants in the study are journalists, this introduces a comparative element to this study, as they constitute a very particular type of end user. Journalists are information handlers themselves. They expect to have up-to-the-minute information. The impact of information system and needs of journalists is discussed in detail by Nicholas (1992, 1996a, 1996b), Meeting the needs of journalists (1993) and Nicholas and Martin (1997).

3.7 Full-text online databases

Full-text is a term which is often misused. An early study of full-text databases indicates that full-text is seldom the same as full-text off-line (Basch, 1989). Grzeszkiewic and Hawbaker's (1996) investigation found that records in an online database could be altered or ceased to exist. The online version of a publication might not include syndicated columns, obituaries and editorials. Even feature articles and all the required features of print copy might not all be available online (Hearty, 1988). Graphics and photos are usually excluded for technical reasons (Basch, 1989).

Tenopir and Ro (1990) provided a state-of-the-art look at full-text databases which have been a popular medium of information delivery since the 1980s. Since the revolutionary use of Internet technology, full-text delivery through this platform has

become the norm despite the drawbacks (Tenopir and Barry, 1997). With the uncontrollable state of information delivery through this medium, information providers should establish their reputation "... as supplier of quality data." (Thomas, 1996, p37).

Effective full-text searching relies heavily on Boolean and proximity operators (Basch, 1989). Full-text databases suffer the phenomenon of 'dirty data' when there are more words, which create the opportunity for typographical errors (Basch, 1989; Jacso, 1993a). Spelling, misspelling and typographical errors are commonly encountered in databases (O'Neill & Vizine-Goetz, 1988). A typographical error is potentially fatal when using a chemical database containing toxicity data.

It is the responsibility of database producers to ensure their database coverage adheres to stated policy. Mintz's (1990) research result shows that with some database producers, articles are indexed when they fit into limited criteria. This policy does not qualify as "full-text" in the commonly understood way but should be spelt out in of the documentation (Mintz, 1990). Thomas (1996, p34) stresses that database producers are responsible for policing and screening information in order to maintain the quality of data.

Searchers need to know a lot about coverage and contents to identify the form of omissions and inclusions in the database (Mintz, 1990). Successful searching by end users is also influenced by their prior computer experience and subject knowledge (DiMartino and Zoe, 1996). Frequent use of the database will increase the searcher's proficiency. The frequent user will be more likely to find relevant material rather than spending fruitless hours in a further search.

3.8 News database

The need for newspaper publishers to build their own news databases and to phase out clippings is a concern of Nicholas and Connolly (1993a, 1993b). Webb (1995) views this scenario as the ability to reach out to "... a multiple market and with

multiple delivery mechanisms." Watters, Shepherd and Burkowski (1998, p138) explain that when users access a newspaper database, they are "... attempting to satisfy an explicit information need and must be able to express this need in terms of a query ...". News databases are considered to be a professional, cost-effective, easy-to-maintain archival resource for publishing companies (Pack, 1993). Journalists use the database as a tracking system for the stories published. However, users who have the tendency to read stories through headlines, summaries and pictures will not find the news database as effective as they should be (Pack, 1993). A fully digitized 'newspaper' with text, graphics, sound and full motion video is in demand with the increasing use of Internet technology (Sussman, 1994).

The emergence of Asian news databases, specifically in Malaysia, has only started in the 1990s (Hepworth, 1995a; Reid, 1995; Yaacob, 1995; Yaacob and Abdullah, 1994). The acquisition and development of Asian information is closely related to the economic development of the region (Hepworth, 1995a; Yaacob and Abdullah, 1994). In Malaysia, the efforts towards research and development in information technology is stipulated by the government (Yaacob and Abdullah, 1994). Partnership with other major information providers is essential for the growth and survival of these smaller regional services (Paul, 1994a, Hepworth, 1995a).

Pricing structure of news databases is a complex issue (Fisher, 1988) and the trends in pricing are discussed by Webber (1995). The cost of accessing information including fixed and variable costs is discussed by Hartley et al (1990), Chu (1995) and Bale (1997).

3.9 Customer support

What would be the role of customer support and marketing in the online database industry? Arnold (1992, p37) believes that "... we are entering a period when marketing will be increasingly dependent upon manufacturing to deliver what the customer wants." The different systems used in customer support service are outlined by Basch (1990c). The other responsibility of customer support includes

providing methods for customers to report the presence of errors (Beautler, 1955). Qualified and experienced customer support staff are necessary to solve problems and to provide instruction to users (Armstrong, 1995b). De Stricker (1994) advises that the online industry should be placing more emphasis on their services and Kotler (1994) suggests tracking and measuring customer satisfaction as a marketing procedure. Producers should incorporate improvement of product and service quality as part of their growth strategy.

Day (1994) emphasises the importance of the role of intermediaries in using computer-based information systems. In bypassing the intermediaries, end-users will require sufficient and substantial education and training provided by customer support in order to develop their skills. Training is an essential part of acquiring the abilities to use online databases (Henley, 1992) and the key to increasing usage (Rosenthal, 1992). A conceptual approach such as hands-on learning through personal contact (Martindale, 1995) and research literacy are preferred by Chadwick (1992). Hepworth (1992) evaluates the effectiveness of training based on Plutchak's (1989) matrix.

Documentation such as user manuals and database descriptions is essential. Such publications are the guides to the knowledge and standard of the contents and structure of a database (Alkula and Sormunen, 1989). The essential element in all documentation is "keep it simple" (Blecker, 1990, p31). Plasker and Welden (1990) introduce the documentation of Dialog as an example.

CHAPTER 4
DEMOGRAPHIC CHARACTERISTICS OF NSTP ONLINE USERS

This chapter introduces the demographic characteristics of the participants, which includes their position within their organisations, their primary responsibility or job title, their experience in using NSTP Online and the length of time that they have spent in accessing the service. A chart relating to the user identification is available in Appendix 2. As will be noted, the participants' ability to conceptualise quality and the perception of quality varies according to the training they have undertaken and their level of experience in using the database.

4.1 External participants' positions within their organisation

In this group of users, it is found that a variety of position titles are used for librarians. Among the fifteen external users, nine of them had professional library qualifications and were employed in a librarian position. The other types of positions include a clerical position, secretary, Management Information System (MIS) executive, marketing executive and accounts executive.

The data indicates that the responsibility for looking after the online database system is placed with the librarians in 67% of the organisations. However, for those organisations which do not have library facilities, a staff member has been appointed to be responsible for accessing the service.

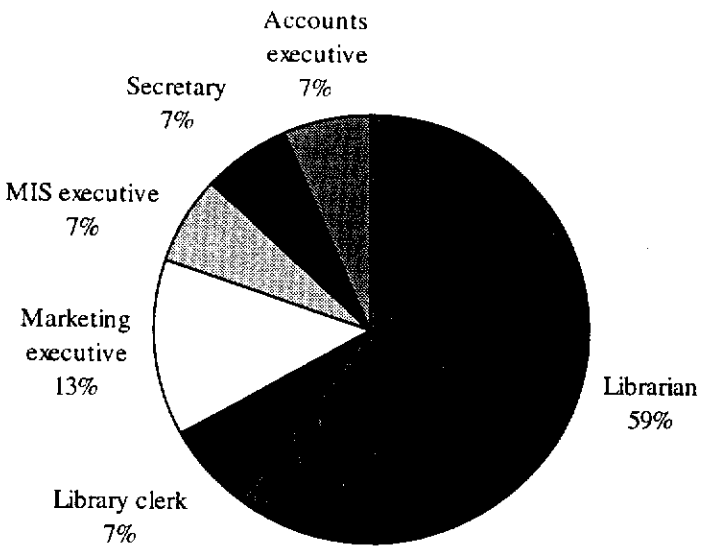

Figure 4.1 External participants: their position within the organisation

4.2 Internal participants' positions within their organisation

Although all of the fifteen internal users were journalists, only eight of them were currently working in a journalist's position. The other seven consisted of three news editors, two specialist writers, one sub-editor and a publishing executive. These positions are part of the closed publishing chain.

These results clearly reflect that journalists are the major group that use the service for reporting. The aim of NSTP Online is to serve the needs of journalists in accessing news articles published by The New Straits Times Press group of newspapers.

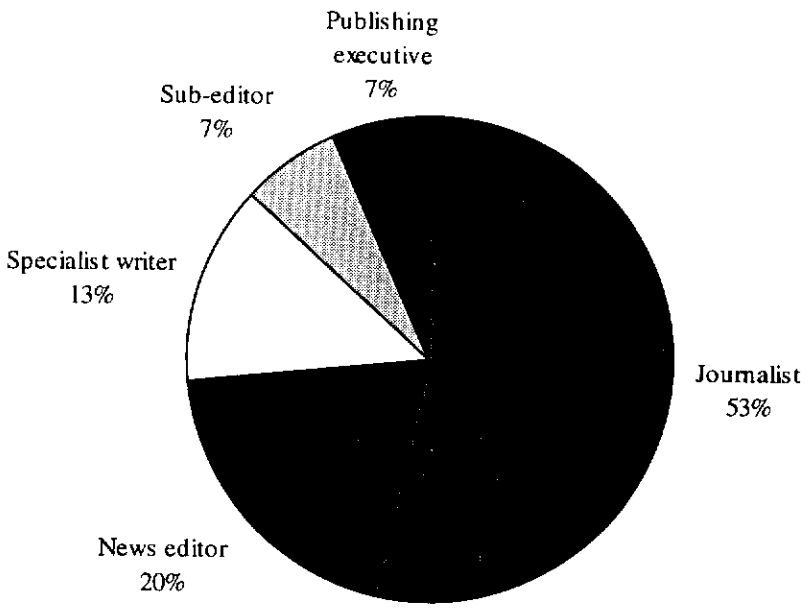

Figure 4.2 Internal participants: their position within the organisation

4.3 Experience within NSTP Online

Among the thirty participants, 63% of them report that they have been using the service for more than four years. This usage pattern indicates that the majority of the frequent users are experienced. A larger number of the internal participants (93%) had two or more years of experience compared to the external participants (73%) in using NSTP Online.

The external users have the choice to subscribe to NSTP Online due to the convenience and price. However, for the internal users, there is no other choice.

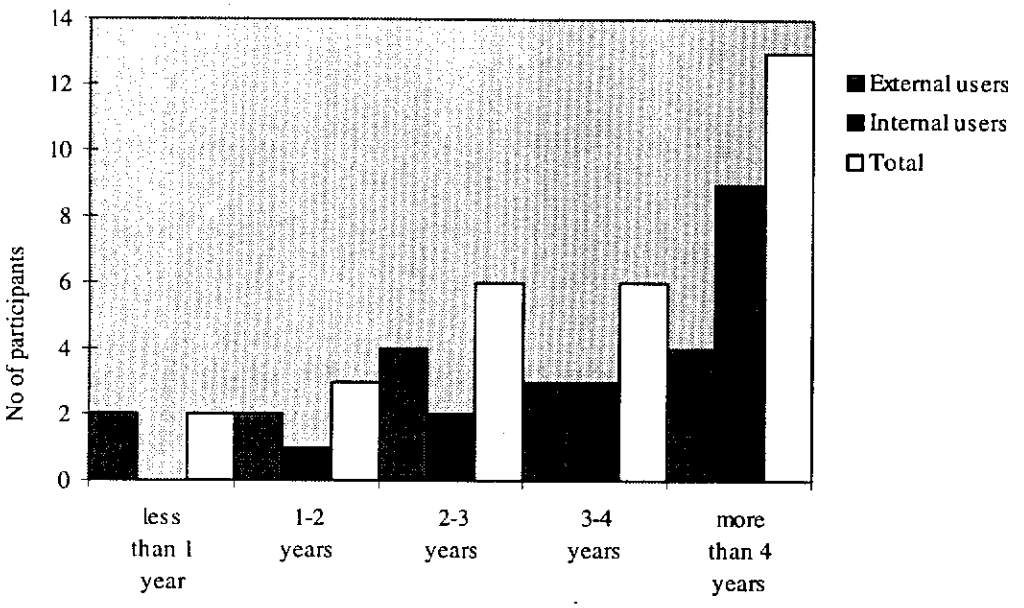

Figure 4.3 The participants' experience in using NSTP Online

4.4 Frequency of use of NSTP Online

There is an equal number of external participants using the service on a daily or "as need" basis. The questionnaire result indicates that 67% of the internal participants access the service daily. None of the participants indicated that they use the service on a weekly or monthly basis. This confirms the fact that these participants are frequent users who use the service on a regular basis.

Frequency in use	External participants	Internal participants
everyday	8	10
once a week	0	0
once a month	0	0
whenever I need information	7	5

The internal participants can afford to have access to the service daily as it is free of charge. However, a number of the external participants also access the service on a daily basis, indicating that there is a need to retrieve up to date information daily despite the cost.

4.5 Estimated connect time when using NSTP Online

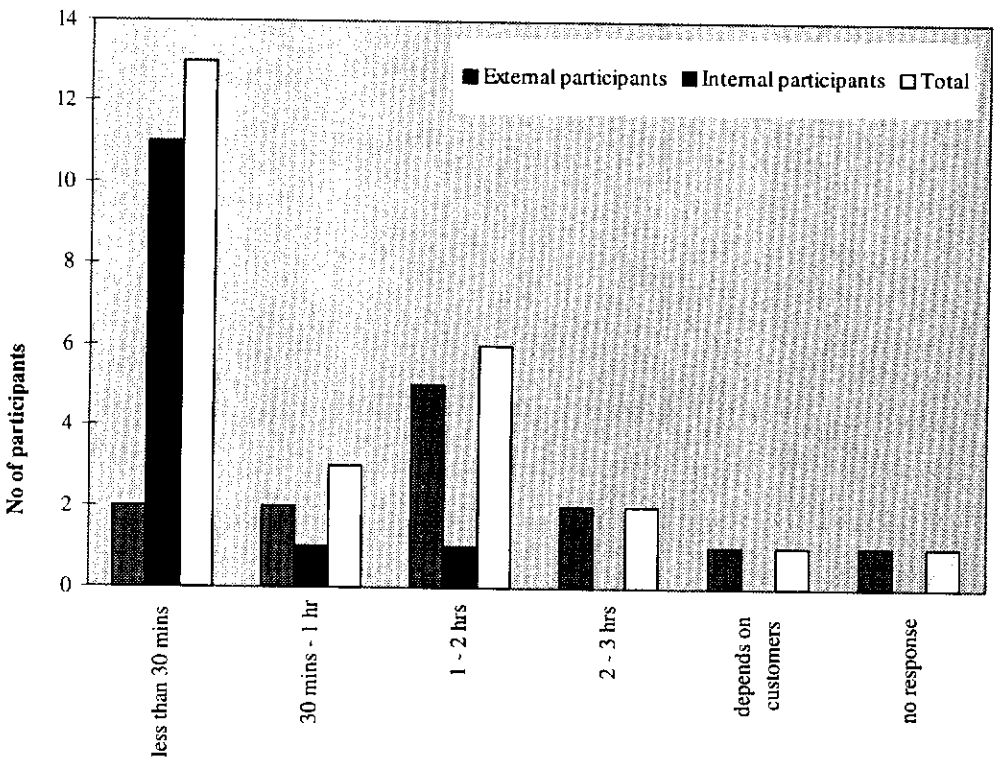

Figure 4.4 The estimated time when using NSTP Online

The wide range of responses regarding the estimated time in using NSTP Online, especially for the external participants, supports the result that users access the service as they require specific data. The result indicates that a majority (73%) of the internal participants access the service for a short period of time (less than thirty minutes) but that this could occur several times a day. The external participants on the other hand, are more conscious of avoiding telecommunication costs. They tend to access the service for a longer period of time by retrieving all necessary information in one connection.

CHAPTER 5

DATABASE CONTENTS AND THE USE OF NSTP ONLINE

In order to assist in achieving an understanding of the participants' capacity to analyse the quality of the information provided by NSTP Online, it was decided that it was necessary to gather data relating to the parts of the database they use and their reasons for using them. Each of the factors is relevant to their capacity to identify shortcomings in the contents of the database and the level of accuracy of individual records or sections of the service.

5.1 Type of information accessed

Participants were requested to indicate which categories of information they access. There are seven categories of information to choose from for the external participants and eight for the internal participants (Figure 5.1). The extra category for internal participants being - "the articles that I have written" which is irrelevant to the external participants. The participants can choose more than one category from the list.

The major similarity between the two groups of users is the emphasis on business related information (73%) such as business and finance company profiles.

None of the external participants access the sports or entertainment information. This reflects that they are not likely to use NSTP Online for leisure purposes, whereas 27% of the internal participants access information in these two categories. Verifying facts and figures from the information in these categories is part of their job. Internal users have the opportunities to explore types of information other than that which is required for their work.

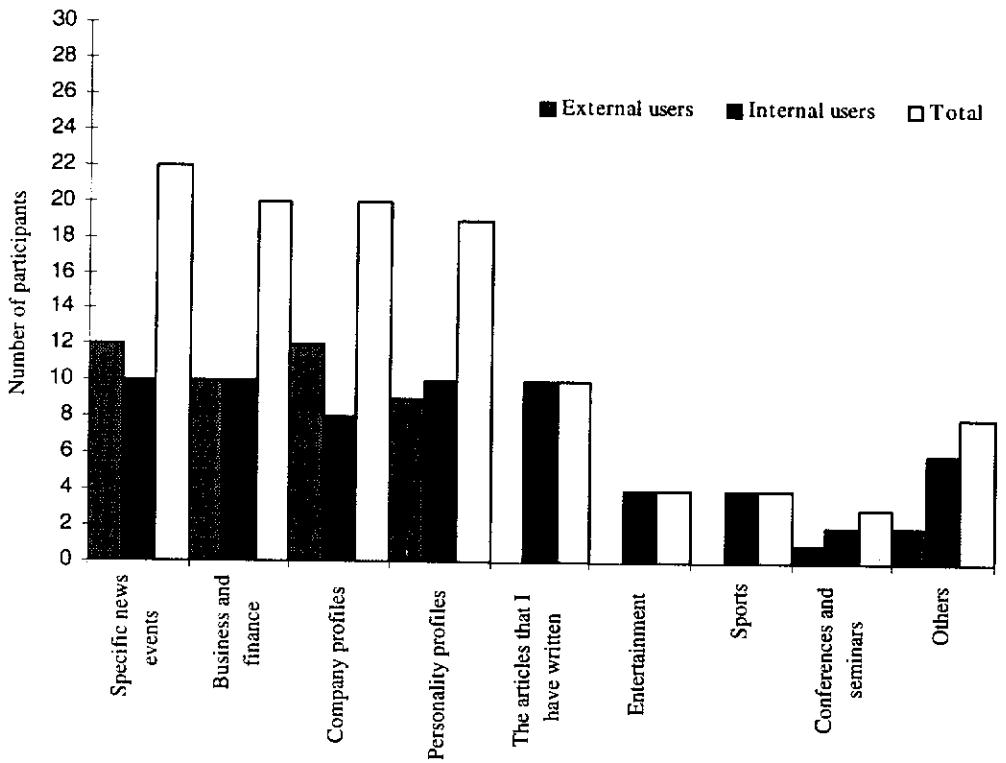

Figure 5.1 What type of information do you usually access?

There is a need for the internal users to conduct research when writing articles, as well as to follow up their own stories. This process of research is indicated by 67% of the participants who express the need to track "the articles that I have written". These 67% of participants include journalists who specialise in writing specific types of news and feature articles. In order to produce quality articles, accurate and up to date facts and figures are required.

On the matter of NSTP Online providing additional information, 40% of the internal participants believe other types of information should be available compared to only 13% of external participants. Among the other types of information suggested by participants are:

* research papers
* hobby related information
* information related to the securities industry

* specific information on social, economic and political matters
* specific information on education
* specific information written by colleagues
* specific background information on companies, personalities and events

In short, participants expect packaged information that is similar to the clipping system compiled by subject categories. When electronic information is being replicated on screen, it loses the visual and tactile quality of clippings (Sylge, 1996). The ease of tracking down stories at a glance without doing the necessary groundwork is favoured by these users.

5.2 Most used databases

Participants were also asked to indicate:

> "Which databases contain most of the information that you require?"

The categories of information as shown on Figure 5.2 are contained in a number of databases (see Figure 1.2). For example business and finance information could be available from four database categories: News in English (ENGD), News in Bahasa Malaysia (BHDB), Company Profile (COMP) and Malaysian Business (magazine) (MBDB). Special Databases in particular are comprised of Company Profile (COMP), Personality Profile (PSNL) and Country Profile (COUN).

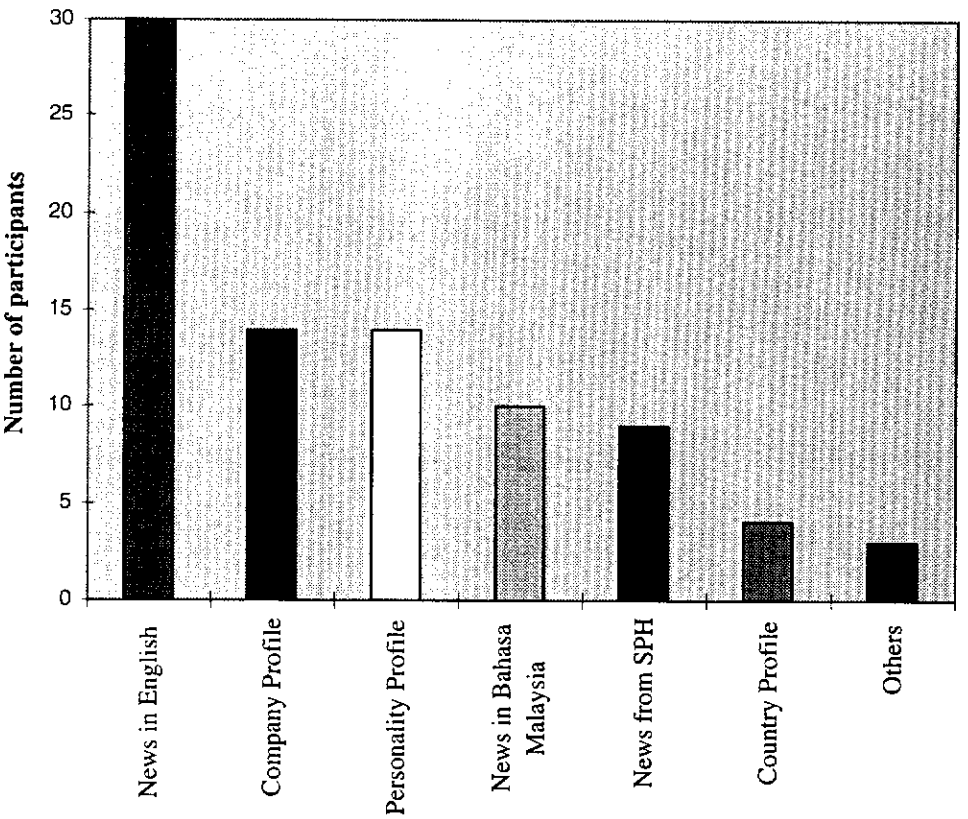

Figure 5.2 Which databases contain most of the information that you require?

5.2.1 Newsbase

Among the several news databases, ENGD proves to be the most sought after database among internal and external participants. All participants indicate that they have found this database useful. In comparison, only 33% of internal and external participants indicate that they access BHDB. The result reflects that ENGD carries more useful news due to the influence of English as the communication language for a number of the international news providers (such as Reuters and IP). BHDB has limited amount of wire stories because this type of story needs to be translated and is time and labour intensive to do so. Most importantly, ENGD contains *Business Times*, the only financial daily in Malaysia. This publication presents exclusive business news which includes feature stories of company and business related personalities.

As the emphasis is on business related information, the databases that the users found useful are associated with this feature. ENGD, Company and Personality Profiles prove to be the databases that contain useful information. For Special Databases, as reflected by Company Profile, 33% of internal participants and 53% external participants indicate that this database contains useful information.

5.2.2 Special Databases

The price structure of Special Databases is an issue to the external users. Two external participants commented that Special Databases is expensive to access. If the price structure was more reasonable, these participants were likely to use it more often. A number of internal and external participants also have criticism such as: "It (Company Profile) reproduces what is available from the annual reports, which is only useful to a certain level." One participant explained that they do not mind paying the higher charges for Company Profile if the data is reliable. However, in general, this participant considered "NSTP Online has not done any research to compile the data. There were merely third party information being dumped to the profile".

a) Company Profile

Ms Wan Aziah, the assistant manager of Research and Information Services (RIS) explained that the data of Company Profile is based on the company prospectus. Subsequently the main sources for the profile is company annual reports, 'Kuala Lumpur Stock Exchange (KLSE) handbooks', *KLSE Daily Diary* (the official publication of KLSE), *Investor Digest* and current news articles for updating. The users are advised to refer to the daily newspaper for updates on profits and losses, and interim reports.

On a more serious issue, one participant is concerned that NSTP Online could be sued for breaching copyright, for copying other sources and redistributing the information without any acknowledgment. However, Ms Wan Aziah stresses that

there is no conflict of copyright issues as the data is available from public domain sources such as newspapers.

The feedback from the participants shows that historical data in the Company Profile is necessary. Apparently new data is input every year and the profile loses the context of what has happened in the previous years. Historical data is essential when journalists need to research the retrospective company background especially in terms of financial and stock movement.

On the other hand, as Company Profile is updated annually, the users have to refer to ENGD to locate news articles reporting on changes such as a new board of directors. A participant commented that "Sometimes when the changes are not reported by The New Straits Times group of papers, we have to turn to other sources." Those sources could be their contacts, referring to the actual companies or KLSE. The success rate of those contacts is varied, depending on confidentiality and the person they speak to.

b) Personality Profile

For Personality Profile, 60% of internal participants, compared to 33% of external participants, found it to contain useful information. Most of the personalities in this profile are politicians and only a small number of them are corporate personalities. However, external participants are more interested in researching business rather than political information as indicated in section 5.1 and 5.2.

On one section of Personality Profile, the names of the wife and the children of the personality are listed. A participant made an interesting comment: "When the person has more than one wife, only the name of the first wife is mentioned". RIS has the policy of including only the name of the first wife even though the names of other wives are known.

One participant remarked that Personality Profile is slightly biased as the database only features the Prime Minister and the cabinet members. This participant would

like other types of personalities such as writers and sportspersons to be included. Another suggestion is to include any prominent personalities who have made some substantial contribution in Malaysia even though these personalities may be deceased.

Personality Profile is a sensitive database. To prepare each profile, initially the researcher will send out a letter to seek approval, and the letter will be used for copyright. Currently RIS is focusing on including corporate figures. These researchers have faced difficulties as corporate figures are generally uncooperative and dislike disclosing the relevant information.

c) Country Profile

Country Profile attracts limited interest from both external and internal participants. Only 6% of external and 20% of internal participants acknowledged this database as containing information they required. The comments of participants are not entirely favourable:

> "Country Profile is in need of updating. The facts and figures available in Country Profile may be as outdated as five years, yet later information is available from other sources.

Another participant suggested that Country Profile needs to include more details. For example to include the percentage of each religion rather than just displaying the different types of religion practised in a country. The current information has been collated according to the knowledge of the researcher who constructed it. It is foreseeable that in order to improve this profile, the researcher will need to conduct further research into the requirement of the users.

d) Malaysian States Profile

This profile is a relatively small compared to the three profiles mentioned above. It contains information about the thirteen states and two federal territories in Malaysia. The aspects included in this profile are geography, history, people, politics, economy

and tourism. This profile was constructed due to the lack of published information about those states.

5.2.3 Other databases

One of the major differences indicated by 20% of the external participants is in accessing the magazine database (from the "others" category). Magazine database is a comparatively small database which contains feature articles related to the business sector. A few of the internal participants commented that it is not necessary to use the information from the magazines. The external participants are also more interested in focusing on the big picture rather than browsing a relatively small database.

On the other hand, news from Singapore Press Holdings (SPH) attracted a number of users, as indicated by the result of 27% of external participants and 33% of internal participants. SPH has been introduced to NSTP Online as an agreement of information exchange of the two publishing companies. Participants welcome the idea of introducing more information resources. One participant stresses that "any new sources adding to NSTP Online is good news as this will enlarge the scope for research". However, users may not be aware that the search strategy required for SPH is different from that of NSTP Online. The search strategies for new databases introduced to NSTP Online have not been explained to the users in any of the information pamphlets available to them.

5.3 The reasons for using NSTP Online

External and internal participants have different reasons for using NSTP Online. In general, external participants subscribe to the service for purposes of time efficiency and to reduce newspaper clipping. To the internal participants, NSTP Online is a research tool provided by the company. These users do not have to be concerned about the cost and can afford to use the service on a regular basis.

When NSTP Online was first introduced to the commercial market, it was a relatively new tool in electronic information retrieval in Malaysia. There were no other information services available to provide quick and reliable information to this niche market. The external participants or their organisations subscribed to the service to access current information. Although these users may have also subscribed to the printed sources, it is convenient not to have to keep all the bound copies. The external participants who are intermediaries perform information searches for their clients and hardly use the service for their own purposes.

5.3.1 Clipping and storage space

Clipping is the system familiar to journalists and researchers before the introduction of news databases. However, the number of news databases have increased tremendously over the last ten years and the clipping system is becoming redundant (Nicholas and Connolly, 1993b). Nicholas and Connolly (1993a, p34) describe the scenario as "Every British national broadsheet newspaper is now online..." A recent survey (Fitzgerald, 1994) indicates there are about 270 newspaper in The United States which consider themselves as "interactive newspaper". To the publishers, going online is a cost effective means of replacing expensive and labour-intensive filing and storage space, and provides opportunities for journalists and sub-editors to carry out searches of the same topics at one time (Arundale, 1990; Mintz, 1995).

On the other hand, there is argument about the advantages of the use of clipping from some information professionals. As explained by Helen Martin (Sylge, 1996, p21): "Newspaper cutting has a visual and tactile quality which can't replicate on screen." Nicholas and Martin (1997, p49) find that clipping is regarded highly by journalists because "... the journalistic groundwork has been done for them and the necessary patterns assembled."

For the journalists at The New Straits Times Press, accessing the stories online was a new experience, as commented by three participants.

"It was from curiosity of how to use database that I learnt it from the group training."

"It was the greatest thing in the world. It saves me walking to the library."

"I was impressed when I first joined the organisation. I was thankful because where I came from - *The Sun* [another publishing company], which only has one NSTP Online terminal for all the reporters in the company. Whereas at The New Straits Times Press, the service is provided to all reporters. I first learnt how to use it with the help of the librarians at *The Sun*. At The New Straits Times Press, I learnt it from a colleague. Once I have the login from RIS, I have no hassle at login on."

These comments indicate that the users were receptive to using the newly introduced service for their information seeking. As journalists work under tight schedules, the desktop access to information is welcome. The background of the users influences their attitude towards the use of NSTP Online. This is indicated by the third participant quoted above, who had not enjoyed similar information tools in another organisation.

On the other hand, the searching for information without a graphics display capability is not a familiar and workable feature according to one participant.

"I still find it difficult to search files. Clipping is easier to flip through and to browse. My mind can remember pictures and headings but NSTP Online only has text; it is messy to look at."

Pictures and the fonts of headings are the product of editing. By taking away these features, a plain text document could not deliver the emphasis that being edited adds to the stories; "the importance of headline diminished ...." as remarked by Arundale (1995). As the clipping service has ceased for all publications of The New Strait Times Press since 1992, internal users are forced to learn to browse and find

meaning from plain text documents. NSTP Online has plans to construct a digital library to incorporate graphics and sound which are lacking in the current full-text database.

For libraries which still operate manual systems, NSTP Online becomes the tool to retrieve up-to-date information or news clippings which have been omitted. There is still a need for one participant to keep the news clippings as NSTP Online does not have pictures and graphics. The client base is such that the hardcopy of newspapers is necessary from a journalism point of view.

Two external participants reported using NSTP Online as an information tool. News clipping system is still being practised and NSTP Online is accessed to retrieve news that is essential to users, but has been missed during the clipping process. As one participant reported:

> "We still keep clipping for important issues."

In addition, another participant commented that:

> "Sometimes we use it [NSTP Online] as last resort when the information is not in our files. The customers can find information on an in-house newspaper clipping but sometimes they miss it or we did not cut it."

Shortage of storage space is an issue for libraries as reported by 13% of external participants. One participant commented that even though there is sufficient storage space for the hardcopy, it is difficult to use it to retrieve information. As NSTP Online provides archival information from 1991, many users are relieved that they could dispense with the hardcopy for the subsequent years.

For libraries which are at the edge of changing library systems from manual to automated, NSTP Online is treated as an extension to the automated library system. As users are familiar with electronic information, 27% of the external participants

agreed that this service provides easy access to information compared to a manual system. The service has saved a lot of time and reduced the rate for clipping a number of the major newspapers.

Newspaper clipping is a time consuming task. 36% of the external participants use the NSTP Online service to avoid news clipping. One participant who has used a clipping system to retrieve information reported that using NSTP Online is "definitely better than going through clipping." Another participant mentioned that NSTP Online has reduced the time in retrieving the information that the bosses have read on newspaper. NSTP Online is useful in clarifying news or tracing the development of a news story. For this type of user, there is a need to browse a large quantity of stories to find out the definition and origin of an event. The speed of information retrieval is essential to many participants and their clients. One participant uses NSTP Online as a selective dissemination of information service, in order to summarise and circulate the news to the management staff in the organisation.

5.3.2 Research

Research is one of the major reasons that 40% external participants and 73% internal participants reported using the service. One participant compiles the information according to different subjects after retrieving the data on a regular basis. The information is then kept on files to be referred to in the future. Another participant accesses Company and Personality Profiles to collate data for marketing research. As NSTP Online is a legitimate source of information, the users could always quote the source of data in their reports.

47% of internal participants reported that there is a need to do research for their work, as it is necessary to compile background information. One participant commented "90% of the time I would browse through articles relating to what I will be writing." This data could then be used in their reports which is called "padding",

or to provide basic details to support the stories. One participant commented "it is easy to get the context and reword the text" in their stories.

The internal participants have developed a tendency to use NSTP Online as an information tool for background data, historical data and contacts. For one participant, this service provides diverse information ranging from current news events to personality backgrounds. It is also the task of a journalist to check what has been reported for an assignment as one participant commented:

> "If I have not gone for an assignment and if it is something new; I will check what has been covered and ascertain appropriate questions to be asked at the press conferences. Sometimes it is good to check if the assignment is worth pursuing."

Two other participants reported similar experience. They consider this practice builds up their abilities to ask questions before going to interviews. 40% of the internal participants indicate that they would browse news stories before conducting interviews and establishing ideas for their interview. Besides that, these details could be included in the report after conducting the interviews. The participants could be gathering ideas as part of the background information for their stories.

As there are seven daily newspapers being published by The New Straits Times Press, internal users utilise NSTP Online as a mechanism to keep abreast of what has been reported from these newspapers. There is a requirement for journalists to produce original stories. It would be an embarrassment if a journalist were found to replicate a story. One participant commented:

> "I need to keep in touch with what is happening, what has been reported and what has not been reported. I try to write new stories as much as possible."

For internal users who need to be creative and yet need to meet deadlines, this service provides an opportunity to browse news stories at the users' convenience.

One participant suggested that, "I could look at stories from different angles, or alternative angles, and to look through the latest stories".

NSTP Online may not provide all the information required by the users. However, sometimes this service acts as a lead to pursue further sources. For example, the contacts mentioned in NSTP Online could be used to contact possible people for interviews. One internal participant reported using NSTP Online as a mechanism to locate possible contacts.

On the other hand, it is found that the internal participants do not use NSTP Online as a source to trace photographs as noted by one participant. There is a field provided for photographs appearing in the news stories. This participant commented, "I just get the pix [pictures] from the library." NSTP Online does not provide the facilities for graphics and photographs, and it is difficult to trace photographs through the picture captions displayed in the news articles.

An interesting fact from one busy participant is that the service is used for personal enhancement. That is, to update the person's knowledge when the participant is too busy to read the published material. The participant reported:

> "I also use NSTP Online for my own knowledge, to try to find out what is the latest information such as fishing."

As a result, NSTP Online is accessed as a short cut to read what they are interested in and used as a filter to reduce information overload.

5.3.3 Computer-assisted stories

Downloading information from NSTP Online is a common practice among the users. Not only is the information transferable, the users found that it is more time efficient to cut and paste the information to the required documents. Although this may not be

a legitimate practice for journalists and writers, it does not really make a lot of difference compared to copying the information directly from the print copy.

Webb (1995) explains that newspaper databases have helped journalists to carry out research. It is termed as "computer-assisted reporting" and computer assisted stories have been winning Pulitzers for a number of years. "It is the fundamental skill the newspaper have had for a long time, which was gathering and packaging information. Now you just call it a database." (Webb, 1995)

The original objective of NSTP Online was to cater specifically for the information needs of the journalists and this project has achieved a significant level of success judging from the feedback of the internal users. One participant commented:

> "I am satisfied in the aim of checking details for my stories. It is a convenient way to look into archival records instead of going through dusty papers."

The ease of accessibility of NSTP Online is mentioned by another participant:

> "NSTP Online could retrieve information which has been missed when reading the newspaper, I tend to browse them [articles] and consider it as an exercise to acquire knowledge."

These participants are aware that the service has provided the means to access and retrieve news stories more efficiently and effectively compared to the conventional means of reading newspaper clippings (see section 5.3.1). The internal participants are glad that they do not have to refer to "mouldy clippings" any more. One of these participants appreciated the convenience of NSTP Online not taking up a lot of space. Ms Lucy Gamage of News International remarks on the information needs of journalists as "... what journalists really want is previously published newspaper articles. When they are working on a story they want to know what has been reported before, when it was published and who published it." (Meeting the needs of journalist, 1993, p8).

5.3.4 Verifying facts and figures

The other main reason the internal participants use the service is to verify facts and figures, especially for the 27% internal participants who are news editors and sub-editors. For one news editor this task is considered to be "seeking information for work". It is essential for internal users to verify information, names of people, places, incidents and, as one participant stressed "everything we choose to publish in our paper".

News editors in particular, have to scrutinise the stories submitted by reporters. There are occasions where the stories are incomplete due to a lack of background information or updated information. Therefore, the participant would need to use NSTP Online to find out the details of particular stories, in order to provide accurate facts and figures to the readers.

After carrying out research using NSTP Online, the participants would take note of the facts and figures. The data would be downloaded or printed out for further reading depending on the nature of the search. However, it is not always necessary to go through this process, as one participant indicated:

> "The data doesn't amount for downloading, I can just copy the information from the screen because it could be just the name of a person."

The method used to "cut and paste" news articles from the database onto the articles is not, as one participant put it lightly, encouraged by the news editors. Journalists and writers are advised "just to take down notes, to rephrase notes for certain situations, and to be more current about facts and figures." However, the "cut and paste" practice is reported by 30% of internal participants. It seems that it is one of the methods used to develop background information. There are another 40% of internal participants who do not support this practice. They consider it to be unethical.

Occasionally the news editors have to check the information themselves in order to carry out their job. As one participant noted:

> "We need to help reporters to check background information because sometimes the reporters are not around when we are 'subbing'."

As a result, it is not surprising that 93.3% of internal participants stress that they use NSTP Online for background information to be used in their write-ups. It is evident that the service is used extensively, in extracting facts and figures, and research for reporting activities.

5.4 The completeness of information

Participants were questioned with regard to the completeness of information they access when using NSTP Online. Responses were received in the interviews for both Newsbase and Special Databases.

One participant commented they are aware that not all information is available from NSTP Online, thus they do not rely completely on this service when doing research. Depending on the nature of the data, they use other sources such as magazines and books to obtain further information that is not covered by NSTP Online. In one instance, the users of an organisation prefer to use the clippings before searching NSTP Online. In these cases, NSTP Online is used only as a support tool for information retrieval, and it is not essential in the day to day activities.

To three participants, the news stories are considered complete but not the Special Databases. One participant pointed out the addresses and phone numbers of embassies from the Country Profile are often not accurate. This opinion is shared by another participant who commented that none of the four profiles in the Special Databases are up-to-date. Another participant reported that the shareholders and

financial information from the Company Profile are not complete in that some data has not been updated for as long as two years.

For participants who felt that the information they received is not complete, they are aware that it could be due to the news not being covered by The New Straits Times Press. One participant put it as about "85% complete" when asked for a figure to describe the completeness of information. Another participant realised that information from NSTP Online is not 100% complete but commented that the service cannot be blamed as the stories from NSTP Online are taken from the newspaper. However, this participant felt that "sometimes some stories have been missed".

On the other hand, one participant recognised that there is more information in ENGD compared to BHDB as the former includes more wire stories. Another participant is cautious about what to look for in the different sources from NSTP Online because ENGD and BHDB have their strengths and weaknesses.

> "I found out that I need BH for news from the rural areas because the coverage of *New Straits Times* is not as wide as *Berita Harian*".

Commenting on the use of the Internet as a supplementary information tool, one participant reported that NSTP Online provides about 60% of the required information, and the other 40% is obtained through the Internet. According to another participant when the information is not available on NSTP Online, they depend on the Internet and email for further data.

However, not all participants who are aware the information is not totally complete know where to look for further information. The ignorance of other information sources and the lack of research literacy is reported by one participant:

> "Sometimes we need more details or more specific information, if it is not there, we don't know where to look."

For one participant who was concerned about the stories that he had written, the information is complete in a sense that all the required stories are included. Another participant concluded that The New Straits Times Press is the dominant publisher in the industry. Therefore, "if the news has not been reported in NSTP Online, there is a good chance that the news has not been covered". One participant commented positively about information available from the service:

> "Most of my users commented that NSTP Online provides a good service because the information is updated daily and informative."

One participant presumed that the news is complete as long as "there are no complaints from users about incomplete stories". Another participant was frank enough to admit that she is ignorant of the completeness of the information, stating that "users seem to be happy with the information, they could complement it with other information sources; or else they won't come for the service." Thus, it is difficult to judge the completeness of the information when the participants are not the primary users.

For participants who considered the information accessed via NSTP Online is not complete, one of their reasons is the non-availability of charts and graphs. The participants are not satisfied with the provision of text only. The feedback shows that users prefer to read the data from NSTP Online as from the newspaper. In their electronic news delivery project, Watters, Shepherd and Burkowski (1998) confirm that users prefer the familiar scan and browse format appearing on the newspaper.

To a specialist writer (internal participant), the information provided by NSTP Online is definitely not complete. Writing feature stories which have not been reported requires comprehensive research compared to home news or business news reporting. The participant explained the point by using an example from medical research:

"For example, researching for medical stories in NSTP Online, it can only provide trends but not the fine points. I will need to contact doctors and the Ministry of Health for further details."

The search facilities of NSTP Online are also relevant to the completeness of information. One participant commented that the information is not complete due to the difficulties in retrieving information from the databases. The information presented in NSTP Online is not being packaged in the format required by the users. This participant felt that "there should be a way to short cut it".

5.5 Knowledge of database contents

In order to identify if participants were clear about the contents of NSTP Online, they were asked the following question:

"Have you enquired about the contents of NSTP Online?"

This is also to investigate if NSTP Online has provided a clear statement about the contents to users, in order to help them to access information efficiently.

Among the six external participants who answered 'yes' to the question, one commented that the contents were explained to them at the point of subscription. This participant has shown initiative in inquiring about the coverage of overseas news and the features of Special Databases. Another participant made the effort to check the sources of the Special Databases in order to find out the authenticity of the information.

Two internal participants reported that they spent a great amount of time going through the different databases to determine the contents. These participants have experimented on their own, especially by gaining access to sub-directories. However, not many participants are motivated to do so. As one participant commented:

"I feel that it is quite technical and don't really have the time to find out."

Three participants preferred to limit their searches to ENGD or SPH. As one participant commented:

"I haven't inquired the contents because we are limited to English database, as most of the publications we need are in English."

Another participant reported that it has never been a concern to think about the components of NSTP Online. As long as the information is available in ENGD, it is not necessary to understand other elements of the database contents.

Even though one participant is familiar with the contents and where to look for them, they reported that it is still difficult to look for the required information due to the complexity of the databases. One internal participant implied that the list of databases is self-explanatory but more details are required:

"I've asked which directories are the publication appearing in. For example *Computimes* appears in a sub-directory of ENGD."

One of the participants who thinks they know about the contents commented "we were informed from the online notice when there was a new 'file'". This comment indicated that NSTP Online regularly displays 'new product' information to their customers through online broadcast messages. It seems that printed online broadcast messages are not distributed among the external users. One internal participant noticed printed copies of 'new product' information sheets in the library but did not pay attention to them. However, another internal participant discovered 'Quicktake'[3] by chance, as a result of paying attention to these messages.

[3] Quicktake is a database for internal users only. It is not shown on the list of databases to prevent external users from using it. This database contains facts and figures from a column known as 'Vital Link' which is published in *New Straits Times*.

The structure of the databases is reported to be logical and practical. Five participants reported that they are aware of the contents from the different databases such as Personality Profile and Newsbase. Another participant commented that the contents of NSTP Online are self-explanatory:

"We can guess the nature of the contents from the title of the databases."

One participant who is aware of the contents reported the data in NSTP Online is not sufficient and suggested that Reuter Business Brief contains more sources than NSTP Online.

Sixteen of the participants indicated that they have not inquired about the contents. For external users in particular, it is the responsibility of the sales representative to explain the features and contents of the service. One participant reported that they did not inquire about the contents but learnt about it from the sales demonstration. This indicates that adequate training might be able to clarify the users' queries. However, if there were a change of staff in-charge of the service, it would be up to the predecessors to explain the details of the service to the new staff. The feedback of two participants indicates that the changeover process was inadequate and the new staff had minimum introduction to NSTP Online.

Sales demonstrations are however, not available for the internal users. Thus, the internal users would not have received printed information about the location of the different databases. It depends on their initiative to inquire about the contents from more knowledgeable colleagues who have used the service, or from one of the library assistants.

5.6 Features that should be included in NSTP Online

In regard to the contents which should be included in NSTP Online, participants were provided with five major categories of useful features. These features are currently not available to the users. In addition, participants were prompted to supply

"Others", in order to indicate further categories of information that should be provided by NSTP Online.

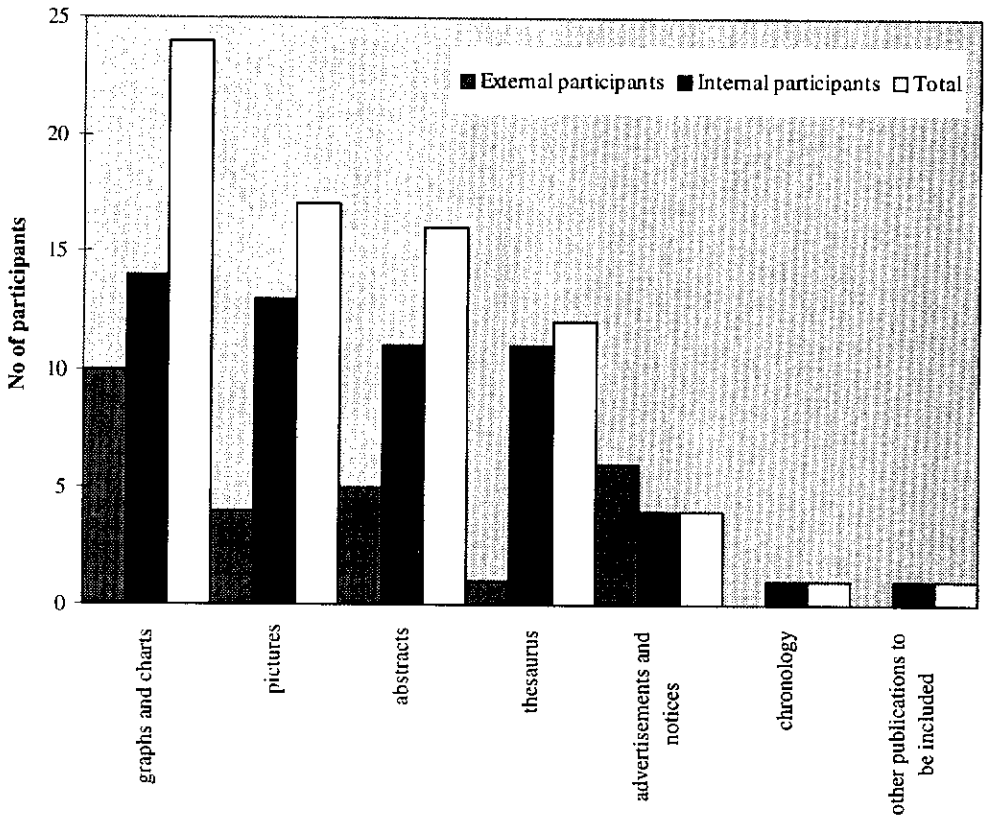

Figure 5.3 Features that are required by participants

The result indicates that internal participants are more aware of the features that can improve their search results than external participants. They have expressed their opinions more strongly. For example, 93% of the internal participants indicated that graphs and charts should be included compared to 67% of external participants. There is only one category - "Advertisement and notices" where there are more requests from the external participants (40%) than internal participants (26%).

The "Others" category includes 'chronology' and 'other publications' to be included in NSTP Online. These are the suggestions from two internal participants. The reason for requesting chronology type of information is relevant to the working nature of journalists as accurate background information and historical data form part of their research. Nicholas and Martin (1997, p45) agree that: "... most of the

information they require is of a descriptive and historical kind - their heavy use of cutting files and oral sources is a testament to that." These users are keen to keep up-to-date and have access to information from other publications. The publications suggested by the participants include *The Sun, Utusan Malaysia, Asia Wall Street Journal* and other magazines.

5.7 Exclusion and inclusion policies

Employing policies describing the exclusion or inclusion of particular features is a common practice of database producers and information providers. These policies are often detailed in the subscription contract. In NSTP Online's 'Product Description/Content' (Appendix 1) however, information about the exclusion of certain features is not available to subscribers. Similarly, in section '3b' of "Terms and Conditions" (in the NSTP Online's subscription contract), NSTP Online subscribers are informed that the publisher has the right to make "Any material changes to any terms or conditions". As an end-user of various online databases, Weiner (1994) finds:

> "Each publisher (called a database originator) makes its own choices about which parts of the publication are to be provided to the database. Furthermore, the publisher may change its policy from year to year or make exceptions at any time."

Besides, a full-text news database such as NSTP Online, may not include all the features available on the print equivalent as pointed out by Tenopir and Ro (1990, p10):

> "Most newspaper databases do not include everything found in the printed equivalent. Typical exclusions include such thing as advertisements, classified listings, weather forecasts, sports scores, syndicated columns and stories taken from wire services."

In view of these practices, participants were asked if they were aware of the exclusion and inclusion policies as a means of probing their understanding about the completeness of the information accessed from NSTP Online. The question was phrased as:

"Are you aware of the exclusion and inclusion policies?"

The Indexing Unit of NSTP Online has a set of working procedure when indexing the publications. The elements that are excluded from the database articles are any types of graphical illustration including pictures, advertisements, graphs and charts. The exclusion of graphics is largely due to the limitation of the indexing software which has not been updated since 1991. In comparing the characteristics of full-text database to the print version, Grzeszkiewicz and Hawbaker (1996) find that full-text databases show evidence of missing articles, missing issues, incorrect citations, and questionable editorial decisions, as well as typographical errors.

Textual information that is excluded from NSTP Online are notices, advertisements, advertorials, television guides, stock exchange listings and announcements that do not need to be archived such as "What is going on in KL" column. News stories which are similar and appear in different versions of the same newspaper are excluded as well.

Besides that, stories which have not been edited using Atex, especially those that have been done on MacIntosh and Pagemaker operating systems, are left out. Madam Cecilia Tan emphasised that if this type of story carries significance, they would be scanned at a later stage. These policies apply to the different types of publication processed by the Indexing Unit. Weiner (1995) observes with regard to exclusion policies, that: "With only a few exceptions, articles are provided online without photos, art, pull quotes, sidebars, captions, charts, graphs, tables and other similar material." However, inclusion and exclusion policies are not available for Special Databases according to Ms Wan Aziah, as "all the information available to the users is obtained from the public domain".

The feedback received from the participants shows that there is an equal number of participants who are aware (50%) and not aware (50%) of the exclusion and inclusion policies imposed by NSTP Online. However, 60% of the external users are aware of the policies compared to 40% of the internal users.

As subscribers to NSTP Online, it is essential for the external users to examine the value the service could offer before committing themselves. Thus, the contents of the database will be one of the major concerns in making such a decision. Besides, as intermediary searchers, the external users have a higher level of exposure to, and experience in, accessing other online databases. They are aware and informed about the issues involved in subscribing to a database service. Internal users, on the other hand, have access to NSTP Online as part of their work package. Madam Cecilia Tan believes that internal users are informed of the policies: "When we introduced the system to the internal users, they were informed of the policies."

The external users who are aware of the policies are informed by the Marketing Representative during the sales demonstration or during training sessions. According to one participant, they were told that "charts, graphs, statistics, stock market share prices and pictures are not included". One participant is disappointed that advertisements are not available because this feature is helpful in their daily work. These features are unlikely to be added until NSTP Online applies a Window-based interface.

On the other hand, the policies have not been made clear to some users. Four participants indicate that they assume there are such policies. One participant assumed that changes which were not updated in the Company Profile were due to the exclusion policies. Two internal participants assumed that missing stories from Newsbase is also due to exclusion policies. One participant indicated that if they were not aware if the information is included in the databases, they would not know if any news stories were missing.

Not all external users have been informed of such details or initiated enquiries about the details. One participant commented that they are aware pictures are excluded but they are not sure about the other sections. Another participant was only informed about advertisements and appointments being unavailable. However, the feedback indicates that they are not affected by this limitation as long as the text version of the information is available.

Even though these participants could have been informed about the policies, not all of them remember the details. One participant reports that:

> "I am aware that it happens but could not pinpoint which items."

This uncertain view is shared with those participants who are not aware or fully aware of the inclusion and exclusion policies. Three of them commented:

> "I assume that everything of importance that has been published in the newspaper will be included but the nitty gritty may not be in."

> "I have noticed articles omitted from the system, I assumed that NSTP Online considered it as not important, so I just read what is available."

> "I thought they [NSTP Online] have missed out the stories."

Another participant has found articles omitted from the databases and reports that: "NSTP Online should include whatever reports that have been reported." As for two internal participants who have heard of the policies for the first time, one participant questions if that is the reason some of the news stories they have written are missing. The other participant presumes that there are some "secret stories" that NSTP Online is not prepared to include.

To the 60% of internal participants who are not aware of the exclusion policies, cultivating an awareness of the policies will help them to improve their searching

strategies. One participant commented they have never been told how the data was compiled but "would like to know the policies and not to waste time searching".

According to another internal participant who was not aware of the policies commented "To be fair, NSTP Online keeps us abreast of latest development whenever logging into the system but we tend to ignore this information." This indicates that NSTP Online flags some news regarding the service from time to time, however, it is up to the users to monitor the development.

5.8 User satisfaction

Satisfaction is a subjective concept (Hernon & Schwartz, 1996) and its evaluation could not be achieved without an extensive examination into the users' needs. Plutchak (1989) discusses that user satisfaction is related to their "eptitude". "Eptitude is the degree of skill or efficiency with which one actually manipulates the system." (Plutchak, 1989, p46) Plutchak's study indicates that the correlation between satisfaction and eptitude falls into four groups; dissatisfied and inept; dissatisfied and ept; satisfied and ept, and satisfied and inept (section 3.6). However, it is impossible to pinpoint users into these exact groups as Nicholas (1996, p227) observes that: "It is very difficult to discover the truth about end use because, seemingly, everybody with a medium of interest wants to have his or her say, and in so doing, frequently muddles the water with statements based on small scale, limited duration studies." These opinions are reflected from the feedback in the interview, where contradictory comments are voiced about the service.

Amongst the participants who are satisfied, the reasons reported by two participants is because NSTP Online provides similar type of information as does the newspaper. It is apparent that NSTP Online has provided convenient access to newspaper information. Basch (1990b) and Pack (1993) conclude that the popularity of newspaper databases is due to the advantages, namely - cost-effective archival resources, tracking news stories, to ascertain when new phrases entered the language, providing comprehensive coverage of local issues and to identify bylines.

By using keyword searching, the participants find specific information relatively easily. These participants also indicated that Special Databases are a good source of information for research, particularly for business and finance information.

5.8.1 Implications of the Internet

The Internet is now available in Malaysia, and it has gained increasing popularity as an information retrieval tool. However, two participants commented that information from NSTP Online is far more satisfactory and credible compared to data accessed from the Internet:

> "In comparison to the Internet, NSTP Online is better because Internet only provides raw data."

> "For practical use, it [NSTP Online] is better than Internet."

Accessing information using the Internet has becoming popular in Malaysia in the last two years. To users who have used online databases which have catered for their needs, the usefulness of Internet would be reduced. This is also an indication that users are not blinded by the "invasion" of the Internet. Inevitably the Internet is the most used and advancing current telecommunication technology but it is still far from providing research level information to these users. Tenopir (1996, p128) describes some of the information available on the Internet as "beautiful homepages that (are) nothing more than junk." There are also the issues of copyright protection, security and the quality of information to be considered when data is accessed from the Internet (Thomas, 1996). Database producers, on the other hand, are responsible for policing and screening information to ensure that the value of information is maintained in their databases.

5.8.2 Dissatisfaction

Three participants who served as intermediary searchers when accessing NSTP Online, made the following comments about their users:

> "As long as there is no complaint from the users, we assume that they are satisfied."

> "I suppose the users are satisfied with the information, otherwise they would not have come back."

> "Usually the clients are happy with the information, only if they are satisfied that they will come back and search again."

The comments indicate that these intermediary searchers (librarians) have not attempted to assess the information needs of their users (primary users), but have assumed that they are satisfied with the data retrieved from NSTP Online. The comments may not be truly positive because the users within the organisations may not have voiced their satisfaction to the intermediary searchers. These users are fee-paying users who would not be likely to spend their money on information that is not worthwhile or could be obtained more cost effectively elsewhere.

Primary users varied with regard to their level of satisfaction with the information provided by NSTP Online. One participant reported:

> "It depends if they (primary users) could find the news. If they could find them, they would be satisfied, otherwise they would not be."

This intermediary searcher is perceptive about the service, as it does not provide all answers to users but is a tool used to search for information more efficiently. Therefore, the level of satisfaction is influenced by the users' information needs. Another participant agreed that satisfaction of information needs is dependent on the

clients. Generally the clients considered NSTP Online as a reliable source because of the credibility of the publisher - The New Straits Times Press. According to this participant:

> "It is the responsibility of the information specialist to supply reliable information sources. On the other hand it is the clients' decisions whether to trust these sources. If they don't, they should contact the sources where the facts have been massaged."

This participant stressed that they would subscribe to another service if it were available in the market, for example Star Online (non-existing). *The Star* is another major English publication competing with *New Straits Times* in the newspaper market in Malaysia. So far, *The Star* has not produced any commercial online database, probably due to its relatively smaller operation as well as the expenditure required to construct an online database. However, *The Star* was the very first newspaper in Malaysia which made an appearance on the Internet. This effort has proven to be successful, while not affecting the circulation of the newspaper.

One participant discussed the future and sustainability of the NSTP Online service in the Malaysia market:

> "This [NSTP Online] may be the main source of local information. If there are other sources of local information, the usage from the students may drop. NSTP Online still enjoys this privilege in the market place but in years to come, I wouldn't know with the emergence of more full-text services."

It is clearly indicated that NSTP Online is not the best information tool that they are using and they are not fully satisfied with the service. However, due to the limited local information sources in Malaysia, users have to subscribe to this service. It is

foreseeable that if there is other information services which provide Malaysian information such as Bernama Newslink[4] , the usage of the service will be affected.

One participant indicated that the information from NSTP Online is only satisfactory as far as the coverage of The New Straits Times Press publications is concerned and useful as an archival record. This participant commented that for more advanced research, other information tools such as *KLSE Daily* and Bloomberg news services are used. One participant praised Bloomberg for its retrieval efficiency compared to NSTP Online. In Bloomberg, company news "is indexed by names up to twelve years". Whereas, a company name keyword in ENGD "would just produce stories with the terms and there is lots of rubbish".

A similar opinion is expressed by two other participants who wish NSTP Online could include all other major newspapers that are published in Malaysia besides the New Straits Times Press publications. These participants are aware that there are news stories which are not covered by this publisher. One participant remarked that "exclusive features from other sources" are extremely useful in their line of work. Feature stories are different to news stories because news stories are reported by all publications. Feature stories on the other hand are only reported exclusively by one publication about one particular issue in great detail.

Nicholas and Martin's (1997, p47) study of the information needs of journalists reports that quantity is important to these users because "Journalists have large and insatiable information appetites.... The need for so much information comes partly from their wide brief, partly from their need for currency and, maybe, also because they do not know exactly what they want until they see it - and the more they see the better."

Currently The New Straits Times Press library still performs news clipping for major newspapers (non-New Straits Times Press publishers) such as *The Star*, *The Sun* or

[4] Bernama Newslink is a news product of *Bernama* (the wire service of Malaysia). Currently Bernama Newslink only provides current online news but not archival news, and therefore it is not considered suitable for research purposes.

Utusan Malaysia. These clippings include news and feature stories. The internal users could have access to those clippings from the library but they are usually not up-to-date. Therefore, by including these publications on NSTP Online, it is hoped that the users would get current information as well as easy access to those publications.

5.8.3 Coverage

One participant was more perceptive about satisfaction of information needs. The information available from NSTP Online is useful but not necessarily satisfactory:

> "It is not satisfactory because the information is focused on limited period of time. I prefer the information to go back more than ten years, so I don't have to go to The New Straits Times Press for archival information."

This comment was only relevant to the situation of the participant during the first year of their subscription to NSTP Online compared to the current environment. The participant was one of the "guinea pigs" testing NSTP Online at the commencement stage. During that period of time, Newsbase only comprised of data from three major newspapers and for two archival years. The two years data was not sufficient because the users were likely to research information for the past five years. Thus, the satisfaction level has increased over the years as the data increasingly fulfilled the users' requirement.

Another participant commented that information from NSTP Online is "generally ok" but the coverage needs to be improved. This participant has noticed that there are minor stories that have not been covered and there is not enough news from overseas. For the lack of overseas news, the participant has mistaken the role of NSTP Online with that of other types of international news services such as Reuter Business Briefing. The role of NSTP Online is to provide news published by The New Straits Times Press as well as Special Databases of unique Malaysian

information. Overseas news is included only if it has been selected and published in one of the New Straits Times Press publications.

The quality of the information also "boils down to the quality of the reporters and what The New Straits Times Press produces" according to one participant. This participant is concerned about the implications of this comment for fellow colleagues:

> "I can't say the quality of NSTP Online is bad because that will be a reflection on the quality of the reporters. However, my general impression is in some areas the quality is not good, there is a lot of stories which show a lack of research."

This comment is the result of the frustration faced by this participant searching for information on NSTP Online, as there is not enough in-depth information. In fact, Nicholas and Martin (1997, p47) report that the major barrier to journalists is time constraints in meeting deadlines, "... journalists do not require comprehensiveness or exhaustivity because they always have to stop at a seemingly arbitrary point - the newspaper deadline. So information seeking is always an impure and incomplete activity."

A similar comment was expressed by another participant:

> "Sometimes I need to use high school texts for information on outstanding personalities in Malaysia."

This indicates that NSTP Online may be convenient to search for facts and figures but it is not sufficient as an in-depth research tool. Thus, these participants and other users should not rely totally on the service to provide the best information available.

One participant who considered their information needs are only "70% satisfied" by NSTP Online, due to the lack of details in Special Databases. This participant reported that:

> "A lot of sources are still not in NSTP Online, including more personalities, more details for countries and more up to date figures for Company Profile."

Even though RIS has done a great amount of work in producing the Special Databases, they are "still not up to the standards". An example provided by this participant was about the lack of breakdowns for Malaysian State Profile. This Profile is not the only database that needs more input. Ms Wan Aziah confirms that Personality Profile still requires extensive research to improve the quality of the information:

> "We are still working on corporate figures. It is difficult because they are uncooperative. ... the more personalities we have, the more work needs to be done to maintain the files."

5.8.4 The technology of NSTP Online

The feedback of one participant indicates that the level of satisfaction with NSTP Online is affected by the process of accessing the service. This participant is satisfied with the information, in terms of currency and coverage, but is frustrated by technical problems.

> "Sometimes when I tried to access NSTP Online, the service 'hanged'. When I rang NSTP Online, I was informed that the system was down but my client couldn't understand how that could happen and still wanted the information urgently."

Another participant reported a similar issue with the technology. The participant and the clients are not satisfied with the information because NSTP Online cannot be run on Windows, which is the preferred interface:

> "The users have to go through five to six screens before they can obtain the information. They have complained that it is slow and quite often we have to guide them on how to use the system."

Similar feelings were expressed by another participant who was frustrated when viewing documents from the Special Databases:

> "For Personality Profile, I have to go through pages and pages before I can find the information. I would just like to see the highlighted paragraph."

Each of the documents or files included in Personality, Company, Country and Malaysian States Profiles is of considerable length. For example, in Personality Profile, a keyword search on a name of a politician would produce one or more relevant documents. In order to read the section about the publications that have been written about the personality, the users need to flip through several pages to get to the specific section. The system does not automatically display the required section. Thus, it is a time consuming task to browse in order to obtain the precise information. NSTP Online has outgrown the technology it has been utilising. The new generations of users are more comfortable with Windows applications than command driven applications.

Several participants indicated that a Windows interface with visual display is the preferred technology. Since the participants have used Windows interface, they have become dissatisfied about the text-cum-menu based technology of NSTP Online. Two participants commented that the current information display is relatively easy to read but "wish it runs on Windows". Five participants strongly urge NSTP Online to upgrade to Windows interface. They feel lost with text and command lines rather

than icons and mouse. This type of user has to relearn text-based interfaces to access information when using NSTP Online.

In regard to the lack of graphics and photographs, one participant understood that NSTP Online is a text-based database but still "wish that it can include graphics and photographs". Another participant stressed that "it needs graphics". One of the major limitations of NSTP Online is the exclusion of graphics and photographs due to the limitation of the indexing software BRS/Search at the time of purchase. In comparison to other databases which provide the full range of graphics using a Windows interface, NSTP Online is in a disadvantageous situation to attract potential users.

5.8.5 Hardware and telecommunication

Reading information online with NSTP Online can be a slow process as mentioned by one participant. The "slowness" could be due to a few reasons including telecommunication relay effect, the speed of the modem, the capacity of the computer and most essentially the telecommunication infrastructure (from NSTP Online) to accommodate this technology.

The speed of the modem is an issue that has been a concern to the users. The technology utilised by NSTP Online dates from the early 1990s and suffers in comparison to the current information technology. Modem speed is limited to a maximum of 9600 baud per second (bps). This is very slow compared to the average speed of the modems used in accessing the Internet in Australia, which is 28,000 bps or more.

There are many users who are limited to the speed of 2400 bps, especially those situated out of Kuala Lumpur. The test on NSTP Online which was carried out at Curtin University of Technology, Perth could only be run on 2400 bps, despite the modem having the capacity to run at 28,000 bps. This is due to the packet switch capacity available from Telekom Malaysia, the telephone service in Malaysia. On

the contrary, Auspac, the Australian public access packet switched data service can provide speeds of up to 128 kbps.

Data transfer and transactions on NSTP Online also suffer problems associated with the "information highway". The telecommunication can get congested and slow down the transaction time. Moreover, the service is also affected by the number of nodes the transactions need to get through to the users. All these transactions are hidden to the users but they are the ones who suffer the end results. It is out of NSTP Online's control to improve the transaction time in delivering information as this issue involves major telecommunication structural changes from Telekom Malaysia.

5.9 Conclusion

The reasons for accessing NSTP Online for external and internal participants are varied. External participants subscribe to the service as a means of replacing the clipping system and to reduce storage space. This service is useful in obtaining information to assist the decision making process of the staff in their organisations. The internal participants access NSTP Online as a research tool and to verify facts and figures for their work. Business and finance related information (Newsbase and Special Databases) including specific company and personality data is highly sought after by the participants. The most popular database is ENGD as the majority of business news is reported in English. Although the contents of BHDB are limited by the language, it is useful for researching local and rural information of Malaysia. Users are aware of the limitations of NSTP Online, as only publications published by The New Straits Times Press are available. Consequently, the completeness of information is influenced by the coverage of those publications.

The current technology of NSTP Online is being considered out-of-date. Users are frustrated of the technical problems and the lack of Windows interface. Due to the lack of Windows application and the limitation of the indexing software, graphs, pictures advertisements and notices are not available online. The users have

indicated these features are required. A plan has been put in place by the management of NSTP Online to upgrade the technology.

CHAPTER 6
DATA QUALITY

The feedback reported in Chapter 5 indicates that NSTP Online is popularly used for research despite the limitations. This chapter is comprised of three main sections designed to present information regarding user's perceptions about issues relating to the quality of data provided by the service. The first part examines the physical aspects of information including screen displays, table of contents, command keys, the layout of data, hardware and telecommunications issues. The second part discusses the currency of information from the participants' perspectives. The last section of this chapter investigates the errors occurring in NSTP Online, the responsibility for correcting the errors and the channel of communication in reporting these issues.

6.1 Screen Displays

Screen displays are an essential part of database design if data is to be presented in a meaningful way. Unmeaningful or unfavourable screen design is likely to fail to attract users to the product. Thus, it is necessary to find out from the participants about how they react to these screen displays. In the questionnaire, the question was phrased as:

> "Are these screen displays easy to read?"

The participants were required to indicate which of the screen displays were easy to read from the five categories listed (Figure 6.1). There were no additional responses, and one external and three internal participants provided no response at all. From the observation of the writer, these participants could be reluctant to voice an opinion because they have not understood the question and the role of screen displays in database design.

The five categories of screen displays listed in the questionnaire are the standard or most used screens to the users. The results indicate that external participants are more positive in all the categories except "flipping pages". This could be due to the training they have received in order to perform their task as intermediary searchers, as well as their exposure to a variety of online databases. External participants also have the opportunity to be briefed by the Customer Support Unit (CS) on all the basic functions at the point of subscription. The internal participants, on the other hand, lack the opportunities to undergo this process.

Screen displays	**External participants**	**Internal participants**	**Total (%)**
Contents page (TOC)	13	11	24 (80%)
Browsing documents	12	11	23 (77%)
Changing databases	11	7	18 (60%)
Changing screens	9	6	15 (50%)
Flipping pages	7	7	14 (47%)

Figure 6.1 Are the following screen displays easy to read?

The overall results indicate that the participants have found the screen displays are easy to read, especially the "contents page" (80%). Interestingly the sequence of the result also reflects the search pattern of the users. In the usual process of retrieving data, one would type a keyword or a term to search for information. In NSTP Online, the list of hits is displayed on the table of contents (TOC) page. TOC is used to browse the titles in order to select the appropriate documents, and is the most frequently used screen.

After browsing the TOC to select suitable documents, the users browse the selected documents. The "browsing documents" screen has been ranked second (77%) on the list. When a document has more than approximately 250 words, the contents are displayed on the next page. Thus, it is necessary to flip to the next page and the following pages to read the continuation of a document. The response recorded for "flipping pages" (47%) is not high compared to "browsing documents" probably due

to the cumbersome nature of the function. Often, the users would read the first two paragraphs of a document and be able to select the information they require.

The feedback from the interviews is similar to the feedback obtained from the questionnaire. The question was phrased as "Do you think the information displayed on the different screens is easy to read?" Among the participants who are familiar with NSTP Online as well as other text based online information, the feedback tends to be positive:

> "It is quite easy to read, not complicated."
>
> "It's quite clear."
>
> "No problem with that."

Six participants observe that the information presented by NSTP Online is easy to read, as the commands are on the "top part [header]" of all the screens. One of the typical comments about the ease of reading the information was:

> "It is easy to read and the commands are easy to follow."

The contrast of colours on the commands and the actual information made it easy to identify the two different sections as reported. As one participant reported it "depends on the colour of the text, for example green is easier to read." Standard commands such as "Next page" and "Previous page" are used throughout all the screen displays.

Presentation of NSTP Online has its effect on the users' satisfaction levels. One user expressed the process of accessing information as "not user friendly":

> "It has reams and reams of information. It's hard to decide where is the title page and the presentation of information is just not attractive."

The participant has become frustrated in having to "waive sheets and sheets of pages, can't tell one story to another". The reasons for this could be two-fold. Due to familiarity with Windows and colour, this participant considered "the presentation and the layout is poor". A system which could highlight text and pictures is preferred. Tenopir's (1996) observations about the changing generations of online users highlights the use of the Web technology with colour, sound, movement and text, in comparison to the plain text offered by NSTP Online.

6.2 Table of Contents (TOC)

Feedback from the external participants indicated that there are too many steps to get to the required screen. For example, the search screen does not automatically display TOC. The users have to activate the TOC key before the results are shown. TOC displays the title, date, author and publication details. The details of these fields may not be complete. It is dependent on the space allocated to one particular field. Two participants complained that:

> "The TOC doesn't display the full title."

> "The headline is a bit difficult to read."

Even though the TOC facilitates browsing, the limitations of space for displaying the full title defeat the intention of selecting documents in a glance. A half title may not reveal the keyword or keywords required by the users. Consequently, the users still need to check the full document to determine if it is one they require.

One participant pointed out that "it's a shame that the TOC is not long enough" as the TOC has a limitation of fifty documents. For searches which have more than fifty documents, the users need to go the last document of the list and select that particular document. Then, pressing "Next document" will lead to the fifty-first document. It is "a waste of time to go into the document" as this participant put it

lightly. Not only are the users unable to view the rest of documents in a glance after the fiftieth, they have to open each later document separately to select or read them. Users find this time consuming procedure unsatisfactory compared to other online services, such as Reuter Business Briefing, where the titles could be browsed regardless of the number of hits resulting from a search.

From the test carried out, the date sequence of TOC is without logic. The order of documents presented as '1996 1996 1994 1995 1996'. Users have assumed and have been informed that the documents are arranged in reverse chronological order. This result contradicts the advertised order. The sequence of the results presents a wrong impression of the availability of current documents.

6.3 Changing databases

The process of changing databases is necessary when searching for facts and figures not available in the database first selected. "Changing database" is not a convenient process because the strategy applied in the initial search will be lost. The users need to re-type the search strategy from scratch.

In comparison, Dialog of Knight-Ridder provides the 'save search strategy' function by storing the entire search strategy to a file. Once this file is created, the same search strategy can be executed in another database by the command - "exs filename". The similar command can be executed in other databases until the search strategy has been 'released'. Dialog also has the ability to search two databases at one time by typing on the command line 'b 1,61' for example. This command will commence file number one which is ERIC and file number sixty-one which is Library and Information Science Abstracts. It is an efficient search method if the information is known to be stored in two different databases.

60% of participants indicated that the "Changing database" screen was easy to read. These participants are aware that information such as business and finance

information could be residing in more than two databases such as ENGD or Company Profile; and a thorough search will require the use of more than one.

One participant who utilised the function, however, reported that:

> "The information is difficult to read, especially to switch databases. I need to quit and reload the new database because sometimes I may need to compare files [documents]. As a result, I need to download and print the articles from different databases to compare stories. It's wasting my time."

The comment illustrates that the ease of reading information is influenced by the procedure of accessing the information. NSTP Online lacks the split screen facility available in a Windows interface environment. The split screen enables users to read two or more documents at one time on one screen display. If this facility is available, the participant can view several documents and verify the contents before downloading the particular documents required.

6.4 Commands

In user interface design and screen design, command keys are an important lead to accessing information. Thompson (1996, p387) describes the importance of user interfaces as:

> "In an effective search work space, every element of the interface will be intuitive - not only the icons but also the placement of those icons, screen colors, menu bars, feedback messages, help boxes, ... and the overall layout of all those elements."

The commands displayed in NSTP Online are the key to accessing the screens that display the required information. The feedback from the participants indicates the user interface and command keys (in particular) of NSTP Online are far from being considered intuitive and simple. One participant reported that:

> "Sometimes, these clients may not follow the commands listed. They prefer to press the return key".

NSTP Online has embedded commands. For example to go to "Next page", the users will press "N" or highlight "Next page" then press "Enter". These commands are different from the IBM compatible commands. Therefore, depending on where the cursor is on the screen, pressing the return key may not bring them the screen they require.

To users who have not used NSTP Online or rarely use it would require new learning. One participant reported that information displayed on the screens is easy to read "because I use it everyday but not when I have stopped using it for a while". This comment indicates the commands are not intuitive but rather a mechanical procedure that the users need to be familiarised with. This opinion is supported by another participant:

> "Some of them [commands] are self-explanatory but others make no sense at all. It is not an intuitive system. For example 'Paragraphs', I looked through the manual but it's not mentioned anywhere. I tried the command but it didn't seem to make any sense."

Obviously this internal participant had spent time experimenting with the system aided by a manual. The feedback indicates that some of the existing commands have been created without careful consideration of their usage. Some of the commands are inaccessible, and only available to NSTP Online staff who are responsible for the day-to-day maintenance.

Another participant was not satisfied with regard to the multiple steps required for the downloading of documents:

> "There are too many steps for downloading, it's difficult for new users. The commands for downloading are not intuitive, for example 'redirect', 'create' or 'append' don't make sense."

This comment indicates that the procedure of downloading documents for internal users is complicated as well as time consuming. The downloading commands mentioned were definitely not self-explanatory. Upon the completion of the downloading process, the screen would not return to the search screen but remains on the last screen which has been activated (see section 8.6).

The above comment is further illustrated by one participant:

> "Why can't they make the screen simple? For example printing, there are too many steps. Why can't it print as what you see [what is on the screen]?"

There are six participants who have provided a similar response, reflecting the frustration they face in accessing information from NSTP Online. The external users employ another procedure which is easier than that which has been described. The downloading procedure for external users has been programmed to run through the process automatically. It is unclear why this programme is not available to internal users.

For one participant, who admitted a lack of computer skills, the information displayed on the different screens is "very difficult to read":

> "There's no short cut in getting what I want. I just want to press one button for all I need. There are even more screens now, they are a waste of time."

This comment is supported by another participant:

> "For anyone who understand computer language, it's normal [the commands] but not for anyone who are not computer literate."

To someone who is not proficient in the use of online technology, the "unintuitiveness" of the commands is a deterrent to learning how to retrieve information more efficiently. If accessing information from NSTP Online is a measure used to reduce the time consuming process of clipping, it is necessary to improve the ease and speed of information retrieval.

The frustration of learning the commands is highlighted by another participant:

> "I am quite used to all the commands now, but not when I first started. I found it quite difficult, I didn't find it user friendly at all. One staff member has been taught three times but still can't do it."

This participant further reported the difficulties of learning the commands when instructing the clients who require the information:

> "Unlike SilverPlatter, I usually only need to teach my clients once and they can handle it. In the case of NSTP Online, it's difficult for beginners."

These comments strongly reflect that the participants are facing a sharp learning curve, let alone the clients who do not have any prior training in database searching. It also indicates that clients are reluctant to use the service if they have other alternatives besides NSTP Online. Unintuitive commands have been an issue in the literature for some time (Basch, 1989). In the instance of most computer software, users are expected to become familiar with the commands and bear with the complexity if they require access to the information presented.

The emphasis on ease of use as an important means of marketing the product has been commented by the personnel of two newsbank services. Mr Allen Paschal, President of Datatimes, comments on the ease of use in terms of information, "... content is a dime a dozen, anyone will give it to you ... The industry has been in the electronic dumping business and not information delivery business. We have

incorporated data elements to give end users the data they want in the manner they want it." (Paul, 1994b). Similarly, Mr Rod Everhart, President of Mead Data Central (now Lexis/Nexis), remarks on the working strategy of the organisation, "We need to focus on ease of use ..." (Paul, 1994b).

Thus, the implementation of a Windows interface and more intuitive commands such as the design used by SilverPlatter would be a way in which to ease the learning experience of NSTP Online, and improve the systems productivity.

6.5 Layout

The layout of command lines and the actual contents is part of the database structure and design. Individuals may have a preference for a particular style of layout.

One participant who approved of the information display on NSTP Online commented that:

> "It's ok for online information service. There's a lot of fields that explain the contents such as date and the length."

To participants who are familiar with accessing information online, the presentation of information on NSTP Online is considered acceptable. The fourteen indexing fields have helped to present the concise details required by the users (see section 8.4.1).

However, the layout of each page of NSTP Online is not ideal according to one participant:

> "The news articles are too short per page, I have to press "next next" [Next page] to read the whole news."

Each page usually accommodates about 250 words including the command lines on the top and at the bottom of the screen; and the basic bibliographic description of the articles including titles, names of the author, dates, page numbers and the names of the publication. However, if there are graphics and photographs accompanying the articles; the description of those items is likely to consume more than one page. The actual contents of the news articles would only be displayed following those details.

It is unlikely that the users could skip to the next few pages without knowing the commencement of the articles. If the articles are long, for example 3000 words, the users probably need to flip ten pages or press "Next page" ten times to read the whole article. Articles on Special Databases, especially Company Profile, can be lengthier than news articles. It would be at the user's discretion to read the documents online or print them out in order to read a hardcopy. In other systems, for instance Reuter Business Briefing, which utilises a text-cum-Windows interface, the pages can be 'dragged-and-scrolled down' without flipping the pages.

However, one participant who has gone through training in librarianship commented that:

> "I am used to looking at things as snapshots. I don't really read them. I can mask away the noise of the header and footer. There is a time constraint due to money. We have built the habit of left to right scanning."

The ability to browse, scan and skim information efficiently is part of the skills a librarian acquires. Thus, the presentation of information does not make any difference to this participant. Generally, however, the 'cleaner' the presentation of the information, the easier it is to scan quickly and accurately.

6.6 Free-text and full-text searching

One solution to the need for clipping is the development of automatically indexed online databases, which contain the full-text of newspapers. Arundale (1990) describes 'free-text searching' and 'full-text' databases in the following terms:

> "Such databases can allow one to search for any word in the text of any article - a process known as 'free-text searching' - which means that one is no longer restricted to using only those indexing words chosen at the time that the articles were classified. In other words, a full-text database allows one to define the articles one wants at the time of making the inquiry, rather than being obliged to accept the possibly inappropriate definitions chosen by a classifier many months or years earlier."

In a database structure, all the fields for information input are specified and tagged as reported by Tenopir and Ro (1990, p52) - "All articles in a full text database are structured according to the rules and specifications agreed by the database producer."

One of the advantages of full-text databases is that users can eliminate the need to locate the hardcopy (Warren, 1997, p12):

> "The great advantage of full text over indexes is the 'one stop shopping'. Having found an article, printing can be done on the spot, without the need to use microfilm or paper copies."

NSTP Online is a free-text and full-text news database which does not provide any indexed keyword searching. With the rapidly growing number of news articles, free-text searching is not ideal. The precision level is reduced due to the unavoidable noise level. Especially in NSTP Online, all news and feature articles, regardless of the length, are included. One participant commented that:

"NSTP Online should remove all unnecessary news such as accidents. It is because keyword search results create irrelevant information. There have been complaints from my clients as they prefer more serious subject oriented information."

One of the examples illustrated by one of the participants was a search conducted on 'fire' and 'Kuala Lumpur'. Research was being conducted on the occurrence of fire accidents that had happened in Kuala Lumpur. However, any part of the news stories which contained these two keywords appeared and a large number of them were not relevant to the concept required by the participant. This participant needed to filter through the retrieved articles in order to select the relevant documents. It was a time consuming task. News stories which were relevant could have been missed due to the noise level. In this instance, free-text searching is not an ideal search strategy. The problem of free-text retrieval is growing as a result of the increasing volume of information. NSTP Online management has, however, decided to emphasise volume of data rather than put resources into indexing.

Cotton (1987) and Tenopir (1985), however, are amongst those who point to the limitation of indexing. Cotton's (1987, p92) study indicates that full-text database has increased the retrieval result of online searching: "Full-text searching produced 3.5 times more relevant documents than abstract searching." This observation is agreed with by Tenopir (1985, p149) - "In all instance, full-text contributed a higher percentage of unique articles than the abstracting method."

Even though free-text searching has revolutionised news research for NSTP Online users, it is not a complete solution to effective retrieval. Grzeszkiewicz and Hawbaker (1996, p62) in their study of full-text databases in comparison to print subscriptions, concluded that: "Recognising the limitations and possibilities for error in full-text databases is a must. It is also a necessity to make users aware of these constraints."

6.7 The currency of information

The development of newspaper from print to online database has undergone a tremendous facelift since the beginning of 1990s. The big players of print media such as News International started to develop their own in-house news databases. Nicholas and Connolly (1993b, p104) state that - "The more newspapers you own the greater the attraction of doing this." With the bulk of the production at The New Straits Times Press, the group has foreseen the future trend of newspaper archival systems and become one of the two leading online hosts in South East Asia (Hepworth, 1995a).

Providing up to date information to the readers is one of the main functions of The New Straits Times Press. Similarly, NSTP Online is expected to provide current information in electronic format to the users, internal users in particular. Journalists need to carry out a substantial amount of research in their work requiring current information. Time, however, is the major constraint as observed by Arundale (1990, p195): "They also have to undertake a great deal of background research, to ensure that their facts are accurate and that they set current stories in a properly considered historical context."

Currently, NSTP Online has a twenty-four hour delay. The news provided by the current day's news articles is available on the next day. The service still satisfies the need for current information as indicated by 40% of the external participants. It is considered to be better than "waiting for the microform copies of the newspaper which may have a three-month delay." Even though NSTP Online is an archival news provider, the currency of information is extremely important as there are no other information tools available which also provide the current day's published news online. Bernama, the Malaysian online news agency provides only the current day's news but it is not an archival service.

The need for current information is one of the main reasons external users subscribe to NSTP Online. 40% of external participants utilise the service for research. In the

commercial world, NSTP Online is used to support information needs of the various sectors. Two participants from the banking industry reported that NSTP Online is used frequently by staff from the credit department who needs information about various industries. The reason being "the credit officers need to do research of an industry structure before offering credit." According to one participant from a tertiary institution, "the students use the information in assignments, essays and seminars."

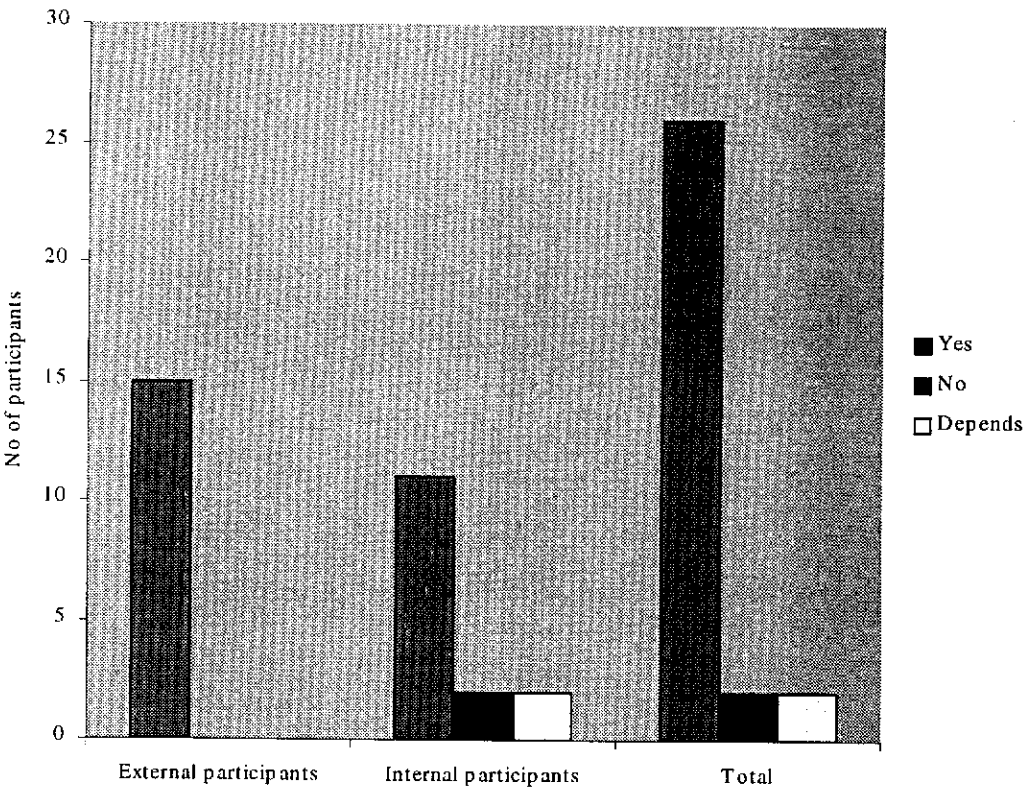

Figure 6.2 Do you find the information meets your requirement in terms of currency?

The result from the questionnaire shows that 87% of the participants were satisfied with the currency of the information regardless of the one-day delay. Among the 87% of participants, fifteen of them are external users, which is 100% of the external participants. The response from the internal participants is relatively positive (73%). These participants might have inconveniences in using the service, nevertheless NSTP Online is considered a satisfactory means of accessing current information.

There are only 7% of the participants who did not consider the information provided by the service to be current and another 7% of participants had some reservation about the currency of the service. These 14% are all internal participants. This group of users requires the most current and immediate information. As Turnbull (1995, pxvi) describes:

> "... by the nature of their profession, most newspapermen are concerned with what is happening today and tomorrow : yesterday's memories are dead history, to be spiked along with discarded stories."

However, the feedback from the interviews has shown mixed results about the users' perception of the currency of information. The result from the questionnaire proves to be only scratching the surface of their perceptions. As the participants' views were probed in the interviews, a number of them were supportive of their feedback in the questionnaire, yet some of them have reservations regarding this aspect of the service.

6.7.1 Inconsistent starting date

The Newsbase of NSTP Online dates back to 1991 and for any information prior to 1991, the users need to locate it at The New Straits Times Press library. It is unlikely that NSTP Online including the magazine database will contain information prior to 1991. The scanning and optical character recognition process has not been proceeded with due to time and budgetary constraints.

One participant finds the information up-to-date but "needs news before 1991" and another participant suggests that:

> "NSTP Online should go back to ten years in order to trace a company or a person's history for insightful information."

The difference of the information dates available in the various databases in NSTP Online is an issue to the users. Two participants noted that:

> "The magazine articles only go back to 1993. We have been informed that more archival magazine articles before 1993 will be included but so far, we haven't seen any improvement."

> "I found that different publications have different starting dates. For example magazines, newspaper of SPH. All the publications should go back to the same period of starting time."

These comments indicate that users have been having problems in locating the earlier documents and expect to find a uniform representation in the dates of the information. However, there are other users who may not have paid close attention to the dates of the information to which they subscribe. These users have assumed that any product of The New Straits Times Press carries a similar product quality. Three participants' reaction towards the currency of information of NSTP Online was:

> "It [NSTP Online] should be up-to-date because it's a product of The New Straits Times Press."

> "I am aware that it's [NSTP Online] a news database, not a research database. I don't expect the same quality as provided by international information provider, such as Dun and Bradsheet."

> "The information from the newspaper is up to date but I can't comment on the information on NSTP Online as the newspaper is the source of the data."

This latter comment is shared by another participant, showing an awareness that any criticism about the quality of the information on NSTP Online would directly reflect the quality of the printed publications. The reactions from the internal participants

were more critical of the currency of information. Nicholas' (1996a) studies of the information needs of journalists find that dates of publication are frequently used as an indication of the currency of information. As he (p28) states, "Currency is simply one aspect of the date requirement but the need to have the very latest information puts it in the spotlight. No matter how far back in time users are willing to go they are likely to want current information as well."

As a by-product, NSTP Online only contains the information which has been published in the various New Straits Times Press publications. Therefore, the non-existence of the required information affects the perception of currency according to one participant:

> "Up-to-dateness is not a problem but the problem lies with the stories I want are not there, because they are not reported by The New Straits Times Press or wire stories."

In view of this comment, a potential long-term plan for NSTP Online would be:

- to persuade other publishing companies to join the highway in electronic information
- to provide Malaysian information by one independent news provider company, similar to the objective of Reuter Business Briefing in covering regional financial news

This is an opportunity for NSTP Online to persuade other publishing companies to join the service as international information providers have been slow in catering for the demand for Asian information sources, South East Asia in particular. Hepworth's study (1995a, p53) reports that "... electronic information sources for the Asian region have been in short supply. Major hosts have had piecemeal collections that have evolved more by accident than planning."

6.7.2 The issue of an archival database service

NSTP Online has been promoted as an archival database service. Being an archival database service, the cost is much lower compared to a real time news service. One of the two participants uses other types of real-time databases and indicated that the currency of information meets the clients' expectation. Their perceptions about this issue are as below:

> "It's very up to date, yesterday's paper is available today."

> "It is satisfactory as I need current and archival information, they are quite up to date."

News articles available from the New Straits Times Press publications are, however, twenty-four hours late when being presented to the users of NSTP Online and this was commented on by two participants:

> "The users have to understand the differences of online real time and online archival services, we have to be fair to these information providers."

> "They are up-to-date and the twenty-four hours delay is okay by me."

However, there are users who are aware of the archival news service yet not wholly satisfied with the up-to-dateness of the news database. One participant reported that:

> "Newsbase is alright, but if there is a twelve-hour delay instead of twenty-four hours, it will be perfect for me. I could inform the management staff who need information within the day."

Similar comments are voiced by three other participants:

> "Newspaper articles are not up-to-date because we need the news of the day."

"It's not up-to-date because I can't get today's stories."

"I still can't get stories [news articles] of the same day. I still have to refer to the paper."

For users who compile and collate information from NSTP Online daily as a means of retrieving information, as well those users who have eliminated clippings in favour of NSTP Online, one-day old news is not an ideal arrangement. To users who prefer carrying out research using NSTP Online, it is likely that these users would miss out on the most current developments. A participant suggested that a twelve-hour delay would enable the users to redistribute information within the day on which the news articles were published.

Moreover, two participants noticed that some of the news articles have been delayed at least a week and some articles were missing:

"It is certainly a delay because I can't get today's news. Sometimes the news are delayed up to one week. Sometimes they miss out filler stories or may be I am not using the right keywords."

"Most but not all the news articles are available after one day."

Short articles which are used to fill up the leftover space after the main stories are sub-edited are referred to as 'filler stories'. These articles are short, usually about one to three paragraphs but they could be a lead to future stories, or it could become a lead story if one of the journalists follows it up. This participant suspected that the filler stories have been omitted during the indexing process. It would be more likely that the participant had a different perception about the articles. It is not the policy of the Indexing Unit to omit any of 'the filler stories', regardless of the length.

There is growing need among the users to access the information as soon as it has been published in electronic format. However, with the current indexing procedure of NSTP Online, the Indexing Unit needs to undergo drastic restructuring to accommodate this suggestion. Besides this fundamental issue, there is a hidden agenda as part of the marketing strategy of The New Straits Times Press. As Madam Cecilia Tan commented:

> "There is usually a twenty-four hour delay for news stories. The magazine is target a bit after the printed magazines hit the market. We don't want to affect the circulation figures."

It is possible that the news articles may not be indexed for up to a week, irrespective of the promise of the twenty-fours delay. The main edition (the edition which is distributed in Selangor and Kuala Lumpur areas) is printed in Kuala Lumpur. However, other editions are printed at the satellite offices although the sub-editing is carried out at the head office in Kuala Lumpur.

After the publications are printed at the satellite offices, the Dispatch Department sends one or two copies to the library at the head office as a mechanism to file photos appearing on those pages. Thus, by the time these other editions are transported to Kuala Lumpur and forwarded to the Indexing Unit, the process would have taken at least several days. Sometimes, these editions may not be dispatched to Kuala Lumpur due to staff negligence. The process of indexing these news articles will therefore take even longer. The difficulty of searching articles which only appeared in one of the editions of a daily newspaper is discussed by Weiner (1994).

Consequently, one participant pointed out the frustration of trying to locate the latest documents:

> "The information is not really up-to-date. Our users often require an article of certain date but cannot locate the article. Often, the latest documents can't be located too."

To the external users who are not primary users, the concern about the currency of information is based on feedback from their clients. As one participant commented:

> "No one [client] has complained about the data. As long as they don't make any complaints, I take it as satisfactory."

The writer has been concerned about the attitude of the external participants towards their clients. The feedback shows that the participants have not been proactively seeking the opinions of their clients in order to determine their satisfaction with NSTP Online. It has been left to the clients' initiative to inform the participant about any issues about NSTP Online.

6.7.3 Special Databases

The currency of Newsbase and Special Databases is different. Newsbase usually has a twenty-four hours delay but the documents in Special Databases may not have any changes, or changes may not be recorded in the databases over a period of time. There are four major types of databases in the Special Databases category (see section 5.2.2). Company Profile is the most volatile among the four, but Personality, Country and Malaysian States Profiles also require occasional, if irregular, changes.

Users who rely on the Special Databases have been disappointed with their currency, as five participants (both external and internal) reported:

> "Special Databases are not updated regularly, they need more updated documents."

> "There is not enough information in Personality Profile and they are not up-to-date."

> "They should provide up to date details for Special Databases."

"They should improve the quality in the sense of up-to-dateness and details."

"The data in Country Profile is not up-to-date. They [RIS] can ask news desk to supply the information."

Among the suggestions for Special Databases, four participants have made suggestions to improve the quality of Personality and Company Profiles in particular:

"NSTP Online should have an index for Personality and Company Profiles."

"There is a need to increase more categories in Personality Profile such as artists and politicians."

"It is okay for news except for Personality [Profile]."

"The quality of Personality Profile depends on the personalities that I search for."

These opinions indicate that users have noticed that the facts and figures in the Special Databases are not current. The description in section 5.2.2 indicates that only the Company Profile is being updated regularly and the other three databases have suffered the consequences of a lack of attention.

As for the Personality Profile, the reasons for the feedback could be two-fold. The participant could have noticed that the facts and figures about the existing personalities have not been amended although changes have been reported in other sources. It could also be that there are "new personalities" who have not been included. RIS is aware of the lack of personalities data. The department plans to include more corporate personalities and sports personalities. In regard to the

currency of information of Special Databases, Ms Wan Aziah reports that RIS is keen to include the latest data:

> "It very much depends on what is available on the current publications we use. For example 'Almanac 95' might have the information dated from 1992 to 1993, but we can't guarantee that the information is the latest. As for company information, the rate of annual reports we have received is more than we can cope. Our staff need to work on other ad-hoc projects as well."

Ms Wan Aziah had heard about unfavourable comments about the currency of information of Special Databases unofficially, but none of the users have reported the issue to the department.

6.7.4 Singapore Press Holdings (SPH) news

The issue of databases not being updated regularly is a concern to one participant. This participant has identified at least two databases supposedly presenting the latest data, which are Country Profile and Singapore Press Holdings (SPH) news. Apparently this participant has been trying to access the latest news about 'Lee Kuan Yew' on SPH but found no sufficient recent news articles.

A test of the contents of SPH revealed the limitations of the database. A few keywords were used including 'Lee Kuan Yew' and 'President Goh'. Most of the news presented had been published at least two months earlier. NSTP Online has not presented a statement of coverage and currency of the news from SPH. This could be due to Singapore Press Holdings having not covered any news of these two personalities in the last few months or there is a delay in transferring the data from SPH to NSTP Online. The first explanation is unlikely because the reader and the participant have been reading news about the two personalities in the newspaper. It is also illogical that there has not been any news about the president of a country for two months. The limited scope of SPH is therefore the most likely explanation and the users should be informed of the limitations.

6.8 Dealing with errors

Malaysia is a multicultural and multilingual society. All of the participants involved in the survey could write and converse in both Bahasa Malaysia and English. However, this does not indicate that these participants have a similar level of fluency in both of these languages. Consequently, the ability to identify errors from NSTP Online is related to their fluency in these two languages and English in particular.

In the questionnaire, a list of seven common errors was presented. This list was derived from the experience of accessing NSTP Online. In the questionnaire, the question was phrased as:

> "What are the errors that you have noticed?"

The participants were also asked to indicate categories of errors that they had noticed but were not listed (Figure 6.3).

In interviews, participants were asked about the errors that they have indicated in the questionnaire in order to verify the occurrence of these errors. Spelling errors are ranked as the highest, followed closely a similar error - typographical errors. Internal participants, being journalists themselves, are more observant in noticing stories which have not been merged correctly, missing stories or grammatical errors. Observance and meticulousness in reading information is essential for their work.

It is essential that their reports provide accurate facts and figures, and researching for required information is part of the training for being a journalist. It is therefore not unexpected that more internal participants than external participants have recognised errors, in eleven of the thirteen categories. This is particularly obvious in the category of "articles omitted"; 67% of internal participants compared to 6% of external participants. The last six types of errors have been included as a result of

individual responses to the questionnaire. All but one of these six errors was provided by an internal participant.

Type or errors	External participants	Internal participants	Total
spelling	10	11	21 (70%)
typographical mistakes	4	8	12 (43%)
incomplete articles	3	10	13 (40%)
article omitted	1	10	11 (37%)
duplicates	5	5	10 (33%)
wrong names	2	6	8 (27%)
wrong dates	3	4	7 (23%)
overlapping screens	1	n/a	1 (3%)
incorrectly merged stories	n/a	1	1 (3%)
non-inclusion of certain articles	n/a	1	1 (3%)
transposed characters	n/a	1	1 (3%)
different story count	n/a	1	1 (3%)
grammatical errors	n/a	1	1 (3%)
no opinion	2	1	3 (10%)

Figure 6.3 Categories of errors : results from the questionnaire

6.8.1 Informing about errors

Among the participants who have noticed errors, few (20%) of them actually informed Customer Support Unit (CS) about them. None of these are internal participants. Madam Cecilia Tan and Ms Wan Aziah, acknowledged the lack of complaints from the internal users. The evidence and the feedback from the database producers suggest that the internal users have not viewed LOL help desk as a communication channel. Fee-paying external users, on the other hand, have a clear communication channel - CS being available to take report about faults with the service.

One participant reports that CS acknowledged the problems of duplicates and incomplete articles but said they cannot do much for the time being. CS informed the participant that they will try to improve these issues but no specific action was mentioned. The participant has not followed up the reported errors.

Another participant who was ignorant of file management has created errors when downloading documents. When this participant reported this problem to CS, the staff was able to coach the customer in the use of correct file naming convention. Besides this, there is one participant who has called CS to find out more useful search functions, indicating that there are subscribers who are accustomed to seeking help when the need arises.

6.8.2 Spelling and typographical errors

For spelling and duplicate words errors, it is common to find participants correcting these when editing the news articles. As one participant commented:

> "Sometimes words would appear twice, I just delete those words after [I have] downloaded the document on the word processor. I will look through the document, check the margin and spelling before presenting them to the customers. I haven't informed anyone about this."

Another participant reported that:

> "I will amend the spelling mistakes at the word processor. I only need information for reading, so the errors are not so important."

External participants do not consider spelling mistakes as major errors as long as the contents are not affected. This is supported by three other participants who understand typographical mistakes are common human errors. One of these participants comments:

"These errors are not major, they would not affect the information needs of the users."

Spelling and typographical mistakes do not seem to be a hindrance to a number of participants. To them, these are similar to the errors they have encountered in other types of documents. These participants are more concerned about the contents and context of the information they have received. Some of the participants ignore the errors, as they are not considered a major problem whereas some of them rectify the spelling and typographical errors when the documents are downloaded to a word processor.

Spelling errors, are, however, considered a serious problem for the internal participants, as journalism demands correct spelling. Journalists are trained to double check facts, figures and spelling. Three participants report that checking the newspaper clipping and consulting their colleagues are the usual methods. Another participant goes as far as checking with non-New Straits Times Press group of papers and other sources such as 'Yellow Pages' or contacts to verify the information. One participant considers spelling mistakes as minor errors as long as the context of the articles are understood: "I always have in mind that there are various spelling convention used in the news such as 'Phillippines' or 'Philippines'. It is not really an error."

These users access NSTP Online for the sole purpose of taking notes of facts and figures. Therefore, as the required information is in context, the errors are too minor to be of concern.

On the consistency of spelling and transliteration of foreign names, Madam Cecilia Tan commented that the Indexing Unit follows the spelling that appears in the newspaper because, "we are not in the position to decide which is the best spelling." Therefore, any variation of spelling appearing on Newsbase is more than likely a result of the editorial process. RIS which produces Special Databases does not have

a written policy for spelling and transliteration of names. Ms Wan Aziah remarked that "nothing has been spelt out for that issue" as standard working procedure is not available.

There is only one participant who is able to point out that errors have occurred after the articles have been submitted. This indicates that errors have occurred during the editing and indexing stages and may not be mistakes made by the journalists.

6.8.3 Transposed characters

Transposed characters are both a system and data transfer problem. Due to the various systems used between the editorial departments and NSTP Online, there are certain characters which do not appear the same when they are being read on another platform; Unix to Atex in particular. One typical example is the symbol - 'L' [Pound] appears as another symbol - '1/5' when the data is accessed from an Atex machine, but there is nothing wrong with the symbol when it is read from a PC. This 'error' has the users confused about the contents of the information. One participant was not sure what process has taken place when pressing the search commands. The participant reported that:

> "I thought I have made a mistake because I don't think it should happen."

Nevertheless, these comments or complaints have fallen onto deaf ears. One frustrated participant encounters this mistake when data is transferred from NSTP Online to Atex operating system. As a result, this participant corrects the mistake or deletes it when it occurs in the information. This participant complains that the personnel of NSTP Online should be proactive in finding out the needs of the users, and the system should be designed for their use. From past experience in accessing NSTP Online, this participant has not expected any appropriate action to be carried out when a complaint is lodged with the staff of the library.

6.8.4 Missing stories

One participant is concerned that there are some articles which have not been included in the database after being published for weeks. This participant is keen to follow up a weekly column. It is not clear if the stories have not been indexed because the stories have been "lost in the queue" or for other reasons. The directory of files or "queues" contains the working and finished documents of the journalists. With the editorial login ID and password system, the journalists have access to different levels of "queue" accordingly. There are also timelines placed on the "queues". A large proportion of them will have a twenty-four hour lifetime, others range from weekly to monthly. Besides that, not all "queues" run on one platform and that further complicates detecting the stories. As the editorial working system is intricate, it is impossible for outsiders to trace the path of the stories from the writer to hardcopy.

When a story is lost in the "queue", the Indexing Unit needs to determine the stories which have been lost and recover them as soon as possible. The usual approach to this issue is to keep the stories aside and check with the sub-editors who have processed the stories. Bearing in mind that journalists do not work regular hours, this has made the detecting work more difficult.

6.8.5 Communication with internal users

There are many participants who ignore the errors they have noticed. 87% of the internal participants do not inform any one about the errors because they do not have time to do so. One participant finds it easier to check with the hardcopy than trying to rectify the errors. Another internal participant comments that:

> "I am not sure if the library staff will take me seriously."

This indicates that LOL help desk has not built up a rapport with their users or has not stated their functions in providing this service. Although the internal users may

not have informed LOL help desk, they do complain about this issue to their colleagues as mentioned by one participant. These participants are aware that some of the errors are created by fellow reporters. Therefore, the internal users are hesitant to complain about some of the errors to an appropriate channel. If the errors need to be rectified, it might be the responsibility of the reporters, sub-editors and editors to do so. However, there is one participant who has rectified known mistakes in the downloaded documents. Another participant advises fellow journalists to be aware of the errors appearing in their sources:

> "News from NSTP Online is not hundred percent correct. The news which has been published before may be wrong and this will affect the accuracy of the stories."

This participant refers to the cycle of the wrongly published facts and figures that have been used by a journalist, and the errors passed on to another journalist who has accepted the accuracy of the data. For example wrong dates, are not usually noticeable unless the participants have been following the news closely. Date mistakes could occur from the indexing process and they are difficult to spot in the quality assurance process. One participant mentions that date errors are a problem as it is necessary to double-check another three or four articles to verify whether they are correct. This procedure is time consuming but essential in order to produce an accurate report.

6.8.6 Responsibility for corrections

One participant expresses a sense of frustration when confronted with errors but has never attempted to inform CS:

> "We can't do any changes on the text itself, we usually just print it out and correct it on our copy."

There is an issue about corrections published in the newspaper and on NSTP Online. One participant is concerned that the indexing process does not include correcting errors that they have noticed from the newspaper, unless the correction has been published. This participant prefers the correction process to be automatically performed by the Indexing Unit rather than the Editorial Department needing to spend time and space publishing a correction. This is a catch-twenty-two situation. The Indexing Unit prefers to adhere to the facts that have been published because it is the responsibility of the Editorial Department. However, the feedback from internal participants indicates that they would like the Indexing Unit to take the initiative. These two parties need to communicate more effectively in order to solve this issue, not only the supervisory staff but also the staff who are dealing with the day-to-day issues.

One participant reported that there are errors which are not the mistake of NSTP Online. The example provided is the incomplete stories from other news agencies such as Bernama. These errors cannot be corrected as these stories are not originally published by The New Straits Times Press. In order to follow up the error that has been spotted from another source, the participant looked for subsequent articles that mentioned a correction to the previous articles. This participant also commented that if the errors are factual errors, the users should examine the original source of the information.

Although there are errors existing in the database, these errors are not entirely due to the negligence of NSTP Online or the writers. According to the participants, NSTP Online has maintained a commendable level of standards and the errors have not affected the search capabilities. Otherwise, the customers would not have kept on subscribing to the service. One participant comments that:

> "If I could find any errors in the database and I am willing to inform Customer Support Unit, NSTP Online should rebate me for my effort."

One participant reports whenever there are queries about the quality of the database, "I always comment that NSTP Online is good for research". This participant is confident of the quality of NSTP Online, even though there are occasional errors which may or may not alter the contents of the information. Nevertheless, another participant reports that these errors do not affect the quality if the main issues are comprehensible.

However, one participant points out that some of the errors have been imposed during the 'indexing-to-NSTP Online' process. It will require substantial labour and time to rectify all the errors. This effort is recommended to maintain the quality of the data, but is not justifiable in terms of the cost of maintaining the service. For the future standards of NSTP Online, it would be advisable to prevent major errors from occurring.

6.9 The effect of errors

The participants were asked about how they perceived the quality of NSTP Online after expressing their views about the errors that they had noticed. 13% of participants did not answer the question – "How would errors affect the quality of the contents?" In addition there are another 27% of participants who have not noticed any errors. Hence, these participants could not comment on how the errors affect the contents.

To 20% of the participants, the effect of errors is a subjective issue. According to one participant:

> "It would depend on the errors, it is very frustrating if the article's date is not correct."

Although this participant (a librarian) noticed the error, the other users in the organisations may not have spotted similar errors: "none of my users have come back to me about the quality of the data". Therefore, these errors are considered to be

not major as long as there are no immediate complaints about them. This contradicts the opinion that an error that is not noticed may be more major because unless the error is detected, it cannot be corrected (section 6.8.5).

One participant comments that the effect of the errors on the quality of the contents is difficult to determine but:

> "These errors make it unnecessarily difficult to access information. For example duplicate articles would deter more articles to be viewed because fifty articles can only be seen from the table of contents."

This participant highlights the point that TOC shows a limited number of articles. CS explained to the users that this is a limitation of the indexing software. However, this explanation is not convincing or satisfactory to the users.

Another participant is concerned about statistical errors because these errors would affect the quality of the contents. There is no way for the users to notice statistical errors unless some research has been carried out, whereas, it is easier to notice textual errors from the reading. However, there have not been any complaints of statistical errors from the users of the organisation.

Even though the facts may be wrong sometimes, two participants comment that the errors are not crucial:

> "The errors affected the database slightly but it is negligible. It is not significant to me as long as I understand the context."

> "My staff know how to detect errors and they often communicate to each other to double check the facts."

The second participant emphasises that library staff have been informed of serious errors that have been detected. The example given by this participant is the name of

the wife of the Yang the Pertuan Agung (the head of state of Malaysia). The name reported in NSTP Online was the name of the former wife, not the current wife. However, that was a mistake by the Editorial Department as NSTP Online only adheres to the facts that have been reported.

This participant understands that not all the errors occurring in NSTP Online are the faults of the Indexing Unit, but could be the fault of the Editorial Department including the journalists and editors. The participant recognises the "should be corrected errors" due to the normal human spelling and typographical errors. The error with names of a prominent personality is a severe error and reflects on the quality of contents in NSTP Online. Often the journalists and the sub-editors could be warned of such errors by their supervisors. This highlights that the ability of an editor to identify the correct facts from the masses of data is essential.

There are 30% of participants who responded that errors affect the quality of the contents. Especially for wrong dates, it is stressed as crucial because it would reflect on the citation and the quality of an assignment. To one participant, date errors are not permissible as retracing the correct dates is a tedious process. As this participant comments:

> "Every single date matters to a journalist."

Another participant stresses that any errors would affect the quality of the contents as "journalism required correct spelling". These two participants have a higher awareness of quality in their work. They are probably more experienced in "picking up" errors, as well as being more prepared to persevere in looking for accurate information.

To one participant, errors may lead to severe mistakes in understanding the data when the users are not familiar with the subject areas they are reading:

> "I may have the wrong interpretation especially when I am not sure of the contents. I may go out of context; for example spelling error of scientific terms will lead you to a very different context. I don't blame the indexers if it is the writers' fault but not when the errors happened at the inputting stage."

This participant views the quality of contents as an essential issue and is obviously observant in reading information which is topical and specific. Understanding the context may be sufficient to other participants but this participant needs to understand specific terminology, which requires a certain degree of training and research. Apparently this participant is aware that the occurrence of errors is not the responsibility of a single party.

One external participant's suggestion to improve the errors in the long term is for all users to inform CS when errors are identified. If subscribers call CS repetitively, it will place pressure on minimising the occurrence of such errors.

There are 30% of participants who do not think the errors have affected the quality of the contents. As long as the main contents of the information are available, these participants understand that human errors are unavoidable. Moreover, two participants commented that "not every document has errors, it only happens occasionally" and "errors do not occur very often". These participants have noticed errors but these errors are not a deterrent to seeking information. The actual percentage of errors that occur in the documents is minor, irregular and does not affect the database as a whole. As another participant noted, "the error is very minor and the meaning has not changed".

6.9.1 Suggestions for improvement : dictionary and thesaurus

With a view to improving the data quality of NSTP Online, one participant suggested a dictionary and thesaurus for grammar in Bahasa Malaysia and English should be included. This participant recommends a working dictionary and thesaurus of the usage of words in Bahasa Malaysia and English. The tailor-made dictionary

and thesaurus is used to help journalists to understand and use the two languages correctly when they are in doubt. The need for an online dictionary and thesaurus is recognised by Basch (1989) and she suggests that (p18) "It must be possible for database producer and hosts to build and support online thesauri or equivalency tables that account for variations in spelling, abbreviation and punctuation, as well as synonyms and related terms."

Bahasa Malaysia is going through an evolution where new words are introduced, particularly from various forms of English and Indonesian Malay. As a result, journalists would often opt to use the introduced words and phrases without realising the exact meaning and usage of those words. Furthermore, those words are not inclusive in Dewan Bahasa dan Pustaka's (DBP) standards. DBP acts as a controlling and promoting body for the development of Bahasa Malaysia in Malaysia.

6.10 Conclusion

The design of the command keys and the screen layout has been an issue to NSTP Online users. Many participants have complained that it takes far more keystrokes than necessary to execute a function and simplified commands have been suggested. The ease of executing the commands has a direct effect on the manner in which the participants access information. The multiple commands are time consuming and defeat the purpose of accessing information as efficiently as possible, as required by a large number of the participants.

The passive attitude of the participants towards their clients within the organisation, in providing quality information, has been a concern to the writer. The feedback shows that the participants have not proactively sought the opinions of their clients in order to determine their satisfaction with NSTP Online. It has been left to the clients' initiative to inform the participants about any errors. As long as the clients do not complain, the service is considered satisfactory.

In general, the majority of the participants agreed that the information available in NSTP Online is up-to-date. However, there are some reservations about how they perceive the different aspects of the databases, in particular the delay of twenty-four hours in delivering the daily news articles. Besides that, similar comments are made regarding Special Databases and SPH. Participants have noticed the delay in updating the information especially in the Company, Personality and Country Profiles. The participants have expressed dissatisfaction toward the currency of the Profiles and wish RIS could improve those databases.

CHAPTER 7
CUSTOMER SUPPORT

7.1 Introduction

Customer services play an important role in the credibility of a commercial online database provider. The responsibilities of the customer services include handling enquiries on the telephone, trouble-shooting and providing training instruction on the phone or in person. It is the link between the service and the users. McCullagh (1997, p422) describes customer service or frontline staff as the "vital link" in the organisation. De Stricker (1994) describes customer support as the worthwhile personal support of a product, to which users can make a phone call and expect friendly, competent and prompt assistance. This chapter discusses the customer services of NSTP Online - Customer Support Unit (CS) and LOL help desk which are operated by two separate teams of staff. Other major components of customer services - training and documentation - will be discussed in detail.

7.2 Customer Support Unit (CS)

CS serves the external users as an extended arm of NSTP Online. The unit was set up to support the promotion of NSTP Online when it was provided to the commercial market and has become the marketing arm of the service. According to Mr Swaminathan, Marketing Manager of NSTP Online, this unit is responsible for external enquiries, trouble shooting over the phone, invoicing, producing reports for subscribers, monitoring the usage of the subscribers, providing online support to the wholesalers, organising promotions at the annual computer related exhibitions, as well as providing training in the use of the database. There are two types of users among the external users. One of them is the intermediary market such as librarians and information professionals; and the other is the end-users "... who actually need the information, but who tend to use intermediaries, ..." (Oppenheim, 1992, p26).

At CS, the process of marketing NSTP Online is through three major avenues:

* identifying potential user groups that are likely to use the service, approaching them and organising demonstrations
* exposure at computer related exhibitions to attract potential clients
* through word of mouth by current users

Advertising plays a minimal role. There was an advertising campaign in 1995; otherwise, the service relies on the above methods. As de Stricker (1994) points out, selling information is a matter of people talking to people, and word of mouth is a powerful marketing strategy. Potential customers usually ask for printed information as well as a demonstration. Besides the online charges, one of the most frequently asked questions from the potential subscribers is about the availability of training. When purchasing an information product, potential subscribers need time to determine the use and value of the service before committing themselves.

7.3 LOL help desk

To the internal users, however, the informal set up of a team of staff known as "LOL help desk" within the library service is the closest concept to customer support. The name 'NSTP Online' was only formally adopted by the library service and the internal users in 1996. LOL help desk has never adopted the formal sense of customer service to the internal users. It was more an ad-hoc structure to deal with the influx of problems at the inception of NSTP Online. The library service did not attempt to promote the service to new employees. As reported by the participants in the interview, this approach has reduced the chance of internal users using the service.

Since 1996, the role of LOL help desk within the library service has been abolished. The responsibility has been transferred to the Information Technology Department, which is situated away from most of the editorial departments. The occurrence of internal users using LOL help desk is very low, and only one participant mentioned the service. This indicates that a "distant" help desk does not respond to the needs of the users.

There is a distinction as to how the external and internal users seek help from the CS / LOL help desk. All external users contacted the CS via telephone and may not have any face-to-face contact with CS staff, except the trainer. The internal users, on the other hand, could contact the LOL help desk staff by telephone or see them in-person. The internal users would be likely to know the LOL help desk staff personally.

7.4 Contact with CS / LOL help desk

This section examines the awareness of the participants in regard to CS and LOL help desk; their roles, the reasons that the participants use CS / LOL help desk, the operating hours of the services and the participants' opinions about the services. There is a difference in the questionnaire and interview questions directed to external and internal participants. The differences will be explained in the relevant sections. In order to examine the awareness of the participants about CS / LOL help desk, they were required to indicate if they have contacted them for assistance. The question was phrased as:

"Have you contacted Customer Support Unit / LOL help desk?"

The result shows that external participants are more aware of the service available to them as subscribers of NSTP Online. Nearly all of them (93%) indicated that they have used the service. In comparison, there are only 33% of internal participants who have used the service. This reflects that to the external participants, CS is an important point of contact with NSTP Online. From the feedback in the interview, it was found that there are a number of internal participants who do not of know the existence of the service and therefore do not use it at all.

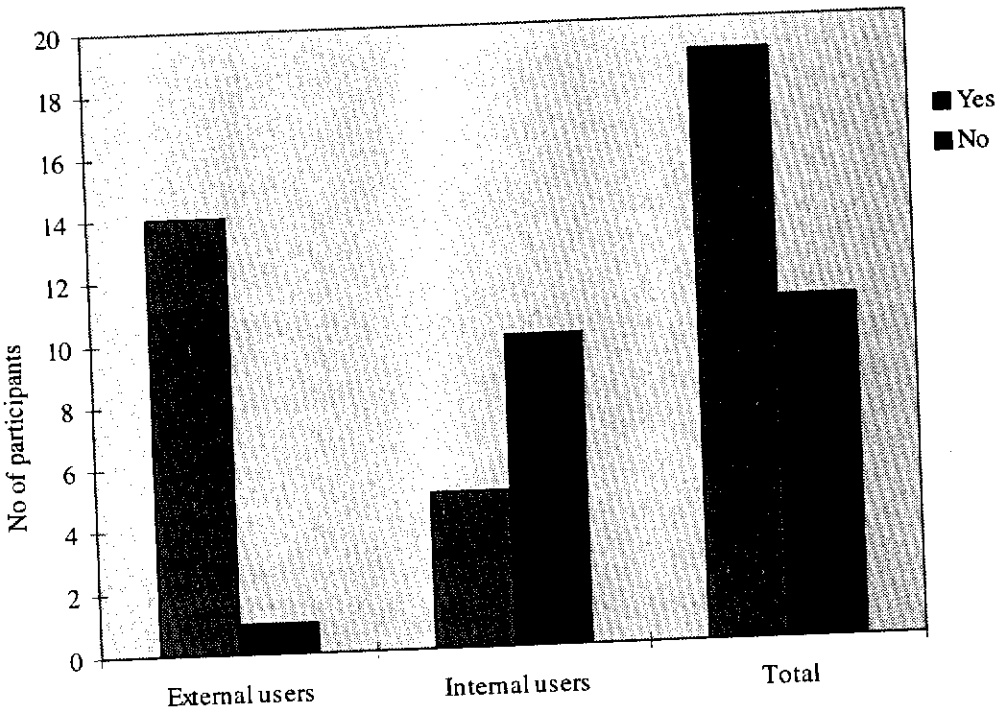

Figure 7.1 The number of participants who contacted CS / LOL help desk

7.5 The role of CS from the perspective of external users

When an external user signs up to subscribe to NSTP Online, a welcome letter is attached as part of the introductory package. The letter states:

> "If you need any assistance please call us at the NSTP Online CS, ...during office hours (9am to 6pm, Mondays to Fridays and 9am to 1pm on Saturdays). Our staff will be happy to help you."
>
> (Swaminathan, 1996)

However, exactly how CS helps the subscribers is not spelt out in any printed documentation. Therefore, it is up to the subscribers to presume that CS will assist in all matters concerning the service. This uncertainty is reflected in the feedback from the interviews.

Three participants reported that they were not sure of the role of CS.

> "I don't really know. I think they are there to assist clients and any errors. I only call them on need basis."

> "I have only used them once but I didn't know that there is such a unit called Customer Support."

> "I am not sure."

The comments indicate that these participants have not communicated with CS on a regular basis. One of them mentioned that they have only approached them once. Although the questions directed to the participants did not ask if CS have been in contact with users, the feedback indicated that there is minimum contact between the users and NSTP Online. After a customer has requested a subscription to the service, CS will inform the new customer of the login ID and password. Part of the communication is carried out by a Marketing Representative as they are responsible for overseeing the sales and the installation. When this process is finished, the trainer will contact the new customer to negotiate a time to conduct the training. There is no indication from the participants that they have been contacted on a regular basis, such as bi-monthly or quarterly, except for billing purposes.

However, Mr Swaminathan explains that NSTP Online maintain regular communication through telephone calls and faxes. Apparently NSTP Online "...used to be proactively call the users monthly, asking how they use the system; now we call them on a selective basis, according to their usage." For example, if one of their regular users has a drastic reduction in usage, CS staff will contact the subscriber to find out the reasons.

According to one participant, it is not necessary to know the role of CS as long as they were able to solve their problems.

Three participants reported that they were aware of the role of CS but did not elaborate on their experience in dealing with the unit. On the other hand, another three participants reported that they were positive about the role of CS:

> "I understand that users can call them for any help and they have been supportive in that sense."

> "From my experience, whenever we have a problem, we can call them up and they are ready to help. They could assist us through the telephone; I am very impressed from the point of telecommunication. I found that each and every one of the staff were able to help."

> "I am not completely aware of their role but they have delivered what I have asked for."

These comments indicate that the three participants have received satisfactory assistance from CS. Although these three participants were not fully aware of the role of the unit, it did not deter them from making an approach.

However, the customer service approach has not always been professional as one participant has the impression that CS was reluctant to help the users.

> "I think they are supposed to help you to fix things. They have been okay so far but they don't like me calling them."

The inconsistent approach of CS is questionable. This participant is an information specialist and an experienced user of online databases, able to pinpoint the abilities of other online databases in comparison with the shortcomings of NSTP Online. The staff of CS was not able to provide answers to all the queries and not willing to acknowledge that there are users who are more knowledgeable about online databases. According to this participant, he has the impression than the CS staff has been reluctant to communicate with him.

7.6 The role of LOL help desk from the perspective of internal users

LOL help desk is not well-known among the internal users. One participant needed to be asked three times before recalling the name. This lack of awareness is notable amongst the relatively new employees of The New Straits Times Press, particularly those who have joined after the inception of NSTP Online. Those internal users who were with the company when the service was introduced are more aware of LOL help desk. The most distinctive difference between LOL help desk and CS is that the former has no need to contact the customers about charges and training. Moreover, internal users do not face the issue of telecommunications and login problems which are commonly faced by the external users.

In addition to the LOL help desk, the Training Department of the New Straits Times Press conducts information searching workshops using NSTP Online for trainee journalists. This process has proved to be effective according to the feedback from the interviews. The four participants who have undergone the in-house journalism training indicate that they are more self-sufficient than their colleagues.

Two internal users reported that they have no knowledge whatsoever of the LOL help desk service.

> "No, never heard of it."

> "I am not aware of it but I think I should have been told about it. When I first joined, someone showed me how to download and to use all the functions."

These comments reflect that internal users have not been well-informed about NSTP Online. Furthermore, the second participant indicates some annoyance at not being informed of a service that could have been utilised at the starting stage of accessing NSTP Online.

Two participants reported being aware of the role of LOL help desk but have not approached the unit during the four years.

> "I am aware of it but have never used it."

> "I don't have the need to seek their help. I have been given some instructions and some one from the library has shown me how to access. I found it no problem to use [NSTP Online] except when there is a shut down."

These internal participants did not need to use LOL help desk as they have not faced any serious problems accessing NSTP Online. Although these comments indicate that NSTP Online is relatively easy to access, section 7.7.2 illustrates that internal users do face technical problems, although probably to a lesser degree than external users.

The unfamiliarity with LOL help desk is illustrated by one participant who has used the service without realising its role.

> "I have asked their help but I have never been aware that that's their tasks. I just ask them if there are difficulties."

On the other hand, one participant reported that the internal support system (within the section) has been useful in reducing the learning curve for using the service.

> "I consult my colleagues and the written instruction prepared by the computer support person who used to work at our section. He was helping us in the beginning. When there's a problem, it tends to be a computer related problem."

This participant did not rely on the service of LOL help desk during the inception period as the internal support person provided written instructions as well as helping with the connection to NSTP Online. Although this section is part of The New

Straits Times Press group, it was physically located in another building. This is the reason an internal computer support person was available in this section but not in others.

There have been numerous reasons why the internal users are reluctant to approach LOL help desk. For example, two participants who are aware of LOL help desk found it more convenient to ask any staff who is on duty at the library reference desk.

> "I am aware that there's a LOL help desk but I seldom use it. I usually use the staff who are on duty. It's more convenient."

> "I am aware but I have never used the service. I usually get help from my staff."

These comments indicate that the LOL help desk is not an easily identifiable service to the users. When visited, there was no sign indicating which of the library staff are members of the LOL help desk team. There were a number of terminals within the proximity of the reference desk for the use of NSTP Online. As a result, at the point of facing problems, it was more convenient to get the attention of the staff on duty rather than looking for the staff responsible for LOL help desk.

Two participants reported that there are problems which are out of the control of LOL help desk, and it was therefore unnecessary to contact LOL help desk.

> "I have never needed their help. I am aware that if there's a system shut down, there is no point calling them. I usually found out system shut down when I can't log on to a few Pcs."

> "I am not really sure about the role because I hardly face any problems [in accessing NSTP Online] except where error message appears when logging on; or got kicked out because too many people are using the system. I am

aware John Samuel is the librarian to contact when having problems but ever since LOL help desk has been changed to 5th floor, I have never had any contact."

Participants also reported that LOL help desk staff seem reluctant to assist internal users. One participant indicated that asking LOL help desk for help was like imposing an extra workload onto the library staff.

"I am aware of LOL help desk but I feel that they [staff] are too busy with work, no time for the reporters."

From the tone of this comment, it was apparent that this participant has had an unpleasant experience dealing with one or a few of LOL help desk staff who were not service oriented. Thus, the "loose" structure of LOL help desk was not an ideal arrangement for serving the users and neither is a "distant" unit.

Besides the physical locations, one participant reported the frustration of trying to use LOL help desk. The organisation did not publicise the service with the necessary aids such as the list of names and numbers of LOL help desk staff.

"The main problem is they don't have the sticker with the extension number of LOL help desk. When I need help it is always too late because the number is in the database and I can't scroll back to that screen."

There are also printing support issues associated with internal users. This is an example of the lack of support which is provided to users. One internal participant reported that the problems are linked to the login ID they have been allocated.

"I haven't downloaded stories to disk but I have printed stories. Due to my login ID and the network printer setup, I have been allocated the printer at Business Times. I will need to go upstairs to collect printout. Instead, I make

use of the terminals and the staff's ID at the libraries. I could pick up the printout there and then."

This participant found out that two departments in the organisation share a similar abbreviation, which is an oversight of the originator of the login ID. It can be assumed that internal users could only have access to designated printers according to their login ID. Thus, to save the trouble of climbing up to another department located on the fifth floor; this participant chooses to make use of the facilities at the library, as it is not efficient to access NSTP Online from his department.

7.7 The reasons for contacting Customer Support Unit (CS) / LOL help desk

The participants were asked:

> "What were the reasons that you contacted Customer Support Unit or LOL help desk?"

The pre-determined responses presented to external and internal participants were not identical. It is necessary to distinguish between the two categories of participants, as the internal participants have direct access but the external participants use dial-up access. Therefore, two of the reasons for external participants are related to telecommunication issues. Apart from the pre-determined reasons presented in the questionnaire, other reasons for contacting the CS / LOL help desk were further pursued in the interviews.

7.7.1 External users

Each of the external participants indicated one or more responses. 60% of the external participants indicated that telecommunications and related issues are a major concern when accessing NSTP Online. A further issue which is directly related to telecommunications is "To seek help in using modem" as indicated by 6% of the external participants. The reason presented by the 6% external participants in

"Others" is about downloading problems that have occurred, which is related to the unfamiliarity of the search commands.

Reasons	Total	Percentage
To seek help in telecommunication problem	9	60%
To inform about errors	8	53%
To seek help in login problems	7	47%
To verify bills	4	27%
To seek help for training	4	27%
To seek help in search commands	4	27%
To seek help in using modem	1	7%
Others	1	7%

Figure 7.2 What were the reasons that you contacted CS?

In addition to those reasons provided in the questionnaire, the participants were asked in the interview:

> "Have the staff of customer support helped you with any difficulties relating to NSTP Online? (If yes, please elaborate)"

The results from the questionnaire were reflected in the feedback from the interviews, especially on telecommunications related issues such as connection to NSTP Online, modem usage and the login process.

7.7.1.1 Telecommunications

As many as nine participants reported that telecommunications problems have been the main difficulties that have led them to contacting CS. There is a mixture of positive and negative responses about the service. The positive responses included :

> "We always receive immediate attention. There were communications errors such as cannot connect to system or downloading error, the system just hangs."

"We call them when the system hangs or cannot login. The problems were not immediately solved but they were helpful."

"We can't access NSTP Online due to system being down or telecommunication problem. When computer hangs they will tell us what to do. We will follow instructions on the phone."

The negative responses included:

"Some of the problems are technical, for example system down or hiccup, which CS can't do anything about them."

"They have not really helped us with any difficulties expect to get the line, the line is always busy. Only selected staff from CS are helpful."

"There have been a few cases of rubbish characters appearing on the screen. We were just being told that the system was down. CS can't do much anyway."

The inconsistent state of telecommunications mentioned by these participants is a reflection of the local telecommunications infrastructure. During peak hours, connection through dial-up access is time consuming due to the high volume of data transmission. In reality, CS is helpless on this issue as highlighted by one of the participants. The users are advised to re-start the modem or the computers, or to access NSTP Online at another time depending on how many attempts have been made.

Often the external users persist if it is urgent until the line is connected to the service. From the tests conducted in Perth, it took an average of two to three dial-ups in order to be connected to NSTP Online. If there is any telecommunication interruption during the connection, the system will hang and interrupt any printing or downloading process. When the NSTP Online system is down, it is impossible for

CS to inform the numerous external users, or more accurately, there is no capacity to identify which external users were on the system and inform them as soon as system problems are recognised.

The evidence of "rubbish character appearing on the screen" is mainly due to the interruptions occurring in the transmission of data via telephone lines. The access of NSTP Online to Perth was clear of rubbish characters but not when the service was utilised in Kuala Lumpur. From the experience of communicating with users from different suburbs of Kuala Lumpur, it was found that the local packet switches are an influential factor. The suburbs with older packet switching infrastructure are more likely to be affected by telecommunications interruptions.

One participant reported that the rate of telecommunications problems has reduced over the years since the implementation of the system:

> "We don't need to call CS so much now as the system is up and running."

This feedback indicates that in this instance, telecommunication problems were a transitional issue. The reduced rate of problems is probably due to the technical improvement of NSTP Online and the telecommunication infrastructure of Kuala Lumpur as well as the familiarity of the users in accessing the system.

One of the alternatives highlighted by one participant who experienced telecommunication problems was to have the CS staff to help them through fax facility.

> "We can't download articles on a Saturday, CS helped me with downloading at their site and then faxed the articles to me."

Often this type of favour is extended to external users if CS failed to detect the source of the problem, as a means of maintaining goodwill with the customers. CS

staff have direct access to NSTP Online which eliminates the dial-up login problems.

7.7.1.2 Modem configuration and technical issues

Another issue related to telecommunications is the difficulties of using modems. As one participant reported,

> "The system was funny. It changed every time I changed PC. After calling CS a few times, I knew what to do with it. It was the configuration of the modem for downloading and dialling, as it changed automatically. CS didn't inform me about this because they didn't think it would happen. They only knew what I was talking about after a few calls. I wasn't pleased about it but I understood that they didn't expect the problem to happen."

Modem configuration is a difficult matter, especially to users who have no prior knowledge of modem configuration. In this instance, it could be concluded that the communication software used by NSTP Online retained the pre-set configuration and it was necessary to re-configure when changing computers. This could be one of the reasons the external users have experienced unsuccessful login and dial-up attempts. This participant was not satisfied with the lack of technical knowledge demonstrated by the CS staff.

The lack of technical knowledge of CS staff was mentioned by several external participants. The evidence reflects that the staff are not confident in dealing with technical issues. Three participants commented that:

> "Not all CS staff are technically sound, they have to refer to a computer expert but 90% of them are ok."

> "I think they tried to assist but CS staff should be more familiar with the technical background of the system."

"It depends on what I asked but not technical knowledge because they always say that they have to refer to the technical department. It also depends on the helpfulness of individual CS staff who help me."

These participants indicate that the level of service from CS differs depending on the individual staff they deal with, as well as the extent of their problems. The comments suggest that there are staff who do not understand the difficulties and complexities of the users' problems. As a result, CS suffers from a lack of credibility as the frontline of NSTP Online. This has created a lack of confidence on the part of the participants. The participants are not satisfied with the lengthy referral process because the staff need to refer to the appropriate Information Technology Department staff to clarify the queries.

7.7.1.3 Administration

NSTP Online's management of administrative matters such as allocating login IDs and billing has been a concern according to three participants:

"It was about login. We were being informed that we need more than one login for heavy usage, so we have to subscribe a new ID."

"Sometimes we call them when the bill doesn't appear after a search."

"For example billing, we have to look for bills for separate users. Sometimes we can't print out the daily bill."

In the instance of the first participant, CS has been monitoring their use of NSTP Online and it was suggested that a second login was necessary to be shared among the large number of users in the organisation to avoid delay in accessing information.

To participants who serve fee-paying users within their organisations, the ability of the system to show accurate charges per user is essential. The usual practice of charging the fee-paying users is by calculating the charges after each session. The charges are listed according to the time connected to the various databases, as well as for printing and downloading. Thus, it is up to the person-in-charge to monitor each user after a session is finished. The comments of the two participants indicate the system is not totally reliable in printing the charges on the screen. As a result, they need to contact CS to clarify the bill for their users.

7.7.1.4 Arrangement for graphics and photographs

Due to the inability of NSTP Online to present graphics and photographs online, an arrangement has been made with external users that they contact CS whenever copies of these are required. When external users print or download any of the articles which include graphics such as charts, tables or photographs, they can request these items to be faxed to them free of charge. This is a time consuming task for CS staff, requiring them to search for the relevant article on hardcopy, photocopy it and then fax it to the customer. This service is not provided to internal users as they can utilise the library resources. In a time of urgency, this process may take up to several hours depending on the schedule of CS and could become an annoyance to the users.

The inconvenience and the frustration caused by the lack of graphics and photographs is reported by one participant:

> "The Unix platform can't transfer pictures or graphs. It is a very frustrating process to take note of the items and have to phone CS to fax the items."

7.7.1.5 Satisfaction with the service provided by CS

Kotler (1994, p40) defines customer satisfaction as "... the level of a person's felt state resulting from comparing a product's perceived performance (or outcome) in

relation to the person's expectations." McCullagh (1997, p419) applied the concept of customer satisfaction to customer service: "Individuals expect first-class customised service whether buying goods or services. When these expectations are not met customers do not return."

The database industry faces more challenges as the traditional professional search market presses for improved service (Quint, 1995). This is reflected by the satisfaction level regarding the types of service provided by CS. The evidence shows that occasional telephone calls do not impart a sense of service. As one participant asked:

> "Are courtesy calls considered as a service?"

Two other participants, however, consider monthly calls or any follow-up calls present a sense of customer service.

> "I missed receiving the monthly calls on the usage, it gave me a sense of service."

> "There haven't been any follow-up calls or anything else."

One the other hand, one participant considered the manner of the staff was essential in assisting customers.

> "They were patient with me on the phone."

To new users who lack confidence, it is not the knowledge and skills of the staff that count but the patient attitude. They often need to be led step by step through the search process (Williams, 1995). However, three participants commented that not all the staff members of CS are proficient in helping the customers.

"I wouldn't say all of them are knowledgeable in helping customers, only one or two of them are helpful."

"I don't think they have the drive to help customers. I would appreciate if they could come over and show me how to use the system to the maximum. I feel that the system is under-utilised."

"They are helpful about bills and when computer hangs, but not when training is concerned."

These comments are again an indication that participants believe that CS staff have insufficient understanding about the responsibility of their roles. The lack of a customer-oriented attitude is one of the drawbacks of the service they offer.

7.7.2 The reasons of contact: internal users

There are seven categories of reasons for external participants but only five for internal participants. The following responses were not applicable to internal participants:

- To seek help in telecommunication problems
- To verify bills
- To seek help in using modem

Reasons	Total	Percentage
To seek help in logging on problems	6	40%
To inform about errors	4	27%
To seek help in search commands	3	20%
To seek help in system problems	2	13%
Others reasons	2	13%
Not applicable	7	47%

Figure 7.3 What were the reasons that you contacted LOL help desk?

The response of internal participants in regard to "What were the reasons that you contacted LOL help desk?" indicates that a significant number of them (47%) have

never contacted LOL help desk, as shown by "Not applicable". As the number of internal participants who have contacted LOL help desk is relatively low (33%) (see section 7.4) compared to 93% of external participants, the range of responses to this question is limited. Usually the only contact with LOL help desk would be the initial provision of a login ID, followed by a brief introductory login demonstration if they have the opportunity to do so.

Although internal participants do not face telecommunications problems as do the external participants, the feedback suggests that system problems are mainly about system shut downs which affect the direct access to the service. Internal participants are concerned about the current standards for system operating procedure in the various departments that affect the access to NSTP Online.

7.7.2.1 Login IDs and procedure

Three participants reported contact with LOL help desk regarding login problems:

> "I only asked once for login and then asked Chang for the login process. I prefer to find out the process myself than asking the others."

> "I only used it once for login problems."

> "I used it once or twice. I had login problem. For example error message when accessing the database. I thought it was because I have been sharing logins with other colleagues."

RIS is the department responsible for responding to internal users' requests for a new login ID. LOL help desk staff could redirect the request to RIS if users approach them for assistance. At the inception of NSTP Online, internal users were provided with their login IDs en masse. Only the employees who join the organisation at a later stage need to request for a login ID in order to access information.

Sharing login IDs among the staff is not unusual as some internal users are not aware of the procedure for acquiring individual login IDs. As a result, some new employees have been relying on the assistance of colleagues when using their login IDs and passwords.

7.7.2.2 Qualified LOL help desk staff

Besides the lack of contact, one participant commented on the lack of skills of the LOL help desk staff in general.

> "There's no qualified staff, they are just as good as we are. The librarians and other library staff must be well trained to help users."

It is not encouraging to the internal users who approach LOL help desk if they are aware of the lack of technical and educational skills of the staff. The issue of the qualification of the personnel staffing LOL help desk is further highlighted by another participant:

> "I am satisfied with the service but not the personnel. The librarians are not well equipped, not knowing the 'state-of-the-art'. Sometimes they just stared at you and not knowing how to help."

These comments indicated that the staff did not have sufficient prior training in instructing users in the use of NSTP Online. Without the assistance of qualified staff to guide the internal users, it is impossible to expect efficient and effective use of the service. In order to improve the useability of NSTP Online, the assurance of a reliable 'after-sales' service and trained personnel is essential to maintain the basic service to users.

Due to the lack of effort in promoting LOL help desk, nearly all the internal participants interviewed have not used the full service. One frustrated participant highlighted the lack of service that has been extended by LOL help desk:

"I want to know what are the services I can expect from the help desk, such as how to print and all the items they offer. I need yearly briefing or workshop on the features that they can offer. We also need emailing system and any interactive communication NSTP Online can do and most importantly, we need someone who look after the users and any 'after-sale service'."

The comment indicates that internal users are aware of the extent of their need for support and training. Internal users are in need of a yearly update on developments such as the addition of new databases, sending mail electronically within or outside the organisation, as well as refresher courses on accessing NSTP Online. However, they have been neglected since the commencement of NSTP Online and being treated as if they were still using the clipping system. A knowledgeable and skilful staff makes a difference in how effectively a user accesses the service.

7.7.2.3 Standard operating instruction

The editorial departments of The New Straits Times Press operate on four platforms - DOS, Atex, Pagemaker and Macintosh, due to the change of technology and the requirements of each department. Furthering the complexity of access on four platforms, NSTP Online operates on a Unix platform and there is a lack of instructions available for accessing the service on the different platforms. However, internal users can only access the service through three platforms - DOS, Atex and Unix. The access through the Unix platform is not available from the editorial departments but the users experience it at the library. The initial connection and file transfer process of each platform is slightly different. Two participants reported on the lack of a uniform process for accessing NSTP Online in the organisation.

"I need to know different commands when using different terminals. It's not a uniform process."

"When I use the system at Resource Centre, downloading files didn't need to use the stripper, instead 'CAT' was used. The files can then be transferred automatically from NSTP Online to Xywrite. I think the process is too complicated, things can easily go wrong, it's easier to use Xywrite stripper."

The terminals available in the Resource Centre are on the Unix platform. Internal users who make use of the facilities at the Resource Centre must adjust to the peculiarities of using another system to access NSTP Online. The feedback indicates it is an unwelcome experience to learn new commands. It is also frustrating to find that a search result has been lost due to lack of consistent operating standards.

7.8 Evaluation of CS / LOL services

Only 63% of the participants opted to respond to this question. Although only 33% of internal participants reported having contacted LOL help desk, the response of rating the service unexpectedly increased to 40%. 60% of internal participants did not have an opinion on the service. There is an obvious difference between the two groups of participants in regard to the rating of the services.

Although a number of external users indicated that they were not sure of the role of CS, it did not deter them from using the service and commenting on its effectiveness. The comments from the section on the satisfaction level of the service indicated that there was a mixed opinion about the service provided by CS. However, the result in this section indicates that the service from CS is adequate for the external users.

As for the internal users, the diverse response reflects the experience with the support staff that they have encountered (see section 7.5 and 7.6) which ranges from bad to good. One internal user reported the poor service due to the bad experience of contacting LOL help desk; there was no staff answering phones, and when contacted the staff did not know how to help. The lack of service by LOL help desk is highlighted in section 7.6.

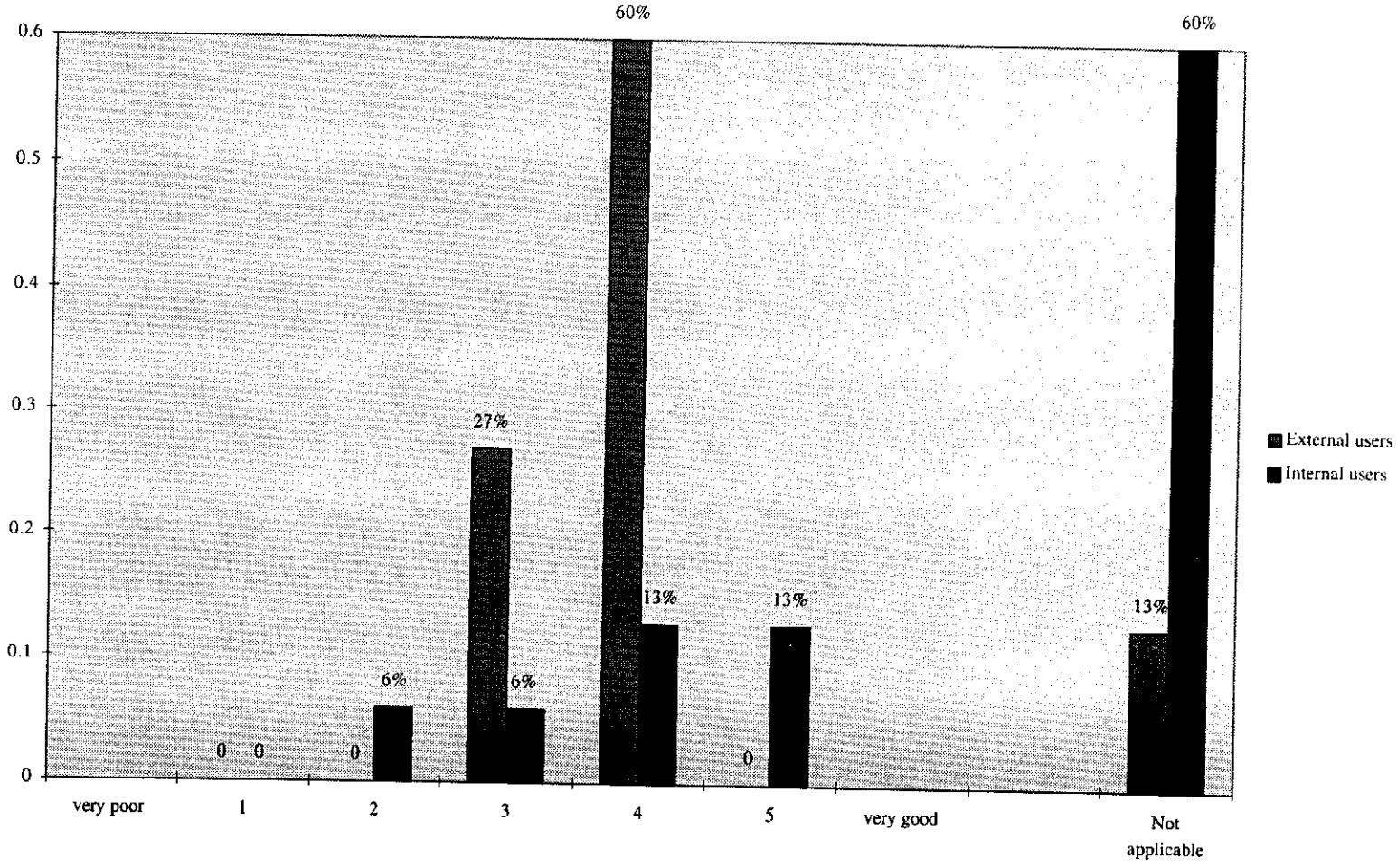

Figure 7.4 How would you rate the CS / LOL service?

7.9 Training

In the online database industry, training plays an important role, whether it is through printed or electronic format, or by a trainer. Rosenthal (1992, p331) stresses that "The sale of online and CD-ROM services does not stop with a signed contract. Training is the key to usage. Usage is key to client satisfaction and subsequent renewal." Kotler (1994, p47) views maintaining the clientele or customer retention as a powerful tool in marketing:

> "Today's companies are going all out to retain their customers. They are struck by the fact that the cost of attracting a new customer may be five times the cost of keeping a current customer happy."

In the domain of online searching, there are increasing numbers of databases and search techniques available to end-users. Henley (1992, p416) reports that - "It is no longer possible to learn how to search once and carry it out in the same way for a decade." Although the changes to NSTP Online may not be as swift as some established international online providers, an awareness of the ongoing needs of users is essential in ensuring the success of a training plan.

In a training session, there are a number of skills that need to be transferred to the trainees; namely procedural and intellectual approaches, database specific searching skills and the basic system features (Henley, 1992). Procedural and intellectual approaches include:

* the choice of keywords
* Boolean operators and their functions
* relevance of search result
* recall rates
* flexibility of search techniques

Besides the basics in training methods, Chadwick (1992) emphasised that training in using electronic databases should include the concept of research literacy. The introduction to research using electronic-based resources includes:

* process and mechanics of doing a search
* the possible pitfalls of electronic databases and how to correct them
* when to refer to a professional

According to Smith (1992), the design of training strategies should examine the needs of trainees and explore various evaluation options for determining the success of the training programme provided. Hepworth (1992) concludes that constructing effective training in accessing databases must include evaluation of the success of conducted searches. A structured training programme should consist of conceptual issues, search strategy and evaluation of search performance.

There are two sides of the training process. The traditional approach is through face-to-face contact, but in recent years, training has been becoming more reliant on self-training. Freeman, Rouse and Hilton (1995) favour self-study packages written specifically on the use of electronic means for accessing information. They believe that a self-study package will enable users (in this instance, students) to develop quality search strategies and skills. The former method is considered too expensive. Studies indicate that there is increasing training being conducted for professionals in business, research and academic environments (Henley, 1992). Training sessions have become more task oriented and the emphasis is on elementary retrieval skills rather than the complex skills designed for trained librarians.

7.9.1 Training: NSTP Online

NSTP Online provides training to the customers of CS but not to the internal users. Training is considered as part of the subscription package and no charges are imposed on the subscribers. This approach is supported by Ms Lucy Gamage of News International, who commented upon the policy of Mead (now Lexis/Nexis): "... I am pleased that Mead provides free training. I don't feel it's very impressive to

charge for training, as FT Profile and the other hosts do." (Meeting the needs of journalist, 1993, p8).

Upon new clients subscribing to the service a trainer will approach them and offer training at an agreed time. It is hoped that after the training sessions, the users will be sufficiently familiar with search commands and functions to access information efficiently. Their improved skills will also reduce the need for the subscribers to contact CS to seek assistance. Moreover, the more the subscribers know about the system, the more willing they would be to access the information, thereby increasing revenue.

In a training session, the users would be introduced to:

* hardware (modem and telephone line connection) and software (telecommunication software) required to access the service
* the contents of NSTP Online and the command keys
* keyword searching, Boolean operators and searching using the indexed fields
* data retrieval methods - downloading, printing and accessing data from disk

The process of training the users on how to access NSTP Online will not be elaborated on in this paper. Only the opinions of the external participants were obtained about the training in terms of relevance and training methods. These opinions were not obtained from internal participants, as training sessions have not been carried out on a continuous basis since the inception of the service. The internal participants rely on the help of their colleagues or by "watching over the shoulders" of others who have acquired the experience in accessing NSTP Online by trial and error.

Mr Swaminathan of CS reported that "Training is not available to customers outside Kuala Lumpur, except through telephone." Furthermore, distance learning aids are not available as it is considered that "the need has not arisen from these users." Thus, the opinions of users outside Kuala Lumpur were not obtainable in the interviews. This group of users accesses NSTP Online through the packet switch method rather

than direct dial-up. The experience of the writer in accessing NSTP Online from Perth will be used as the sole example of this type of access.

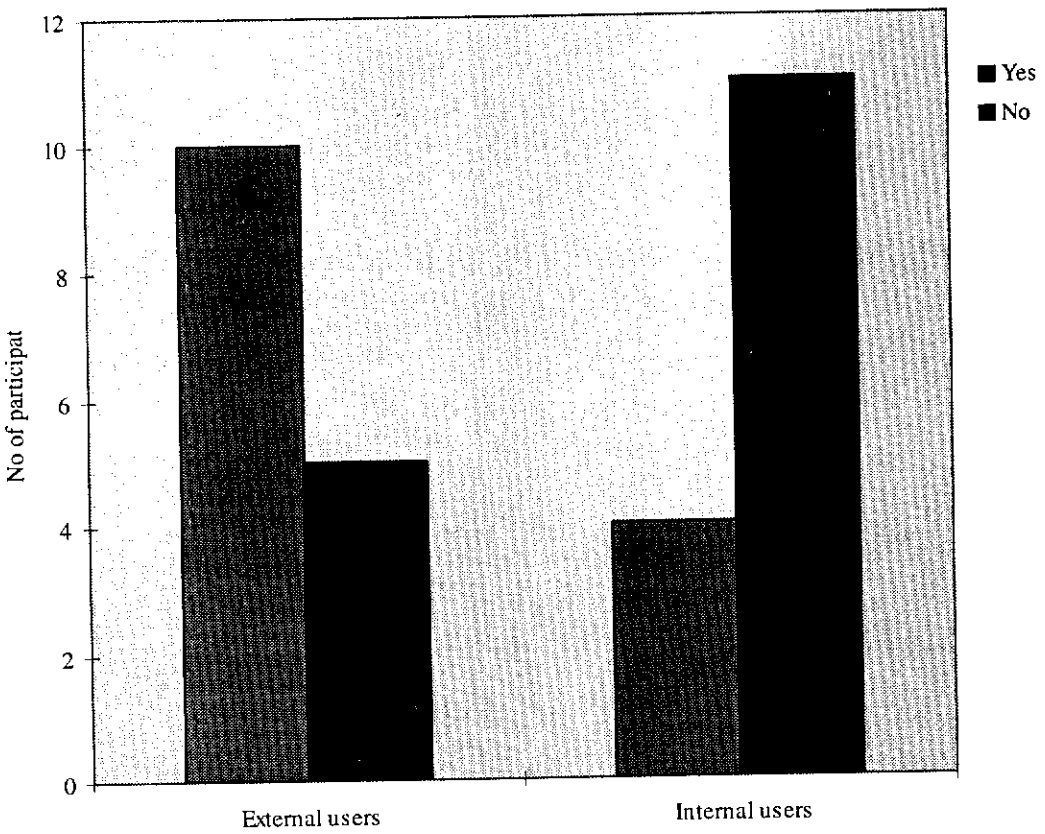

Figure 7.5 The number of external and internal participants who have received training

The questionnaire results indicate that 33% of external participants have not received any training. This is probably because they have commenced their employment after their employer began a subscription to NSTP Online. NSTP Online does not charge clients for training and training cannot be 'purchased'. Continuous training in the use of NSTP Online has not been included as a component of the service. Any extra training given to clients is considered as goodwill. Usually, NSTP Online only carries out one training session for each new subscription, unless there are valid reasons to justify subsequent training sessions. The reasons accepted could be due to a change in personnel, a large number of members of the organisation are interested in learning about the service, or the trained clients still could not perform the basic skills required. In the cases where there is a change of personnel, it is hoped that the

previous staff member would instruct the new staff member in the use of the service as part of the change over of tasks.

The results reflect that training is provided exclusively to the external users, particularly those located at Klang Valley. The current internal users (including employees who were in employment when NSTP Online was introduced) have been assumed to have experience in accessing information without assistance. Due to their immediate information needs, these internal users have learned the "information survival skills" from their colleagues or one of the library staff.

Only 26% of the internal participants interviewed had the chance to undertake training at the inception of the service. These participants could have attended one of the training sessions organised by LOL help desk or received individual training by request from LOL help desk.

As for external users outside the Klang Valley, training is not necessarily being included as part of the subscription. NSTP Online has not imposed charges for conducting training. Thus, it is not justifiable for the trainer to travel to the distant locations to conduct training, unless the trip is organised to train a group of users from the same locality in combination with a sales trip. As for the other users who have not had the opportunity of these visits, the trainer offers thorough assistance over the phone. However, self-learning packages and other training aids other than the user manual are not available for training distant users. This group of subscribers does not share similar benefits to those enjoyed by subscribers located in the city.

The external participants located in Klang Valley were asked during the interviews about their opinions on the training provided by NSTP Online in terms of relevance and training methods.

7.9.2 Search skills

Although search techniques could be taught in detail in a training session, there is no way of knowing if the users actually know when they are employing the techniques (DiMartino and Zoe, 1996). In regard to the issue of search skills, one participant (an experienced online database searcher) commented that:

> "Training is just the working or operational standards. The trainer could teach search skills but the users need to use some brain when applying keywords."

This participant has pointed to the gist of online searching. The trainer could teach about retrieving information utilising the various search fields and transferring the information onto paper or disk. The process of planning a search strategy and analysing the subject to be searched could be unfamiliar to some users. The inexperienced searcher tends to focus on software commands and database functions. Users need to have an understanding of the search process as stressed by Martindale (1995, p48): "Information retrieval is a personal process. Users bring their knowledge, experiences and attitudes to a search." Correct search methods are essential, but users also have to be aware of the importance of using correct keywords according to the subject. There is always the problem of translating user-generated keywords into the retrieval language of a newsbase (Nicholas, 1996a).

One participant reported that the basic training session was insufficient and wished that the trainer had shown more detailed functions:

> "What they have taught me is what I am using right now. They didn't get into details such as the different databases or editing, so I did not do them."

This response indicates that the participant needs to edit the data into reports but is not aware the techniques to do so. A training session should be considered a skill learning experience. It is the responsibility of the trainer to explain the components

comprised in one session. However, it is also the responsibility of the users to enquire how they could handle the data and about the techniques required for organising the information they have retrieved during the training session as well as during the course of accessing the service.

7.9.3 Computer literacy and past online database experience

After observing the use pattern of some of the clients, one participant reported that general computer literacy of the users is an influential factor in accessing information:

> "It depends on individuals. Users who are computer literate find it easier to use but not for users who don't have computer background. I think the training methods should cater for individuals who have different background."

In regard to this issue, the users are assumed to have used a computer. It should not be the responsibility of the NSTP Online trainer to teach basic computer skills. However, Blecker (1990, p31) argues that: "There will always be patrons who have no knowledge of computers, and who will need help with the simplest search engine." There is a vast difference between knowing how to use a computer software package and understanding how the system works. Training for the not-so-computer-literate users about DOS command keys and transferring data from one software package to another will need extra time. Accessing information from NSTP Online is unlike using the word processors with which the users are often familiar. Not only do the users need to have basic knowledge about the telecommunications aspects of computing (external users in particular), but they also need to have the skills to construct search strategies.

Being computer literate provides an ease of access to an online database as two participants who have prior computer experience reported that:

"I don't have any problems in logging on and searching for information. I think by having computer background make the process easier."

"I haven't faced any problems. I just follow the instructions given or the manual for searching."

However, another participant who works as a computer support officer did not consider that having a computer background is an advantage.

"It was very difficult because I did not have any training but I was given the responsibility to look after the system. I spent a few weeks to learn and to talk to my colleagues on how to use it. Besides that, the manual was not available at it was kept by a previous colleague who had resigned. I had to ring up NSTP Online to get our password and enquire how to use the system."

When there are more than one hundred thousand documents in ENGD (at the time of testing), the use of broad keywords may produce thousands of hits that would be overwhelming to the users. Therefore, having some degree of computing skills would definitely help in overcoming the fear in treading unfamiliar ground. The users who have these basic skills are more likely to be receptive to learning new and more advanced information retrieval skills.

7.9.4 Hands-on experience

There is no other printed training aid available besides the NSTP Online User's Manual. As different users have different training needs, the hands-on learning method is still considered the most effective in getting users to acquire the skills. This is also a good opportunity to build up a rapport with the users. Trainers and CS staff should not be just another voice on the line. One participant reported the hands-on training experience has enhanced the client-host relationship:

"The training was useful, at least I can refer my problems to the person-in-charge."

It is obvious that this participant appreciated the chance to be able to speak to someone that they have met, rather than communicating with an unknown voice and face. Three participants recalled the training experience as:

"We only had one training. The techniques were okay and they were relevant to our needs."

"I can adapt the training in daily work, I found it useful to know. The methods of the training were understandable."

"The methods were good and relevant."

These participants were from small-scale special libraries and were relatively new in using the service. The training was carried out on a one-to-one basis. The participants had more opportunities to clarify their queries and to participate in the sessions. Moreover, the trainer could adapt the methods to suit the level of computer literacy and search skills of individual participant.

One participant complimented the hands-on training experience he shared with one of the programmers from NSTP Online at the commencement of the service.

"The first training was good, we learnt from each other."

This participant enjoyed working with the programmer who was skilled in the methods of accessing information from NSTP Online from the technical point of view. However, the observation of this participant about the training carried out by another trainer for the staff in the organisation at a later stage was not favourable :

"The actual training for the beginners was too basic. The users kept coming back to me for enquiries. They didn't get the grasp of how to use it. The training methods should tailor for the nature and the needs of the organisation."

The second trainer did not investigate the computer skills of the staff of this organisation and adopted a generic method of training the users. This participant found that the one-to-one session with the programmer established a stronger understanding of the system compared to the generic methods employed when training a group of users. Unless the trainer has the time to sit with each and every one of the group, the training session would be more of an elaborate demonstration rather than individualised instruction. Therefore, it is the responsibility of the trainer and the organisation to work out an appropriate schedule in order to gain the most from a training session.

7.9.5 Secondary training

Not all the external users have been trained by NSTP Online, a number of them learnt through colleagues or predecessors, and the training acquired from library school.

For external users, when NSTP Online is accessible to all the staff of an organisation, it is usually the responsibility of an appointed person to take care of any issues concerning the administration of NSTP Online. This person-in-charge could be the only staff who has undergone training. The trained persons are expected not only to help the other staff members to retrieve information, but they often become the internal NSTP Online "help person". One participant is not satisfied with this arrangement:

"NSTP Online should train all the staff. There are about thirty to forty of them, I can't help them all. NSTP Online should provide manual or guide or instructions; and sit with the users to conduct a step-by-step training."

The persons-in-charge felt that it was not their responsibility to "take care" of the rest of the staff. In most cases they prefer to leave the training tasks to someone who is more proficient in using the system such as the trainer of NSTP Online. One participant who had been shown the system by a predecessor commented that:

> "I have not attended any training. The previous person who handled the database showed me how to use it. It was more of hands-on experience that I got to know it [NSTP Online] effectively."

This participant believed the "previous person" had developed a good working knowledge of NSTP Online and was more than willing to share the skills with the successor to the job. It can be more appropriate for a predecessor to show the system to the successor as they can share their opinions and working experience of the same job. This will make it easier for the successor to understand the tasks and therefore, be able to serve their new organisation more effectively. However, the implication of this practice will be the loss of quality control in training. The predecessor may not transfer all the skills and the successor may not be aware of the most effective means of accessing NSTP Online. Thus, it would be best to leave the training task to NSTP Online.

NSTP Online is being taught and used as one of the information tools at the library school of a local college - Institut Teknologi Mara [Mara Institute of Technology]. One participant who was a graduate from this college reported that the library studies department and the library of this college has started using NSTP Online as one of the reference tool for students. This type of exposure will have an influence on the students and the profession. In the long term, these students may request to have the service introduced to their organisation when they join the profession. Experience in NSTP Online may also be one of the selection criteria in the future employment market. If and when these graduates request training, they will expect more than an introduction to the basic methods of accessing information.

7.9.6 Inadequacy and unavailability of training

Further comments were obtained from another participant whose organisation has received two training sessions by two different trainers:

> "The first training was superficial. The real training was from the second trainer after more than one year of subscription. We learnt a lot from her. Apart from that [the two training sessions], there wasn't any training at all in the consequent years. Later on when we contacted NSTP Online again for further training particularly on usage and searching, we were being informed that the second trainer has left and there wasn't anyone available to conduct training. We have been coping on our own."

This participant was from a university library, where there is a constant change of staff who work at the reference section. Thus, it is necessary to train the staff who have been transferred to this unit. This participant believed that the trainer should be the responsible person to train the staff. Besides that, this participant has foreseen the need to access information from NSTP Online more effectively and efficiently. However, this participant had been disappointed on several occasions by not having training needs met, due to either the inadequacy or unavailability of the trainers.

The first trainer mentioned by this participant was a Sales Representative of NSTP Online. In order to encourage the clients to use the service during the time when a trainer was not provided by NSTP Online, the Sales Representative doubled in the role as a trainer. This participant was concerned about the quality of the training conducted by the Sales Representative as indicated in the response.

Another participant questioned the lack of provision of on-going training.

> "I am not satisfied with the service where training is concerned. I thought that training is an on-going thing. For example we will be trained when there

are new features, but nothing of this sort has happened, we have been left on our own."

The lack of a structured training programme and after-sales service has been the focus of discontent amongst the participants. The one-off training session and lack of printed documentation to inform users about new features such as the addition of new databases is considered as being a poor service.

7.9.7 Lack of training: internal users

Two participants commented that they were unaware of NSTP Online training programme available for internal users:

> "I only have been given a few pieces of instruction with login and password, no actual hands-on training was provided."

> "I have never been to training and I have never used it [LOL help desk], but later on I was shown how to get to Quicktake. They were able to help me with Quicktake."

These comments are a reflection on the lack of a structured training programme to equip the internal users to access NSTP Online. On the other hand, the information seeking and self-learning abilities of the journalists are evident. The journalists' information seeking behaviour as described by the Chief Librarian of *The Guardian* - Helen Martin, "Mostly all they want is the information, and how they get it is immaterial." (Sylge, 1996, p22). Thus, they would be more likely to consult their colleagues rather than seek assistance from the LOL help desk.

From their studies at *The Guardian*, Nicholas and Martin (1997, p51) observe that "It is almost impossible to get a journalist to a training session of any kind". Journalists would generally show an interest in the idea of training but they are reluctant to attend due to several reasons. As journalists have many sources of

information to choose from and the need to work within deadlines, seeking perfect information is not high on their list of priorities.

During the promotion of Quicktake in 1993 (an internal database based on a facts and figures column), a number of internal users were made aware of this database through broadcast messages and an internal flier. The database is limited to internal users as it aims to assist journalists to obtain facts and figures without going through the lengthy research process. This initiative was favourably commented on by the participants.

One participant highlighted the problem of not being able to access information effectively, due to the lack of training.

> "I have never asked for assistance. At the beginning of using LOL, someone came around and showed us how to use it. Since then, I have been experimenting but until now I still need help from another colleague in printing."

Moreover, one participant reported the experience of a group of colleagues in attending a training session during the inception period.

> "I haven't attended any training but judging from the those who have gone, they found it difficult. Either they haven't learnt anything or they were not clear of what was going on. They don't know how to search after the session."

The feedback indicates that the trainers of LOL help desk were lacking in training skills and were not able to transfer the skills to the users. Few would attend any training sessions organised by the same trainer after hearing of other participants' experience.

7.9.8 In-house journalism training programme

Besides the training session offered by LOL help desk, the in-house Training Unit which provides journalist-training courses has included NSTP Online as part of the course. Once every year the Training Unit recruits a limited number of cadets to become journalists. The New Strait Times Press is the only press organisation in Malaysia which provides journalism training programmes. Upon graduation, these journalists are contracted to work with one of the newspapers at The New Straits Times Press. The details of the journalism-training programme and training in accessing NSTP Online are not available for this discussion. However, one participant described the outline of the NSTP Online training as structured and designed for the particular needs of journalists.

Two participants explained the process and outcome of going through a structured training session during the journalist-training programme:

> "My knowledge about NSTP Online came from the head of training unit - Razman, during the training course. We had two or three sessions of research using NSTP Online."
>
> "The trainer was knowledgeable in showing us [trainee journalists] the methods. When we started working at the editorial rooms, we were the one teaching the senior staff."

These two participants were fortunate in having a skilful trainer in showing them the relevant research tool. Perhaps LOL help desk should have been working hand-in-hand with the Training Unit to construct the training programme.

7.10 User manual

A user manual is a guide describing the contents and structure of a database. One of the major reasons online providers produce printed user manuals, help text and user documentation is due to the lack of guidelines for database descriptors (Alkula and

Sormunen, 1989). Updating user manuals is a problem, as it is not cost effective to re-print and update a manual. By organising sheets of information in a binder, Dialog has succeeded in keeping the manual relatively up-to-date. These 'Bluesheets' are arranged in file number sequence with file description, subject coverage, sample record, search options and index fields.

CS provides a copy of the NSTP Online user manual to the subscribers as part of the subscription package. Mr Swaminathan reported that the user manual is updated regularly to incorporate the changes and only ten to fifteen copies are printed at a time. The updated user manuals are only available to external users through request because NSTP Online is not prepared to provide all subscribers with updated versions of the user manuals. As a result, users have different versions of the manual depending on the time they received them. There is no standard version of the manual.

The copies of user manuals used by the internal users may not have been updated since the inception of the subscription. It is clear that many internal participants were never provided with a manual.

User manual	External participants	Internal participants
Yes	15	8
No	0	7

Figure 7.6 Were you provided with a user manual?

The results indicate the external participants have been provided for by CS. 100% of the participants have received a copy of the user manual when they first subscribed to NSTP Online. On the other hand, only 53% of internal participants received a copy of the user manual. These copies must have been distributed at the inception of the service to internal users or the copies have been photocopied among the staff to help them to understand the system.

As a result, there are a variety of versions of the user manual available and no specific version number is indicated on individual copies. The writer received a copy

as part of the subscription package. However, no dates, ownership or author were mentioned on the cover page. The copy showed the evidence of being photocopied.

7.10.1 Rating of the user manual

Rating of the user manual	External participants	Internal participants
(not useful)		
1	1	1
2	1	0
3	4	4
4	2	1
5	4	2
(very useful)		
No response	3	7

Figure 7.7 How would you rate the user manual in terms of helping you to get access to NSTP Online?

Participants were asked in the questionnaire to rate the user manual. 13% of the internal participants indicated the user manual has little use to them (response 1-2). One participant comments that:

> "The manual is useful to a certain level, but it doesn't provide correct information."

This comment indicates that the instruction and guidelines in the user manual are not verified and updated to provide accurate information. Also, it is an indication that the management of NSTP Online should investigate the preparation of user documentation. This participant could still have the user manual dating from the inception of NSTP Online.

Among the 53% of the internal participants who have a copy of the user manual, only one participant responded that it is not a useful reference guide. Nearly all of them (88%) indicated that the user manual has a medium to high level of usefulness. One participant responded that the user manual is highly useful but found that some of the commands described in the manual do not perform as indicated.

Interestingly, the studies of Tenopir (1997) report on the basic problem with manuals and other instructions (printed or online), "Baker and Stoklasa both observe that end users, regardless of age, don't read onscreen instructions." Tenopir further highlights that end users are unlikely to start reading instructions, even it could help to avoid "conceptual misunderstandings".

7.11 Other documentation

Providing regular documentation (ie newsletters) to clients is a form of on-going support (de Stricker, 1994). However, there is little communication between NSTP Online and the external users after the subscription and training session, unless problems arise in regard to accessing information or payment. As for the internal users, there is hardly any communication as the users are generally left on their own.

For CS, Mr Swaminathan commented that any changes would be communicated in writing. During the time of the survey, emailing has not been used to communicate with the external users. CS intends to communicate through electronic mail in the future. One consideration, however, is that electronic methods do not work with irregular users and CS needs to produce a newsletter to reach this group of subscribers. As for RIS, there has been consideration to restart the publication - "Database Development News". This ceased publication was used to inform the users about updates on Special Databases.

In order to examine if the users have been receiving updated information on the methods of accessing NSTP Online, feedback was obtained from the participants on whether they have received any documentation other than a user manual. The question was asked:

"Have you received any documentation other than a user manual?"

Documentation	External participants	Internal participants	Total
Yes	0	5	5
No	15	10	25

Figure 7.8 Have you received any documentation other than a user manual?

The result indicates that in the period of four years, none of the external participants have received any documentation after the initial introductory package. However, 33% of the internal participants indicated that they have received some other documentation about the service. A newsletter was prepared by RIS that provided follow-up search functions and instruction on accessing, downloading and printing information. This newsletter was limited to internal users only.

It is evident that RIS and LOL help desk had worked together in keeping the internal users informed about the progress of NSTP Online at the early stages. These types of documentation were displayed at the major notice boards at the Editorial Departments and the library. It was up to the users' initiative to read and to discover the updated information about the service.

As for the external users, CS may not see the need to supply printed documents. Any update about the service is available through the online broadcast message. Besides that, the users are encouraged to refer to the user manual or to contact the unit to clarify any queries regarding access and use of the system. Therefore, the only written communication would only be the monthly invoices for usage and the yearly subscription payment.

Besides printed documentation, updates on NSTP Online are announced as broadcast messages when users log on to the system. However, there is no option for the users to de-select the messages after they have been read. These messages are usually about the introduction of a new product such as a new database. There is no policy on how long the broadcast message is retained. As a result, this facility has created a certain degree of annoyance to regular users.

7.12 Conclusion

External and internal users have different approaches to using customer service. The former presume that the assistance is part of the subscription but the latter have been made aware of the burden they place on the LOL help desk staff. External users are not interested in knowing the precise role of CS but they are concerned about being assisted when they have problems. Internal users do not tend to approach LOL help desk due to their lack of awareness, unpleasant previous experience, physical location, and the convenience of having a network of helpful colleagues. It can be concluded LOL help desk is a loosely formed structure which lacks the formal sense of customer service, which result in the low usage recorded.

Most of the difficulties faced by the external users are related to login problems. This particular issue was common at the inception of NSTP Online, which was caused by the lack of experience of the users in accessing the system and the technical problems which were over-looked.

The experience and skills of the LOL help desk staff are seen as questionable by a number of internal participants. NSTP Online was relatively new to the users as well as to the staff. However, the staff was required to assist the users with little prior training in using the service. With the lack of training, internal users are at a disadvantage in accessing NSTP Online. The internal users are also suffered from the lack of 'after-sales' service. Thus, the feedback from the internal participants was not favourable towards LOL help desk.

On the other hand, NSTP Online has not developed self-study packages for subscribers beyond Klang Valley. Training has only been available to the external users located within the metropolitan area of Kuala Lumpur. The combination of the two types of methods, hands-on training and self-study package, would provide the subscribers outside of the Klang Valley with an improved opportunity to learn the system. Undeniably training is relatively expensive; however, it will be difficult to measure the cost incurred by not training the subscribers. Thus, the one-off training

structure and the lack of up-to-date user manual and documentation are not a workable programme in the long run. Users expect to refresh their search skills, as well as to keep abreast of any additions and changes in NSTP Online.

CHAPTER 8
DATABASE STRUCTURE

This chapter investigates the mechanical process of accessing NSTP Online from the end-users' perspective. The ease of use is a determining factor in ensuring continued usage of the service. The users' experience of the login process, searching, printing, downloading and transferring of retrieved data will be examined and discussed.

8.1 Subscribing to NSTP Online

In deciding to subscribe to a news database such as NSTP Online, subscribers are attracted to the features offered such as the coverage and the relatively quick access to information. However, not until the subscribers have the chance to access the service, will they be able to reach a detailed understanding of the ease of use. Therefore, the initial contact with NSTP Online is vital in encouraging subscribers to continue accessing the service. It is found that most of the participants relate to and emphasise their early experience with the login process.

Although internal users do not have a choice in selecting a system that they prefer, an easy to use system will ensure that it is utilised to the maximum. Compared to the external users, internal users do not encounter the complex telecommunication problems connecting to the system. The feedback from the internal participants is therefore more concerned with the information searching process.

In the interview, participants were questioned regarding their experience with NSTP Online. The difficulty of the login process dominated the feedback.

8.2 Login process

Login is the first step to accessing NSTP Online. Participants were requested to indicate if they found the login process easy. The question was phrased as:

"Is it easy to login to NSTP Online when you need to search for information?"

The result (Figure 8.1) indicates a similar result for both the external and internal participants. In order to find out the reasons for these responses, a list of reasons were prepared to determine the nature of the difficulties in the login process. These reasons focused on the physical aspects of accessing NSTP Online. Participants were asked in interviews to nominate additional factors which inhibited their use of the system.

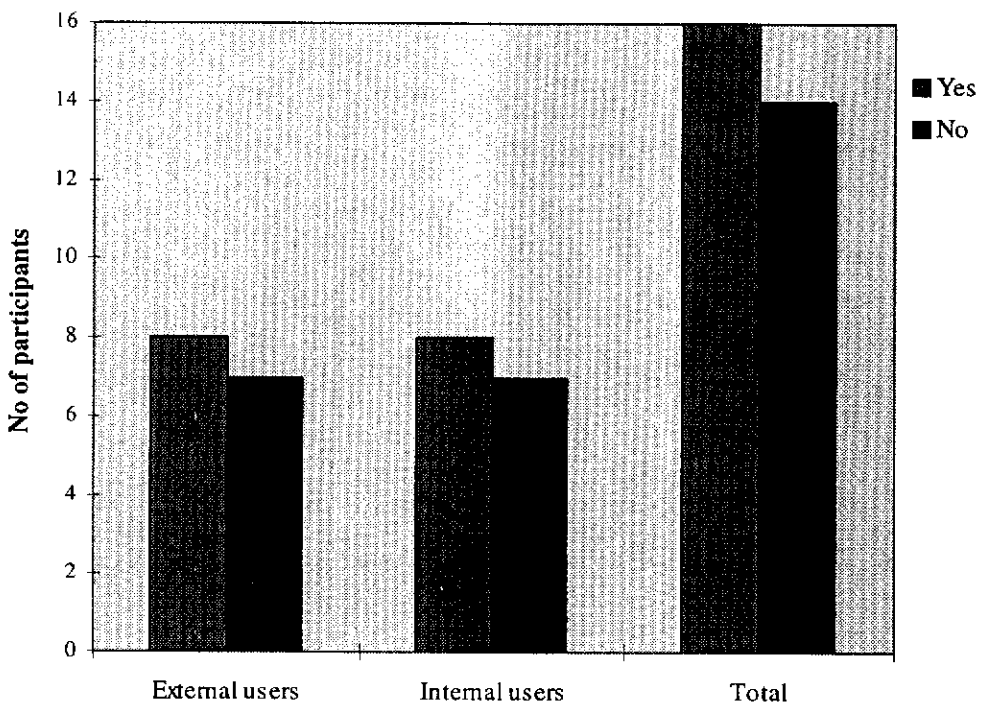

Figure 8.1 Is it easy to login to NSTP Online when you need to search for information?

The lists presented to external and internal participants differed, as modem and telephone connections are not relevant to the internal user group. The reasons which are not relevant to external user group relate to the availability of NSTP Online when it is needed, and the lack of terminals for all users.

Reasons	External participants	Internal participants	Total
1 NSTP Online shutdown	3 (20%)	5 (33%)	8 (53%)
2 Modem connection	5 (33%)	n/a	5 (33%)
3 Terminals were not available when I need to use NSTP Online	n/a	5 (33%)	5 (33%)
4 NSTP Online connection is not available on my desk	n/a	4 (27%)	4 (27%)
5 Telephone connection	3 (20%)	n/a	3 (20%)
6 Forget login ID and password	1 (7%)	n/a	1 (7%)

Figure 8.2 The reasons of unsuccessful login

The most common response indicated that over half of the participants have been unable to use NSTP Online because of its downtime. The lack of modem connection (33%) to NSTP Online and poor telephone connection (20%) are the major reasons for external participants not being able to login. The majority of the participants do not consider remembering login ID and password as a chore as only one participant acknowledged it as a problem. Further discussions about the difficulty of the login process are presented in sections 8.2.1 and 8.2.2.

A number of internal participants (33%) have found it inconvenient to access information when it is necessary. This is due to the unavailability of NSTP Online at the library or at the Editorial Departments. In addition, not every editorial employee who has access to a terminal is provided with NSTP Online access (27%).

It is a common need among the editorial staff to "fight" for terminals at peak hours. Most journalists do not have a permanent seating position due to the lack of office space and terminals. On the other hand, sub-editors enjoy the privilege of having semi-permanent seating on a first-come-first-served basis. The more senior staff such as editors and chief sub-editors have allocated terminals. There is only limited access to NSTP Online at the Editorial Departments due to lack of planning and the expense in providing the service. In addition, not all the terminals have access to NSTP Online. Only selected terminals have the facilities to download files and

convert files to ASCII format. When there is a high demand to access NSTP Online, the internal users work at irregular hours to avoid queuing.

The range of factors discussed by external participants are not identical to internal participants, as external users are required to subscribe to the service and need to be equipped with telecommunications hardware. These participants' opinions tend to focus on their experience with the login process. The early experience and attitude of a pioneer external participant was unlike the experience of other participants where the initial difficulties of the accessing process have been solved.

> "I knew that it was experimental. I gave a lot of leeway for the difficulties faced and I expected various types of difficulties."

This comment indicates that the perception of a pioneer user is quite lenient compared to a later subscriber who expects the service to be in top order.

8.2.1 Login process and password: external participants

The feedback from the interviews indicates that the login process was not as easy as reported in the questionnaire. The login procedure includes dialling up to connect to the modem for the connection to NSTP Online. There are two sets of login IDs and passwords, one for the modem and another for NSTP Online. Both login IDs and password are case and space sensitive.

At the 'modem level', the login ID and password are pre-determined by NSTP Online and cannot be altered. This requirement is only limited to users dialling-up to NSTP Online at the Klang Valley. Users outside this region need to dial-up through a packet switch and the 'modem level' of login ID and password is not required. Subscribers cannot change the system level login ID. They are however, encouraged to change their system level password regularly.

Three participants reported the difficulties experienced with the cumbersome process of login IDs and passwords.

> "Login is one problem with all the IDs and the passwords."

> "The login process was difficult, sometimes we can't get through which could be system down or server down. ID incorrect is troublesome as typo errors can't be rectified. For example when typing capital letters, we can't backspace to correct the mistake."

> "I couldn't remember the password at first and it's only easy if you remember it."

Not only are the login IDs and passwords case sensitive but there is no opportunity to correct spelling mistakes. For each dial-up, the users are allowed three chances for typing the login IDs and passwords correctly, after which the connected line will be terminated automatically. There is also a time limit on how quickly the users type in the login and password at the system level. If the process is not performed within the time limit, the login attempt will be terminated by the system. Users thereafter have to perform the login process from scratch.

Sometimes the users could be performing the correct steps but due to unexpected system failure, they may think they have made a mistake. These users will need to contact NSTP Online to identify the problem before knowing it was their mistake or not.

The not-so-simple login process was highlighted by another six participants, including a pioneer user in NSTP Online.

> "It is too long a process. There are so many screens to get through."

"I didn't use much at the beginning. There are too many steps for the login process."

"I am not satisfied. The login process is very slow. If they can shorten the login and password process to only one level!"

"The login process is not complex but troublesome. There are many steps and keys to enter before I can access the news."

"Login ID and password is still complicated. It makes it unnecessarily inconvenient and not user-friendly. It doesn't have any 'Escape' key when typing the wrong key and we have to log off the system. Once we login, there are too many notices, it's a waste of time to get to the menu."

"The login process is simple but it took me a few hours to memorise the password and the login procedure."

8.2.2 Login process and password: internal participants

The login IDs of the internal users are constructed from a combination of alphanumeric characters, which are usually derived from the initial of the departments and the surname of the users. A standard internal login ID will represent something similar to "bhnorma". "bh" represents *Berita Harian* department and "norma" represents the name or part of the name of a user.

Not all the internal users have their own login IDs and password, especially if these employees joined The New Straits Times Press after the commencement of NSTP Online or have missed out due to other circumstances. This is common among those who work on a casual (stringer) capacity for the organisation. These users need to 'borrow' other users' login IDs and passwords. One participant reports the inconvenience of using a 'borrowed' login ID and password.

> "I used someone else's login before and learned the process bit by bit. However, I can't download as the data was redirected to that person's directory."

The transfer of data from NSTP Online to the systems used in the Editorial Departments - Xywrite (word processor) and Atex (editing software) has been designed to be only accessible by the respective users' directories. These working directories are considered confidential. The internal users have learned not to share them. Thus, this participant would not be able to retrieve the data which has been downloaded without the help of the person who 'provided' the login ID.

Three participants, who have been provided with login IDs and passwords, expressed their opinions about the cumbersome login process similar to the external participants (section 8.2.1).

> "I have logging problems due to certain system produces, such as can't use capital letter, can't backspace and correct mistakes. If I type too fast and make a mistake, I have to spend more time to re-login."

> "I find the login process confusing. There are too many steps. If you don't use it often, you will tend to forget the steps. Sometimes I just forget the login ID and password."

> "In the beginning, it was difficult to remember the login ID, not realising 'Caps' keys affect the login. It might seem to be elementary but the procedure should be explained. The initial learning curve is very long and slow."

These users have found that the interface of the service is not easy to use. In order to overcome problems with the login process, a large amount of time has been consumed for what should-be a simple process.

Two participants suggested that the login process has become easier but not all the participants hold the same opinion. Another two participants commented that the ease of use had not improved even after a considerable amount of practice:

> "I don't think it gets easier because I am getting demanding or things have become difficult."

> "The process does not really get easier, it just got mechanical. The process could have been made easier."

Another participant believes that the complexity of the process means that the lack of regular use prevents the development of skilful use.

> "The process has become easier but if I stop using for a few weeks, I will tend to forget."

One participant, who has previous experience in using online databases, suggested the capacity of NSTP Online does not meet the expectation of the users.

> "There was no problem with login except it is slow because of the system. I get agitated with that."

As the speed of the system was not specifically discussed in the questionnaire or the interviews, it is not possible to draw a conclusion from one comment. The speed of NSTP Online is relative to the volume of the data transferred. However, when seven documents were downloaded at Kuala Lumpur, the process took three times longer compared to the test conducted in Perth.

8.2.3 Steps involved in the login process

In response to the comments that there are too many steps required to access information, a record has been undertaken to count the steps involved in the login

process from the external users' perspective. It requires nine steps or more to get to the search screen.

Login process

⇒ activate the communication software

⇒ dialling to connect the modem

⇒ modem login and password

⇒ system login and password

⇒ welcoming screen

⇒ broadcast message (could involve several screens)

⇒ selection menu to NSTP Online

⇒ 2 screens of software registration

⇒ database selection menu

⇒ search screen

(Internal users complete only the final six steps)

As a comparison to the steps involved in accessing NSTP Online, two systems were examined: Dialog Information Services and Reuter Business Briefing (version 1.10), for the ease of access. The tests were carried out using the facilities provided by TL Robertson Library and The Department of Information Studies of Curtin University of Technology.

Dialog	**Reuter**
1. Activate 'QVT-Term' to access communication software	1. Activate 'Reuter Business Briefing' icon.
2. Type 'dialog.com' to telnet the service	2. Click on 'Connect' from the tool bar to initiate modem
3. Type user name and password	

After examining these steps, it is confirmed there is a need for NSTP Online to restructure the system flow of the service. The login procedure of Dialog and Reuter is designed to keep the steps to a minimum. The ultimate aim of the users is to

access information efficiently and economically, not wasting time in going through unnecessary screens. One participant suggested that there should be an item on the selection menu for notices or broadcast messages to avoid the lengthy and repetitive screen displays, in particular for regular users.

8.2.4 Change of online instructions

Since 1996, an extra step has been inserted to the 'usual' procedure.

⇒ system login and password

⇒ welcoming screen

⇒ broadcast message (could involve several screens)

⇒ ***selection menu to NSTP Online (the extra step)***

⇒ 2 screens of software registration

⇒ database selection menu

⇒ search screen

The extra step is inserted to facilitate access to other functions such as accounts which would be sharing the same Unix platform. However, these functions are not accessible to NSTP Online internal users nor do they mean anything to them. The selection menu step should have been omitted to NSTP Online users by the type of login IDs used.

When users are familiar with a set of instructions, a change of procedure (especially when there is an increase of steps) would upset the habit of the users. Three participants expressed their dislike of newly introduced procedures.

> "The process used to be simpler, not so many steps and too much information."

> "The instructions were quite clear until they changed it recently."

> "I want to know how to zero down to search information, not extra steps."

8.2.5 External participants: the effect of practice

Participants were asked in interview, "Has the login process become easier as you have more practice?" The response from three participants was not encouraging.

> "The accessing process is not complex to me but it's difficult to my users, probably they use it infrequently."

> "It's not easier, it's still cumbersome. We have got used to it; we know how to go better with it. But I still feel that NSTP Online can do something to make it more user-friendly, to improve it."

> "I am more familiar with the system now but I am still dissatisfied because it takes time to get to the database."

Although regular users could become familiar to the login process, there are new or irregular users who will find the process unfriendly. It is not encouraging for the infrequent users to follow the steps as listed in section 8.2.3. As these new users still need to access the service, the intricate login process has become a hurdle to learning to use the service. Not only does the process slow down an information seeker, but also the longer the login process the greater is the telecommunication cost.

The ease of the login process from an irregular user can be concluded by the feedback from an external participant:

> "The accessing process is complex but the menu is helpful and can tell us about the usage. I need to set up the system for my users. Then they will know what they want and can access the relevant articles."

The clients of this participant find it difficult to carry out the login process and they rely on the participant to login for them when they need to access NSTP Online. In short, the login process is a deterrent to accessing the service.

8.3 Costs and fee structure of NSTP Online

For external NSTP Online users, there are two types of cost involved, namely fixed and variable cost (White, 1992). Fixed costs include the provision of a PC, modem and telephone line, communication software, monthly subscription and sign-up fees. Whereas, the variable costs would include telecommunication charges, connect time and documents downloaded. To subscribe to NSTP Online from Perth, users need to connect to Auspac (packet switched data service) as NSTP Online is not available through Internet. Thus, an overseas subscriber would have to consider the extra cost of connecting to such a service. For the local subscribers, the cost to access NSTP Online is significantly less compared to the fees and cost applied to international subscribers.

	Local	**International** *(the difference to local rates)*
Registration fee (All figure is in Malaysian dollar)	299.00	500.00 *(67%)*
Monthly subscription	30.00	100.00 *(233%)*
Newsbase **I) Usage** **II) Downloading**	 0.30 per minute 2.00 per document	 1.00 per minute *(233%)* 8.00 per document *(300%)*
Special Databases **I) Usage** **II) Downloading**	 0.30 per minute 12.00 COMP part document only 30.00 full document	 1.00 per minute 25.00 COMP part document only *(108%)* 70.00 full document *(133%)*

(NSTP Online, 1997)

Figure 8.3 NSTP Online price chart

In providing the service commercially, the management of NSTP Online has created a cost structure to accommodate local (Malaysia) and international subscribers. This is a list of cost from the 'Rate Card' of NSTP Online available in 1997. The vast

difference of the rate applied to international subscribers compared to local subscribers is from 108% to 300% more.

8.3.1 Increasing cost

Increasing costs have been a concern to the external participants. Even though the question of costs was not directed to the participants, it was unavoidable that this issue was raised during the interviews. One participant highlighted the concern about the increase of variable costs with regard to the library operating costs.

> "It [NSTP Online] used to be very cheap, it was about $0.15 per minute for accessing the databases. It shouldn't be increased to $0.30 as the user would shorten the search compared to the old rates. This is a wrong approach to encourage users to use online database."

The comment suggests that the participant has decreased the online searching and browsing time in order to maintain the budget allocated for subscribing and accessing NSTP Online. A 100% increase from $0.15 to $0.30 per minute is a steep increment to this organisation. This analysis refers to the cost of connecting to the Newsbase and Special Databases. The rate for international access is 233% ($1.00) more per minute than the local rate. The Marketing Manager - Mr Swaminathan did not support the contention that the current fee structure is overpriced. He elaborated on the reasons of how the current rates are structured:

> "If NSTP Online were to price considering all the cost, it would be beyond the affordability of the market. The actual cost is probably one thousand percent more but we are not driven strongly by the market, as the service was created to provide a service to internal users."

On the other hand, three participants explain the reasons they are not pleased with NSTP Online's fee structure.

"It is expensive because it's archival information. It's unlike subscribing to a $10.00 magazine. It's a $1.00 newspaper and not a newspaper for scientific research that people rely on the information. The value of information should be based on the contribution. It only supports decision making process, not so much of making the final decisions."

"I am not happy at all with the charges, they are too expensive. The fee increase has affected the students. NSTP Online should have two categories of charges : academic and corporate; not flat rates to all the subscribers. They do have discount charges for us after we complained to them. For searching, it used to be ten cents, then raised to thirty cents. Later on the rate was reduced to twenty-three cents after we complained to a few people. For printing and downloading, it was two dollars and reduced to a dollar fifty. I think they shouldn't charge for downloading. We didn't have to pay for these fees when we first subscribe to NSTP Online. They imposed the charges after one and half years. We also have to pay for connect time, telecommunication charges, and they come to a substantial amount. They should charge a fixed amount for one search, such a dollar fifty or two dollars per search; not a dollar fifty per article."

"It's expensive, the price has been increased by about 30%. We use a lot of the service, they should have discount for heavy users."

The price structure of NSTP Online is inflexible for users with heavy usage or for non-profit education institutions. The user group of the second participant, students, have been affected by the price increase. Although this organisation enjoys a discount pricing from NSTP Online, the cost is still considered to be substantial after adding the other components of the variable costs. This organisation is feeling the impact of having to pay the full amount because they used to enjoy the discount privileges offered to them when NSTP Online was first introduced to the commercial market.

The suggestion from the third participant regarding discount pricing will be welcome to many NSTP Online subscribers. According to Mr Swaminathan, currently there are only a few organisations which are given a discount, after they have submitted a specific request. On the issue of operating discounts, Mr Swaminathan mentioned a guideline is available for such a practice. However, it is doubtful that the discount scheme will be introduced for heavy usage because one of the aims of NSTP Online is to maximise revenue.

8.3.2 Special Databases versus Newsbase

As indicated on the price chart (Figure 8.3), there is a difference in the pricing of Newsbase and Special Databases. The difference is twenty-eight dollars (400%) more when downloading documents from Special Databases. Three participants comment on the charges of Special Databases:

> "I wouldn't like to comment on the fees as each organisation has their own workable accounting system depending on the contents of the articles. As for us, downloading from Special Databases such as from Personality Profile is a bit too steep [M$30.00] because sometimes it's only a short document. But other news articles for two dollars is alright."

> "The Newsbase is ok for accessing and downloading but the company profile is pricey."

> "It [the price] is reasonable for Newsbase but not for Special Databases."

Company and Personality Profiles appear to be more widely used than the other two Profiles. The documents in the Profiles are considerably more lengthy (although the length can vary) and comprehensive than a text article from Newsbase. To the users, however, information from Special Databases is treated as in the same category as Newsbase despite the price differential. Thus, the difference in price does not seem to be justifiable.

However, for corporate users who value current information, cost is not an issue to them as commented on by four participants:

> "The downloading cost is quite high, the news is alright. However, the users don't bother about the cost because they don't have to pay for it, it's part of the company budget."

> "We don't really care because the company pays."

> "I have no comment because I am not paying."

> "It's ok, compared to the rates of Reuters, which we pay one thousand and six hundred as a fixed cost."

The contradictory response on the fee structure indicates that cost is relative to the value of information. The equation of price and value is subjective. This scenario is further explained by two participants who agree to pay for useful information for a price.

> "It's quite expensive but the contents available is justifiable to the fees; as long as the articles are useful to the users. We usually download the relevant articles right away, rather than browse through it. The fees will increase with browsing."

> "I think it's reasonable for searching and downloading. The users don't usually mind paying for the bill as long as it's a good service and get what they want."

8.4 Search functions

NSTP Online is a menu-driven system, where the communication between the user and the computer is conducted through a series of menu screens which present the users with choices (Hartley et al, 1990). In order to retrieve the required results, indexing fields and Boolean operators are applied by the service to facilitate the searching process. This section examines the feedback of the participants to these search facilities.

8.4.1 Complexity of using indexing fields

During the indexing process of NSTP Online, indexing fields are applied to the records or documents in the database. Each record or document is divided into a number of separate fields, with each field containing one element of information of the record. It is the decision of the database producer as to which fields are to be indexed.

The fourteen indexing fields available in NSTP Online are as listed:

1 PU - Publication	8 CR - Correction
2 DA - Date	9 NO - Notes
3 ED - Edition	10 PX - Picture caption
4 LE - Length count	11 SU - Supplement
5 BY - Byline	12 TY - Type of stories
6 CL - Credit line	13 HL - Headlines
7 CN - Column names	14 LD - Lead paragraph

(NSTP Online User's Manual, p10, [1996])

For two internal participants who are familiar with the data in the information sources, their ignorance of searching by indexing fields has resulted in inefficient and time consuming searches.

"I don't know how to search by fields, such as limiting the articles by *Malay Mail* stories. I only know how to use keywords."

"I just use keywords. For example when there are two thousand hits, I will look through all the stories. I try to use the right keywords."

These comments indicate that these two participants have been ploughing through lengthy search results with the knowledge there is a better way to access information. It can be concluded the usage of time spent on NSTP Online is questionable when the users are not accessing the system effectively, even though they are considered to be experienced users.

One internal participant who discovered the technique of limiting a search by indexing fields by trial and error, comments on the advantages and disadvantages of these search functions.

"I learnt about search fields by experience. The advantages are they are better than microfilm. However, the problems are it's time consuming to refine a search for a particular topic. Sometimes I get totally unrelated stories because the words are there. It's a waste of time to browse. Refining the functions sometimes doesn't really help in refining the topic to get the right stories. I get different set of stories using slightly different type of keywords."

The complexity of indexing fields is further discussed by four participants.

"I rarely use the limitation because I have to search the manual to find the right terms to use. They are horrible to use. Therefore, I am very slow in searching. This is not fair to customers as it takes up a lot of online time. When I change database, I have to restart the whole search strategy. I can't save the search strategy."

"I am aware of them but don't like using them."

"These functions should be easier, there are too many steps."

"I don't know how to use functions such as to refine by *Computimes* or sukan [sport]; or search by author's name. I feel it's very difficult to use."

From the feedback of these participants, it is clear that the indexing fields are not intuitive, not easy to remember and are difficult to use. Although one of the participants could envisage the usefulness of the indexing fields, the difficulties have deterred them from using them.

The complexity of the indexing fields is best described by one participant (with four years experience in accessing NSTP Online) commenting on the counter-intuitive database design in terms of selecting the commands and searching for information.

"When getting into the database, you need to select the commands and there are too many commands to select. Then you need to press 'Find' to start searching for a keyword. The users normally forgot to press 'f' for 'Find' and typing the keyword straight away. The search strategy such as using titles or dates, the users always get lost or confused about them; for example date search using @ with space, then use the '<' [less than] or '>' [more than] sign, follow by the 'yy mm dd' format. That's when they can't remember the command. Limiting by fields is a problem, such as by headline have to do '.hl.'. Whereas in SilverPlatter you can select to search on '.ti.' for title, the command is simple. Most of the staff here complain that it's not user-friendly."

It is evident that there are participants who have prior knowledge in accessing other types of databases and consider the search functions employed by NSTP Online cumbersome. There are too many steps to conduct a search.

8.4.2 Boolean operators

Boolean operators (AND, OR, NOT) provide a flexible way of combining two or more sets of searches to achieve the final set of results (Hartley et al, 1990). The question regarding users understanding of Boolean operators was phrased as:

> "Are you familiar with search functions such as 'and' and 'or'?"

A significant number of the users are familiar with these two functions as commented by five participants.

> "I am familiar with the functions but not the other users in my company."

> "I use a combination of both."

> "I have done 'and' and 'or'."

> "I have previous experience in using similar types of database, I am aware of [these] search functions."

> "I learnt the functions from trial and error, not through any instruction."

To internal participants in particular, who have not attended a training session, trial and error seems to be the method of exploring NSTP Online. When the need for information arises, these users are motivated to attempt to teach themselves the use of the system.

One participant expressed regret of not learning the proper search functions at the commencement of using NSTP Online in order to smooth the learning process. However, through self-exploration, two participants were able to search for relevant information regardless of the large amount of time spent in self-learning.

"I should have learnt more search commands from another friend but I find it's not necessary any more. I can locate the information I am after now."

"I learnt about 'and' and 'or' by observing my colleagues."

As internal users, these participants have the advantage of being familiar with the information sources, which helps them to locate the right material. Furthermore, broad-based searching and browsing suits the nature of the use this user makes of the system, which is to look out for leading clues for a new story. These two resourceful participants had not expected to be trained by NSTP Online or other colleagues on the use of the service when they joined the organisation. However, the second participant was able to 'look over someone's shoulder' to improve his searching skills.

To participants working with end users who deal with shares and the stock market, the ability to narrow down the search is found to be necessary.

"I use it [Boolean operators] to narrow down the search such as 'Vincent Tan' and 'share'"

"I am aware that only fifty titles are listed at TOC. I have to narrow down the subject especially when the users ask about the performance of the stock market. It needs good searching strategies."

One participant applies the combination search as a technique to identify events or news that have been written by particular authors.

"I use the combination of writer's name and event for my search."

This habit is highlighted by Basch (1990b, p13) "... the bylines on those stories identified which reporters and staff writers were interested in the issue, ..." Another

participant has explored the search functions further by applying proximity operators besides using Boolean operators.

On the other hand, two participants simply prefer to do away with all the search functions including Boolean operators or indexing fields.

> "I just like to find a term and browse. If there's a lot of hits, such as one thousand, I will just go through the first two hundred. If I really need to read the history of an event, I will read a book rather than going through NSTP Online."

> "I am aware of all the functions on the instruction sheet but I don't need to look into all that."

These two participants have found their own method to access the information they require without questioning if they are the most effective ways to retrieve search results. A similar search technique of not employing the specific functions is favoured by two other participants.

> "I rather not use 'and' and 'or' as I will be missing out some searches. I rather use a sentence or a phrase. 'And' and 'or' don't really serve their functions."

> "I am aware of those functions but I seldom use them."

These journalists find that it is not necessary to use search functions to refine their searches. Rather, they find that it is a hindrance to use them. This notion of searching may not be agreed with by the intermediary external searchers who are more conscious of search strategy, noise and relevance level.

The contradictory feedback on the use of Boolean operators may be a result of the concept of Boolean logic not having been fully understood by online users, as observed by Tenopir (1997, p31).

> "Boolean logic, still the most common search method today, has many advantages. However, such logic is counter-intuitive to the uninitiated; many common errors result from poor command of Boolean operators. Sophisticated implementations of Boolean logic (such as nesting with parentheses) cause problems. So does lack of a basic understanding of what 'ORs' and 'ANDs' do in a search."

8.4.3 Refining by date field

A search strategy involving refining the date field is a popular technique among the users. The need to access current information or information from a certain time period, and the limitation of TOC could be the reasons for this popularity. Four participants reported limiting the indexing fields by date range or a combination with other fields.

> "I usually use the indexing fields to refine dates."

> "I normally will search by date or time frame."

> "I usually limit the search by date or byline."

> "I am aware of all the search fields but I prefer to limit in terms of publication and date."

Although limiting by date field is preferred by these users, this technique has been found not to be one hundred percent accurate. One participant explains the confusion that the date search has created to the users of the organisation.

> "I use the date search but repetition has been found when limiting search by dates. TOC will usually display the latest articles first and arranged in a descending order. However, I notice that articles of 1996 follow by articles of 1995; then 1996 would appear again. It happens very frequently now. I had always been telling my users just to check the first screen of titles and not to bother to limit search to 1996 only, but I found articles of 1996 re-appearing on another screens."

The sequence of the listing in TOC is supposed to be arranged in reverse chronological order. From the test conducted, it is found that the listing is loosely arranged by publications, followed by the date order. The publication order is emphasised on *New Straits Times*, *Business Times*, *Malay Mail* and *Computimes* in ENGD for example. The sequence may not necessarily appear strictly in that order. It is probable the sequence of results is influenced by the loading order (from indexing queue to BRS) of the documents. As a result, the users can only browse and read the latest articles of one publication before another, unless the users are aware of this peculiar feature. This display of search result is misleading especially when a high number of documents are retrieved.

Furthermore, two participants reported that the accuracy of the date field is questionable and inconsistent.

> "When I specify dates for certain articles, articles of previous dates appeared as well. I don't know how to handle that."

> "Files that have been found on previous days were not available on another search."

It is found that there is no explanation to the first case reported above but one of the possibilities could be the user has not used the date field command correctly. Date order of articles has been a subject to experimentation and they were not arranged in a logical sequence on TOC (see section 6.2). Usually, users would expect to view a

search result in reverse chronological order. If the sequence were not logical, it would be impossible to locate the appropriate documents when the search result is high. The fact that no result was found when a particular date was specified in the search strategy may indicate that the date field search has been incorrect, or the users have not indicated the correct date.

The second comment could be related to the display of TOC which changes daily, as the loading of files into NSTP Online increases. Users may not be aware that when there is an increase of files, the order of TOC changes, especially if the keywords searched are topical issues. This is the only such incident reported in the interviews.

Besides the peculiar display format, there are other issues associated with TOC. The TOC is limited to display fifty documents only. This limitation of display is the major reason one participant needed to refine the search.

> "I have to narrow down the search because the TOC has a limit of fifty articles. I cannot see why the TOC is limited to fifty articles. I prefer to see all the articles. It's a waste of time to re-type search string and have to think of appropriate keywords."

The limitation of TOC has influenced the users to refine the search by indexing fields or using Boolean logic to work around the problem. There are internal users who are probably not aware of the drawback of TOC. The external users have been advised to limit the search result to fifty or less by manipulating the Boolean operators and indexing fields if they opt to browse all the titles of a search result. The internal users have not been trained on the use of TOC and most of them have not followed this convention. Instead, they apply search methods such as only browsing the current documents or limiting the search to the sources with which they are familiar.

8.4.4 Refining by other indexing fields

Besides searching by date fields, there are other indexing fields as listed (section 8.4.1) that some of the participants have tried. Of their experience of applying other indexing fields, two participants report that they may not be a reliable technique.

> "Even when these functions are used, sometimes they may not retrieve the required search."

> "I am aware of how to use 'and', 'or' and limiting by search fields. However, when I tried the search fields, I can't alter the parameter. For example '.ld.' shows three paragraphs and I can't change it to one paragraph."

It seems the latter participant has been exploring NSTP Online including trying out one of the indexing fields which have not been mentioned by any other participants - '.ld.' to search for lead paragraph (Appendix 1). The first two paragraphs of a news article are indexed as the 'lead paragraph', with the notion that the summary of a story is presented in the first two paragraphs. Although 'lead paragraph' is mentioned in the user manual, an explanation is not provided to the condition and function of this indexing field. However, this participant prefers to read the first paragraph only, but unfortunately the number of indexed 'lead paragraph' cannot be altered by users.

8.4.5 Keyword browsing

Four participants reported that instead of using Boolean operators and indexing fields, the method employed to refine a search is by testing keywords to obtain the best result available.

> "I refine stories by looking at more specific keywords."

"I don't like the commands. I prefer to use specific terms. I am not using them because it's wasting time and I'll be looking for the wrong thing. Although it helps but I will miss out some articles."

"I know that certain keywords are in the stories but just can't access them. I have to use other keywords to access it. Sometimes I rather use long way rather than short cut. For example Mahathir and opera, I didn't get the right story. I have to use Mahathir and music, then go through one by one, by fact I knew he has gone to that concert."

"I am aware of the search fields but I prefer to use my own way to search for information. I use words in the articles and keep narrowing down using 'and' until I get a number that I am satisfied with."

These comments fit into Nicholas and Connolly's (1993a, p35) observation of online searching at the newsroom. This habit of searching is described as "... journalists are disadvantaged because they are big browsers, tend to search very broadly (searches result in lots of documents) and are great squirrels when it comes to information ..."

These participants have the task of searching a range of topical documents for a particular document they have viewed in the past. As "true" end-users, there are occasions when they rely on their memory about the stories that document a certain event. Their memory of the story could differ from what the actual documents expressed. Although one of the participants manages well by keywords, the mis-understanding of certain keywords, or keying wrong spelling and not retrieving the required documents, are possible.

Without further cross-examination on the keywords these participants used and the actual documents retrieved, a conclusion could not be made based on the feedback. For example, one participant believes the keyword related to a search is the logical choice but the search did not produce any result. However, these users may have trouble with their choice of keywords or concept, resulting in either too many or too

few documents being retrieved. The difficulty of keyword searching is illustrated by one participant:

> "There are certain keywords that can't be retrieved or retrieve no result. It's not logical with acronyms; or for example 'kampung' [village] with 'surau' [a small community mosque] produced zero hit."

Although it is logical to link keywords which might have a syntactic connection, the comment above indicates that the technique is not suitable at times. The participant was researching the functions carried out by the religious centres (surau) in small communities (kampung). The concern of these users is to obtain a complete overview of a subject, rather than just trying to retrieve some specific stories. The attitude of putting the blame on the system is reported in Tenopir's study (1997, p32). Ruth Pagell, director of Emory University Libraries' Center for Business Information, remarks that "Most people do not want to do efficient searches. When they get no hits or very few hits, they just walk away assuming the database does not have the information they need, rather than asking for help or trying a different search strategy."

According to three participants, refining search strategy by applying Boolean operators and indexing fields is kept to a minimum.

> "I only use it when necessary. I tend to use it for background information. I don't need to use search functions. If there are a lot of hits, I will narrow down to the page numbers."

> "I have referred to the search functions but not very often. I am doing feature stories, it's not necessary to use search functions."

> "Limiting the search sometimes it's a matter of how wide the search is."

For these three internal participants, the purpose of accessing information is based on the need to research and browse for background information on a specific personality or event. Marchonini et al (1993, p66) find that browsing, "is natural because it brings the information seeker directly into the context that is the object of the search, ..." These participants are the 'genuine' end-users who may not have undertaken any training in either accessing NSTP Online or online searching. Thus, the service is considered sufficient as long as it provides an acceptable rate of information.

However, to a participant who does not have the knowledge of online searching (compared to an intermediary), NSTP Online is considered not to be user-friendly.

> "I can't get to the specific data, the search results turned out to be five to six thousand. I can't get the required answer in one go, I need to combine search."

Information retrieval from full-text databases does present problems, stemming from the searching of large quantities of text such as the quantity of documents in NSTP Online. Griffiths and Lambert (1996, p58) comment that "It is, however, this very factor which favours the end user since subject knowledge of the text to be searched is as important as being conversant with search techniques." Even though the end users would opt for full-text databases, it is an issue of how they can access the information most effectively.

One participant expected NSTP Online to be an all-in-one information package.

> "It was a bit complicated. I didn't know where to look for some thing in particular. For example information on 'Dr Mahathir', was just his biography, not so much of his work. I expect everything to be in one shot. I have to compare articles from Personality Profile and news stories in order to compare what he has said."

NSTP Online comprises of a number of databases where users could conduct a search. "Dr Mahathir" is the Prime Minister of Malaysia. Thus, to search for comprehensive information for a personality like 'Dr Mahathir', the logical step to start would be the Personal Profile for background information, ranging from education background to a list of his writings. For up-to-date information on his political activities, it is necessary to browse through news articles of the relevant publications. These articles are scattered in ENGD and BHDB but this participant expected all the information about one subject be indexed and located within one database. De Stricker (1994, p32) has remarked that clients "... believe the service fees they pay entitle them to receive tailored information someone else has labored to assemble."

8.5 Data transfer

Besides accessing information, it is essential that the users have access to the data in hard copy through direct printing or printing using downloaded data. In the interviews, the participant reported the difficulties in saving the data in this format. The participants discuss the difficulties of the downloading process including the instructions involved, the lack of screen printing facility, unsatisfactory presentation, and the problems of downloading such as the speed and limitation of the system.

In the questionnaire, it was necessary to enquire if the participants have carried out the process of printing and downloading in order to verify that they understand the procedure and are able to provide feedback on these issues.

8.5.1 Printing and downloading

The results from the questionnaire indicate that there are almost an equal number of external (87%) and internal (80%) participants who have printed articles from NSTP Online (Figure 8.4). However, there is a significant number of internal participants (33%) who have not tried downloading articles or do not know how to download compared to the external participants (0%) (Figure 8.5).

Printing	External users	Internal users
Yes	13 (87%)	12 (80%)
No	2 (13%)	3 (20%)

Figure 8.4 Have you done any printing?

Downloading	External users	Internal users
Yes	15 (100%)	10 (67%)
No	0	5 (33%)

Figure 8.5 Have you done any downloading?

8.5.2 The success of data transfer

To further confirm that the transfer of data has been successful, the participants were requested to respond to the following question:

> "Was the downloading / printing successful in terms of completeness of data?"

Data transfer	External users	Internal users
Yes	13 (87%)	12 (80%)
No	2 (13%)	3 (20%)

Figure 8.6 Was the downloading/printing successful in terms of completeness of data?

Regardless of the success rate in the completeness of data, external users cannot print directly from the screen. This facility was available at the commencement of the service but was abolished when there were problems found to be associated with the on-screen printing function. This accounts for the 100% use of downloading among external participants because it is required before printing the documents.

However, one participant points out that the downloading interface utilised by NSTP Online is not reliable.

"I only download when it's urgent. I don't trust Kermit file transfer. It's unreliable, the line drops halfway or file corruption occurs."

The unreliable telecommunications structure has been blamed for the errors occurring during downloading or printing. It seems the root of the problem lies within the telecommunication structure of NSTP Online. An unreliable file transfer interface has been utilised but this fact is not known to the external users.

8.6 The difficulty of printing and downloading

External users have been encouraged and advised to retrieve data from NSTP Online by downloading. This is a cumbersome process. Although there are supportive opinions about the usefulness of downloading, the feedback indicates that the process can be improved by adopting a better format to suit different systems, improving data presentation, reducing the steps involved, minimising missing data during data transfer, and most of all, providing external users with the option to print what they see on the screen.

The assumption that users prefer to download data is confirmed by one participant who chooses to download whenever possible. However, this participant is far from pleased about the process.

"I prefer to download documents. I even prefer to take down the details and ask NSTP Online to fax it to me, to make sure that I get the document. This is to avoid the problem of missing date and I have to massage the data after downloading. I don't trust file transfer."

The unreliability of downloading is further illustrated by another participant:

"It's quite difficult because the system hang. Sometimes the documents can't even write to the disk. I need to reboot the PC."

To users who are pressed for time in accessing information, the unreliable data transfer could stem from problems associated with the telecommunication structure. Furthermore, one participant comments that the difficulties of the process are due to a lack of explanatory features:

> "It is time consuming and I am not sure if the files have been downloaded. There is no indication of the downloading process; only the bytes are shown, no number of documents are shown when being downloaded."

When the subscribers are paying for every minute of access time, an accurate and obvious presentation of downloading such as number of articles being transferred is required. The lack of flexibility in the downloading process is further reported by one participant:

> "I can only download a small number of articles at one time, about ten at a time. If not the system will hang unless it's a running number such as one to one hundred. It's not good for staggered number. I am not sure if it's the problem of the PC or the system. Since we are aware of this problem, we limit the number of downloading at one time."

This is an undesirable feature of the process. Theoretically, users can download as many documents as required. However, users are required to work around the limitation of the service including the number of documents being downloaded. Another participant recollected the problem faced when utilising the downloading or printing facilities at the inception stage.

> "I can print and download alright, but when I specify to download article one and three, sometimes it will download articles one to three. It is not so much of completeness but more of problems of the downloading function. It happens to printing too. This problem happened more in the past and occasionally now."

On the other hand, one participant notices that display of selected keywords is not consistent.

> "Keywords are not highlighted when searched by date or downloaded document."

When viewing documents on the screen, keywords are highlighted within the text. The comment indicates that by limiting a search using date fields, the prominence of date search has overshadowed the keywords. In the case of downloading or printing, the keywords are not highlighted once the data is transferred.

With the current downloading facility, when documents are required from several databases, not only do the users have to login to a new database to execute the same set of search strategy several times; they also have to download the required information from these documents separately. As the facility of printing directly from screens is not available to external users, these users are required to download the documents before printing them. This time consuming process discourages users from accessing as many databases as required.

8.6.1 Instructions for downloading and printing

Although most participants have experience with downloading documents (100% external participants and 67% internal participants); they are not necessarily satisfied with the process. Five participants report the complexity of the procedure involved.

> "There's a lot of steps to remember for downloading."

> "The process is complicated. There's a lot of steps and commands. I have to get help from someone whenever I need to print. However, I have never tried to write down the commands from colleagues."

> "There are too many steps to do."

> "I don't usually do it because I keep forgetting the commands. I have to get other reporters to help. The process is too complex. It should be what you see is what you get."

> "It's very laborious. It's about the steps from story to side bar and I can miss out one step."

The above comments are made by participants of various computing backgrounds and experience in accessing databases. In a worse instance, one participant has given up attempting to download articles.

> "I don't use downloading at all. I don't like downloading, the process is incomprehensible."

According to Blecker (1990), when designing a search process, the motto should be "keep it simple" and "minimal keystrokes". In the future system development, NSTP Online will need to take into consideration the number of steps involved in retrieving and capturing information (section 8.6.2). The complication of downloading for internal users is further explained by one internal participant, who accessed NSTP Online through an Atex machine (editorial system).

> "I can't download at my own PC. I have to use another PC. I can't see the logic of the need to log off from Atex to go to NSTP Online. The steps are messy."

Not all the internal users have NSTP Online access at their terminals. Moreover, not all the limited terminals which have NSTP Online access have the facility to download documents. Thus, this participant expresses the frustration of the lack of planning in providing a reference service to the users. These users found it an inconvenience to log off the system in use, in order to switch to NSTP Online. To

users who are familiar with Windows, this mode of access is considered to be outdated.

Another internal participant, who could print directly from the screen but prefers to download, confirms that there are too many steps in this process.

> "I rather download. The information would go to hard disk but there are many steps involved. For example the '$' [dollar sign] string, 'CAT', 'F10' command; they are mind boggling and make no sense."

This comment strongly suggests that the file transfer interface for the internal users has not been investigated before implementation. The internal users have been left to struggle with the complexities of the Unix commands, which differ from the systems they are familiar with, such as Atex, or a word processor based on DOS. Such is the degree of difficulty, two participants report that they rely on the help of other colleagues to perform the task of downloading or printing, even after four years of accessing the service.

> "I don't do it at all, I ask my staff to do it."

> "I haven't tried downloading. If necessary, I will ask a colleague to print it out for me."

8.6.2 The downloading steps

In response to the complaints of the steps involved in the downloading process, a test was carried out to examine the procedure based on the experience of an external user. Below are the steps illustrated in the NSTP Online user manual (pp18-19):

How to download documents

1	Select documents and note down the document number
2	Press ALT-M
3	Select "Download File" and press <enter>
4	Key in document range (eg 1-3 or 1, 3) and press <enter>
5	Key in filename and press <enter>, wait for confirmation screen
6	Type 'Y' for yes to proceed or 'N' for no to cancel
	Note : The Kermit transfer screen will be displayed and documents will be transferred. Upon completion, the screen will disappear and the system will move back to the commencement of the downloading screen.

After completing the steps above, the users need to activate their word processor in order to print the downloaded documents. There is no formal documentation for the internal users in downloading. However, the steps illustrated below are a guide to the process.

⇒ select document from TOC or through browsing
⇒ go to browsing screen
⇒ go to the screen for re-directing documents
⇒ key in document number and filename for re-directing
⇒ exit from re-directing screen
⇒ exit NSTP Online
⇒ login and access downloaded file from individual working queue

The steps above definitely do not fit into Blecker's description! (1990)

As a comparison study, the downloading steps of Dialog Information Services and Reuter Business Briefing (version 1.10) were examined. The process in Dialog is command driven, while Reuter is menu driven.

Dialog Information Services	Reuter Business Briefing
1. Activate log file when connected to the service, name log file	1. Highlight titles of articles to be downloaded while browsing
2. All search activities and results display on the screen will be recorded in the log file	2. Go to 'File', then 'Save as'
	3. Select 'Source' (headline / article) and 'Mode' (current / selected / all)
	4. Go to 'File', type filename, press 'OK' to confirm downloading

The downloading process in Dialog is transparent to the end-users. When the selected documents are viewed online, the data will be recorded onto the log file together with the search strategy and keywords used. The process completes with the searching process. Users can view the whole log file offline using a word processor. To retrieve the required documents in a presentable format, it is necessary to use a 'cut and paste' technique to present the downloaded data.

The downloading process in Reuter is visually intuitive. The titles and the full-text of the articles are displayed side-by-side as in the form of two vertical windows. It is not necessary to take down the document number for redirecting. In the process of document transfer, it is clearly stated which document is being transferred to disk.

As leaders in providing full-text online databases, the approaches employed by Dialog and Reuter are simple and relatively easy to use compared to the steps required by NSTP Online.

8.6.3 Presentation of data

A reasonable presentation of the data retrieved is essential, particularly for the external users, who are the information providers of their organisations. This is

explained by one participant who has the responsibility for disseminating information from the daily newspaper articles.

> "I was being told that I can download from DOS. I tried it once and it took a very long time. The layout of the printing is not presentable. It only printed on the right hand side of the paper and the left hand side was empty. I have now changed to Amipro before printing."

The feedback indicates that data downloaded from NSTP Online may not suit all the systems used by the subscribers and probably needs specific configuration to facilitate the process. Moreover, three participants provided feedback about the additional editing work they need to carry out in order to make sense of the data retrieved.

> "The printed data has weird format, it usually goes out of line. We have to download and correct the format."

> "There's always some data lost, garbled data, paragraphs lost when downloading the documents. An error command '1/5' always appear in the sentences. I haven't told anyone about this. I assume the NSTP Online expert should know what is going on."

> "There are weird characters within the document and tailing come the story towards the end part."

Two of these three participants who complained are internal users. As noted earlier there has been a minimum support service provided for this user group. The format of the data downloaded is an example of the extent of the neglect. The error command '1/5' for example, is a consequence of data transfer error from Unix to Atex. As a sub-editing software, Atex may read unacceptable symbols from Unix as an error command (section 6.8.3).

In addition, due to the lack of communication with NSTP Online, the internal users have to bear with incorrect data presentation and assume that someone would take notice of the problem. The management of NSTP Online may not be aware of these problems at all. Madam Cecilia Tan, Manager of the Information Services, comments that they have not had any feedback on this issue. Tan states that:

> "They [internal user] know we are the one who handle NSTP Online, they can come to us."

This is an indication that the Information Services has not been proactive in seeking the usage and feedback of NSTP Online users in order to provide a service that operates for their benefit.

8.6.4 Speed of printing/downloading

Besides the lack of quality presentation of the data retrieved and the difficulty of the downloading process, the speed of downloading, as well as printing, is a concern to the users. Four participants who have the experience in printing stated that:

> "I prefer to download because printing is slow."

> "The process is very slow. I have to wait more than one minute sometimes. I am not sure if it's the problem of the system, the software, the modem or the file transfer program."

> "It's extremely slow."

> "The process takes a long time. Downloading has become faster, they have revised it."

After discussing the difficulties and the associated problems of downloading, these users would still prefer downloading because speed is a concern. Downloading saves

the processing time of transferring data to a printer. As the process takes less time, the external users would be able to reduce the cost in retrieving data. Thus, in response to the participants who suggested having the screen printing option, it will be interesting for them to compare the speed of the two functions.

One participant agrees that by downloading documents, time is better spent on creating ideas from the stories that had been stored on disk. With the ease of transferring the stories to the sub-editing software (Atex), the users do not need to re-type the notes from the printout.

> "I could print a file and save a copy on disk. I usually prefer downloading and storing information on disk, then I could transfer to Atex for further stories."

The reason that one participant prefers downloading, is because the retrieved information is available in hardcopy.

> "I prefer to download before printing. The headers appear on every page. The downloading process is simple. I could send data to my own queue and take it out for assignment. It's a matter of convenience."

This participant's concern was for the printing format of NSTP Online which unnecessarily wasted paper for repetitive information. The participant, however, appreciates the speed and the convenience of transferring the information to a stored medium.

8.7 Conclusion

The issues in regard to limiting the searches by applying Boolean operators and indexing fields are more of a concern to external participants than internal participants. A majority of the internal participants have not undergone training, and as a result, they are ignorant of the many aspects of searching for information

effectively. In addition, internal participants have limited exposure to Boolean operators from their experience of using other databases. Both group of users consider the search functions of NSTP Online are not intuitive and are difficult to follow. The internal participants in particular have initiated individual methods of conducting their searches. Furthermore, a number of them have not learned or prefer not to learn about the complex downloading and printing process due to the complexity of the process. The need for appropriate training and support in order to improve the skills of these users cannot be underestimated. In regard to all the problems encountered with using NSTP Online, one participant is philosophical about this service :

"The usefulness of NSTP Online outdoes the problems."

In comparison to the facilities that were used before NSTP Online, such as news clippings and the limitation on access per person, this service has proved to be an irreplaceable information tool.

CHAPTER 9
CONCLUSIONS AND RECOMMENDATIONS

Despite the shortcomings in the current service identified in response to this study, it appears that NSTP Online has the opportunity to retain its position as the leading provider of online Malaysian news and current affairs based information. It is still the leader in a niche market as the other information providers who have emerged (Malaysia Online for example) are not yet able to compete for sections of this market. These services do not provide archival news facilities which are necessary for research purposes; as well as lacking a physical printed newspaper market share such as The New Straits Times Press. Therefore, despite the limitations indicated by the users, NSTP Online continues to provide a required service.

There is however, reason for NSTP Online to be concerned about the current level of the service being provided to users. The research results have revealed that both internal and external users of NSTP Online are aware of the extent to which the service has fallen below the standards attained by other online information providers. In responses to all major measures of quality undertaken in the course of this study there were clear indications that NSTP Online is no more than adequate.

It would seem that unless NSTP Online takes some significant steps to rectify these perceived shortcomings, then they will eventually run the risk of declining usage and a fall in revenue which could lead to the termination of the service. NSTP Online will require increasingly competitive technology and customer support skills to maintain the current clientele and to attract a new generation of users to the service. The major advantage of NSTP Online has been its early entry into the online information business into the Malaysian market, providing Malaysian-based news information with the huge support of The New Straits Times Press. However, this alone will not secure its survival in an increasingly sophisticated marketplace.

The results of this study indicate that there is an immediate need for improvement with regard to almost all quality-related issues. These include the four main areas

discussed in the preceding chapters - database contents (Chapter 5), data quality (Chapter 6), customer support (Chapter 7) and database structure (Chapter 8).

Based on the data gathered in the course of this research, the following recommendations are presented as a means of improving each of these areas.

Database contents

Recommendation 1.

The delay of twenty-four hours in providing access to news stories should be eliminated.

This delay should be minimised and if possible eliminated, with news stories being added to the database when editing is completed. If suitable software is acquired, news stories could be programmed to be added to the respective sections of the database as the stories are edited. By eliminating the data transfer from the editorial departments to the Indexing Unit will release the indexers' time for addition quality control.

Recommendation 2.

Similar content, irrespective of where it is located in the database, should be able to be searched concurrently.

When accessing a newspaper database, the users are attempting to satisfy an explicit information need which may not coincide with the contents of a particular section of the database. Thus, subject information such as business personalities and news, should be available to be searched concurrently, irrespective of which section of the database it is stored in. This will eliminate the necessity to change from one section of the database to another in order to conduct a thorough search.

Recommendation 3.

To adopt Windows based software for presenting graphics.

The current technology of NSTP Online cannot present any types of graphics including pictures, charts or advertisements. This constraint can be solved by adopting a Windows based software. This medium is desirable to encourage the new generation of users who anticipate being able to work with the graphics provided in a Windows environment.

Database quality

Recommendation 4.

Irregular and inconsistent starting dates should be listed and where possible standardised.

The various starting dates including newspapers, magazines and news from SPH are a result of the decisions made by the Indexing Unit to include and introduce new items according to their working schedule. As it may not be possible to have all publications having the same starting date, the solution to this issue will be to list the starting date of each publication clearly.

Recommendation 5.

The contents, depth and currency of information of Special Databases should be reviewed.

The contents of Special Databases (particularly Personality Profile) should be updated on a regular basis to ensure the latest information is included. These profiles should focus on the information required by the users, which is business personalities and news. As Quint (1998, p18) points out about the survival of database providers: "Essential data that makes money and fits nice and tight ... may change or alter, but it probably will not die."

Recommendation 6.

The sequence and listing of table of contents (TOC) should be streamlined.

The limitation of TOC listing to only 50 article titles at one time is a deterrent to viewing the full extent of a search result. A full list of results should be available in a standard reverse chronological sequence that is not affected by the loading order of the files.

Recommendation 7.

A review of the current navigation and search commands with a view to simplifying and speeding access to the system.

Unnecessary commands that are part of the indexing software should be eliminated. The clumsiness of the command keys affects the effectiveness in searching and retrieving data and discourages use of the system.

Customer support

Recommendation 8.

The lack of communication with the editorial staff and users should be improved.

The Indexing Unit and RIS operate as separate entities to the editorial departments and the users. This seems to be the root of the unfavourable feedback obtained, particularly the lack of an appropriate channel for reporting errors found in NSTP Online. As the editorial staff are also the main users, scheduled and regular communication should clarify the requirements and expectations of these users of NSTP Online. In particular, it is recommended that staff of NSTP Online conduct regular face-to-face meetings with users.

Recommendation 9.

To improve the support and training provided for internal users.

The customer service extended to the internal users is inadequate and training is not available to new employees. The largest user group of NSTP Online, internal users, rely on experienced colleagues helping them to learn the system. With the abolishment of LOL help desk, this user group has been ignored. In order to fully utilise the system, LOL help desk staff with training and system skills are required to help these users access the service in the editorial environment.

Recommendation 10.

Continuous and structured training must be provided to external users.

The one-off training session is not sufficient, as the external user group is not limited to one person but may extend to all the staff in an organisation. These users may need a regular refresher course structured to their level skills. In addition, the new staff will require training.

Recommendation 11.

The implementation of a standard price structure is recommended.

The current price structure is not geared to users with capped budgets. This structure is further complicated by the variable prices of Newsbase and Special Databases, as well as the telecommunication and downloading costs. A "standard price structure" reflecting the estimated usage is suggested to overcome this problem. The "standard price structure" should comprise a list of tiered prices tied to a sliding scale of usage.

Select bibliography

Alkula, R. and Sormunen, E. 1989, 'Problems and guidelines for database descriptors', in *Proceedings of the 7th Nordic Conference for Information and Documentation, 28-30 August 1989*, ed H. Clausen, Aarhus University, pp29-37.

Armstrong, C. J. & Hartley, R, J. (eds) 1992, *Database 2000: UKOLUG State-of-the-Art Conference*, Learned Information, Oxford.

Armstrong, C. 1994, 'CIQM report on database quality', *Database*, vol 17, no 6, pp45-48.

Armstrong, C. J. 1994, 'Databases and quality: why not "What you see is what you get"', *Managing Information*, vol 1, no 11, pp28-30.

Armstrong, C. J. 1995a, 'The eye of the beholder', in *Electronic information delivery: ensuring quality and value*, ed R. Basch, Gower, Aldershot, pp221-244.

Armstrong, C. J. 1995b, 'Do we really care about quality?', in *Online Information 95 : 19th International Online Information Meeting Proceedings, London, 5-7 December 1995*, ed D. I. Raitt & B Jeapes, Learned Information, Oxford, pp49-59.

Armstrong, C. J. Medawar, K., 1995, *Investigation into the quality of databases in general use in the UK*, Centre for Information Quality Management, Penbryn Bronant, Aberystwyth.

Armstrong, D. 1997, 'Malaysia's corridor to the future', *The Australian*, 24 June, p53.

Arnold, S. E. 1991, 'Marketing electronic information: theory, practice, and challenges, 1980-1990', in *Annual Review of Information Science and Technology*, ed M. E. Williams, Elsevier Science, New York, pp87-144.

Arnold, S. E. 1992, 'Information manufacturing: the road to database quality', *Database*, vol 15, no 52, pp32-39.

Arundale, J. 1990, 'Online and the news media', in *Proceedings of the 1st East-West Online Information Meeting, Moscow, USSR, 11-13 October 1989*, Learned Information, Oxford, pp194-200.

Babbie, E. 1990, *Survey research methods*, Wadsworth, Belmont.

Backstrom, C. H. & Hursh-Cesar, G. 1981, *Survey research*, 2nd edn, John Wiley & Sons, New York.

Bale, J. 1997, 'Newspaper database: exploring the "Nature of the Beast"', *Online Currents*, vol 12, no 4, pp7-11, 16.

Barker, A. L. 1994, 'Application of BS 5750/ISO 9000 to the quality assurance of services provided by online search intermediaries', in *18th International Online Information Meeting Proceedings, London, 6-8 December 1994*, eds D. I. Raitt & B. Jeapes, Learned Information, Oxford, pp47-56.

Basch, R. 1989, 'The seven deadly sins of full-text searching', *Database*, vol 12, no 4, pp15-23.

Basch, R. 1990a, 'Measuring the quality of the data : report on the Fourth Annual SCOUG retreat', *Database Searcher*, vol 6, no 8, pp18-24.

Basch, R. 1990b, 'Searching newspaper online: the times it is a-chargin'', *in CD ROM '90 Proceedings of the Conference, 5-7 November 1990*, Online Inc., Weston, pp1-9.

Basch, R. 1990c, 'May I help you? Customer service and beyond', *Database Searcher*, vol 6, no 6, pp14-17.

Basch, R. 1992, 'An overview of quality assurance issues', in *Database 2000: UKOLUG State-of-the-art conference 1992*, ed C. J. Armstrong & R. J. Hartley, Learned Information, Hinksey Hill, pp85-92.

Basch, R. (ed) 1995, *Electronic information delivery: ensuring quality and value*, Gower, Hampshire.

Berkman, R. 1990, 'Information quality : an emerging issue', in *National Online Meeting, Proceedings of the 11th National Online Meeting, May 1-3 1990, New York*, ed M. E. Williams, Learned Information, Medford, pp43-50.

Beutler, E. 1995, 'Assuring data integrity and quality : a database producer's perspective', in *Electronic information delivery: ensuring quality and value*, ed R. Basch, Gower, Hampshire, pp59-68.

Blecker, S. 1990, 'Does "user friendly" means I do not need to read the manual?', *New Jersey Libraries*, vol 29, no 1, pp31-33.

Breakwell, G. M. 1990, *Interviewing*, The British Psychological Society, Leicester.

Brophy, P. 1998, 'It my be electronic but is it any good? Measuring the performance of electronic services', in *Robots to knowbots: the wider automation agenda, VALA 9th Biennial Conference and Exhibition, Janurary 29-30, 1998,* Victorian Association for Library Automation Inc., Melbourne, pp217-230.

Cahn, P. 1994, 'Testing database quality', *Database*, vol 17, no 1, pp23-30.

Casale, M. 1993, 'CD-ROM database quality', *Online and CD-ROM Review*, vol 17, no 5, pp310-312.

Chadwick, T. B. 1992, 'Training end users to make informed choices when doing electronically based research: considerations in choosing and searching electronic databases', in *13th National Online Meeting Proceedings 1992, New York, May 5-7 1992*, Learned Information, Medford, pp51-58.

Chang, A. C.-H. 1995, 'The professional online databases market in Asia - its hurdle and futures' in *1st Asian Information Meeting - Proceedings, Hong Kong, 27-30 September 1995*, ed D. I. Raitt, B. Jeapes, & C. Downs, Learned Information Europe, Oxford, pp25-33.

Chitty, M. & Gelb, L. 1987, 'Quality assurance and online searching', *Online*, vol 11, no 2, pp110-112.

Chu, S. 1995, 'Dow Jones versus Lexis-Nexis: a comparison of two online databases', in *1st Asian Information Meeting - Proceedings, Hong Kong, 27-30 September 1995*, ed D. I. Raitt, B. Jeapes, & C. Downs, Learned Information Europe, Oxford, pp243-254.

Cotton, P. L. 1987, 'Where full-text is viable', *Online Review*, vol 11, no 2, pp87-93.

Creswell, J. W. 1994, *Research design: qualitative and quantitative approaches*, Sage Publications, Thousand Oaks.

Curle, D. 1998, 'Filtered news services: solutions in search of your problem?', *Online*, vol 22, no 8, pp16-24.

Dale, J. 1995, 'Real life implementation of an online newspaper presence (Interactive Newspaper '95)' [Electronic Database], *Editor and Publisher*, vol 128, no 5, p22TC(3), Available from: Expanded Academic ASAP, RN: A16654077.

Day, J. M. 1994, 'Keynote paper: changing patterns of online information', in *Changing patterns fo online information: UKOLUG State-of-the-art conference 1994*, ed C J Armstrong & R J Hartley, Oxford, pp1-10.

De Stricker, U. 1994, 'Out of the data business, into the service business: marketing, selling, and supporting electronic information products at home and abroad', *Searcher: The Magazine for Database Professionals*, vol 2, no 4, pp30-37.

DiMartino, D. & Zoe, L. R. 1996, 'End-user full-text searching: access or excess?', *Library & Information Science Research*, vol 18, no 2 , pp133-149.

Dolan, D. R. 1992, 'Quality control at the system level', *Online*, vol 16, no 2, pp14-23.

Downing, A. J. 1994, *An investigation to identify the deerminants that users of Technical and Further Education libraries apply to judge the overall quality of service provided*, Master thesis [unpublished], Curtin University of Technology.

Elliott, K. M. 1995, 'A comparison of alternative measures of service quality', *Journal of Customer Service in Marketing and Management*, vol 1, no 1, pp33-44.

Fisher, M. T. 1988, 'Overview of pricing strategies in the electronic information', *Information Services & Use*, vol 8, no 2/3/4, pp73-78.

Fitzgerald, M. 1994, 'Newspaper plot their interactive strategies on the fly', [Electronic Database], *Editor & Publisher*, vol 127, no 11, pp33(2), Available from: Expanded Academic ASAP, RN: A14980090.

Fowler, F. J., Jr 1993, *Survery research methods*, 2nd edn, Sage Publications, Newbury Park.

Fox, C., Levitin, A. & Redman, T. 1994, 'The notion of data and its quality dimensions', *Information Processing & Management*, vol 30, no 1, pp9-19.

Freeman, H., Rouse, R. & Hilton, A. 1995, 'Making the mst of electronic database: computer-based tutorials for a CD-Rom network', *Managing Information*, vol 2, no 1/2, pp36-38.

Glassner, B. & Moreno, J. D. (eds) 1989, *The qualitative-quantitative distinction in the social sciences*, Kluwer Academic, Dordrecht.

Glazier, J. D. & Powell, R. R. (eds) 1992, *Qualitative research in information management*, Libraries Unlimited, Englewood.

Granick, L. 1991, 'Assuring the quality of information dissemination: responsibilities of database producers', *Information Services and Use*, vol 11, pp117-136.

Greenwald, J. 1997, 'Thinking big', *Wired*, August, p95-104, 144.

Griffiths, J. R. & Lambert, J. S. 1996, 'CD-ROM interfaces: full-text databases', *Asian Libraries*, vol 5, no 2, pp49-56.

Grzeszkiewicz, A. & Hawbaker, A. C. 1996, 'Investigating a full-text journal database: a case of detection', *Database*, vol 19, no 6, pp59-62.

Hamsawi, R. 1995, 'Bigger NSTP Online subscribers' base', *Business Times*, 26 June, p7.

Harry, V. & Oppenheim, C. 1993, 'Evaluations of electronic databases, part I : criteria for testing CDRom products', *Online & CDRom Review*, vol 17, no 4, pp211-222.

Hartley, R. J. et al, 1990, *Online searching: principles and practice*, Bowker-Saur, London.

Hearty, J. A. 1988, 'Full text pricing information online: today's problem, tomorrow's solutions', *Information Services & Use*, vol 8, no 2/3/4, pp93-105.

Henley, J. 1992, 'Training in the use of online database', *Aslib Information*, vol 20, no 11/12, pp416-419.

Hepworth, J. 1992, 'Developing information handling courses for end users', in *Database 2000. UKOLUG state-of-the-art conference 1992*, ed C. J. Armstrong & R. J. Hartley, Learned Information, Oxford, pp67-75.

Hepworth, M. 1995a, 'A review of the availability of electronic sources of South East Asian and East Asian information and the use of Electronic information sources in South East Asia', in *1st Asian Information Meeting - Proceedings, Hong Kong, 27-30 September 1995*, ed D. I. Raitt, B. Jeapes, & C. Downs, Learned Information Europe, Oxford, pp51-69.

Hepworth, M. 1995b, 'A chronology of formalized approaches to information management in the Southeast Asian region', *Asian Libraries*, vol 4, no 4, pp23-35.

Hernon, P. & Schwartz, C. 1996, 'Editorial: measuring customer satisfaction', *Library & Information Science Research*, vol 18, no 4, pp295-296.

Hudnut, S. K. 1991, 'The nineties: decades of quality?', in *Proceedings of the Fifth Australasian Information Online and On Disc Conference and Exhibition, Hilton International Hotel, Sydney, Australia, January 30-February 1 1991*, ed G.R. Lowry, Australian Library & Information Association, Canberra, pp303-316.

Jacobs, J. 1996, 'NSTP sees good year', *Business Times*, 19 January, p6.

Jacso, P. 1993, 'A proposal for database "Nutrition and Ingredient" labelling', *Database*, vol 16, no 1, pp7-9

Jacso, P. 1993a, 'Searching for skeletons in the database cupboard part I: errors of omission', *Database*, vol 16, no 1, pp38-49.

Jacso, P. 1993b, 'Searching for skeletons in the database cupboard part II: errors of omission', *Database*, vol 16, no 2, pp30-36.

Jalkanen, T. & Juntunen R. 1994, 'A metrics evaluation system for database quality', in *Proceedings of the 3rd International Society for Knowledge Organization (ISKO) Conference: Knowledge organization and quality management, Copenhagen, Denmark, 20-24 Jun 94*, eds H. Albrechtsen & S. Oernager, INDEKS Verlag, Frankfurt/Main, pp52-57.

Johnson, C. S. 1994, 'CD-ROM database quality: some observations based on experience at Sultan Qaboos University library', *Program*, vol 28, no 4, pp379-394.

Juntunen, R. et al 1991, 'Quality requirements for databases - project for evaluating Finnish databases', in *Online Information 91: 15th International Online Information*

Meeting Proceedings, London, 10-12 December 1991, ed D. I. Raitt, Learned Information, Oxford, pp351-359.

Juran, J. M. & Gryna, F. M. (eds) 1988, *Juran's quality control handbook,* 4th edn, McGraw-Hill, New York.

Kotler, P 1994, *Marketing management: analysis, planning, implementation and control*, 8th ed., Prentice-Hall, Englewood Cliffs.

Kuhu, P.; Deplangue, R. & Fluck, E. 1994, 'Criteria of quality assessment for scientific databases', *Journal of Chemical Information Company Science*, vol 36, no 3, pp517-519.

Lancaster, F. W. et al 1994, 'Searching databases on CD-ROM: comparison of the results of end-user searching with results from two modes of searching by skilled intermediaries', *RQ*, vol 33, no 3, pp 370-386.

Levitin, A. & Redman, T. 1995, 'Quality dimensions of a conceptual view', *Information Processing & Management*, vol 31, no 1, pp 81-88.

Lion, D. J. 1993, *The development of a model for the assessment of the benefits of computerised bibliographic information retrieval system*, Master thesis [unpublished], Curtin University of Technology.

Marchionini, G. et al 1993, 'Information seeking in full-text end-user-oriented search systems: the role of domain and search expertise', *Library and Inforamtion Science Research*, vol 15, pp 35-69.

Marshall, C. & Rossman, G. B. 1995, *Designing qualitative research*, 2nd edn, Sage Publications, Newbury Park.

Martin, P. 1992, 'The hosts' view of quality assurance', in *Database 2000 UKOLUG State-of-the-Art Conference 1992*, ed C. J. Armstrong & R. J. Hartley, Learned Information, Hinksey Hill, pp93-96.

Martindale, K. 1995, 'Teaching information skills on CD-Rom: a conceptual approach', *Learning Resources Journal*, vol 11, no 2, pp37-40.

May, N. A. 1994, 'Methodology for the measurement of quality of electronic databases : a report of work undertaken by EQUIP', in *Knowledge Organisation and Quality Management, Third International ISKO Conference, 20-24 June 1994, Copenhagen,* eds H. Albrechtsen & S. Oernager, INDEKS Verlag, Frankfurt/Main, pp58-59.

McCullagh, L. 1997, 'Customer needs and service provision', in *Information Online & On Disc: Proceedings of the Eighth Australian Information Online & On Disc Conference & Exhibition*, Sydney Convention & Exhibition Centre, Sydney, Australia, 21-23 January 1997, Information Science Section, Australian Library and Information Association, pp417-425.

Meadows, J. 1992, 'A fish's eye view of information', *in Information system for end-users: research and development issues*, ed M. Hancock-Beaulieu, Taylor Graham, London, pp5-12.

Medawar, K. 1995, 'Database quality: a literature review of the past and a plan for the future', *Program*, vol 29, no 3, pp257-72.

Meeting the needs of journalist, 1993, *Information World Review*, no 82, pp8-9.

Meloy, J. M. 1994, *Writing the qualitative dissertation: understanding by doing*, Lawrence Erlbaum Associates, Hillsdale.

Mintz, A. 1995, 'Quality issues in information retrieval : a publisher's perspective', in *Electronic information delivery: ensuring quality and value*, ed R. Basch, Gower, Aldershot, pp47-58.

Mohamad, M. 1996, 'A global facilitation of information age', *New Straits Times*, 2 August, p12.

Nicholas, D. 1992, 'The impact of information system on user groups with special reference to politicians and journalist', in *Information system for end-users: research and development issues*, ed M. Hancock-Beaulieu, Taylor Graham, London, pp13-24.

Nicholas, D. 1996a, *Assessing information needs: tools and techniques*, Aslib, London.

Nicholas, D. 1996b, 'An assessment of the online searching behaviour of practitioner end users', *Journal of Documentation*, vol 52, no 3, pp227-251.

Nicholas, D. & Connolly, K. 1993a, 'Big browsers are watching you ...', *Library Association Record*, vol 95, no 1, pp34-35.

Nicholas, D. & Connolly, K. 1993b, 'To cut or not to cut ...', *Library Association Record*, vol 95, no 2, pp104-105.

Nicholas, D. & Frossling, I. 1996, 'The information handler in the digital age', *Managing Information*, vol 3, no 7/8, pp31-34.

Nicholas, D. & Martin, H. 1997, 'Assessing information needs: a case study of journalists', *Aslib Proceedings*, vol 49, no 2, pp43-52.

Norman, S. 1993, 'The LA/UKOLUG database quality project', *UBIS News,* no 2, pp6-7.

Norman, S. 1995, 'Database quality and liability : the UK campaign', *in Electronic information delivery: ensuring quality and value*, ed R. Basch, Gower, Aldershot, pp188-202.

NSTP Online user's manual, [1997], [The New Straits Times Press, Kuala Lumpur.]

O'Neill, E. T. & Vizine-Goetz, D. 1988, 'Quality control in online database', in *Annual Review of Information Science and Technology*, ed M. E. Williams, Elsevier Science Publishers, New York, pp125-126.

Ojala, M., 1993 'The essence of quality for information companies', *Information World Review*, no 82, pp18-19.

Oppenheim, A. N. 1992, *Questionnaire design, interviewing and attitide measurement*, Pinter, London.

Oppenheim, C. 1992, 'Designing for the end-user marketplace' in ed M. Hancock-Beaulieu, *Information system for end-users: research and development issues*, Taylor Graham, London, pp25-33.

Orbers, K. K. 1995, 'Quality assurance in the information service environment', *in Electronic information delivery: ensuring quality and value*, ed R. Basch, Gower, Aldershot, pp91-98.

Othman, Z. 1997, 'Over 900 firms apply for MSC special status', *Business Times (Malaysia)*, 22 April, p1.

Owen, P. 1994, 'Structured for success: the continuing role of quality indexing in intelligent information retrieval systems', in *Online Information 94: Proceedings of the 18th International Online Information Meeting, London, 6-8 December 1994*, eds D. I. Raitt & B. Jeapes, Learned Information, Oxford, pp227-31.

Parasuraman, A., Zeithaml, V. A., & Berry, L.L. 1985, 'A conceptual model of service quality and its implications for future research', *Journal of Marketing*, vol 49, pp41-50.

Parasuraman, A., Zeithaml, V. A., & Berry, L.L. 1988, 'SERVQUAL: a multiple-item scale for measuring consumer perception of service quality', *Journal of Retailing*, vol 64, no 1, pp12-40.

Parasuraman, A., Zeithaml, V. A., & Berry, L.L. 1991, 'Refinement and re-assessment of the SERVQUAL scale', *Journal of Retailing*, vol 67, no 4, pp420-450.

Paul, N. 1994a, 'The electronic newspaper: good reading for the professional searcher? *Searcher: The Magazine for Database Professionals*, vol 2, no 6, pp30-35.

Paul, N. 1994b, 'Traditional newsbank service: facing a challenging future', *Searcher: The Magazine for Database Professionals*, vol 2, no 6, pp40-46.

Peck, T. 1993, 'Electronic newspapers - the state of the art', in *14th Online Meeting Proceedings, New York, May 4-6 1993*, ed M. E. Williams, Learned Information, Medford, pp331-335.

Patton, M. Q. 1987, *How to use qualitative methods in evaluation*, Sage Publications, Newbury Park.

Plasker, G. R. & Welden, K. M. 1990, 'Using Dialog's Online Documentation: how to locate and search databases you know nothing about', *Database Searcher*, vol 6, no 3, pp23-31.

Plutchak, T. S. 1989, 'On the satisfied and inept end user', *Medical Reference Services Quarterly*, vol 8, no 1, pp45-48.

'Quality on the Internet', 1997, *db-Qual*, vol 2, no 1, Available from: http://www.fdgroup.co.uk/dbq_3_4.htm [Online].

Quick, G. 1992, 'Quality assurance and financial databases', in *Online Informaion 92 : proceedings of the 16th International Online Information Meeting, London, 8-10 December 1992*, Learned Information, Oxford, pp57-63.

Quint, B. 1995a, 'What's your problem?', *Information Today*, vol 12, no 1, pp7-9.

Quint, B. 1995b, 'Whatever happened to BRS Software? Interview with Kurt Mueller of Dataware Technologies', *Searcher*, vol 3, no 1, pp42-4.

Quint, B. 1998, 'The mounting death toll', *Database*, vol 21, no 1, pp14-22.

Rea, L. M. & Parker, R. A. 1992, *Designing and conducting survey research: a comprehensive guide*, Jossey-Bass, San Franscisco.

Reid, E. O. F. 1995, 'The Internet and digital libraries implications for libraries in the ASEAN region', Asian Libraries, vol 4, no 2, pp379-391.

Rittberger, M. & Rittberger W. 1997, 'Measuring quality in the production of databases', *Journal of Information Science*, vol 23, no 1, pp25-37.

Rosenthal, W. A. 1992, 'Choosing the best medium for successful sales and training: print vs video vs interactive electronic media', *in 13th National Online Meeting Proceedings - 1992, New York, May 5-7 1992*, ed M. E. Williams, Learned Information, Medford, pp331-337.

Seidman, I. E. 1991, *Interviewing as qualitative research: a guide for researchers in education and the social sciences*, Teachers College Press, New York.

Shamsuddin, E. 1997, 'Malaysia: high-tech investment vehicle launched', *Business Times (Malaysia)*, 8 May, p1.

Smith, A. 1992, *Training and development in Australia*, Butterworth, Sydney.

Steele, A. & Tseng, G. 1992, 'End user training for CD-Rom Medline: a survey of UK medical school libraries', *Program*, vol 26, no 1, pp55-61.

Sussman, V. 1994, 'News of the wired; the perils and promise of electronic newspaper' [Electronic Database], *U.S. News & World Report*, vol 116, no 19, pp60(3), Available from: Expanded Academic ASAP, RN: A15423727.

Swaminathan, M. V. 1996, *Welcome to NSTP Online*, NSTP Online, Kuala Lumpur. [1 page publicity material]

Sylge, C 1996, 'The Guardian: an interview with Helen Martin, Chief Librarian', *Managing Information*, vol 3, no 1/2, pp21-22.

Tenopir, C. 1990, 'Online database - database quality revisited', *Library Journal*, vol 6, no 5, pp64-67.

Tenopir, C. 1995, 'Priorities of quality', in *Electronic information delivery: ensuring quality and value*, ed R. Basch, Gower, Aldershot, Hampshire, pp119-139.

Tenopir, C. 1996, 'Generations of online searching', *Library Journal*, vol 121, no 4, pp128-129.

Tenopir, C. 1997, 'Common end user errors', *Library Journal*, vol 122, no 8, pp31-32.

Tenopir, C. & Barry, J. 1997, 'The data dealers', *Library Journal*, vol 122, no 9, pp28-30.

Tenopir, C. & Ro, J.S. 1990, *Full text database*, Greenwood Press, New York.

Thomas, K. 1996, 'Online information in the '90s', *Managing Information*, vol 3, no 11, pp34-37.

Thompson, W. K. 1996, 'Designing effective user interfaces', in *National Online Meeting Proceeding - Proceedings of the 17th National Online Meeting, New York, May 14-16 1996*, ed M. E. Williams, Information Today, Medford, pp385-391.

Tillotson, J. 1995, 'Is keyword searching the answer?', *College & Research Libraries*, vol 56, no 3, pp199-206.

Turnbull, C. M. 1995, *Dateline Singapore: 150 years of The Straits Times*, Singapore Press Holdings, Singapore.

Warren, D. 1997, 'Finding yesterday's news: a survey of some of the indexes and fulltext databases available for current Australian newspapers', *Australian Law Librarian*, vol 5 no 1, pp9-16.

Watos, D. J. 1991, *From microfilm to digital imagery: on the feasibility of a project to study the means, costs and benefits of connecting large quantities of preserved library materials from microfilm to digital images - a report of the Yale University Library to The Commission on Preservation & Access*, The Commission on Preservation & Access, Washington, USA.

Watters, C. R., Shepherd, M. A. & Burkowski, F. J. 1998, Electronic news delivery project, *Journal of the American Society for Information Science*, vol 49, no 2, pp134-150.

Webb, W. 1995, 'Unlocking data power: database reporting boosts traditional journalism and builds foundation for digitized papers of the future' [Electronic Database], *Editor and Publisher*, vol 128, no 20, pp32(5), Available from: Expanded Academic ASAP, RN: A16908747.

Webber, S. 1995, 'Online pricing: changing strategies in a changing world', in *Online Information 95: 19th Online Information Meeting Proceedings, London, 5-7 December 1995*, ed D. I. Raitt & B. Jeapes, Learned Information Europe, Oxford, pp1-12.

Webber, S. A. E. 1992, 'Criteria for comparing news databases', in *Online Information 92 : proceedings of the 16th International Online Information Meeting, London, 8-10 December 1992*, ed D. I. Raitt, Learned Information, Oxford, pp537-546.

Weiner, R. 1994, 'Have database services replaced clipping services? A detailed analysis of print media monitoring', [Electronic Database] *Public Relations Quaterly*, vol 39, no 2, pp5(5), Article available from: Expanded Academic ASAP, RN: A16320074.

White, H. S. 1992, 'Cost of online searching', *Library Technology Reports*, vol 28, no 2, pp177-185.

Williams, L. P. 1995, 'Info "nots" vs info "nuts": pondering how to serve both', *Library Mosaics*, vol 6, no 6, p21.

Yaacob, R. A. & Abdullah, A. R. 1995, 'The rise and future of the online databse systems and networking infrastructure in Malaysia', in *Online Information 94 - 18th International Online Information Meeting Proceedings, London 6-8 December 1994*, ed D. I. Raitt & B. Jeapes, Learned Information (Europe), Oxford, pp379-391.

Yaacob, R. A. 1995, 'The growing importance of local on-line and networking systems in library and information services in Malaysia', in *Asia-Pacific Library Conference: Gateway to the future, 28 May-1 June 1995, Brisbane, Australia,* State Library of Queensland, Brisbane, pp89-111.

Yeow, J. 1996, 'PM outlines MSC incentive package', *Business Times (Malaysia),* 2 August, p1.

Younger, A. 1992, 'What is quality?', in *Total quality management the information business: key issue 92 based on the paper given at a one day conference on total quality management (TQM) in library & information services with additional material, held at the University of Hertfordshire on 9 September 1992 at the International Library Technology Fair and jointly orgarnised by HERTIS Information & Research and Task Force Pro Libra,* University of Hertfordshire Press, Hatfield.

Zeithaml, V. A., Berry, L.L. & Parasuraman, A. 1985, 'Problems and strategies in services marketing', *Journal of Marketing*, vol 52, pp33-46.

Glossary of terms

BH	*Berita Harian*
BHDB	News in Bahasa Malaysia
CIQM	The Centre for Information Quality Management
COMP	Company Profile
COUN	Country Profile
CS	Customer Support Unit
ENGD	News in English
KLSE	Kuala Lumpur Stock Exchange
LOL	Library Online
MALY	Malaysian State Profile
MBDB	Malaysian Business Digest Database
MSC	Malaysian Super Corridor
NST	*New Straits Times*
PSNL	Personality Profile
RIS	Research Services Department
SCOUG	Southern California Online User Group
SPH	Singapore Press Holdings
TOC	Table of contents

Appendix 1 Product description

PRODUCT DESCRIPTION - NEWSBASE (i)

Basic Information	Full text of NSTP Group of newspapers.		
Language Used	English and Bahasa Malaysia		
Content	English Publications New Straits Times New Sunday Times Business Times Computimes The Malay Mail Sunday Mail	Bahasa Malaysia Publications Berita Harian Berita Minggu Harian Metro	
Timespan Covered	January 1991 to-date		
Number of Documents	Over 1,500,000 documents		
Documents Added	Approximately 1000 documents daily		
Update Frequency	Daily		
Access	Klang Valley Dial Up	Outside Klang Valley Maypac	International Packet Switch Network

PRODUCT DESCRIPTION - NEWSBASE (ii)

Basic Information	Full text of Malaysian Business & Investors Digest		
Language Used	English		
Timespan Covered	September 1993 to-date for Malaysian Business and December 1993 to-date for Investors Digest		
Number of Documents	Documents per issue		
Documents Added	Approximately 80 documents per issue		
Update Frequency	Bi-monthly/monthly		
Access	Klang Valley Dial up	Outside Klang Valley Maypac	International Packet Switch Network

PRODUCT DESCRIPTION - SPECIAL DATABASES

Basic Information	(a) Public-listed companies on the Kuala Lumpur Stock Exchange. (b) Prominent Malaysian personalities. (c) States of Malaysia. (d) Profile on countries of the world.			
Language Used	English			
Databases	Company	Personality	Country	Malaysian States
Content	Corporate Information Board of Directors Background Principal activities Subsidiaries Dividends Financial Shareholders Balance sheets Profit and loss	Personal details Educational background Career profile Political involvements Honours/awards received Publications Corporate activities Affiliations	Geography History People Politics Economy Tourism Banking Education	Geography History People Politics Economy Tourism
File Size	556	620	239	15
Update Frequency	Daily / weekly / monthly / yearly			
Access	Klang Valley Dial Up	Outside Klang Valley Maypac	International Packet Switch Network	

Appendix 2 Price

	Local	International
	RM	RM
Registration fee	299.00	500.00
Monthly Subscription	30.00	100.00
Newsbase		
i) Usage	0.30 per minute	1.00 per minute
ii) Downloading	2.00 per document	8.00 per document
Special Database		
i) Usage	0.30 per minute	1.00 per minute
ii) Downloading	12.00 COMP part document only	25.00 COMP part document only
	30.00 full document	70.00 full document

Appendix 3 Questionnaire

curtin

University of Technology
Perth Western Australia

You are invited to take part in this investigation into the database quality of NSTP Online. This questionnaire is part of the requirement for a research project being conducted for the degree of Master of Applied Science at Curtin University of Technology. The purpose of the survey is to inquire about the perspective of the users when using an online database. A copy of the findings will be shown to NSTP Online but all names will remain confidential. Thank you for your time and co-operation.

Heang Swee Ling,
Department of Information Studies,
School of Social Sciences & Asian Languages,
Curtin University of Technology, Western Australia.

==========

NSTP ONLINE - QUESTIONNAIRE

1. GENERAL

(a) What is the name of your organisation?

_____

(b) What is your position within the organisation?

_____

(c) How long have you used NSTP Online?

_____

(d) How long have you/your organisation subscribed to NSTP Online?

_____

(f) How often do you use NSTP Online? (tick one only)
☐ everyday
☐ once a week
☐ once a month
☐ whenever I need information (please specify) _____

(i) What is the estimated time you would spend online when accessing NSTP Online?

_____

2. DATABASE CONTENTS

(a) What type of information do you usually access? (tick one or more than one)
☐ business and finance
☐ company profiles
☐ conferences and seminars
☐ entertainment
☐ personality profiles
☐ specific news events
☐ sports
☐ others (please specify) _____

(b) Which databases contain most of the information that you require? (tick one or more than one)
☐ news in English
☐ news in Bahasa Malaysia
☐ news from Singapore Press Holdings
☐ company profile
☐ country profile
☐ personality profile
☐ others (please specify) _____

(c) The following features are not currently available on NSTP Online. Would you use these features if they were included? (tick one or more than one)
☐ abstracts
☐ advertisements and notices
☐ graphs and charts
☐ pictures
☐ thesaurus
☐ others (please specify) _____

3. CUSTOMER SUPPORT

(a) Have you received any training in using NSTP Online at the point of subscription?
☐ yes (continue to b)
☐ no (continue to c)

(b) How would you rate the training in relevance to your needs? (please circle answer)
least important 1 2 3 4 5 very important

(c) Have you used the online search help functions?
☐ yes ☐ no

(d) Were you provided with a manual at the point of subscription?
☐ yes (continue to e)
☐ no (continue to f)

(e) How would you rate the user manual in terms of helping you to get access to NSTP Online? (please circle answer)
not useful 1 2 3 4 5 very useful

(f) Have you received any documentation other than a user manual?
☐ yes (please specify) _____
☐ no

(g) Have you contacted NSTP Online customer support?
☐ yes ☐ no

(h) What were the reasons that you contacted the customer support?
☐ to verify bills
☐ to seek help for training
☐ to seek help in telecommunication problems
☐ to seek help in search commands
☐ to seek help in logging on problems
☐ to seek help in using modem
☐ to inform about errors
☐ others (please specify) _____

(i) The current operating hours of NSTP customer support are : Mon - Fri 9-5 and Sat 9-1. Are these operating hours convenient to you?
☐ yes ☐ no

(j) How would you rate the service provided by customer support? (please circle answer)
very poor 1 2 3 4 5 very good

4. DATA QUALITY

(a) Are the following screen displays easy to read? (tick one or more than one)
☐ contents page
☐ browsing documents
☐ flipping pages
☐ changing screens
☐ changing databases
☐ others (please specify)_____

(b) Have you noticed any of the following types of errors? (tick one or more than one)
☐ duplicates
☐ spelling
☐ typographical mistakes
☐ wrong names
☐ wrong dates
☐ article omitted
☐ incomplete articles
☐ others (please specify) _____
(c) Do you find the information meets your requirement in terms of currency?

☐ yes ☐ no

(d) Do you find NSTP Online user friendly when searching for information? (please circle answer)

not user friendly 1 2 3 4 5 very user friendly

(e) Did you inquire about the quality of the database at the point of subscription?

☐ yes ☐ no

5. DATABASE STRUCTURE

(a) Is it easy to logon to NSTP Online when you need to search for information?

☐ yes (continue to c)

☐ no (continue to b)

(b) If your answer is 'no', please specify reasons. (tick one or more than one)

☐ telephone connection

☐ modem connection

☐ NSTP Online shutdown

☐ forget login ID and password

☐ others (please specify) _____

(c) Have you done any printing from NSTP Online?

☐ yes

☐ no

(d) Have you done any downloading from NSTP Online?

☐ yes

☐ no

(e) Was the downloading/printing successful in terms of completeness of data?

☐ yes

☐ no

(f) Could the downloaded data be transferred to the word processor that you use?

☐ yes (continue to g)

☐ no

(g) Which word processing software do you use for accessing NSTP Online data?

_____

Thank you for completing the questionnaire.

curtin
University of Technology
Perth Western Australia

You are invited to take part in this investigation into the database quality of LOL. This questionnaire is part of the requirement for a research project being conducted for the degree of Master of Applied Science at Curtin University of Technology. The purpose of the survey is to inquire about the perspective of the users when using an online database. A copy of the findings will be shown to NSTP Online but all names will remain confidential. Thank you for your time and co-operation.

Heang Swee Ling,
Department of Information Studies,
School of Social Sciences & Asian Languages,
Curtin University of Technology, Western Australia.

==========

LOL - QUESTIONNAIRE

1. GENERAL

(a) What is your position within NSTP?

_____

(b) How long have you used LOL?

_____

(c) Have you used other types of online database besides LOL?

_____

(d) How often do you use LOL? (tick one only)
☐ everyday
☐ once a week
☐ once a month
☐ whenever I need information (please specify) _____

(e) What is the estimated time you would spend online when accessing LOL?

_____

2. DATABASE CONTENTS

(a) What type of information do you usually access? (tick one or more than one)
☐ business and finance
☐ company profiles
☐ conferences and seminars
☐ entertainment
☐ personality profiles
☐ specific news events
☐ sports
☐ the articles that I have written
☐ others (please specify) _____

(b) Which databases contain most of the information that you require? (tick one or more than one)
☐ news in English
☐ news in Bahasa Malaysia
☐ news from Singapore Press Holdings
☐ company profile
☐ country profile
☐ personality profile
☐ others (please specify) _____

(c) The following features are not currently available on LOL. Would you use these features if they were included? (tick one or more than one)
☐ abstracts
☐ advertisements and notices
☐ graphs and charts
☐ pictures
☐ thesaurus
☐ others (please specify) _____

3. LOL HELP DESK

(a) Have you received any training in accessing LOL?
☐ yes (continue to b)
☐ no (continue to c)

(b) How would you rate the training in relevance to your needs? (please circle answer)
least important 1 2 3 4 5 very important

(c) Have you used the online search help functions?
☐ yes ☐ no

(d) Were you provided with a user manual when you first started using LOL?
☐ yes (continue to e)
☐ no (continues to f)

(e) How would you rate the user manual in terms of helping you to get access to LOL? (please circle answer)
not useful 1 2 3 4 5 very useful

(f) Have you received any documentation other than a user manual?
☐ yes (please specify) _____
☐ no

(g) Have you contacted LOL help desk?
☐ yes (continue to h)
☐ no (continue to 4)

(h) What were the reasons that you contacted the help desk?
☐ to seek help for training
☐ to seek help in search commands
☐ to seek help in logging on problems
☐ to seek help in system problems
☐ to inform about errors
☐ others (please specify) _____

(i) How would you rate the service provided by LOL help desk? (please circle answer)
very poor 1 2 3 4 5 very good

4. DATA QUALITY

(a) Are the following screen displays easy to read? (tick one or more than one)
☐ contents page
☐ browsing documents
☐ flipping pages
☐ changing screens
☐ changing databases

(b) Have you noticed any of the following types of errors? (tick one or more than one)
☐ duplicates
☐ spelling
☐ typographical mistakes
☐ wrong names
☐ wrong dates
☐ article omitted
☐ incomplete articles
☐ others (please specify) _____

(c) Do you find the information meets your requirement in terms of currency?
☐ yes ☐ no

(d) Do you find NSTP Online user friendly when searching for information? (please circle answer)
not user friendly 1 2 3 4 5 very user friendly

(e) Did you inquire about the quality of the database at the point of subscription?
☐ yes ☐ no

5. DATABASE STRUCTURE

(a) Is it easy to logon to LOL when you need to search for information?
☐ yes (continue to c)
☐ no (continue to b)

(b) If your answer is 'No', please specify reasons. (tick one or more than one)
☐ terminals were not available when I need to use LOL
☐ LOL connection is not available on my desk
☐ LOL shutdown
☐ forget login ID and password
☐ others (please specify) _____

(c) Have you done any printing from LOL?
☐ yes ☐ no

(d) Have you done any downloading from LOL?
☐ yes ☐ no

(e) Was the downloading/printing successful in terms of completeness of data?
☐ yes ☐ no

(f) Could the downloaded data be transferred to your word processor?
☐ yes (continues to g)
☐ no

(g) Which word processing software do you use for accessing LOL data?

_____

Thank you for completing the questionnaire.

Appendix 4 Interview questions

NSTP ONLINE - INTERVIEW QUESTIONS

1 DATABASE CONTENTS

1.1 What are the reasons that you/your organisation subscribe to NSTP Online?

1.2 How do you use the information that you have accessed?

1.3 In your opinion, is the information you have accessed from NSTP Online complete?

1.4 Have you inquired about the contents of NSTP Online (what is available)?

1.5 Are you aware of the exclusion and inclusion policies of NSTP Online? (Exclusion and inclusion policies are used for the data being selected and omitted as part of the contents of the database)

1.6 If you have noticed any errors in the database, how would you deal with these errors?

1.7 Are you satisfied with the information available from NSTP Online?

1.8 Could you elaborate the reasons that you are satisfied/not satisfied with the information?

2 CUSTOMER SUPPORT

2.1 What do you think of the training provided by NSTP Online in terms of relevance and training methods?

2.2 Are you aware of the role of NSTP Online customer support?

2.3 Have the staff of customer support help you with any difficulties relating to NSTP Online? (If yes, please elaborate)

2.4 Do you think the staff are knowledgable in helping customers (with enquiries regarding using the database)?

2.5 Are you satisfied with the service provided by NSTP Online customer support (inclusive of sales, training and support)?

2.6 Why are you satisfied / not satisfied with the service provided by the customer support staff of NSTP Online?

3 DATA QUALITY

3.1 Do you think the information displayed on the different screens is easy to read?

3.2 Do you find the information in the database up to date?

3.3 In your opinion, if there were errors in the database, would these errors affect the quality of the contents?

3.4 Are you satisfied with the quality of the data available from NSTP Online?

3.5 Can you be more specific?

4 DATABASE STRUCTURE

4.1 Could you elaborate your early experience when accessing NSTP Online (eg logging in at the point of subscription)?

4.2 (Do you think the accessing process is complex)?

4.3 Has the process become easier as you have more practice?

4.4 Are you familiar with the search functions such as 'and' or 'not'?

4.5 Are you aware of searching information by limiting the search fields (such as by author or by date)?

4.6 If yes, do these search facilities (4.2 & 4.3) help in refining the searches that you have done?

4.7 What is your opinion on the process of downloading data before printing them?

4.8 What do you think of the fee structure of NSTP Online for accessing and downloading data?

4.9 Finally, do you have any suggestions about NSTP Online?

Thank you.

LOL - INTERVIEW QUESTIONS

1 DATABASE CONTENTS

1.1 What are the reasons that you use LOL?

1.2 How do you use the information that you have accessed from LOL?

1.3 In your opinion, is the information you have accessed from LOL complete?

1.4 Have you inquired about the contents (what is available) of LOL?

1.5 Are you aware of the exclusion and inclusion policies of LOL? (Exclusion and inclusion policies means the data being selected and omitted for the contents of the database)

1.6 If you have noticed any errors in the database, how would you deal with these errors?

1.7 Are you satisfied with the information available from LOL?

1.8 Could you elaborate the reasons that you are satisfied/not satisfied with the information?

2 LOL HELP DESK

2.1 Are you aware of LOL help desk?

2.2 Have the staff from LOL help desk assist you with any difficulties relating to LOL? (If yes, please elaborate)

2.3 What do you think of the training provided by LOL help desk in terms of relevance and training methods?

2.4 Do you think the staff are knowledgable in helping you (with enquiries regarding using the database)?

2.5 Are you satisfied with the service provided by the LOL help desk?

2.6 Why are you satisfied / not satisfied with the service provided by LOL help desk?

3 DATA QUALITY

3.1 Do you think the information displayed on the different screens is easy to read?

3.2 Do you find the information in the database up to date?

3.3 In your opinion, if there were errors in the database, would these errors affect the quality of the contents?

3.4 Are you satisfied with the quality of the data available from LOL?

3.5 Can you be more specific?

4 DATABASE STRUCTURE

4.1 Could you elaborate your early exprerience when accessing LOL? (eg logging on to the database)

4.2 (Do you think the accessing process is complex)?

4.3 Has the process become easier as you have more practice?

4.4 Are you familiar with the search functions such as 'and' or 'not'?

4.5 Are you aware of searching information by limiting the search fields, such as by author or by date?

4.6 If yes, do these search facilities (4.2 & 4.3) help in refining the searches that you have done?

4.7 What is your opinion on the process of downloading data before printing them?

4.8 Finally, do you have any suggestions about LOL?

Thank you.

Indexing Unit / RIS - Interview questions

1 Coverage/content

1.1 Can you describe the functions of Indexing Unit / RIS?

1.2 What are the sources (including all different parts of a publication) included for indexing?

1.3 What are the policies on inclusion and exclusion of data?

1.4 Are these policies clearly indicated from source to source?

1.5 Are these policies notified to users?

1.6 How current are the individual sources?

1.7 Is there a standard to follow for different sources (for indexing or inclusion)?

1.8 If there were variations from source to source, how do you inform the users?

1.9 How does editorial policy affect indexing?

1.10 Are the staff of NSTP Online (customer support) and LOL help desk aware of these limitations?

2 Accessibility

2.1 Is there any consistency of spelling (eg American/British English)?

2.2 Is there any consistency in transliteration of foreign names?

2.3 Do you use a standard format of abbreviation for journal and newspapaer titles?

2.4 How do you maintain the list of abbreviation if there are changes in the titles over the years?

2.5 Are these abbreviations listed online?

2.6 Can symbols and figures (eg $ and 1,000) be searched?

3 Indexing

3.1 What are the procedures for indexing?

3.2 Are indexing principles stated in a procedure manual?

3.3 How are indexing principles being followed consistently?

3.4 What are the quality control procedures for indexing?

3.5 On average, how many articles are indexed in a day? In a week?

4 Quality assurance

4.1 Do you have a quality assurance manual or a procedures manual?

4.2 To what extent is the accuracy of source material being checked?

4.3 What type of data validation procedure is used when compiling the database?

4.4 Are there spell checkers (for English and Bahasa Malaysia)?

4.5 Is there any duplicate detection mechanisms?

4.6 What is the policy on correction of errors?

4.7 Is there a statement on policy regarding data changes, modifications or corrections?

4.8 Do you notify organisations distributing to third parties immediately of the existence and nature of any changes, modifications and errors?

4.9 Do you maintain statistics on error detection?

4.10 Is there a procedure in place for taking action, once hosts or users have reported errors?

4.11 Usually how quickly are the errors being corrected?

4.12 How do you deal with feedback on quality issues from users?

4.13 How do you liase with NSTP Online regarding quality issues?

4.14 Has the cost of maintaining the quality of the database been considered?

5 Future

5.1 In an ideal situation, how do you think LOL can be improved, in terms of indexing and technology?

5.2 What is the future plan (in the next five years) for NSTP Online?

Thank you.

Appendix 5 'Terms & Conditions' for subscribers

Terms & Conditions

1 Information Supplied

Information may be printed or downloaded for the Subscriber's own reference/research purpose only. Information so copied by the Subscriber may not be supplied or further copied for supply in any manner whatsoever to any third party.

2 Warranty

(a) NSTP does not at any time warrant that the service provided hereunder this Agreement shall be free from any failure or malfunction nor guarantee that access to the service will always be immediate or uninterrupted.

(b) NSTP does not at any time make any representations to the accuracy, completeness, merchantibility or fitness of purpose of the information provided to the subscriber pursuant to this Agreement hereto.

(c) The Subscriber hereby undertakes to indemnify and hold harmless NSTP against any liability, costs, claims or damages incurred by NSTP in any action by any third party against NSTP for passing-off or for being in infringement (if any) of copyright, patent, registered trademark or design or other intellectual property rights of any other party.

The Subscriber's obligations under the above clause shall survive the termination of this Agreement hereto.

(d) The Subscriber undertakes to indemnify and hold harmless NSTP from and against any loss, action, costs, claims or damages whatsoever arising as a result of any breach of any of the obligations, terms and conditions contained under this Agreement hereto.

3 Notice Of Changes

NSTP shall give the subscriber One (1) month's written notice (if any) in relation to:-

a. Any Price Changes, or
b. Any Material Changes to any terms or conditions

4 Transfer Or Assignment Of Rights

The Subscriber shall not transfer or assign any of the subscription rights or obligations contained hereunder to any third party without NSTP's prior written consent.

5 Registration Fee

The registration fee for this subscription which shall be provided in advance by the Subscriber to NSTP shall not be refundable even in the event of termination referred to in Clause 9.

6 Subscription Fee

A subscription fee in addition to the registration fee shall be paid by the subscriber monthly.

7 Voluntary Suspension

The subscriber can request in writing to NSTP for voluntary suspension and NSTP shall have the absolute discretion to consider and approve such suspension without having to assign any reason whatsoever to the subscriber. During this period, the subscriber does not have to pay the monthly subscription fee. Each suspension period if granted by NSTP shall be for a period of six (6) months and subject to further extension at NSTP's discretion. A fee of RM100 is payable for each suspension period.

8 Termination For Breach

NOTWITHSTANDING any provisions to the contrary, NSTP shall be entitled to terminate this service at anytime and with immediate effect without prior written notice in the event of any breach by the subscriber of any of the obligations, stipulations, terms and conditions contained hereunder this Agreement.

9 Force Majeure

Neither party shall be liable in damages or have the right to terminate this Agreement for any delay or default in performing its respective obligations under this Agreement if such delay or default is caused by conditions beyond its control, including, but not limited to, acts of God, catastrophes, government restrictions, wars, insurrections, strikes, fires, floods or work stoppage; PROVIDED HOWEVER that if such delay or default shall exceed six (6) months, then the offer party may, so long as the delay or default continues, terminate this Agreement upon (1) month's written notice to the defaulting party. So long as any such delay continues, the defaulting party so effected by the conditions beyond its control shall keep the other party at all times fully informed concerning the matters causing the delay or default and the prospects of their ending.

10 Governing Laws

This Subscription Agreement shall be governed and construed in accordance with the Laws of Malaysia.

11 Arbitration

In the event there be any disputes between the parties regarding this Agreement or the services provided herein all parties involved shall make every attempt to settle the dispute matter amicably without reference to a neutral party.

In the event that all attempts to settle the dispute amicably are exhausted both parties to this Agreement hereto, may then refer the dispute to an arbitrator from the Kuala Lumpur Regional Centre for arbitration.

All notices which are required to be served on either party shall be in writing and shall be deemed to be sufficiently served if sent by A.R. Register, posted by ordinary mail, faxed, telexed or personally hand delivered to the the following address:-

For NSTP : The NSTP Online Customer Support Unit
c/o The New Straits Times Press (Malaysia) Berhad
Balai Berita
31 Jalan Riong
59100 Kuala Lumpur
Malaysia

For the Subscriber : _____

_____

_____

_____

I.we agree to the above terms and conditions for subscription to the NSTP Online

Signature : .....

Name : .....

Designation : .....

Company's Chop : .....

Date : .....