Malaysian Journal of Library & Information Science, Vol.1, no.2, December 1996: 51-62

TOWARDS A KNOWLEDGE CULTURE: MANAGING THE INFORMATION ADVANTAGE WITH REFERENCES TO MALAYSIA

Syed Salim Agha
Tdepartment of Library & Information Science
International Islamic University Malaysia
46700 Petaling Jaya, Selangor, Malaysia
Email: salim@its.iiu.my

ABSTRACT

Provides a run up of the developments relating to education, culture, libraries, books, information and information technology. The pervasiveness and importance of information is elaborated upon. The development of information as it goes through its various phases of utility is explained. The strategic integration of information and various emerging technologies are looked upon as an evolutionary development. Analyses the current situation identifying key issues, which when summed up are referred to as the "information advantage". It is emphasised that while technology plays a strategic role what is often ignored is the information content and its effective and integrated management with key issues. The failure to manage this information advantage would result in a great opportunity loss. Managing the information advantage has its objective in the eventual development of a knowledge culture in a society. Knowledge culture is elaborated upon at the levels of the individual, the organization, the nation and the world.

KEYWORDS: Knowledge culture; Information advantage; Assimilation of information; Infotrend; Disintermediation; Technology trap; Management of information.

INTRODUCTION

Progressive civilization differentiate themselves from others by making sustained efforts to maintain a comprehensive record of their human knowledge and experience. This presupposes the development of an effective language for communication both in its oral or written forms; a dynamic and evolving system of education ensuring definite transfer of knowledge particularly to the succeeding generations; the development of universal ethical standards which govern thought, word and deed; the practice of a refined culture, based on religion, contributing to human progress. Ethics, education and culture are the unseen threads that weave together in an integrated fashion to pattern the social fabric of society.

Education and Culture

One of the purposes of education is to induct individuals into the social and physical reality of the world they inhibit. In achieving this, a prime objective of formal education has been to refine and sharpen the power of thought. "Education is about acquiring the ability to collect,

manipulate and apply information for the purpose of understanding and therefore mastering a given subject matter: it must therefore be about thinking and thinking to some purpose"(Maclure and Davies, 1991). Education and culture is interrelated. Culture is used by anthropologists to refer to "the total pattern of a society's life" and by others as "a particular set of skills, ways of understanding, modes of feeling, and to the productions, scientific, artistic and practical which enshrine them", implying that a cultured person is sophisticated, well read and knowledgeable. Culture "organises the way in which we learn to see the world in these important areas of our understanding (Bantock, 1968).

Assimilation of Information

Information has been termed "the fourth vital element" after air, water and fire (Curras, 1987). Throughout the ages man has proven to be a useful tool. Information has been defined variously by those who perceived it differently. One operational definition states that it is "… the content of communicational messages of all kinds" (Maquire, Kazlauskas and Weir, 1994). Information comprises all type of messages through various types of delivery mechanisms including face to face communications, conferences or through a wide range of media including book like materials, data sheets, patents, pictures, databases, etc. Information in its totality does not have to be in the form of words only, but also include pictures, sound, dance, gestures, etc. The pervasiveness of information therefore is overwhelming.

In the process of digesting, assimilating and utilising information different terms are used arbitrarily to denote information at various levels of its assimilation. Data refers to isolated bits of numericals, letters or symbols which when combined, constitute information. Information reduces the state uncertainty in the receiver of the message. It may or may not convey meaning. "Knowledge goes beyond information in that it is interpreted, processed according to a point of view preparing the receiver for appropriate actions. Understanding goes beyond knowledge in that it reflects the comprehender's awareness not only of what he knows but also of what he does not know and needs to know and how these interrelate … Wisdom goes beyond understanding in that it not only prepares a person to act but guides and evokes appropriate action at the right time and place on the basis of knowledge and understanding" (Kochen, 1975). An understanding of the social processing of information leads to the conclusion that merely gathering information is insufficient and could constitute a waste of resources. Information should wherever possible be assimilated into knowledge or wisdom. In his extensive studies on information Machlup (1980) differentiates between "stocks of knowledge" and "information flow". This has implications for libraries and information centres, which are the stocks of knowledge, which should be managed as such that they are beneficially utilised through flows of information by persons who are in need of information. The challenge is to satisfy an information

need appropriately at the time when the need arises.

Infotrends

The pace with which technology has advanced has brought along with it changes in quick succession to societies the world over. Distinctions are beginning to blur among libraries, information providers, publishers, information centres, media houses and other professional groups. Functions and services are beginning to overlap. There is a need for rationalisation among these groups such that each complements the other without having to unnecessarily compete. However, such a meeting of minds seems hardly likely as developments of information resource build-up and information services are being planned and implemented in isolation taking advantage of opportunities as and when they arise. Observation has been made on the development of trends which have a wide range of effects on the shape of things to come in the future. These trends sometimes referred to as infotrends are summarised below:

- **Interoperability** is referred to as the ability of two or more parties whether they be man or machine to make a clean exchange of information or content. This is a trend currently visible in telecommunication applications, multimedia systems and national and international networks.

- **Transformation** of content into new media which makes use of the content more significant than the earlier media. The message is now transcending the medium. Examples of such transformation of content include the publishing of indexes, abstracts and encyclopedias on CD-ROM, online databases, film on interactive video, etc.

- **Globalisation** is another trend that has made its presence felt particularly in the corporate world. Executives on the move from one country to another use portable computers to access information from corporate and other sources, for electronic mail and messaging. Companies across the globe are forming strategic alliances to provide services to specific regions. Globalisation has become a reality.

- **Disintermediation** or fading out of intermediate agencies or persons like the salesmen. With the establishment of telecommunication networks and the merging of technologies the task of reaching end users can now be carried out without intermediaries. Video shopping or electronic shopping are some examples. With the advent of greater use of IT in organisations intermediaries like middle managers, and processing staff are slowly being eliminated. Organisational structures are getting flatter.

Technology Trap

The tremendous pace at which technolgy is progressing becomes a disadvantage for many developing countries. Libraries are all falling into the technology trap. Once processes have been computerised

there is no turning back. Computers and software bought a couple of years ago have become obsolete with the development of new releases of software or new hardware products combined with a range of new technological devices. One has to invest more to maintain and improve existing systems. Stubbornly sticking to the old system can prove to be costly in terms of maintenance, up-to-dateness and opportunity cost. This technological entropy has become a phenomenon that has to be faced squarely. One possible way to reduce its negative effects is to know the technology well and apply it appropriately to the task that is to be performed for a reasonable period of time rather than slavishly follow technological advances.

THE INFORMATION ADVANTAGE

Given the many developments at hand, the situation lends itself to a great deal of opportunity. Merging information with communication technology conforming to international and industrial standards is a potent combination that has fantastic possibilities. The addition of imagination, some ingenuity, technical knowledge and management techniques to this combination will give society what may be referred to as the information advantage.

The exponential growth of information has brought in its wake a wide range of products and services designed to control it. Journals, indexes, abstracts, directories, databases, review articles have all contributed to keeping tabs on information. The growth of information, however, continues unabated. Electronic storage which is becoming cheaper together with sophisticated software, computers and networks have opened the doors to vistas never envisioned before. Information in all its forms from text, images, sound and video is being digitised to be made accessible by machines from remote sites. The problem of having a handle on information still exists. Using the Internet with its innumerable information sources still poses problems as it is a highway without signs. Depending on the navigation skills developed, the outcome could be as beneficial as it could be frustrating.

The Deputy Prime Minister of Malaysia, Datuk Seri Anwar Ibrahim recently officiated a seminar in conjunction with World Telecommunication Day 1995 and made some very pertinent observations which demand serious attention. Making remarks on the exploitation of information technologies for development he said "the problem lay with the inability of society to recognise the importance of information". He went on to say "This is unfortunate indeed since the world is cruising into an era when information may very well be the trump card for a nation's economic and social progress". The positive response which professionals can make to the above observation is to convince and educate all sectors of society on the value, benefits and utilisation of information. Carrying this out poses problems of a different kind. Inspite of the acknowledgement that information is a strategic weapon, there has been no support for research funding to support this key cause. In all probability there have been no requests of

this nature for such support. It is indeed timely for the authorities concerned to regard the effective management and utilisation of information as a strategic weapon. In consequence, sufficient support must be expended to ensure that Malaysian individuals and organisations eventually learn to manage and use information not just cost effectively but more as a strategic resource.

Society has thus far paid lip service to information. There is acknowledgement that information is important. Little effort or investment is made in actually managing information (Martin, Davies and Titterington, 1991; Vickers, 1984). Organisations both public and private carry out activities, each of which generates information. A large part of this information resource remains untapped. Very few organisations have an information policy leave alone a department to manage the organisational information. The ability to process information faster, reduce repetitive processes and to access information effectively increased the use of computers. Organisations followed the bandwagon increasing the investment on IT in the hope of achieving increased productivity. With the advent of networking the quantum of investment increased further. The return on investment while satisfying in some cases seemed insufficient in others. We do not have an accepted evaluation system yet to measure effectively the effects of IT utilisation.

The fascination with information tehnology has worn off and realisation has dawned that what was important and crucial was the information to be managed by the system and how that information could be manipulated to serve the organisation better. To put things into proper perspective what is being underscored here is that it is information not the technology that is of paramount importance (Kalseth, 1991). The technology is a sophisticated tool which when used to manage information effectively will provide organisations with the desired competitive edge.

Another obstacle has raised its ugly head – that of incompatibility of systems. This has affected problems of access to the transfer and exchange of information. The development of international and industry standards has helped to resolve the situation. Knowledge of and adherence to these standards has become essential particularly during the planning and procurement stages of the information systems being planned. Among the standards being referred to are the CCITT standards which support communications worldwide, ISO standards such as the OSI for open systems and interoperability, OSI based standards like file transfer, access and management (FTAM); message handling (X400); open document architecture (ODA) and document filing and retrieval (DFR), the many standards generating from the American National Standard Institute Z39 Committee, and the standard generalised markup language (SGML).

We have today almost all the elements required which together make up the information advantage. We have:

- Knowledge and information, which can be accessed from internal and external sources.
- Information technology as a fascinating tool to gather and process knowledge and information.
- Communication technology which makes possible the transmission of information.
- International and industry standards which enable greater compatibility between systems and the exchange of information.

What is sadly lacking now and needs to be attended to as a matter of priority is the integrated management of all the above mentioned elements. Such management referred to as information management within an organisation entails among other things the following:

a. Determination of the type of information and the information content (strategic information) that is needed by the organisation such that it will play an important role in value creation activities such as decision making, problem solving, analysing events, creation of ideas, development of products, understanding of market needs, etc. in support of organisational objectives.
b. Planning, implementation and coordination of the organisation, development and maintenance of information sources and information stores to ensure information system effectiveness.
c. Planning and coordinating the appropriate use of information technology of all kinds.
d. Coordinate the development and training of information handling skills of all personnel in the organisation.
e. Monitor and map appropriate information flow such that access to, transfer and distribution of information is achieved.
f. To promote the strategic use of information in the organisation at the following levels:

- Strategy formulation
- Decision making
- Operational
- Development

To avoid over investment in technology it is recommended that information needs analysis be given priority over technology so that information technology acquisition is need related (Kalseth, 1991).

Since we now have the major components of the information advantage, what needs to be done is to harness this advantage for national and social good. The eventual goal would be to develop and inculcate what may be called a knowledge culture at various levels in our society for human and national progress.

THE KNOWLEDGE CULTURE

In acknowledging that knowledge is more essential to the wealth of nations today than either capital or labour, Drucker (1993) relates how in the early stages of industrialisation knowledge was applied to tools, services and products. After the Second World War knowledge was applied to the study analysis and engineering of work ushering the productivity revolution. Kowledge subsequently being regarded as "the only meaningful resource" has

relegated the traditional factors of production, i.e. land, labour and capital to a secondary position on the basis that they can be easily obtained provided there is knowledge. Knowledge here has become a utility as the means to obtain social and economic results. He explains, "Supplying knowledge to find out how existing knowledge can best be applied to produce results is, in effect, what we mean by management. But knowledge is now also being applied systematically and purposefully to define what new knowledge is needed, whether it is feasible, and what has to be done to make knowledge effective. It is being applied to systematic innovation. The ability to generate, access, control, manipulate, utilise and disseminate information and knowledge will be a key determinant of power and influence in this age of information and beyond (Toffler, 1990). This brings us to the inculcation of a knowledge culture in society.

What is a knowledge culture? Even though arbitrarily, the elaboration of knowledge culture given below presents a concept that could be further developed. A knowledge culture is a way of life of a society giving prominence to the process of continual learning and thinking through the effective utilisation and application of information and knowledge accessed through information flows from national and other stocks of knowledge for beneficial and progressive ends. The activities undertaken in the practice of this culture include:

a. A life long reading habit.
b. Sifting, storing and managing needed information.
c. Expressing orally and in writing thoughts, concepts, ideas and experiences as and when necessary.
d. Thinking to analyse, create, resolve or decide.
e. Knowledge of information sources and how to access them.
f. Participation in common interest groups.
g. Upholding ethical, religious and social values and culture.
h. Graceful interaction with society.

At the Individual Level

If every individual in Malaysia by virtue of the education system and "infostructural" facilities available in the country has been exposed to knowledge use, then the seeds of the knowledge culture might have been planted. It may be pertinent at this juncture to elaborate on what needs to be done at various levels to develop this knowledge culture.

At the individual level it is expected that:

- The education received has prepared the individual to read, comprehend, write, debate and possess information handling skills;
- Lifelong reading is continued through library memberships to the nearest public library, the library of the organisation where he works supplemented by his own personal library that is built overtime. It must be emphasised that the book is by far the best machine invented by man. Information technology has attempted to emulate the book but has a long way to go. The comprehensiveness of knowledge

acquisition through reading a book still cannot be beaten. There is no substitute for reading as yet;

- Access to electronic information sources is enabled through the national data communication network JARING (Joint Advance Research Integrated Networking and Internet. This implies that appropriate navigation skills have been learnt and information literacy programmes have been attended to enable the individual to use the computer and associated peripherals for information processing and use;
- Every individual has learnt to develop and manage his own Personal Information System.

At the Organisational Level

At the organisational level it is expected that every organisation both public and private would have:

- An information policy for the organisation;
- An information management unit to administer the information policy;
- Information resources;
- A system to carry out information mapping to inventorise and maximise the utilisation of information resources;
- Information management through an information system capable of delivering intelligent information and other information suited to the needs of the organisation;
- Training and education in the use of information technology and utilisation of information to advance organisational goals.

In this context the role of the library in the organisation needs to be elaborated upon. Currently there are no programmes that train information managers. By virtue of their training, librarians have the potential to become information managers. System analyst know the technology well but lack interactive skills with clients and the theoretical constructs of knowledge classification. This, therefore, is a major drawback in their being effective information managers even though they manage the information technology well. All along, the knowledge workers like the scientists, the librarians and the system analysts have been working in isolation in developing their own systems based on their respective perception of need. What is proposed here is the need for all the three to work together interacting intelligently with due respect to each other's specialty to develop meaningful and needed information systems, and knowledge bases. What needs to be done is the establishment of cooperative endeavours among organisations and libraries to prevent duplication of activities resorting instead to shared information and complement each other.

At the National level

At the national level it is expected that there would be:

- National policies on the various dimensions of information, its communication and its use;
- Appropriate development of the information infrastructure at the national level to support individuals

and organisations in the achievement of their respective goals;

- National inventories of information to enable seekers of information to know where to get what and to avoid wastage of time, effort and money in attempting to do what someone else has already done; and
- The continued initiative by appropriate authorities to embark on and coordinate effective, national cooperative schemes. These schemes would be designed to maximise national resources and avoid duplication.

It is suggested that there be cooperation at the national level among libraries in the following areas.

a. A national referral centre itemising the availability of information sources and resources in the country. This would include personal expertise, printed sources, organisational resources and information agencies.
b. A national index to newspapers and periodical literature going as far back as possible. Currently information on Malaysian literature from the 80s has been indexed. Such a project could be undertaken on a cooperative basis among major libraries in the country.
c. The establishment of a special unit having the responsibility to advice Malaysian organisations on how to;
   i) publish their publication electronically; and
   ii) cost-effectively manage their networks to allow access to their information sources.
d. The joint development of image data banks to facilitate the development of multimedia programmes. Expertise on how best to go about doing this is lacking. Each organisation is using its own resources to undertake this, making expensive mistakes along the way. A collaborative approach of sharing expertise among organisations that can talk to each other would have the desired result of achieving more in a shorter time frame.
e. The shared use of electronic databases in a network environment such that each organisation or library needs to maintain a few elect ones only.
f. A collaborative electronic contents page service among major libraries in Malaysia designed to save journals subscription costs on a national basis, allow a wider access to a greater number of journals and to build up a database of information that is available in the country.
g. A national electronic information delivery scheme designed to send information in electronic format to a user located anywhere in Malaysia.
h. A national electronic directory service, varying in degrees of sophistication, listing public and private organisations throughout the country.
i. National data bank of non-confidential numeric information such as statistics, prices, financial data etc. available electronically.
j. Knowledge repositories based on subjects of strategic interest to the country. Such repositories should be text based files appropriately analysed and indexed by subject specialists and librarians.

The list can go on but it is sufficient to give direction to the types of electronic databases that must be established. There is so much information in our own country that needs to be captured and controlled for gainful utilisation. The enormity of the resources required to undertake the establishment of such databases is enough to dampen one's spirit to undertake the task. However, there are ways to circumvent the situation. Most librarians know that there is a lot of work that is being duplicated in most major libraries. Work such as indexing the same kind of information and the development of databases on the same subject. The problem can be easily resolved by undertaking the compilation of needed databases jointly on a cooperative basis using effective coordinating mechanisms.

At the International Level

At the national level there is a need for:

- Shared access to information;
- Contributing to global standardisation for mutual gain;
- Sharing and transfer of technology; and
- Monitoring developments to tap new ideas and initiatives.

The survival of human kind will greatly depend on the ethics of sharing information. One of the biggest stumbling blocks to the sharing of information on a global basis is the protection of intellectual property rights. The wisdom for such protection is often taken for granted. There is a growing body of opinion that copyright and other forms of intellectual property rights should be reviewed and revamped in the light of weak arguments supporting claims of loss of income and the curbing of creativity. Since the issue is an emotive one Cornish (1990) defuses some of the issues and concludes that "if a new philosophy of reward for use is introduced then, again there need to be no threat". He believes that the conflict is more imagined than real in the case of copyright and document supply service. Fisher (1989) feels that "in order to take advantage of electronic technology, society needs less encumbered and cheaper access to expressed ideas" and the copyright rules are now outdated and don't apply anymore to the situation in this information age. He is of the opinion that "economic success will go to those nations that best succeed in promoting creativity without inhibiting the incorporation of expressed ideas into other products". He concludes that there must be a robust nurturing of new ideas that is not linked to restrictions of use because "everyone gains if there is greater freedom to utilise intellectual expressions in the electronic lumberyard to build information products of the future". Gilbert (1989) asks central questions relating to intellectual property rights in the information age from the perspectives of philosophy, ethics, politics and the economy. He argues that the concepts of copyright and software privacy are "narrow constructions" and that higher education should take a lead in defining the issues and questions and seek solution by:

- identifying active constituencies that are involved in this effort;
- initiating communication among these organisations and individuals;
- creating a strategy, planning for building a new foundation of principles, policies, laws, guidelines, regulations and mechanisms for dealing with intellectual property, and
- developing a term that characterises the issue at stake than does "intellectual property".

Breyer (1970) reports the results of a study on copyright protection that revealed that it did not appear that authorship and publication would suffer if copyright were abolished by offering other alternatives.

CONCLUSION

To make predictions of the future would be futile. To list out expectations that may develop in the future based on past and present developments is more acceptable. Setting development directions for the future is merely the first step. What happens after that depends on initiatives and actions taken by individuals and organisations. Librarians seriously need an attitude change. Isolationist tendencies must make way for greater and meaningful interactivity with the user base. There is a greater need for a scholarly approach to the conduct of our operations instead of just being purely pragmatic. A developmental orientation fortified by observation, reading, analysis, and research is required in the efficient management of operations. They have to play the role of a teacher, instructor and guide in navigating cyberspace and searching for information rather than be confined to just user education. They must be managers of information be it printed, cartographic, numeric, video, audio, electronic or other formats rather than be restricted to the mere compilation of bibliographies.

The ethics of a knowledge culture demands that information should be shared through the process of cooperation and exchange of information, experience and knowledge. There must the realisation that the costs of lacking important information are the cost of repairing the damage that the lack causes. There may be costs that society has to unnecessarily bear. The society, therefore, should by necessity pay greater attention to the generation, access, management, transfer and exchange of information and knowledge. In carrying out this task the challenge of change has to be faced as the only thing that will be constant is change (Drucker, 1993). "… the greatest change will be in the form and content of knowledge, in its meaning and its responsibility and in what it means to be an educated person". We can let our destiny be determined by the change or have a handle on the change to determine the path that we should tread. Our abilities to do so depend greatly on information and knowledge, the ultimate resource.

REFERENCES

Bantock, G.H. 1968. *Culture, Industrialisation and education.* London : Routledge and Kegan Paul.

Breyer, Stephen W. 1970. The uneasy case for copyright: a study of copyright in books, photocopies, and computer programmes.. *Harvard Law Review,* vol.14 no.2: 282-351.

Cornish, Graham. 1990. The conflict between copyright and document supply: real or imagine. *IFLA Journal,* vol.1, no.4 414-421.

Curras, Emilia. 1987. Information as the fourth vital element and its influence on the culture of people. *Journal of Information Science,* no.13: 149-157.

Drucker, Peter F. 1993. The rise of the knowledge society. *Dialogue,* vol.9 no.1: 13-18.

Fisher, Francis Dummer. 1989. The electronic lumberyard and builder's rights: technology, copyright, patents and academe. *Change,* vol. 21 no.3: 13-21.

Gilbert, Steven W. 1989. Intellectual property in the information age: issues beyond the copyright law. *Change,* vol. 21 no.3: 23-28.

Kalseth, Karl. 1991. Business information strategy – the strategic use of information and knowledge. *Information Services and Use,* no.11: 155-164.

Kochen, Manfred, ed. 1975. *Information for action: from knowledge to wisdom.* New York: Academic Press.

Machlup, F. 1980. *Knowledge: its creation, distribution and economic significance. Vol.1, Knowledge and knowledge production; economics of information and human capital*. Princeton: Princeton University Press.

Maclure, Stuart and Davies, eds. 1991. Learning to think: thinking to learn. *Proceedings of the 1989 OECD Comference Organised by the Centre for Educational Research and Innovation.* Oxford: Pergamon Press.

Maguire, Carmel; Edward J. Kazlauskas and Anthony D. Weir. 1994. *Information Services for Innovative Organisations*. San Diego: Academic Press.

Martin, W.J.; C.A. Davies and A.J. Titterington. 1991. Marketing the concept of information management to top executives. *Journal of Information Science,* no.17: 209-220.

Toffler, Alvin. 1990. *Powershift: knowledge, wealth and violence at the edge, wealth and violence at the edge of the 21st Century.* New York: Bantam Books.

Vicker, Peter. 1984. Promoting the concept of information management within organizations. *Journal of Information Science,* no.9: 123-127