INFORMATION LITERACY VIA THE WEB: A FRAMEWORK

N.N. Edzan and A.N. Zainab
Master of Library and Information Science Programme
Faculty of Computer Science and Information Technology
Universiti Malaya, 50603 Kuala Lumpur
edzan@um.edu.my; zainab@um.edu.my

ABSTRACT

Information literacy is defined as the ability to recognize when information is needed and the ability to locate, evaluate, and use effectively the needed information. The availability of massive amount of information is creating a need for education on how to evaluate and use information. Turning information into knowledge through intelligent use is critical for everyone in higher education. Institutions of higher learning have a special responsibility to prepare students for careful and informed use of information. In fulfilling this responsibility, different institutions have developed different ways of assuring information literacy competency among their students. Currently, nine public universities in Malaysia conduct some form of information literacy course for their undergraduates using the teacher-centred approach, each one labeled differently. Interestingly, all these programmes are prepared and delivered by the library staff with no collaboration from the academics. However, the programmes offered differ considerably from university to university since Malaysia does not have national information literacy competency standards for higher education to be used as a benchmark for the preparation and delivery of information literacy courses. Recent changes in higher education and the current focus on e-learning offer librarians and academics opportunities to explore the Web not only as a resource tool but also as a learning tool. This paper presents a proposal for the development of a generic template-based prototype of a Web-based information literacy course for undergraduates at the Faculty of Computer Science and Information Technology, University of Malaya with the necessary contents. Once completed, the template could be used across the curriculum by all disciplines throughout the various public universities.

Keywords: Information literacy; Web-base instuction; Academic libraries; Universities; Malaysia

INFORMATION LITERACY COURSE

Information literacy differs from library literacy and computer literacy 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 to students 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 could be taught via an information literacy course collaboratively designed by librarians who are familiar with the various information sources and academics who are familiar with the course contents and teaching style.

An information literacy course is one that is designed to accommodate the need to create information-literate undergraduates who understandably 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 to make decisions. For this purpose, the course should be introduced to undergraduate students of universities. The students 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 on the proper use of the various electronic resources as a research tool.

DELIVERY OF INFORMATION LITERACY COURSES

There are numerous ways librarians and academics can create and deliver information literacy courses as numerous opportunities for students to learn and practice the necessary skills and concepts. The most effective mode of delivery for any such course is definitely the Web. Various institutions of higher education in the United States and Australia are actively using the Web to deliver information literacy courses to their students. Some examples are the Texas Information Literacy Tutorial of University of Texas, Training Wheels of Pennsylvania State University, NetTrail of University of California at Santa Cruz, Library Research Tutorial of Griffith University, CSUWeb-Ezy of Charles Sturt University, eGO of University of Southern Queensland Library, and Pilot: Your Information Navigator of Queensland University of Technology Library.

These universities see the Web as a convenient mode of delivery, which the students could use at their own pace and convenience. The Web has the advantage of being interactive and it supports powerful multimedia capabilities. Information sources required by the students are increasingly delivered via the Web. The unique capabilities of the Web allow librarians to move beyond traditional pedagogical techniques to active, creative learning (Dewald, 1999). The medium is also effective for many students (Shih, et al., 1998). His study showed that students who differed in learning strategies, patterns of learning and learning styles performed equally well in web-based courses.

The current move is for the development of a course that is tailored 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. One of the key points emphasised by UK's 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.

Many libraries worldwide are now developing information literacy courses to be used in virtual learning environments (Moore, 2002). A virtual learning environment (VLE) is a set of teaching and learning tools designed to enhance a student's learning experience by including computers and the Internet in the learning process (VLE, 2004). The principal components of a VLE are:

- mapping of the curriculum into elements or chunks that can be assessed and recorded;
- tracking of student activity and achievement against these elements;
- support of online learning, including access to learning resources, assessment and guidance;
- online tutor support;
- peer group support;
- general communications, including email, group discussion and Web access; and
- links to other systems, both in-house and externally.

Mason (1998) suggests 3 basic models of existing online courses namely the content + support model, wrap-around model, and the integrated model.

CURRENT EFFORTS OF MALAYSIAN PUBLIC UNIVERSITIES

Universiti Islam Antarabangsa Malaysia, Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Malaysia Sabah, Universiti Malaysia Sarawak, Universiti Pendididikan Sultan Idris, Universiti Putra Malaysia, Universiti Sains Malaysia, Universiti Teknologi Malaysia, Universiti Teknologi MARA and Universiti Utara Malaysia are notable public universities in Malaysia. All these university libraries use their websites as an information source rather than as a teaching tool. Information about their various information literacy courses is readily available from their respective websites.

A total of nine public universities (Table 1) offer some form of information literacy course to their undergraduates but these courses are labeled differently (Edzan, 2004).

Table 1 : Number of Malaysian public universities offering programmes

	Orientation Programme	Other Programmes	Final Year Programme
Available	9 university libraries	8 university libraries	5 university libraries
Not available – information not available from website	2 university libraries	3 university libraries	6 university libraries

These courses are prepared and delivered by the library themselves with no collaboration from the academics. However, the courses offered by these universities differ from university to university considerably since Malaysia does not have a national information literacy competency standard for higher education to be used as a benchmark for the preparation and delivery of information literacy courses. Information literacy courses (Figure 1) in these public universities can be grouped as:

a. Orientation Course - All nine university libraries conduct an orientation course which is compulsory for their new undergraduates. The main aim of the orientation course is to familiarise the new undergraduates with the library's collection, services, facilities, rules and regulations as well as policies.

b. Other Undergraduate Courses - Apart from the orientation course, some academic libraries have moved a step forward by offering some form of information literacy course which would further enhance the undergraduate students' skills. In this instance, eight university libraries offer a variety of courses which are either compulsory or optional to their new undergraduates.

c. Final Year Project Students - The libraries are fully aware of the need for their final year students, who are working on projects, to be given specially tailored courses, and five of the university libraries run such courses.
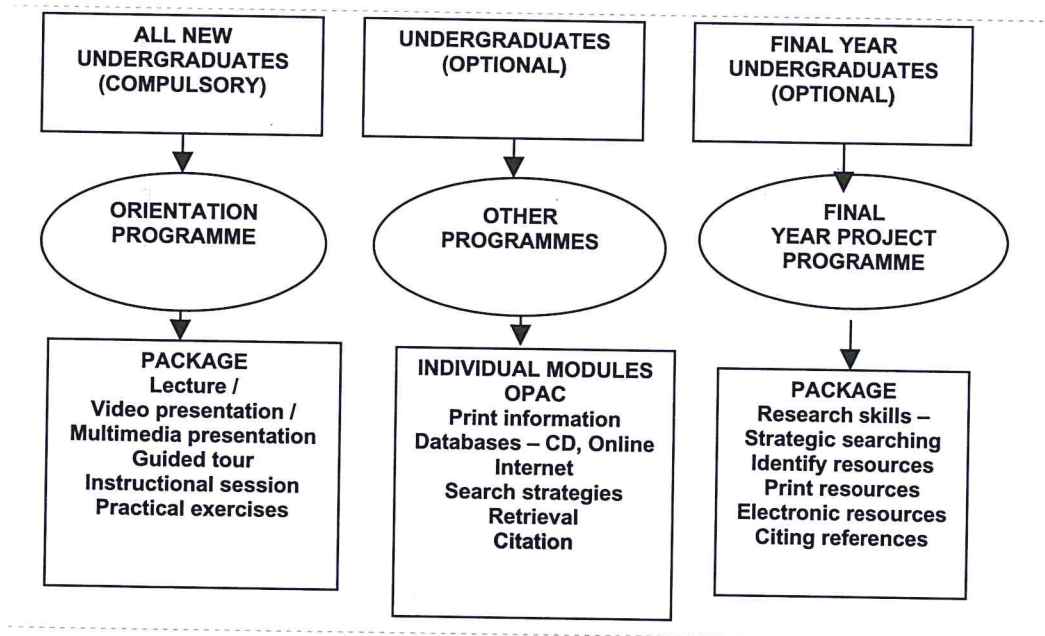

Figure 1: Types and Contents of Programmes Offered by Malaysian Public Universities

Most of these information literacy courses are conducted in the traditional way via a teacher-centred 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 & Zainab, 2002 ; Yushiana, 2003). University libraries worldwide are now moving towards student-centered learning in their delivery of information literacy courses (Abbott, 2002).

There is therefore a need to design and model a web-based information literacy course that could set the Malaysian information literacy competency standards that could cater specifically to the needs of the Malaysian undergraduates. It would be a resource-based course, based on collaborative activities, discussions and joint assignments. In this context, information would become a resource that students interact with and use in solving problems and in creating new understanding, conforming to Bruce's relational model of information literacy. It is a picture or map of the different ways in which information literacy could be experienced (Bruce, 1996).

AN ALTERNATIVE PLAN

Currently, final year undergraduates at the Faculty of Computer Science and Information Technology have to complete Academic Project 1 and Academic Project 2. The former involves the completion of a research report comprising five chapters – Introduction, Literature Review, Research Methodology, Systems Analysis and Systems Design. The students will be graded entirely on the report and formal presentations. For the latter, a system has to be built and presented to the faculty based on the initial report. Together with the system, three other chapters of the report have to be completed – System Implementation, System Testing, Discussion and Conclusion. Appended to this final report is a User Manual. As before, the students will be graded on the system and the remaining components of the report. In the preparation of their reports, the undergraduates need to possess the necessary information literacy skills, using which they should be able to identify and assess their information needs; know where to locate, collate, analyse and synthesise information critically; and are able to write a coherent research report. Students need these information literacy skills to enable them to recognize the information they need and to locate, evaluate, effectively use, and communicate the information – skills which are required in the preparation of a the report.

Therefore, there is a need to design a framework and develop a generic template-based prototype of a web-based information literacy course for these

undergraduates with the necessary contents. As a pilot, the proposed web-based information literacy course would be specifically designed for these final year undergraduate students of the Faculty of Computer Science and Information Technology, Universiti Malaya who are embarking on their final year academic

projects. It would be a collaborative effort between the university librarians and faculty members. In time this template could be used across the curriculum by all faculties within the University.

The proposed tool would allow the students to follow a pre-prescribed lesson plan which would enable them to acquire the various information literacy skills within 7 weeks, working on 3 contact hours per week. Delivery of lessons, tutorials and quizzes would be done over the Web in order to establish a virtual learning environment. No intermediaries would be required unless the undergraduates post their problems on the virtual blackboard. In such a case, the lecturers would collaboratively answer the enquiries. This fits well with Mason's (2004) content + support model of an online course which is the most widely used category of online courses. There would be a clear separation of course content which would be delivered as a course package on the Web. Tutorial support could be delivered via email, computer conferencing, discussion board or user groups. However, there is also a need to explore Mason's integrated model of online course (2004) whereby every activity is carried out online through collaborative activities, learning resources and joint assignments. As opposed to the content + support model, the course content for the integrated model is dynamic.

The proposed framework for the establishment of a Web-based information course involves three different stages (Figure 2) namely basic research; design and construction of the web-based information literacy course; and use, assessment and deployment of the course.

Stage 1 - Basic research.
Initially this would involve preliminary research on the various definitions, standards on virtual learning environment and web-based courses for information literacy established worldwide. Following this, three surveys would be conducted consecutively:

- Survey on current practice at various academic institutions to ascertain current practice in delivery of information literacy courses
- Survey of faculty members to identify their perceived knowledge of information literacy concepts, their expectations of their students and perceived problems faced by students in being information-literate
- Survey of undergraduate students to determine the level of information literacy skills.

Results from the survey would be analysed and the final output would be a set of information literacy skills relevant to Malaysian undergraduates.

Stage 2 - Design and construction

This stage would focus on the design of a framework for the web-based information literacy course and the development of the storyboard for the lessons and tutorials embedding the various information literacy skills required. A prototype of the functional modules (content, assessment, depository, and administrator) would be built incorporating lessons, tutorials and quizzes.

Stage 3 - Use, assessment and deployment

The web-based information literacy course would be assessed by university librarians, faculties and undergraduates in terms of its functionalities. After rectifications and modifications have been done based on user feedback, the entire system would be handed over to the stakeholders, primarily university librarians of the various universities.

At the national level, the proposed framework for the delivery of information literacy courses via the Web (Figure 3) would require the formulation of a national information literacy standard and the compulsory delivery of information literacy courses by all institutions of higher learning. These programmes should comply with the established standard.
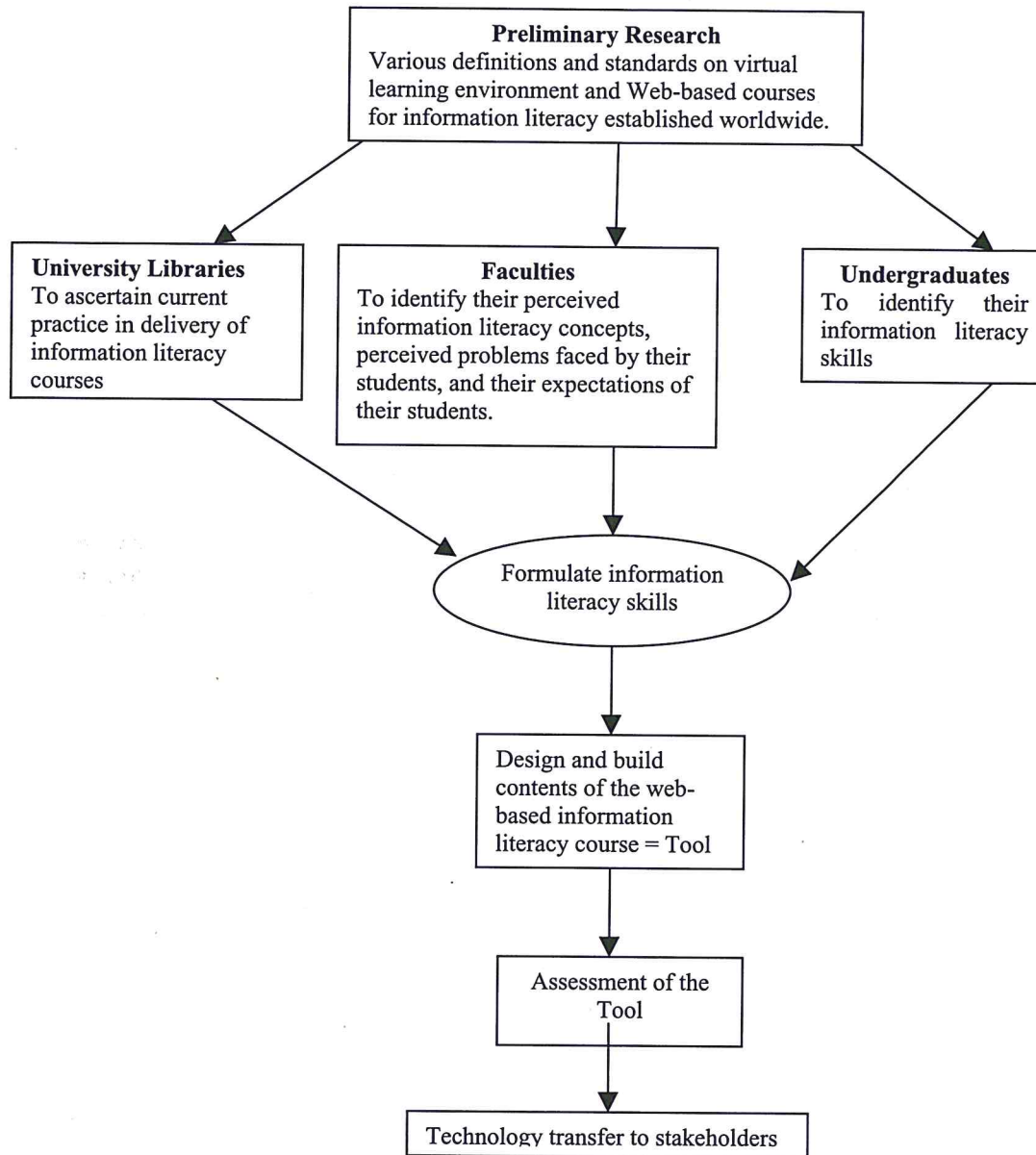
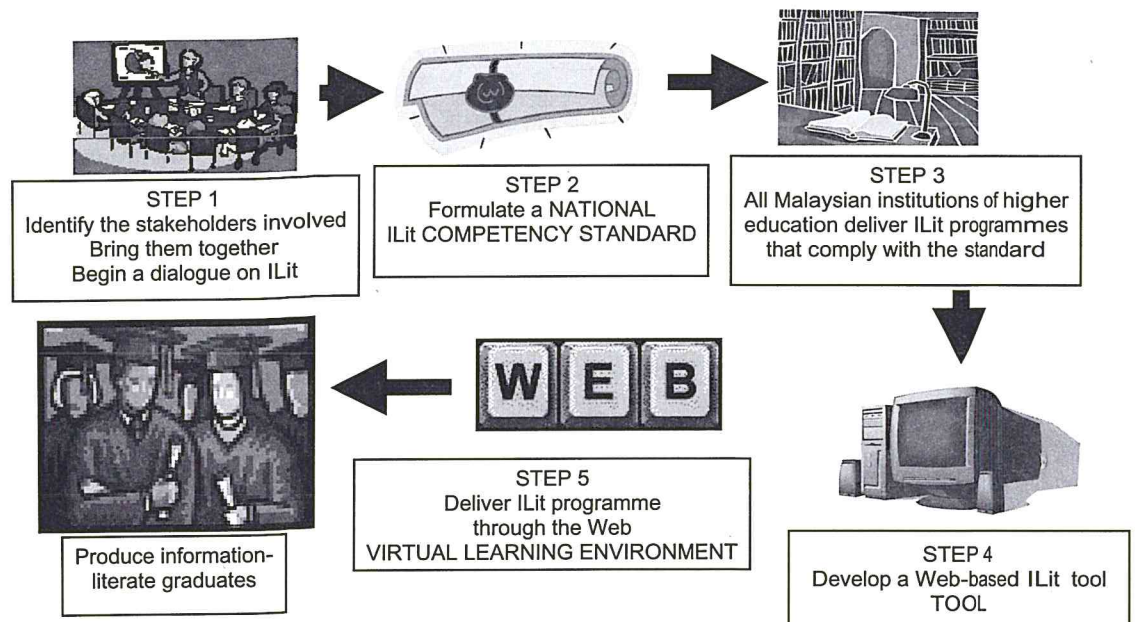Figure 2: Proposed Framework for a Web-based Information Literacy Course

Figure 3: Proposed framework for a National Web-based Information Literacy Course

OUR EXPECTATIONS

With the successful implementation of a generic template-based prototype for a Web-based information literacy course, we hope to achieve the following:

a. Design and develop a generic tool which could be applied for learning and training in other domains which could provide a virtual learning experience for both undergraduates and faculties.

b. Produce undergraduates who are able to :
    - Reap learning benefits from the tool with their ability to :

- Identify their information needs based on chosen topics
- Identify the types of resources needed
- Locate resources successfully
- Distinguish between true and false information
- Analyse, synthesize and present information effectively
- Cite and make acknowledgements properly
- Understand related ethical issues
  - Confident in organising their research report
  - Control their own learning pace
  - Receive feedback on performance instantaneously
  - Air their anxieties in user space

c. Develop administrators, librarians and faculty members who are able to :

- Add and improve content to the tool dynamically
- Use multimedia to present content
- Improve visualisation of content
- Create and build an assessment bank for the tool
- Provide feedback to their students collaboratively through virtual blackboards
- Monitor their students' performance.

CONCLUSION

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 was a need to upgrade the e-Learning infrastructure in Malaysia since e-Learning is seen as the alternative to conventional learning methods. The most favoured mode of delivery of education is via the Web which is moving at a rapid pace in developed countries. Developing countries should move in tandem too in order to gain from this technology development.

At the same time, libraries worldwide 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 could access information. Such courses would also relieve librarians from teacher-centred delivery of information literacy skills. They would also eliminate repetitive instruction. Malaysian public universities could replicate

these courses or develop one of their own. The move to develop a generic template-based prototype of a web-based information literacy course at the Faculty of Computer Science and Information Technology, Universiti Malaya would jumpstart similar moves in other Malaysian public universities.

REFERENCES

Abbott, Wendy. 2002. Re-casting the Net: a Lead role for the Web in learner-centered information literacy education. *IATUL Proceedings (New Series),* Vol 11. http://www.iatul.org/conference/proceedings/vol11 (Accessed :29 December 2004)

The Big Blue. 2004. http://www.leeds.ac.uk/bigblue (Accessed : 29 December 2004)

Bruce, Christina. 1996. *Information literacy: a phenomenography.* PhD Thesis, University of New England, Armidale.

Dewald, N.H. 1999. Web-based instruction : What is good pedagogy? *Information Technology and Libraries,* Vol. 18, no. 1: 26-31.

Edzan, N.N. 2004. *Information literacyInitiatives in academic libraries : a Web's view.* Presented at Seminar Kebangsaan Sosio-Ekonomi & IT, 11 – 12 August 2004, Alor Star.

Malaysian Education Summit, Kuala Lumpur, 27-28 April 2004. *Developing Malaysia's intellectual capital in the 21st Century : proceedings.* Kuala Lumpur: ASLI.

Mason, R. 1998. Models of Online Courses. *ALN Magazine,* Vol. 2, no. 2. http://www.sloan-c.org/publications/magazine/v2n2/mason.asp (Accessed 4 January 2005)

Mohd Sharif Mohd Saad and A.N. Zainab. 2002. *Information literacy programmes in Malaysian public universities : an observation.* Presented at the 68Th IFLA Council and General Conference, Glasgow, 18–24 August 2002.

Moore, Kay. 2002. Information skills for health in a virtual context – the Sheffield Hallam experience. *CILIP Health Libraries Group Newsletter,* Vol. 19, no. 4: 6-9. http://www.cilip.org.uk/groups/hlg (Accessed : 29 December 2004)

Muhammad Rais Abdul Karim and Yusup Hashim. 2004. e-Learning : opportunities and pitfalls. Presented at the *Malaysian Education Summit 2004*, Kuala Lumpur, 27-28 April 2004.

Shih, C.C. et al. 1998. Learning strategies and other factors influencing achievement via Web courses. In *Distance Learning 1998: proceedings of the Annual Conference on Distance Teaching & Learning, 14th Annual Conference,* Madison, WI, August 5-7 1998.

Syed Othman Alhabshi. 2004. e-Learning : opportunities and pitfalls. Presented at the *Malaysian Education Summit 2004*, Kuala Lumpur, 27-28 April 2004.

Tay, Wilson. 2004. e-Learning : opportunities and pitfalls. Presented at the *Malaysian Education Summit 2004*, Kuala Lumpur, 27-28 April 2004.

VLE – a whatis definition. 2004.
http://whatis.techtarget.com/definition/0,,sid9_gci866691,00.html
(Accessed : 24 November 2004)

Yushiana Mansor. 2003. Beyond IT savvy: developing information literacy competency among students of higher learning institutions in Malaysia. In *Proceedings of the Association of Southeast Asian Institutions of Higher Learning (ASAIHL) International Conference 2003*, Sabah, Malaysia, 15-18 June 2003.