Chapter 1

INTRODUCTION

1.1. BACKGROUND

1.1.1. Information Literacy

Educational institutions, professional organisations and individuals have put forward various definitions for information literacy. However, the most referred to is the definition that can be found in the Final Report of the American Library Association Presidential Committee on Information Literacy in 1989 which states that, “to be information literate, a person must be able to recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information”.

The advent of the Information Age has brought with it massive amount of information and rapid advances in communication technology. Futurists even went so far as to predict a global shift from the industrial age to a new age of information (Demo, 1986 cited in Deese-Roberts and Keating, 2000). It has been predicted that information skills will be one of the core competencies for the workforces in the twenty-first century. Fowler (1999) noted that “the ability to gather, store, process and communicate information has been identified as desirable by employers for some time”. It has begun to assume the same level of importance as reading and writing. The idea of information literacy has been shaping the way people perceive, process, use and create information. Information literacy is a lifelong process, since one never stops processing information. A person never stops learning and there will always be a need to process information, whether it is looking at train schedules or learning about an illness. Thus, developing lifelong learners has now become an important mission for institutions of higher education.
1.1.2. Information Literacy Courses

Information literacy differs from library and computer literacies in that it requires an awareness of the way in which information systems work, of the dynamic link between a particular information need and the sources and channels required to satisfy this need. It is the integration of library, computer, media and technological literacies, with ethical, critical thinking, and communication skills. These skills are particularly relevant among undergraduates because in the course of their learning process and in order to utilize the ICT facilities available to satisfy their information requirements, they need to be information literate. They need to know how to locate, select, evaluate as well as synthesize information and within this context, they need to be aware of all the ethical issues surrounding the use of information. These skills can be taught via an information literacy course designed by librarians who are familiar with the various information sources with or without academics who are familiar with the course contents and teaching style.

An information literacy course for undergraduates is a programme that is designed to accommodate the need to create information literate undergraduates who are people who have learned how to learn. Its main goal is to create lifelong learners, that is, people who are able to find, evaluate, and use information effectively to solve problems or make decisions. For this purpose, the course should be introduced to undergraduate students of universities either on its own or embedded into project based courses. The undergraduates will be provided with varied opportunities for learning how to use any type of information facilities and resources effectively, acquiring effective research skills and know how to use the various electronic resources properly as a research tool.
1.1.3. Delivery of Information Literacy Courses

There are numerous ways librarians and academics can create and deliver information literacy courses, as well as numerous opportunities for students to learn and practice the necessary skills and concepts. Brevik (1998) categorised two modes of delivery in America, with the first being stand-alone information literacy units which may or may not be part of a core curriculum and the second being the discipline-specific information literacy program under an academic department. Institutions worldwide have taken numerous approaches to deliver information literacy skills to their users and the two most favoured modes of delivery (Kasowitz-Scheer and Pasqualoni, 2002) are:

a. Online information literacy instruction, where the instructions are normally offered via the Internet. The web-based guide is the most common online instructional tool. The tutorials are interactive web-based programmes which are designed to introduce students to the general information literacy concepts and information resources. They can either replace or supplement face-to-face library instruction programmes. However, others see this form of instruction as stand-alone lessons which are disconnected from courses or assignments (Dewald, 1999; Donaldson, 2000), tedious and text-heavy (Vander Meer, 2000 cited in Kasowitz-Scheer and Pasqualoni, 2002), lacks sufficient interactivity to create adequate active learning experiences (Dewald et al, 2000) and communicates a research process that is irrelevant to students’ expectations (Veldof and Beavers, 2001). Dewald (1999) is of the opinion that these tutorials “cannot completely substitute for human connection in learning”.

b. Information literacy course are formal courses which are either offered for credit or non-credit, compulsory or elective, and from a distance or face-to-face (Donnelly, 1998 cited in Kasowitz-Scheer and Pasqualoni, 2002).
They can be integrated with a core curriculum, specific discipline or course, or general information skills. Franz (2002) noted that these courses are popular because they offer opportunities for in-depth instruction and reinforcement of research skills through course activities.

In an attempt to compare these two different delivery modes, Swaine (2001) conducted a study to compare skills acquired through an in-class session to skills acquired through a web-based tutorial, and skills acquired through a combination of these two methods. There was no significant difference in student learning with regards to the methods used. She therefore concluded that “online tutorials are not the single answer to instruction for all students. They are one important means of providing information skills instruction, but should be complemented by an array of web-based guides, librarian-developed course Web pages, in-class instruction and personal assistance”.

The current move is for the integration and tailoring of the information literacy course to the specific needs of a subject. The core competencies for information literacy are relevant to most subject areas so what is required is a course that could be easily adapted to create examples and introduce resources that are more closely related to a student’s own course of study. In Great Britain, the key points emphasised by The Big Blue Project (2004) is the need for information skills training to be integrated into the curriculum, rather than to be treated as a separate subject removed from the subject context.


There are currently eleven public universities and six university colleges in Malaysia with their respective academic libraries. Juhana (2000), Mohd Sharif and Zainab (2002),
Yushiana (2003), Chan (2003), Che Norma (2004), Edzan (2004), Maimunah and Mohd Sharif (2003), and Mohd Sharif and Edzan (2005) had looked at and written about the information literacy initiatives that are in place in the various public and private institutions of higher learning. These programmes are mostly planned and conducted by librarians themselves. Malaysian academic libraries conduct four types of programmes for their students:

a. Orientation programme where the main aim of the programme is to familiarise the new undergraduates with the library’s collection, services, facilities, rules and regulations as well as policies. All new undergraduates have to attend the programme which is normally conducted during the respective university’s orientation week.

b. Information skills programme for final year undergraduates where this is an optional programme, which is tailored to the needs of their undergraduates who are doing their final year project.

c. Specialised information skills programmes where these are programmes, which focus on the usage of the various library tools such as online databases, in-house databases and the Internet. These programmes are complementary to the orientation programmes and seek to further enhance the undergraduates’ library skills.

d. Information literacy or skills courses, which are credited and compulsory or offered as electives and these are structured courses which are taught by the librarians, assessed and are examinable.

Most of these information literacy courses are conducted in the traditional way via a teacher-centered classroom. This approach has resulted in too much information
being taught in too little time and the undergraduates are given very little flexibility (Mohd Sharif and Zainab, 2002; Yushiana, 2003). On the other hand, university libraries worldwide are now moving towards student-centered learning in their delivery of information literacy courses (Abbott, 2001). Franz (2002) noted that these courses are increasingly gaining popularity because they offer opportunities for in-depth instruction and reinforcement of research skills through course activities.

1.1.5. Faculty of Computer Science and Information Technology
All final year undergraduates of the Faculty to Computer Science and Information Technology, University of Malaya has to produce a Final Year Project Report. This report consists of two parts whereby part one involves understanding the scope of the project, reading literature about studies carried out for similar projects and understanding the system, user, software and hardware requirements. The proposal component requires the students to choose a project title, understand their project scope, analyse their project objectives and requirements, carry out an extensive literature review, identify similar systems in the domain they are developing, interview users, choose and evaluate a suitable methodology, and finally present all this in the first four chapters of their final project report. Information literacy skills are firmly embedded in the first half or the proposal component of the final year project when students should be able to identify their information needs, know where to locate, collate, analyse and synthesise information critically and are able to write a coherent project proposal.

However, the final year project reports show that the undergraduates at the Faculty seemed unable to produce a written report that exhibits their information literacy. A number of reasons could account for this. The number of students undertaking the
project is large. For the 2004/2005 academic session, a total of 369 students registered for the project. With a total of 45 full time academic staff for the same academic session, this gives a staff:student ratio of 1:8. Inevitably, students may not get the necessary guidance and are left on their own to complete the research process. In their study of these students, Mohd Sharif and Zainab (2004b) found that although all the undergraduates have undergone the compulsory information skills course in their first year, which is conducted by the University of Malaya Library, they do not seem to be able to relate to what they have learnt and apply this in their final year of study. In this course, the students are taught referencing skills but a quick look at the reference lists at the back of their final year project reports would indicate otherwise. Mohd Sharif and Zainab (2004a) summarise this situation by saying “to assume CS and IT students have no problems in locating and using information is a fallacy”. Their findings indicate that these students have problems in areas such as choosing the right database, choosing keywords for their search strategies, verifying authenticity of retrieved information, appreciating the role of libraries and librarians in their information seeking process. Their study further reinforces the notion that these final year students do encounter problems when undergoing their final year project course.

There are no formal instructions given to the students on how to write their project report. Most students depend on their supervisor’s guidance or on the informational pages provided by the Faculty’s Web portal or attend a one hour briefing given by the coordinator of the Faculty’s Final Year Project Committee. Mohd Sharif and Zainab (2004b) indicated that at this stage, the majority of students depend on their peers or use the previous final year project reports as a basis to start their writing. They also noted that the students relied heavily on the Internet but exhibited a high level of information literacy when using the Internet. However, this is not an indication that they are getting
the necessary quality and quantity of information needed for their academic writing. Personal examination of the chapter on literature review and list of references of some of the completed reports show a lack in citation skills and the inability to synthesis as well as analyse the literature on the chosen subject. This will be described in depth in Chapter 4 of this thesis. In the face of these problems manifesting during the early stages of the students’ final year project report writing, there is a need to ascertain their information literacy skills at that point in time and to identify a solution to the problem.

One possible solution is the provision of an information literacy course for final year undergraduates at the Faculty of Computer Science and Information Technology, University of Malaya with the necessary contents. The proposed course will allow the students to follow a pre-prescribed lesson plan which will enable them to acquire the various information literacy skills within a specific time frame. A facilitator will deliver the lessons based on prescribed lesson plans. In this instance, there is a shift in focus from teaching to learning and the teacher-centered classroom will be replaced by the student-centered approach to teaching and learning. The move is from an instructional model of teaching and learning with the aim of delivering instruction and transfer knowledge from teacher to student, to a learning model which encourages learning and student discovery and knowledge construction (Barr and Tagg, 1995 cited in Deese-Roberts and Keating, 2000).

Eventually, the information literacy course will be developed and delivered over the Web since it is the most favoured mode of delivery of education which is moving at a rapid pace in developed countries. At the recent Malaysian Education Summit 2004 held in Kuala Lumpur, the primary focus was on e-Learning. Paper presenters (Muhammad Rais and Yusup, 2004; Syed Othman, 2004; Tay, 2004) felt that there is
need to upgrade the e-learning infrastructure in Malaysia since e-learning is seen as the alternative to conventional learning methods. At the same time, libraries worldwide (Big Blue Project, 2004) are developing web-based information literacy courses in order to provide easy access to acquisition of information literacy skills which are seen by many as vital to the development of an information literate society. Web-based courses are able to provide undergraduates with more flexibility to move around when and where they can access information as well as free librarians from teacher-centered delivery of information literacy skills. It also eliminates repetitive instruction. Malaysian public universities can replicate this course or develop their own. The move to develop a generic information literacy course at the Faculty of Computer Science and Information Technology, University of Malaya should jumpstart similar moves in other Malaysian public universities. Institutions of higher learning must realise that to a certain extent, they must shoulder the responsibility of producing information literate graduates.

1.2. OBJECTIVES

The study aims to:

a. Determine the information literacy competencies of undergraduate students at the Faculty of Computer Science and Information Technology through the processes involved in the production of their final year project reports.

b. Verify the information literacy competencies of undergraduate students at the Faculty of Computer Science and Information Technology through their final year project reports.

c. Determine the perceptions held by the lecturers, who are supervising undergraduate students registered for the final year project, of their students’ information literacy competencies and their expectations of them.
d. Ascertain current activities in information literacy initiatives undertaken by
Malaysian public universities.

e. Identify and recommend a solution to the problems associated with the
provision of information literacy skills to the undergraduate students.

1.3. RESEARCH QUESTIONS

The study aims to answer the following questions in relation to the stated objectives:

a. What are the information literacy competencies of undergraduate students
   at the Faculty of Computer Science and Information Technology who are
   registered for their final year project?

b. Do the final year project reports reflect the information literacy
   competencies of these undergraduate students?

c. What are the lecturers’ expectations of their undergraduate students who
   are doing their final year projects?

d. What information literacy competencies do the lecturers perceive these
   undergraduate students to possess whilst doing their final year projects?

e. What type of information literacy courses are conducted by Malaysian
   public university libraries?

f. What are the components which are necessary for an information literacy
   programme?

1.4. SIGNIFICANCE

The rationale for this study is based on several observations and premises. Firstly, there
is a need for students, especially the final year students, to be sufficiently information
literate to successfully produce a coherent and quality final year project report. In most
undergraduate degree programme, the final year report is the culmination and
consolidation of knowledge learnt applied to solve a problem and evidenced through a written report. The production of this report is a partial requirement for the award of a degree in most undergraduate programmes in Malaysian public universities. Secondly, no published study on information literacy could be located to indicate that such a study has been undertaken before in a Malaysian university and there is therefore a need for this type of research here.

Thus, the purpose of this study is to identify and verify the information literacy competencies of undergraduates at the Faculty of Computer Science and Information Technology, University of Malaya through a project based course. The decision to do so was made because of the nature of the final year project itself. It is a problem solving process which requires the students to explore the chosen subject and define the information need; create a plan to locate information relevant to the subject; locate, access, read, understand and synthesise the information to create knowledge; and finally present the information as a research report. Doing the project will require the students to demonstrate as well as acquire information literacy skills.

Information literacy courses in various forms are in place in almost all academic libraries in Malaysia. However, there are no published studies which actually look at the information literacy skills that have been acquired by the students attending these courses from the perspective of the students, the academics, the academic libraries and through the students’ project reports. This study will be the first study to explore all these entities in one single study and it will also be the first study to investigate the information literacy competencies of undergraduates specialising in computer science and information technology. The findings and outcomes will contribute significantly to an understanding of the information literacy skills of Malaysian undergraduates, which
can be used by university authorities, librarians as well as academics in the provision of information literacy programmes.

The methodology that will be used in this study is presented in Chapter 3 of this thesis. Again, there are no published studies on the use of such a methodology to identify and investigate problems related to information literacy. It can therefore be replicated for similar studies involving undergraduates from the other branches of knowledge. The methodology can also be used to study the information literacy skills of the postgraduate students as well.

1.5. ORGANISATION OF THE THESIS

This thesis is organised into seven chapters. Chapter One will be a presentation of the background to the study, the objectives and the research questions posed. Chapter Two will be a review of relevant research drawn from literature on information literacy worldwide. It also presents the current situation pertaining to information literacy practices in Malaysia. The research design and methods used in conducting the study will be introduced and elaborated in Chapter Three. The Soft System Methodology (SSM), which is used to structure the investigation process, is included in this chapter. Chapter Four will report on the results of the various surveys and discusses its findings and relevance to the thesis. It will also report the completion of Stages 1, 2 and 3 of the SSM. Chapter Five describes Stage 4 whilst Chapter Six will report the processes involved in Stages 5, 6 and 7 of the SSM. Limitations that may arise from the study will be reported here. The complete representation of the SSM as applied to this study will be shown at the end of this chapter. Chapter Seven concludes the study by giving a summary of the results of the research questions posed in Chapter One, highlighting the contributions of the study and giving recommendations for further study.