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<td><strong>Author(s)</strong></td>
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Keynote Address

By

Datuk Haji Musa Mohamad
Dr. Harald Gottberg  
Deputy Secretary-General of AMIC, Singapore

Dr. Mahinder Santokh Singh  
Dean of the School of Humanities

Ladies and Gentlemen,

It gives me great pleasure to be here with you today. Although the topic of your conference is one which is dear to my own heart, I face you with some trepidation because I have been given the daunting task of being a keynote speaker. The term "keynote" suggests something terribly important without which the entire proceedings following from which will be somewhat amiss. Let me assure you that what I have to say should be more adequately described as notes. Whether they will be the "key" to anything, is best left to you to decide, after I have spoken.

My perspective is however limited to that of an organisational end-user who has the unenviable task of deciding on how much money should be invested into...
computers and other new technologies, to be able to justify such expenditure and to make sure that such expenditure yields a return in productivity at least commensurate with the cost of the technology. I hope such a perspective will be useful and relevant to you. They constitute a summary of the experience we as an organisation have gained into the use and application of computers.

If this university has gained a reputation as a technologically oriented institution, I have to accept some of the credit or blame as the case may be. We are in the midst of several kinds of revolutionary technologies. As an institution that is scientifically oriented, there is no choice for us but to be with the cutting-edge of such developments. We have not only to keep pace with such developments but we have also to be working on the adaptation of such technologies to our own environment and our own needs. To me there just is no alternative to adopting the new technologies. Take the simple matter of transferring knowledge from the developed countries to our own library. Since all libraries in the West will be computerised before too long, in the form of on-line electronic databases, not adopting the technology will mean cutting ourselves from these knowledge repositories.
It is with such policy guidelines in mind that USM has undertaken computerisation on several fronts. The University Library has been in the forefront among libraries in this region, to adopt computerisation. I am told that your schedule includes a visit to these facilities. The university computer centre has about $5 million ringgit worth of mainframe and terminal equipment. Communication costs will be a significant component of our operating expenditures with the establishment of instant communications between and among all three campuses, first the main campus here in Penang and the teaching hospital in Kubang Kerian, Kelantan and our branch campus in Ipoh. Besides the cost of leased lines, there is also the cost of terminals and ancillary equipment such as on-line printers, facsimile etc, in linking the administration in all three areas, including the teaching hospital.

Computerisation has been introduced in several other ways. In the administration of the university, areas which have been computerised are student records, course registration and enrolment as well as personnel data. It is hoped that a university-wide Management Information System will link all key offices and help to decentralise administrative decision-making. I can be persuaded to believe that such a move will raise the total level of managerial skills throughout the entire
organisation. Computerised type-setting is used in the printing of all university publications.

USM has research teams working in the frontline of computer applications. Computer-aided translation is being studied to facilitate knowledge transfer from English to Bahasa texts. Expertise in this area of research is gaining international recognition through joint collaborative work with overseas universities. We have recently introduced a Master's degree program in Computer-aided design. The Centre of Policy Research has long pioneered and provided consultancy services in the application of computerisation to land administration systems and systems for local authority administration.

Instructional training in computers is offered to students and staff through several units within the university such as the Educational Technology Center, the Teaching-Learning Unit and the bureau of Computer Resources or COMBITS. A major vendor recently donated a computer laboratory to the Educational Technology Center. Computer ownership is encouraged through low interest loans being available to academic staff members and presently there are at least a few hundred personally-owned sets. There are close to 500 university-owned micro-computers throughout the entire campus.
Having established the basis of our experience with the new technology, permit me to share with you some of lessons we have learnt.

The first lesson of experience is you need experience before being able to know what to do next. You have to be familiar with computers before being able to decide on future options. As I have recounted, we set ourselves the task of being familiar and knowledgeable about the new technologies.

The second lesson of experience — and this is based on our experience so far — is that in and of itself, the computer is probably an effective productivity tool but increases in productivity are not cost-free. Productivity can only increase with the use of software that is usually very expensive, requires great effort to learn — with steep learning curves — and requires heavy maintenance costs, and usually rapidly becomes obsolete, requiring new investments in better and better software. The costs of technology are high and the hardware faces the problem of rapid obsolescence.

Computers as with all technology still need a human interface. For instance, computers aid instruction well, only if supplemented with non-computerised and traditional teaching methods. I myself do not foresee a time when a totally electronic or computerised classroom
will be a reality. But I do think that if the more mundane chores of teaching can be taken care of through creative use of such technologies, teaching in turn will be more rewarding and consequently, more effective to students.

The next notion I would like to share with you are my feelings about another claim often made — that computerisation should make the management of institutions easier. If this claim is true, I would be the first to cover every inch of this university with computers. This claim is as valid as another claim often made about computers — that they would lead to the creation of paperless offices. My budget for stationery has not decreased. It has in fact increased with the introduction of computers. The introduction of computers may bring with it a number of different management problems. Resistance to the technology must be overcome; existing records must be complete before they can be automated; security and confidentiality as well as privacy of records must also be maintained. Definite efforts must be made to establish human relationships far and beyond the attention given only to what numbers or data-files represent. In other words, the human element in management requires greater effort in order to be preserved, and sustained — this is especially true of institutions that have been completely or nearly
totally computerised.

Another notion I would like to discuss is that computer training should not be only limited to using ready-made software and peripherals. Rather than accept the technologies as solutions in search of problems, we should use them creatively to solve problems which are with us. In this context I would like to see more social scientific and humanistic research into the effects of the technology e.g. in how the ways in which we think, or the ways in which we teach, have been affected through the use of computers. There is something also to be examined in the idea that computer culture is often at odds with some areas of traditional culture. Computer culture does not tolerate or allow the existence of ambiguity. Humans on the other hand resort to ambiguity as a way out of difficult situations.

What of the future? What does the immediate future hold for computerisation? As far as USM is concerned, we shall be looking critically at how effective office automation is for our organisation. We shall also look into possibilities of networking personal computers and establishing linkages between the mainframe and microcomputers. We hope to have support to establish computer labs for software experimentation. We also hope to have computer-aided instruction applied to wider
instruction areas than are presently available.

In the longer term, the possibility of organisational changes to take advantage of unused spare, idle and excess capacity of computing ability such as the introduction of flexible working hours in certain lines of research and even administrative work, cannot be ruled out. Such changes however have to be preceded with cautious study of other occupational and social implications.

Another longer term project is to be able to establish common state-of-the-art facilities easily accessible to the entire university, for staff and students working co-operatively, on the adaptation of the technology to local curricula needs. For instance, how can computers be used to simulate the geological and climatological changes that have affected Malaysia; can computer models be created to predict our energy resources, consumption patterns and needs.

Local adaptation is our own responsibility. Technologies such as computers have their own driving force and all interested parties such as vendors have their own vested interests. It is time that users, especially in the developing countries, enforce their own goals, their own driving force on the technologies.
I believe that universities in the less developing countries have this very crucial role to play - to be pioneers and catalysts in the local adaptation and subsequent transfer of such knowledge to their own countries.

I am pleased to note that your workshop has taken an unusual direction — that listed among the things you will do will be the testing of various software from the public domain as well as from proprietary sources, for their suitability for research and teaching. It is laudable that computers and computing capability should be applied to fulfill more directly the demands of research.

If I have seemed over-enthusiastic about the new technologies, it is perhaps time that I balance my remarks with some reservations. In going about your tasks during this workshop, let me commend to you the idea, which you probably already share, that there are many limitations to the silicon chip. Not all knowledge is bounded within the CRT display screen of the computer. While commendable efforts are being made in the areas of artificial intelligence, no chip can or perhaps ever will simulate wisdom. While we in Asia proverbially pride ourselves in having such wisdom collectively, it is appropriate that we should also
adapt ourselves to the technological intelligence of the West. The key, if any, to our future development lies in combining the best between the technological west and the more spiritual east. On that note, please let me end by wishing your workshop every success.