

ROLE OF COLLABORATION AMONG LEADERS FROM VARIOUS SECTORS IN CREATING AN INFORMATION CULTURE

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ABSTRACT

Following a short introduction to the current general literacy situation, this paper first addresses some general theoretical considerations, which, in the author's view, should constitute the foundations for advancing the "information literacy" and "information culture" concepts. Key dimensions of the general idea of an "organizational culture" are first explained, emphasizing the various roles of the key players, and pinpointing the links between each of the principal dimensions.

An overall approach to the concept of an "information culture," as that concept is coming to be utilized in various developed and developing world contexts, is stressed. The information culture idea is taken up in the context of four key sectors: teaching and learning, science and technology, business and industry, and social development sectors. Some specific methods and tools that can be used by practitioners, and the concrete outcomes and results that would be expected by reinforcing the importance of leadership and collaboration, are next considered.

Specific information literacy and information culture, as well as specific library and information competencies, are then reviewed, taking into account the role of differences in how organizations at the international, national, regional, sub-regional, and local levels operate. Several dozen specific recommendations are suggested following the conclusion section of the paper.



THE CURRENT GENERAL LITERACY SITUATION

Humanity cannot abandon its efforts to secure minimum, satisfactory levels of traditional (basic) literacy as it grapples with the new challenges posed by the Internet Age and the

Information Society. Substantial improvements in minimally acceptable basic literacy levels still requires concerted, priority attention by all nations and institutions because of the very high levels of illiteracy in almost all parts of the world. Nevertheless, additional, new, and strengthened efforts are required in order to cope with the new challenges of the so-called Information Society and the Internet Age.

More specifically, new types of illiteracy have sprung up, purely as a result of the new information and communication technological developments that have vastly increased the ability of people to access, use, and distribute information. New information products and services are generated virtually every second in this virtual cornucopia of online information resources with which we are now confronted.

Let us examine this new concept of information literacy and how it can play a role in many different ways.

According to Skoviraⁱ, an information literate person is capable of:

- Locating the information needed
- Determining the relevance and reliability of the information
- Using the information in problem solution and decision making

Kokkonenⁱⁱ suggests that other abilities, beyond those identified by Skovira, must also be taken into account, and stresses that the concept of information literacy should be viewed as an *umbrella* concept composed of several kinds of literacies that will be taken up in greater detail below. Kokkonen's observation means, among other things, that information literacy requires *technological*, not just conceptual and intellectual skills. Cultural and intellectual literacies facilitate the exploitation of technological skills, and vice-versa. Without the cognitive skills, the technological skills lie partially dormant and unexploited, and users tend to utilize the technical skills in a perfunctory and less than optimal manner.

Hagermanⁱⁱⁱ and Pinnacle^{iv} have used a more traditional approach in defining the subject of information literacy. They see this new kind of literacy as something that is primarily technical and instrumental. That is, as something functional that facilitates cross-cultural and intra-cultural comprehension and communication. And as something that supports the personal and constructively critical evaluation of knowledge. They emphasize this new literacy is a prerequisite for successfully pursuing academic studies and research in today's fast moving and highly competitive society.

Effective information literacy education depends upon cooperation between information professionals and discipline experts to achieve the required innovations and reforms, which, in turn, foster information literacy. Breivik^v describes such cooperation “as a partnership between stakeholders with pedagogical expertise, subject expertise and expertise in information organisation and technology. Such cooperation is likely to occur, and the objectives of information literacy education achieved, in contexts where innovative, student-centred, approaches to teaching and learning, and innovative user-centred approaches to information provision, are valued”.

FROM INFORMATION LITERACY TO INFORMATION CULTURE

During the '70s the traditional concept of "culture" was broadened, and scholars began to consider the concept as a complex of strategies used by a society for maximizing society's adaptation to the challenges of its physical environment. In that sense, "culture" can be considered as a feedback system in which activities that might otherwise be considered "non-productive" (from an economic standpoint) serve various social adaptation functions.

Society and culture are interrelated and interwoven in a complex fabric of human behaviours. If society is considered as an organized group of individuals with a recognizable and replicable form of life, then culture becomes that form of life. If culture is considered as an aggregate of social relations, *culture becomes the content of those relations*. Society emphasizes the behavioural aspects in individuals, and in their many inter-relationships. Culture makes special reference to accumulated resources, material or nonmaterial, which people inherit, use, enhance, transmute, and transmit.

All components of every social role can be described and classified in terms of group identity, socialization, and hierarchy. Each of these three main role categories can be further characterized and described in terms of fixed and predictable patterns of access to social information.

Information, in itself, affects, in one way or another, virtually all of the operating components of social systems because it precipitates and accompanies change at every stage, modifying change regularly, and is always present as a determining (and therefore limiting) component of social interaction processes. Culture is information and information transfer (or manipulation) defines the social relations that form the structure of society and vice versa. Social structure determines culture, facilitating the framework in which it is created and communicated.^{vi}

Therefore, information culture should be thought of as a broader and more generic concept than is information literacy. But, in the end, they become mutually complementary concepts, not competing ones.

The continuous process of acquiring and utilizing information literacy skills produces a discernible pattern whereby those literacy skills are continuously, and perceptibly linked to changes in the information culture. To put in place incentives to motivate these social interactions is a daunting process. So much so, that the role of a very special set of "actors" is required - - especially the key role of the change agent (internal and external).

A literate person uses information in critical thinking and problem solving. Generally, authors value information literacy as a self-oriented process. A literate person most often involves others in his/her thinking, and in his/her work. A literate person is a leader, a literacy leader. Everyone recognizes and values the talents of highly information literate persons in an organization. Generally these persons act as trusted consultants, as counsellors, as honest brokers and as facilitators. They are also valued as a rich

information resource for problem solving and decision-making. When two or more information literate persons work together, they create a symbiotic information literate environment that serves as a dynamic and catalytic force within the organization. That is why, nowadays, information literate persons act as "multipliers" in this type of environment, and oftentimes set up a kind of positive social chain reaction within the organizational culture.

DIMENSIONS AND COMPONENTS OF AN INFORMATION CULTURE

If we are to systematically adopt and adapt the approaches suggested in this paper, we must first define the framework in which the various actors can play their roles effectively. Many different dimensions and components all contribute in some way to the establishment and operation of an effective information culture. These dimensions and components are identified and briefly highlighted in Table 1.

Table 1

DIMENSION	COMPONENTS
Human	Individuals, groups, associations, institutions, organizations, countries, regions, world society
Information	Information needs; information generator and user, multipliers and disseminators in their original formats; information warehouses and patrimonial conservators; transformers, consultants; extensionists and value-added information distributors; channels, media and infrastructures
Infrastructure	Primary, secondary and tertiary schools, universities. Factories; enterprises and production/services sites citizenship oriented; information units; hosts and telecenters, and media organizations, research and development units; public administration entities; local and national governments; regional and world-wide organizations (United Nations agencies)
Cooperation	Personal and professional contacts; infrastructure exchange; teaching and learning processes; collective processes for innovation, creation, research and development; collaboratories; projects linking different instances; links between universities—industries—communities; twinning and benchmarking; learning by using; technical and social assistance; services of different type and content; organization of meetings, and other spaces for professional and political exchange; sharing of installations, laboratories and other social spaces; agreements and settlements of different character, etc.

Leadership	Teachers, professors, researchers, information and communication professionals; entrepreneurs and intrapreneurs; innovators; extensionists; proactive managers; cultural agents and managers; stakeholders; community leaders, governors, lawmakers and national /international authorities, among others.
Social conditions	Literacy/illiteracy; education and culture, cultural identity; communicative possibilities due to linguistic and ethnic reasons; quality of life; access to networks, information communication and computer systems; development policy and hierarchy; information and expression liberty; access to information legislation and intellectual property; social inequity; digital divide; economic and social development level; per capita income; scientific and technological development; electrification; highway conditions; among others

Relations among these dimensions create certain spaces for interaction as shown in Figure 1.

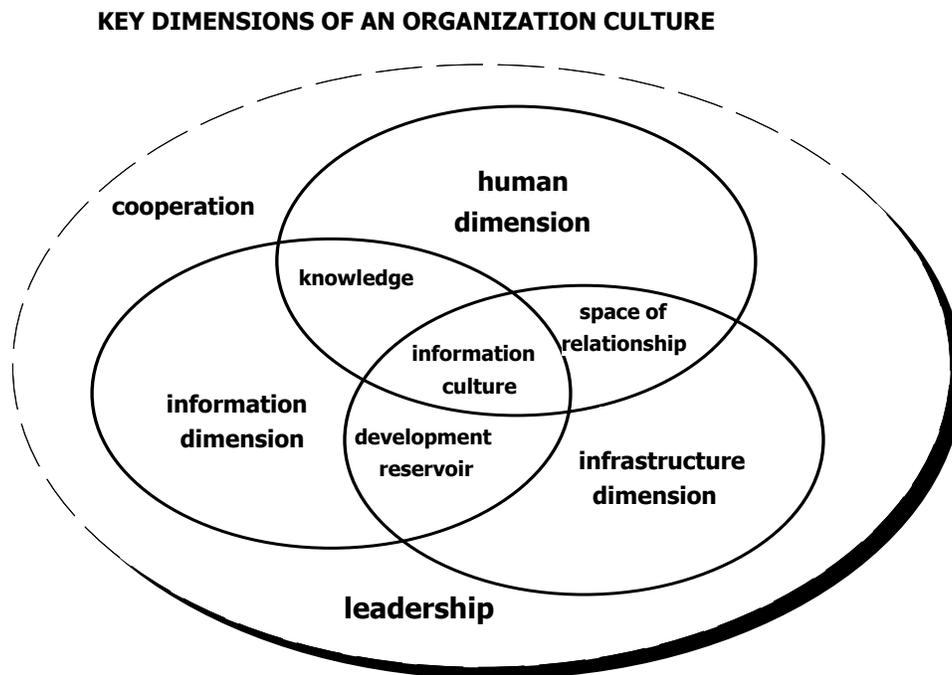


Figure 1

The links between the human dimension and the information dimension generally leads to knowledge creation and diffusion. The links between the human dimension and the infrastructure dimension creates a "new space" where particular interactions take place, with different degrees of activity intensity and different characteristics. The links between the infrastructure dimension and the information dimension allow a development reservoir that can be submitted to rich exploitation by the human dimension. The links between the infrastructure dimension and the human dimension allow the full exploitation of the content of that interaction, that is to say, culture. When knowledge interacts in a space that has a development potential, then it can be observed that an information culture comes to exist. All of these dimensions and components can be upgraded and made more robust by shifting to an ideological frame of mind that favors close and continuous cooperation, including intensified sharing of information, and the pursuit of proactive and imaginative leadership initiatives.

Next, let us examine in Table 2 below the effects and impacts of these dimensions and components using a conceptual framework of four key sectors ("local communities" might be considered a fifth key sector, but in this paper, for most purposes, it is not singled out as a separate sector but, rather, is subsumed in the fourth sector, Social Development).

Table 2

KEY SECTORS	EFFECTS AND IMPACTS
TEACHING and LEARNING	Strategic factor in innovation/creation/scientific and technical development
SCIENCE AND TECHNOLOGY	Strategic element in production and distribution
BUSINESS AND INDUSTRY	Quality of life and economic survival factor
SOCIAL DEVELOPMENT	Strategic factor in future global survival

According to particular conditions, effects and impacts can be measured in different periods of time, at different stages. Individuals play different roles in these sectors, and the way individuals interact with each component and dimension may be quite different. The ways the links are established usually favour, or do not favour, the establishment and flourishing of an information culture. The beneficial effects of information literacy are therefore most often subordinated to and dependent upon these linkages, on whether they exist at all, and, if so, on how well they are performing.

Let us now examine each of the four key sectors with a stronger microscope.

1. Teaching and Learning

In this sector, in its broadest scope, many different facets can be analysed. Learning occurs in both formal and informal settings, initially in formal educational environments: kindergartens, K-12 schools, universities and other higher and specialized education and training institutions, in both the public and private sectors. In the traditional sense, learning is associated with "content packages" that must be understood and assimilated. But learning also occurs in informal settings, or informally, through social (group), inter-personal or other kinds of relationships as well. Parents, teachers, librarians, clergymen and women, and different members of educational institutions, and many others, practice teaching, formally or informally, consciously or unconsciously.

An information culture must be created starting with the early generation of pre-primary (pre-school) education, and continued and strengthened during each successive basic education stage. This is accomplished especially by means of acquiring learning and communication skills, wherein reading and writing habits play their main role. In acquiring these basic skills, a sound foundation for acquiring the other "higher level" learning skills is thereby created.

Moreover, computer literacy, media literacy skills, and what we are coming to call e-learning skills should also be acquired as part of the learning processes in primary schools. It is often observed by scholars that information literacy is ideally carried out through resource-based learning, where students are able to develop skills for accessing documents, successfully completing comprehension exercises, undertaking analysis and synthesis of content, and evaluating the potentialities of what they have learned for practical "bottom line" purposes.

But these various learning methods and styles should be flexible enough so as to allow students to create their own unique and personalized information seeking, information organizing, information evaluating, and information utilization criteria, including preferences for utilizing particular sources and resources.

Teaching staffs do not always have the necessary preparation for adopting this new learning and teaching approach. Therefore, the staff (as well as the students) must receive the formal preparation in information skills to incorporate the approaches recommended therein, in their daily conduct. This is not necessarily either a formal or a formidable task. Ideally it should be part of a conscious method of teaching and learning, not only oriented to, but also shared by teachers with each other.

A fully effective information culture will create and stimulate positive conditions for imaginative and creative thinking, innovation, and, in particular, promote the sharing of experiences for political, economic, and social development at all levels and in all sectors. So-called "Think Tanks" can survive and flourish only where a positive organizational culture favours the free and open exchange of ideas, experiences and forecasts.

The information literacy process in the teaching and learning sector takes place through cooperation which is established among the various component members, including: the academic authorities of the various departments, laboratory managers, faculty members, university and school staff, and so forth. Among the often-overlooked needed skill

categories, however, are librarians and information/knowledge managers. The infrastructure dimension must support the roles of these players as well, and their interaction with the other human resource components. This cooperation, in the broadest sense, is part of the human dimension.

Organizational focus, management styles, budget formats, teaching methods, the uses of learning laboratories, and the uses of libraries and information units used for learning and programs, all must be considered in moving toward the information literacy goal; they each play a very important role. The organizational focus provides, in this infrastructure configuration, an intensive information use environment. Philosophically, this can be considered a sort of *leitmotiv* of all teaching-learning action.

Knowledge creation obtained in and through this process, regardless of the formal adoption of technical information abilities, promotes in its components a permanent and positive attitude towards the learning process itself. It does this by turning learners into literacy leaders who can then act as an internal change agent, or catalysts, to identify and promote changes in the existing information use environment and information infrastructure. After all, it is often observed that the academic environment should facilitate the flowering of natural leaders as a basic goal of education. As a result, students can be expected to carry this enlightened attitude and new set of behaviours into their home environment, instructing their families and other members of their social groups.

Librarians and other information professionals have the opportunity of strengthening their role and image in the academic settings, joining technology specialists and teachers in becoming members of internal information literacy teams, developing strategies supporting educational processes, contributing to the development of new and stronger information use environments and establishing an effective information culture.

Graduates must recognize lifelong learning as their solution for competitiveness and success. They must be part of the transmission chain. They must play their role as a new kind of teacher, and/or as information literacy guardians and custodians in their workplaces.

2. Science and Technology

This sector is the one with perhaps the highest (most effective and efficient) information culture. The nature of research and development is such that one must continuously find answers to difficult questions, and this process inevitably involves the search for, and use of information. Of course, already under current (i.e. pre-electronic conditions), situations inevitably arise that foster the reinforcement of existing literacy levels. For example, the need to filter information and to evaluate the quality of sources. Much available and accessible information, particularly that available from online sources, is not in the "tried and tested" category of dependable and reliable mainstream information. Moreover, many databases and some important information infrastructures discriminate (albeit most often inadvertently or sub-consciously) against the productive scientific output by a country because of geography, language, or development level barriers.

Information and communications technologies, because of their greater implicit presence in this sector, allow greater access to both online and offline information resources, and more effective international and interpersonal exchanges through the use of teleconferencing, groupware, discussion lists, electronic publications and other technologies. In other words, the distribution of electronic information is not limited nearly as much by the "buyer criteria" as it was in the pre-electronic era. In this sector, information flows freely and is easily accessible by all.

Even so, many knowledge products and services are difficult to obtain, especially in the developing world. For example, theses and dissertations, and publications of limited editions or restricted distribution. This "grey literature" as librarians call it, could flow much more easily if:

- new "legal deposit regulations and policies" were adopted;
- collaboratories (a new term meaning cross-organizational, matrix types of spontaneously formed groups) are utilized;
- greater encouragement was given to professional interactions, and;
- adequate motivations were put in place for using information.

In short, if the organization's rewards and punishment system were geared more specifically to rewarding information sharing and "punishing" the failure to share information. Such a strengthened rewards and punishment system could well be developed by (or at least using the skills of) information professionals, including librarians, in all kinds of organizations.

3. Business and Industry

Business and industry, or the "production and distribution sector," like the other sectors, has its own unique characteristics. Its development level is usually closely related to the particular stages of social and economic development of countries. In some countries, innovative projects, scientific research, careful technological surveillance, and a frame of mind that encourages benchmarking, are carried out routinely. But in other countries, labour and workforce, hallmarks of the Industrial Age, is the principal feature and target. The industrial sector (especially the sub-group of the largest industries) is one of the most powerful forces in a society for the creation, diffusion, and use of information. And this sector has one of the highest levels of information literacy, but not always an effective information culture.

This sector is a sector with a very heterogeneous level of development. Great differences can and do exist among different industry branches and dimensions, depending upon local priorities and upon other particular factors indigenous to a given country, region, or sub-region. For example, small and medium-size enterprises have not always promoted the idea of information literacy (an observation that probably has been the cause of the relatively short life span of so many of them). That is why Ginman^{vii} observes that an information culture has to do with the formal information system of individuals (attitudes). He recounts that *information ethics* is often what is ultimately responsible for what has or

has not been written down and recorded for posterity. He emphasizes that unconscious behaviour is often the driving force, and "fills the gap" between what has officially happened and what has really happened. It is hard to avoid the parallel of his observations with current unethical bookkeeping and accounting practices that are causing major debacles in many large world-class corporations.

Also, and not always corresponding to their development level, the production and distribution sector does not always have the possibility of accessing information easily and efficiently, or, even if the technological capabilities exist, knowing how to use which information channels for which purpose. Much of their decision-making is therefore not supported by adequate information.

This sector has many economic pressures that guide its actions. The transition of an information literacy to an information culture in this sector is not an easy task, and will probably take more time than in other sectors, as in the academic or the scientific sectors. Only with the support of information for decision-making, with the measurement of the impact of information in production, will a greater comprehension of its importance will be more visible.

Business organizations must face what is sometimes called the "Information Fatigue Syndrome"^{viii}, recognizing that professionals with capabilities for systematic information gathering, handling, analysis and dissemination do exist, and their services should be acquired.

Librarians and information professionals, once again, have important roles to play in this sector, generating projects for information literacy linked to efficient value-added information services in response to their particular needs. This sector must see results to believe. Information professionals must make an adequate use of their presence using training as another stimulation force while this sector inserts in its human resources, people with a greater information culture. From quality control circles, we must go to information management circles. Positive examples that have information as a principal element, as the transit from "just in case" to "just in time," can be used as paradigms.

Another force that can lead these processes is in the link between universities and industries, or the invention of the "university-enterprise." Again the academic sector acts as a leader, but in another area of influence. Information professionals from the academic setting can make alliances with the ones of productive sectors for contributing with information literacy actions. Another force may well be the so-called "Civil Society," which is a new configuration of societal elements that marries together both public and private elements, both governmental and non-governmental, both organizational and individual.

4. Social Development

Social development reveals major inequalities that are suffered by the population, and which require some special elements in order to develop an information literacy program.

Among them, access to education plays a leading role. Also, regulations and policies that support, for example, children's rights and obligations to attend schools. Additionally, prohibiting child labour exploitation in the workforce. Other basic and indispensable aspects refer to the standards used for measuring the quality of living (health, electrification, water supplies, sanitary measures, etc.). Local information industry representatives, libraries, publishing houses, the computer industry, television, radio and other media all have a role to play in the development of information literacy programs.

This sector is very complex and, in most countries, especially developing ones, has but very minimal conditions necessary for creating an effective information culture. Cultural and social agents that contribute to information and knowledge management, and favour the adoption of public policies that facilitate an improved standard of living, greater information quality and reliability, and a greater participation in social programs and projects, are needed to mount and sustain effective actions. Governments and public administrations at all levels, including international organizations, must make a major effort for removing social inequalities. Education is absolutely indispensable, and there is no "quick fix" substitute for it in this context.

In sum, Figure 2 summarizes in highlight fashion the main items mentioned in the foregoing synthesis,

Now returning to our paper's main discussion from a detailed review of the four sectors, we next take up stimulating leadership.

STIMULATING LEADERSHIP

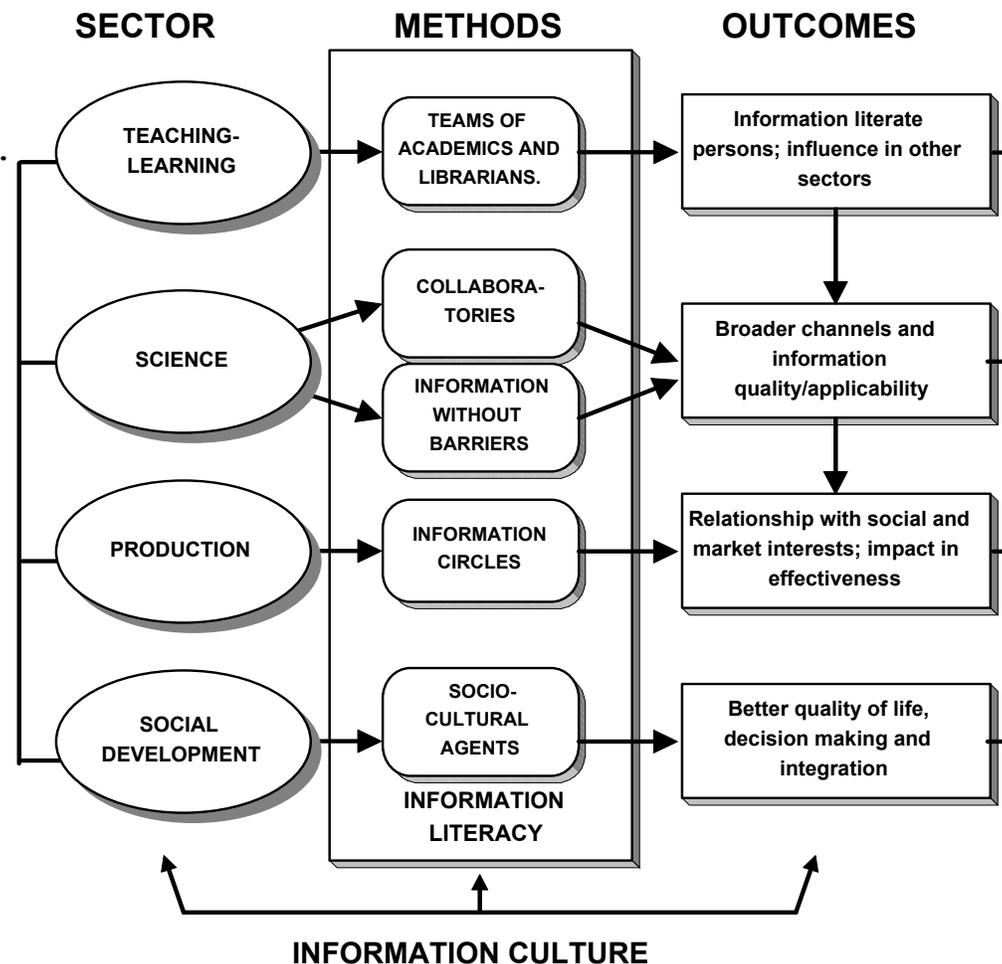
The goal of establishing an environment that favours information literacy programs must have the support of United Nations agencies, international bodies, governments, regional and local administrations, professional associations, media, universities, schools, libraries and operating information units in all kinds of organizations (such as human resources staffs and education and training units).

United Nations agencies regularly and systematically include information literacy and information culture as topics in their plans and programs. A specially created UNESCO task force could contribute to strengthening the policies that support the planning, design, development, and testing of information cultures in all member states, especially at the local community level.

Public administrations and governments must play an important role by managing budgets, actions and policies that are conducive to the public's right of public information access and use. This is not merely rhetoric, but a real alternative—actions must be evaluated in terms of concrete outcomes, and the design and development of national performance indicators that can help measure progress toward information literacy goals. These measures might be supplemented by including televised educational programs to support the creation of an information culture.

Enlightened public policies designed to promote free access to information and education, the protection of intellectual property, and the preservation and promotion of national intellectual heritage, are desperately needed. There must also be concrete plans and programs that develop and sustain an information technology infrastructure available to all in order to minimize social inequity.

Figure 2



Professional associations must work together with the leadership of library and information science, and education associations, to create intensive information-use environments. As Fowell and Levy^{ix} state: “Information professionals have the opportunity to take a leading role in developing and delivering the learning support strategies which will be appropriate to this new environment, acting as significant culture change agents in their institutions.”

In academic settings, information skills should be integrated into the work and training of teachers, teacher-librarians, school media units, and the executive and administrative

boards and staffs of schools and universities, public and private. Such a step might be the only possible realistic alternative for training constructive thinkers, encouraging learners to first ask themselves the questions they would ask others, and to find their own answers. In short, to manage information in the broadest scope of the information and knowledge management concept, by accessing, analysing, summarizing, repackaging and consuming (using) information for creating and diffusing knowledge. These information literate learners will then be among the best kind of inspired and well-informed leaders that society can ever hope to have for teaching information skills, for becoming informed, and for fulfilling their destinies as cultured citizens of their own, their national, and the international society.

These issues must be raised and confronted in discussions and debates of professional associations and societies, principally those linked with education, higher education and library and information science. Indicators of an information literacy quotient must be included in accreditation standards. Information professionals should be part of interdisciplinary teams that lead these programs at this level, squarely facing these challenges armed with their full capabilities, and with an enlightened social conscience that these are neither exclusively a library domain issue, nor even an educational domain issue, but are truly an institutional issue that pervades all sectors of society at all levels.

Information culture, in turn, is an integral part of the entire, all-pervasive organizational culture, and must take into account brand new job and occupational titles which are needed for handling information flow, new and improved pay scale considerations, new and enlightened rewards and punishment systems, and new ways of thinking. IT (sometimes now called ICT) managers must be paired with managers of information because, in the end, content cannot be separated from carrier. The sheer diversity of Internet Age sources, and channels, the wide diversity of documents and formats and media (where, inevitably, oral documents will again take a new place in the ranking of sources and documents that institutions manage) all demand research and action by specialized professionals in an information culture environment. Research and production institutions must study their particular conditions and create or participate in collaborations, information circles, and other possible informal infrastructures and modalities that facilitate and support actions for stimulating information literacy programs.

Scientific, academic, and technical libraries must participate in these projects and strategic plans adding value by virtue of their particular responsibilities and expertise, and pointing the way to new services and pathways to knowledge. The promotion of the efficient use of information resources, and the full impact of information in scientific research and production, must be made much more visible. An information literacy marketing program should be part of the toolkit that information professionals bring to the table in order to raise the awareness of this issue to key opinion leaders in science, research, and production.

Advocates of the information culture must prepare a strategic plan according to existing conditions. Programs can be created that not only address gaps in information literacy and access, but also in the information cultural environment that completely surrounds it.

INFORMATION LITERACY/CULTURE AND LIBRARY/INFORMATION COMPETENCIES

Library and information science (LIS) schools have a heavy responsibility in conducting not only research, but also in preparing information professionals to act as stakeholders in meeting these challenges. The Big6tm skills can be used by librarians, teachers and information specialists to help learners attain information literacy and provide a full understanding beyond merely being able to locate resources within a library.”^x All citizens must incorporate information problem-solving skills into their intellectual portfolios, and they must learn to apply those skills to become well informed. LIS schools can act directly in communities, and their students (graduate and undergraduate) can teach these skills to all citizens. This is a very important contribution that LIS schools can make. A new literacy demands new approaches.^{xi}

Special workshops must be organised for preparing future Library and Information Science professionals for their future workplaces. These professionals should hold conferences, advertise, and publish extensively on information literacy to popularise and encourage critical thinking on the subject. Particular messages or "spots" should appear in media. Particular subscription agencies, book dealers, publishing houses, hosts, and other enterprises of the information industry must give support to these programs, financing projects in public institutions of countries where results could be measurable.

CONCLUDING REMARKS

A global model of information literacy and information culture is not yet possible due to the differences in development between nations, and because of the lack of uniform basic methodologies and theories in the areas of literacy, education, and information and communications technologies. The concept of an information infrastructure is also necessary to advance the ideas of information literacy and information culture; in short, the three ideas are inter-dependent. Hopefully the current initiatives being taken by UNESCO, the U.S. National Commission on Libraries and Information Science, and the National Forum on Information Literacy, which precipitated this very paper, will have a positive impact on this situation.

Major cultural changes and reforms are never possible in the short term. Too many different elements must be contended with. Nevertheless, but change must and can be planned and managed. The goals articulated in this short paper can be facilitated, if they are approached in a coordinated, collaborative spirit, and if individuals will step forward as champions and advocates.

Particular information infrastructure components are absolutely critical for this aspiration to be realized. They are:

- information and library systems;
- capable and dedicated professionals in charge of information processing and management; and most of all

- systematic audits and studies about information needs and behaviours.

All such initiatives demand dedicated and motivated players and leaders. But it must always be remembered that the human dimension is the key ingredient to bring about sustainable reform and change anywhere, anytime. Persons, groups, associations, institutions, countries, regions, must all participate directly in these actions for creating a global awareness of the importance of information literacy and information culture. Conditions are already ripe for establishing partnerships among the different experts and expert groups which have a stake in, and roles to play in the outcomes. Leaders and champions must plan and implement their respective actions creatively, influencing attitudes, policies and methods vertically within in the different sectors, and horizontally among the sectors. Change, as always, is ultimately predicated upon collective action by highly motivated experts.

The leaders of the various sectors—science and technology, academia, education, business, and government—must all work together toward the goal of reaching a global and equitable information culture—and each can make its own distinctive and important contributions to information literacy and the development of an information culture.

In the end, the information literate individual will be an enormously empowered individual who can not only greatly help him or herself, but who can also play a far more effective role in the many international, national, and local political, economic, and socio-cultural contexts and milieus in which s/he finds him or herself.

RECOMMENDATIONS

Recommendations are first categorized by two key targeted audiences, international organizations, and governments/public administrations, and then by the four key sectors (teaching and learning, science and technology, business and industry, and local communities (social development). A special focus is placed on collaboration among the targeted main audiences, and the four sectors.

1. International Organizations, Including U.N. Agencies

- Organize summits and worldwide meetings about these issues, to attract attention of governments, countries, and all entities that can effect, and/or support the actions identified.
- Establish internal policies that favour the use of specialized information, the organization of internal information, records management, the development of information systems and other internal initiatives for enhancing the information, media and computer literacy of members (of whatever group or level).
- Incorporate in their programs and budgets actions that support the organization of conferences, events, tutorials, workshops, and regional seminars about these subjects.

- Finance projects for establishing programs for information literacy, especially in underdeveloped countries, particularly through the action of regional networks where efforts could be shared at lower costs.
- Disseminate successful outcomes through different channels; create advertisements in the mass media for creating a general awareness of these subjects.
- Take steps to eliminate or ameliorate intellectual discrimination carried out by countries, or first world leading institutions of the information industry, due to development level, language, ideological orientation, etc. Recommend the official deposit of one copy of all commercial editions (books published by editorials) in the national libraries of all countries.

2. **Governments and Public Administrations**

- Consider basic infrastructure needs where these programs take place and can be adequately sustained.
- Establish policies that favour the free flow of and access to public information as part of social programs that secure access to basic education for all.
- Establish local and national indicators of information, computer and media literacy that allow the assessment and evolution of national and local plans.
- Support programs and assign budgets that contribute to the development of capacities and infrastructures oriented towards leadership and cooperation in this area.
- Support all actions linked to the legal deposit of the "collective national intellectual production," and to the generation of control measures eliminating fraudulent and non-ethical positions.
- Implement steps to secure the participation of information professionals in decision-making and problem-solving.
- Analyse and stimulate the mission of information units so that they are oriented not only toward excellent services, but also to the multiplication of users skills for information use.
- Train information professionals as change agents in the Information and Knowledge Society.

3. **Teaching and Learning (Education and Training)**

- Implement information literacy and information culture training at all levels and using a variety of information sources, formats, and mediums.
- Foster in students values linked to resource sharing, honesty, generosity, professionalism and ethics in the Information Society.
- Stimulate formal and informal collaborations to promote information sharing and team building.
- Create programs for active education and training of the public.
- Create awards and prizes as a stimulus and motivation for champions of information literacy and culture.
- Disseminate through publications, virtual libraries, and other communicative vehicles, messages linked directly to information literacy and information culture.

- Stimulate the creation and development of schools where a significant number of professionals could study the subjects contained herein—including managers, teachers, librarians, etc.
- Organize laboratories to demonstrate how libraries can provide answers to the information literacy needs of society.
- Broaden the librarian's role to partner with other teachers, other staff and information and communications technologists.
- Give responsibility to the above-mentioned schools for preparing local action plans.
- Add to mechanisms of quality assurance (accreditation standards, indicators) to stimulate information literacy and information culture.

4. **Science and Technology**

- Promote the official legal deposit of research results in national and academic libraries
- Give technical and human resources to creating information culture to create value added outcomes.
- Promote and disseminate results obtained in professional leadership actions with local, national and international (including foreign) entities.
- Favour cooperation with research institutions, and local enterprises, with emphasis on sharing experiences and leadership tools and techniques.
- Sponsor scientific entities of less developed countries as a way of fomenting development, the training of their human resources, and extending an information culture by an information literacy approach.

5. **Business and Industry**

- Support the efforts of governments and international organizations with contributions to develop information literacy programs and pilot projects. Finance infrastructure projects for underdeveloped countries.
- Give priority to actions and budgets oriented to the dissemination and use of information. Generate databases and other assets and methods for disseminating information, and protecting intellectual property.
- Stimulate the creation of advanced technological packages (e.g. data and text mining) that facilitate the generation of specialized services and the use of information.
- Stimulate a climate for cooperation and exchange of experiences between research institutions enterprise.
- Disseminate a global conscience related to the impact of information literacy for production and business.

6. **Local Communities (the Social Development sector)**

- Stimulate community leadership (from political, religious, and lay members of the community).

- Favour mechanisms and create conditions for the flourishing of an information culture and information literacy expertise in all communities.
- Give communities a role in social information audits to demonstrate the real life benefits of information access.
- Give priority to the creation of, and access to information centers and telecenters, especially in rural and remote areas.

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