INFORMATION SKILLS PROGRAMS : IMPLEMENTATION AND EVALUATION*

Janaki Sinnasamy
Librarian
Head of Academic and Research Division, University of Malaya, 50603 Kuala Lumpur, Malaysia

Abstract

The information skills programs at academic libraries aim to produce students with competent information seeking behavior. This means that students will be aware of their needs for information, know where the information is, how to retrieve and use them effectively for learning and research. The ultimate objective is to enable students to be information literate. However, librarians work independently without much collaboration with the faculties. Library information skills programs are usually evaluated as useful by the students. How much the students use the strategies learnt in these programs for their learning and research is difficult for the librarians to gauge. On the other hand, the faculties deal closely with the students and so are in a better position to measure their performance. Librarians should aim to initiate a partnership between the faculty courses and the information skills programs. Similarly, academics should be aware of the impact Information Skills Programs have on the students and encourage students to participate in these programs and encourage the use of library resources for their assignments and project papers. This paper discusses the relationship between the course contents of Information Skills Programs and information literacy.

Abstrak

Kursus Kemahiran Maklumat yang disediakan oleh Perpustakaan akademik bertujuan untuk menerapkan ciri kemahiran pencarian maklumat di kalangan pelajar. Ini bermaksud pelajar berkebolehan mengenalpasti keperluan maklumat, dimana untuk mencari maklumat, bagaimana untuk mendapatkan maklumat dan menggunakan maklumat secara berkesan didalam pembelajaran dan penyelidikan mereka. Objektif muktamad ialah agar pelajar mencapai literasi maklumat. Namun, Pustakawan mengendalikan kursus secara persendirian, tanpa kerjasama sepenuhnya daripada pihak fakulti. Penilaian pelajar terhadap kursus Kemahiran Maklumat adalah positif, tetapi sejauh mana pelajar mempraktikkan apa yang dipelajari adalah agak sukar untuk pustakawan mentafsirkan. Disebaliknya, pihak fakulti boleh memberi penilaian yang tepat kerana penghubungan akademik yang rapat dengan pelajar. Pustakawan harus bertindak untuk mengabungkan kursus fakulti dengan program kemahiran maklumat. Para fakulti juga harus sedar keberkesanan kursus kemahiran maklumat untuk pelajar serta menggalakkan mereka mengguna bahan Perpustakaan untuk tugasan dan kertas projek. Artikel ini juga merangkumi hubungan diantara kurikulum kursus Kemahiran Maklumat dan literasi maklumat.

INTRODUCTION

Information skills program has always been an integral part of librarianship. It covers many aspects of educating the user on library use. What used to be known as user education now incorporates names such as study skills, library skills, research skills, library orientation, bibliographic instruction, ICT skills, library information skills and library literacy skills. Haycock (2001) described how the change in name had occurred :

- library skills – refer to how to find the book
- research skills – suggest use of specific types of materials for specific purposes
- research and study skills – use of strategies
- information skills – specific approach for an intended purpose-information literacy

The contents of these programs basically do not differ although they are referred to by different names. Similarly, Information Literacy Programs and Information Skills Programs refer to similar skills being taught. In the United States of America, 'Information Literacy' is used while 'Information Skill' is preferred in the United Kingdom.

In the Malaysian context, various information literacy programs have been initiated at the public institutions of higher learning. These programs are offered on a compulsory, optional and walk-in basis. They are opened to both undergraduates, postgraduates, visitors and academics. The delivery method is normally by way of lecture, guided tour, video presentation, multimedia presentation, live demo and hands-on. At the end of the course or session, students are expected to :

---

*Paper presented at the International Conference on Information Literacy. Kuala Lumpur, 14-15 June 2006

- recognize the various types of references such as chapters from books, books, journal articles and conference papers
- search OPAC (Online Public Access Catalog) and the electronic databases independently
- analyze search topics
- generate related keywords or search terms

- use appropriate search strategies

Table 1 shows the types of Information Skills Programs offered in five established public universities in Malaysia. The details were obtained from the Universities' websites and the findings of Mohd Sharif (2005).

Name of University	Information Skill Programs
UIA (International Islamic University)	Basic Library Skills for undergraduates Research Skills and Research Skills (subject based) for postgraduates Online Databases Search Skills Usage of In-House Databases Navigating the Internet for Specific Purposes CD-Rom Databases Searches
UKM (National University of Malaysia)	Workshop on Information Skills (including Subject Based) Information Skills Course Library Research Course Library Skills Course Research Skills (Subject Based) Research Methodology Course Bibliographic Databases and information Skills (1 credit) Managing Resource Centers (1 credit)
UM (University of Malaya)	Information Skills Course (GXEX 1401 - 1 credit) Information Skills Session for Postgraduates Individual Consultancy Session for PhD students
UPM (University Putra Malaysia)	Information Literacy Course (EDU 3014 - 2 credits) Online Demo for Distance Learning Students Library Introduction Course Information Skills Session User Education Program
USM (Science University of Malaysia)	Information Literacy Skills Workshop Information Research and Retrieval Workshop Information Search Skills Workshop

Table 1. Information Skills Programs at UIA, UKM, UM, UPM,& USM

It is expected that with these programs, students would have equipped themselves with information seeking skills which they can use to meet their learning, teaching and research needs. The final goal of all these public universities is to make their students information literate and the library has initiated these information skills programs as support services towards this goal. Table 2 below summarizes the course contents of these programs.

What are being taught during Information Skills/ Information Literacy Courses
Introduction to Library Resources
The Use of Library Catalogue
Library Usage
Introduction to Reference Sources
Indexes and Abstracts
Retrieval Strategies
CD-Rom / Database Searches
Electronic Resources
Online Database Searches
Usage of In-house Databases
Malaysian Links
Navigating the Internet
Citation Style

Table 2. A summary of what are being taught at Information Skills Programs

However, do what are being taught lead to students becoming information literate? To answer this question, the concept of information literacy has to be understood.

INFORMATION LITERACY

The Information Literacy Competency Standards for Higher Education endorsed by the American Association of Higher Education (AAHE) and the Association of College and Research Libraries (ACRL) states that an information literate individual is able to :

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- * Understand the economic, legal and social issues surrounding the use of information and access, and use information ethically and legally.

It simply means a student recognizes the need to seek information, is able to locate the needed information and use it efficiently and effectively. These standards have also been discussed in the Malaysian context. The National Information Technology Agenda (NITA) formed in 1996 envisaged that by year 2020, all Malaysians would have access to information and learning for personal, organizational and national advancement. In 1998, BERU (Basic Education Research Unit) at the Science University of Malaysia had spearheaded a project on information literacy via tele-learning for students age 10-30 in primary, secondary and tertiary education (Law, 1998). The aim was to formulate standards and guidelines in evaluating methodologies of learning for tele-learning.

Edzan (2005), stressed that there have been many initiatives undertaken to set up Library Information Skills Programs thus far and therefore it is time for a blueprint which will make these programs more acceptable and feasible. She also called for the formulation of a National Information Literacy Agenda for Malaysia which can then be used to plan, implement and evaluate information literacy programs. In higher education, establishing standards for performance indicators and learning outcomes is important. This should further be refined to distinguish information literacy competencies and assessment tools required for the Arts and Social Sciences and for Science and Technology.

Table 3 below shows a simple analysis to relate what is being taught in Information Skills Programs and what is actually required of students to become information literate.

Requirements needed to be Information Literate	What is being taught in Information Skills Programs
1. Determine the extent of information needed 2. Access the needed information effectively and efficiently 3. ***Evaluate information sources critically*** 4. ***Incorporate information into knowledge base*** 5. Access and use information ethically and legally	• Understand and recognize various types of references such as books, chapters, journals, etc. • Search OPAC, CD-Rom and Online Databases • Interpret bibliographic information • Identify and analyze search topics / statements • Citation style

Table 3. Relationship between what is being taught in Information Skills Programs and Information Literacy

The following observations can be made from Table 3 regarding the relationship between what is being taught in Information Skills Programs and Information Literacy.

1. Understanding and interpreting various types of references enable students to search for the needed information.

2. Being able to search OPAC, CD-Rom and the Online Databases will enable them to retrieve the needed materials.

3. Teaching citation styles and the necessity to cite references make them aware of the need to use information ethically and legally.

4. Identifying and analyzing search topics/statements will determine the extent of information needed. However, this depends on whether the students have a search topic on hand.

5. The ability of the student to evaluate information sources critically and incorporate information into one's knowledge base does not seem to have a relationship with what is being taught. This requirement that is needed to become information literate depends entirely on the individual's need for information.

'Learning and infostructure to build a new civil and knowledge society in Malaysia begins with the end-users'. Law, K. P. (1998).

THE MISSING FACTOR

It can be seen that Information Skills Program can succeed in meeting the second and fifth requirements needed to enable a student to be information literate, i.e. ; to access the needed information effectively and efficiently, and to use the information ethically and legally. The third and fourth requirements which are to be able to evaluate information sources critically and incorporate information into one's knowledge base are dependent on the need for information. When the importance of information is realized, the individual will then incorporate selected information into one's knowledge base and be able to use it effectively for life long learning.

Therefore, the core factor in the pursuit of being information literate is the need to seek for information. The extent of information needed will then lead to the next step of identifying relevant keywords and using the correct search strategies. However, the missing factor seems to be the lack of recognition for the need for information. This lack of need or not recognizing the need for information can be attributed to two factors :

a. The information seeking behavior of the students

b. The research topic chosen for their project work

a. Information seeking behavior

To understand the students' need for information, librarians have to analyze their information seeking behavior. Basically, there are three kinds of information seeking behavior (Gross, M. 2005). All Library Information Skills Programs aim to guide and help the students to fit into the third category, which is to achieve a competent level of information seeking behavior whereby they can access and use the needed information effectively and efficiently for life long learning. The three levels of information seeking behavior are as follows :

1. the low level

2. the medium level

3. the competent level

Low level information seeking behavior represents individuals who lack competence, but see themselves as more competent than they are because they lack the knowledge and skills that would otherwise allow them to accurately assess their own abilities. Undergraduates fit into this category. Their overconfidence prevents them from realizing their incompetence.

Surveys have shown that university students consider themselves as having expert knowledge in using the Internet as a research tool and resource. (Stern, C. 2003). They seem to be more confident of using and getting information from the Internet than the library resources. They are children of the IT era where 'cut and paste' forms part of the learning culture. Given a choice, they may choose not to attend these Information Skills Programs. One way of ensuring that they are exposed to the various library resources and that they can use these resources effectively and efficiently is by making the program compulsory for them.

Chan's (2003) findings on the views of students who attended the Information Skills Course at the University of Malaya indicated that students were more concerned with locating materials listed in their reading lists than with searching

additional reference materials whether printed or electronic. She concluded this could be tied to the low expectations and demand of lecturers on students' reading and use of information sources beyond prescribed texts.

Postgraduates on the other hand, fit into the second category. They are individuals with medium level information seeking behavior. They have a need for information and are able to analyze their search topics. What they lack are the skills to access the needed information effectively and efficiently. Most of them rate highly the usefulness of the Information Skills Sessions. If only the Library Information Skills Programs at public universities can reach the total postgraduate population, these programs can then successfully ensure their information literacy.

There is a relationship between faculty members' use of the library and the involvement of their students in bibliographic instruction (Hardesty, L. 1995). Academics who are aware of the wealth of information available in the library and the need for their students to use these resources, will encourage their students to attend these programs. A few faculties at the University of Malaya allocate a three hour library skills / bibliographic instruction module in their Research Methodology course. These sessions are comparatively effective because the skills taught are subject based and the students are able to see the relevance of using library resources for their studies and research.

b. The research topic

The second factor contributing to the lack of need for information is the expectation from the faculty. Final year students have to submit project papers, referred to as 'Academic Exercises' as a requirement for partial fulfillment of their first degree. Most students would tend to focus on case studies related to Malaysia. This seems to be the norm for both the Science and Technology as well as the Arts and Social Sciences students. If the topics are on local case studies, the need to search for information from foreign published books and journals as well as the western and English language bias online databases, is obviously minimal.

A random browse of the Academic Exercises submitted in the year 2004 at the University of Malaya shows that none of the works cited any articles from the online databases. Works of students from the Geology, History and Anthropology / Sociology Departments were browsed. The topics chosen for both Geology and History were very localized in nature. Most of them were case studies of a certain area or group of people in Malaysia. A small number of Academic Exercises from the Department of Sociology / Anthropology which were on general topics had Internet citations but none from the online databases subscribed by the library.

If the faculty can advocate comparative studies of local and foreign topics, there should be a greater need for students to access the foreign publications and online databases. The present mindset of limiting to local area studies does not instill in them the need to search for additional resources for information other than the limited local resources. Librarians on the other hand, are eager to expose the various resources available in the hope that students would utilize them for their assignments and projects. Perhaps, if faculty members are made aware of the objectives and content of the Information Skills Programs or if the library and the faculty can collaborate on research topics, more students will be motivated and encouraged to seek for additional information.

IMPLEMENTATION and EVALUATION

The University of Malaya has made it compulsory for all first year students to attend a one hour credit course, 'GXEX1401 : Information Skills Course' since 1998. It was the first public university in Malaysia to implement a mandatory information course. Other universities like UPM and UKM, offer a similar course but on an elective basis. At UM, students are assessed throughout the course via a test, project paper and final examination. The project paper is to ascertain students are able to apply the skills taught to locate and retrieve information. In the absence of a search topic or feedback from the faculty, the library provides topics independently. Students will be assigned a topic each and taught the following :

a. Understand the research topic

b. Understand the concepts involved

c. Find relevant keywords

d. Search OPAC

e. Search Online Databases

f. Search Internet

g. List references

How much do these students absorb the valuable information seeking skills taught to them, how much of the information learnt is used for their assignment / research projects and how much is internalized which can be of use for life long learning, are issues librarians should persevere undoubtedly.

It would be more realistic to implement programs teaching library skills at increasing levels of difficulty, moving from simple to more complex skills. The growth in information skills programs should be cumulative, with each level of instruction reinforcing what has been taught previously. At the International Islamic University of Malaysia, library research skills involving teaching of search techniques are taught to final year and postgraduate students. Freshmen are only taught OPAC and given library orientation which consists of a guided library tour. At the University of Malaya, the Science students are given a guided tour and library orientation during their first semester. They are only allowed to take the compulsory Information Skills Program in their second semester. It was observed that there were less problems with these students during the GXEX 1401 course. They were able to understand the overall objectives of the course and were less confused.

EVALUATION

So far, most academic libraries in Malaysia have focused on formative evaluation, whereby the effectiveness of instruction is measured with the aim of improving the programs in future. At the University of Malaya, 84.4% (Chan, 2001) of undergraduates found it easier to search for information after attending the course. In the course assessment carried out by the University at the end of each semester for University courses, the average rate for the program is 3.8 out of 5.0.

There are various evaluation and assessment models that can be used to assess and evaluate Library Information Skills Programs. At the University of Malaya, the factors mentioned in the Kirkpatrick Evaluation Model have been used. This model focuses on four levels of evaluation as enumerated below :

Level	Evaluation
Level 1 : Reaction	Measurement of learners' feelings and opinions about the course just completed
Level 2 – Learning	Measurement of what have been learnt
Level 3 – Behavior	Measurement of the behavioral changes as a result of the learning event
Level 4 – Results	Measurement of overall impact on the institutional environment

Table 4. Kirkpatrick Model

Level 1 : *Reaction* : Students are given the course assessment sheets to indicate their responses about the course, teaching and facilities provided. This form of evaluation is a university requirement. The measurement scale ranges from (1) very unsatisfied to (5) very satisfied.

Level 2 : *Learning* : Pre-tests and post-tests comprising the same questions are given at the beginning and end of the semester. Students are tested on the knowledge of understanding bibliographic citations, OPAC and electronic resources. Most students are able to answer all the questions in the post-tests as compared to the pre-tests. However, this can be as a result of preparing for the final examinations and may not exactly reflect what have been learnt and understood.

Level 3 : *Behavior* : The project paper tests on all aspects of the students becoming information literate. From analyzing the research topic, to locating, retrieving information by downloading and printing and listing references, the change in behavior of the student as a result of the learning event can be measured. The topics of the projects are prepared by the librarians with no input from the faculty whatsoever. Since these students are guided closely by the librarians conducting the course, the general perception is that students are able to follow the steps intelligently.

Level 4 : *Overall Impact* : This can be measured by analysing the bibliographic citations in the students' Academic Exercises.

CHALLENGES AND PROBLEMS

Librarians have always tried to teach and train students to access and retrieve information. However, they often face challenges and problems which arise as a result of external factors. The two main challenges and problems faced are library anxiety and command of the English Language.

Library Anxiety

Undergraduates begin university life with minimal knowledge of library use. Some come from secondary schools with not well equipped libraries. Some students from rural areas do not have access to public libraries. Hence, they do not know much about call numbers, subject headings, authors and titles. Many do not understand the library terminologies such as periodicals, monographs, journals, journal articles, conference papers/proceedings, indexes, abstracts, databases, reference sources and citations, etc.

Mellon's Theory of Library Anxiety (Bostick, 1992) describes four components of 'feeling lost' among new freshmen. They are :

- the size of the library,

- not knowing where things are,

- not knowing what to do and

- not knowing how to begin the research process.

These fear factors present in the minds of the new students pose as obstacles to fully absorb and learn the library skills taught. Questions such as : "Where are the books kept?", "How do we borrow the books?", are quite common amongst these students. Mellon's theory states that new students become so anxious about having to gather information in a library for their research paper that they are unable to approach the problems logically or effectively.

One of the solutions suggested by Mellon was to provide maximum interaction between students and librarians. In the course assessment carried out at the end of each semester for the Information Skills Course at the University of Malaya (Semester 1, 2005/06), it was observed that four out of seven male facilitators scored high in the 'interaction with students.' On the contrary, only three out of twenty five female facilitators scored high in the 'interaction with students' module. What is interesting is the relation between high interaction with students and the perception of the students on the knowledge of the facilitators and the relevance of examples given in class. When the students are contented with the interaction with the facilitators, they perceive the facilitators as very knowledgeable and find the examples of records shown very relevant. Their perceptions might differ with the library management's perception whereby a facilitator's knowledge relates to years of working experience. A few of the facilitators who scored highly have less than five years of working experience. It maybe concluded that new students who are made to feel relaxed might absorb more although no evaluation has yet be done to justify these students' performances.

"The emotional attitudes that students bring to the learning situation strongly affect what and how much will be absorbed and Where anxiety is present, it must be allayed before

where the work of instruction can begin" .
(Mellon, 1989).

This problem of library anxiety becomes worse when they have to download/save records from OPAC and the Online databases and print them. Students who are not familiar with computers have to cope with IT anxiety as well. Facilitators should not assume the IT knowledge of these new students who come from all over Malaysia, more so since the economic development of Malaysia is comparatively imbalance between states in the east and west, and between rural and urban areas. Availability of facilities such as computer laboratories and printing services throughout the campus should be made accessible to these students to overcome technical problems.

Language

The initial problem faced by the students when they are given the project assignment is the language barrier. Having been exposed to "Bahasa Malaysia', the National Language of Malaysia for at least 11 years of their school years, the students face problems of understanding , analyzing and identifying related keywords in English. Topics are given in Bahasa Malaysia and students are expected to translate them into the English Language and identify related keywords in English. The English language requirement is absolutely necessary since searching the OPAC, online databases and the internet can only be done mostly in the English language if one is to retrieve the world's literature effectively. This problem is further aggravated if the student comes from a rural or poor background. It has been observed that students who are reasonably proficient in English are able to cope better with the initial analyzing of search topics.

CONCLUSION

Library Information Skills Program can be more successful if the purpose or objective is clearly defined and understood by the faculty members. Academics and students should be made more aware of the impact these programs can have on the end results. A collaboration between faculty members and librarians to achieve the common goal of producing

information literate students is crucial for a research university.

Haycock, K. (2001), cited a number of factors which have ensured success for teacher librarians in primary and secondary schools. He felt these factors were common to library skills programs and therefore should be applicable at the tertiary level. The factors are as follows :

    a. faculty acceptance

    b. faculty interest and support

    c. leadership by librarians

    d. curriculum requiring library use

    e. collection development undertaken with faculty involvement

    f. administrative support in both human and financial terms.

Currently, library information skills in public universities are usually conducted with no collaboration from faculty. Haycock, K feels that isolated skills are not effective. He stresses that there is a need to integrate library instruction in the context of a topic of study related to the curriculum rather than a separate exercise. Some faculties do encourage this but it is not applicable with all faculties.

Haycock also emphasized on faculty support and interest. Generally, the faculty sees the role of the librarian as a service and support function. Librarians teaching information skills at the University of Malaya refer to themselves as 'facilitators', which means they do not see themselves as equivalent to lecturers. Library and faculty relationship should be strengthened so as to have joint program plans and teaching, and relate them to the library and information resources. In this way, what have been taught during the Library Information Skills programs can be applied which will then encourage a learning environment that can lead to information literacy.

"Academic libraries might be more successful in working with deans and directors if they demonstrate a commitment to collaboration, personal stamina and energy, and the ability to tie Information Literacy to administration agendas." Haycock, K. (2001), p18.

References

Bostick, S. L. (1992). *The development and validation of the Library Anxiety Scale*. Ph.D thesis – Wayne State University.

Chan, S. N. (2003). *Making information literacy a compulsory subject for undergraduates : the experience of the University of Malaya*. Paper presented at the World Library and Information Congress : 69th IFLA General Conference and Council, 1-9th August, 2003 , Berlin.

Chan, S. N., & Zaharah Ramly (2001). Information Skills Course (GXEX 1401) : A survey of its effectiveness as perceived by students. *Kekal Abadi 20* (1), 1-7.

Edzan, N. N., & Mohd. Sharif Mohd Saad (2005). NILA : A National Information Literacy Agenda for Malaysia. *Malaysian Journal of Library and Information Science, 10*(1), 91-183.

Gross, M. (2005). The Impact of low-level skills on information-seeking behaviour : Implications of competency theory for research and practice. *Reference & User Services Quarterly, 45*(2), 155-62.

Hardesty, L. (1995). Faculty culture and bibliographic instruction : An exploratory analysis. *Library Trends 44* (2), 339-67.

Haycock, K. (2001). *What all librarians can learn from teacher librarians : Information Literacy a key connector for libraries.* Paper presented at the National Forum on Information Literacy, Australia.

Information Literacy Competency Standards for Higher Education April 2002. Retrieved April 2006 from http://www.ala.org./acrl/ilstandardlo.html

Kirkpatrick, D. L. (1994). *Evaluating training programs : The four levels*. San Francisco : Berret-Koehler Publication.

Law, K. P. (1998). *Linking higher education to Information Literacy Education in Malaysia : A focus on Diversity.* Paper presented at the 2nd Asia Regional Literacy Forum-Innovation and Professionalization in Adult Literacy : A focus on diversity, 9-13 February, New Delhi, India.

Mellon, C. A. (1989). Library anxiety. *Library Journal 113*, 137-139.

Mohd Sharif Mohd Saad, Edzan, N. N., & Zainab, A. N. (2005). *Assessing learning outcomes of information literacy programmes : Malaysian academic libraries*. Paper presented at the International Conference on Libraries : Towards a Knowledge Society, 14-16th March 2005, Penang.

Stern, C. (2003). Measuring students' information literacy competency. In A. Martin & H. Rader (Eds.), *Information and IT literacy : Enabling learning in the 21st century*. London : Facet Publishing.