Information Literacy in the Workplace Context: Issues, Best Practices and Challenges

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Abstract

According to the US Department of Labor Secretary's Commission on Achieve Necessary Skills (SCANS), information literacy is one of the five essentials competencies for solid job performance. Similar initiatives are evident in Europe, Australia, Singapore and South Africa where information literacy is considered economically necessary. In a 1998 Progress report on Information Literacy, two recommendations were made with regard to information literacy in the workplace context. The first recommendation is to identify ways to illustrate to business leaders the benefits of fostering an information literate workforce. The second recommendation is to carry out research on how information literacy is manifested in the work settings and the degree to which it enhances workplace productivity.

In response to these recommendations, this paper aims at firstly, addressing the importance of fostering an information literate workforce by highlighting the costs to the business if their employees lack information literacy skills. Real examples are quoted based on the author's observations in various workplace contexts in Singapore, Hong Kong and United States. Secondly, this paper aims at illustrating how information literacy is manifested in the work settings by borrowing ideas from an emerging discipline – i.e. Knowledge Management – to inform the discussion. The concept of knowledge management will be introduced in this paper with particular emphasis on how critical information literacy is to allow companies to reap actual benefits from promoting company-wide knowledge creation, sharing and using.

In the last part of this paper, selected best practices in promoting information literacy in the work settings will be highlighted, and the barriers to promote information literacy in the work settings will be discussed.

1. INTRODUCTION TO INFORMATION LITERACY IN THE WORKPLACE

In this paper, information literacy in the workplace context is defined as a set of abilities for employees to recognize when information is needed and to locate, evaluate, organize and use information effectively, as well as the abilities to create, package and present information effectively to the intended audience [1].

According to the US Department of Labor Secretary's Commission on Achieve Necessary Skills (SCANS), information literacy is one of the five essential competencies for solid job performance. The SCANS report mandates the need for developing high-performance skills to support an economy characterized by high skills, high wages and full employment [2]. Similar initiatives are evident in Europe, Australia, Singapore and South Africa where information literacy is considered economically necessary [3].

It is important to be information literate in the work settings because the workplace of the present and future demands a new kind of worker, who have to access, manage and use the vast amount of information delivered to them through multiple channels (e.g. phone, Internet, e-mail, printed documents, Web-casts) and in a wide variety of formats (e.g. video, printed, electronic text). [4]

The need to work differently is the result of change in the global business environment. Workers are increasingly expected to carry out unstructured tasks in an uncertain environment. With the advancement of information technology, employees are required to work in teams, share their knowledge and collaborate in a globalize economy. They are required to be creative and innovative. They are encouraged to make mistakes and to learn from their experience. To meet these expectations, they need to know how to seek, evaluate and use information effectively.

The concept of information literacy was first introduced in the early 1990s -- promoted by librarians and higher educators – and has gained much recognition in the education setting. The development of information literacy is presented in a 1998 progress report on Information Literacy, eight years after the National Forum on Information Literacy has been set up. With regard to information literacy in the workplace context, there are still two gaps to be filled. Two recommendations were made in this report. First, it is important to identify ways to illustrate to business leaders the benefits of fostering an information literate workforce. Secondly, it is important to carry out research on how information literacy is manifested in the work settings and the degree to which it enhances workplace productivity.

In response to the first recommendation, the author finds it useful to highlight the costs to the business when their employees lack information literacy skills. Real examples are quoted based on the author's observations in various workplace contexts in Singapore, Hong Kong and United States.

2. NINE EXAMPLES OF THE LACK OF INFORMATION LITERACY SKILLS AT WORK

In the past five years, many employees may have already acquired basic computer literacy skills. They are able to use word processing applications, build Excel worksheets, use e-mail applications, Internet and intranet. However, having the ability to handle technology does not necessarily mean that they are information literate.

Nine real-life examples are presented in this section to illustrate how the lack of information literacy skills can result in a reduction in operational efficiency and business opportunities in the workplace context.

Case #1: Unable to determine the nature and the extent of the information needed
Employees tend to pose general research questions to special librarians or knowledge managers, without elaborating the context as to why the information is needed and how the information is going to help them. They tend to say, "I want whatever information that is available within the firm."

Cost to the business: Unable to define the scope of the research can result in an increase in the research costs, both in terms of paying for research database access and the researchers' time to conduct the research. Because the scope of the research is not well defined in the first place, it creates information overload when the search results are presented back to the requestor.

Case #2: Unable to retrieve information effectively from the information systems
Many employees do not know how to use the advance search function effectively. They do not know how to construct search query using Boolean operators (i.e. and, or, not), truncation, wildcards and proximity function. They are not aware that they could narrow down their searches using additional search criteria. They tend to do a simple keyword search, and if the results do not seem to be relevant, they conclude that the system does not serve their needs. They tend to be over dependent on librarians or knowledge managers to conduct very simple searches.

Cost to the business: Unable to exploit valuable information collected in the company's proprietary information systems.

Case #3: Not aware of the full range of resources available
Employees complain that they do not know what resources are available for them to use. As different divisions are in charge of purchasing research resources, they feel they are not well informed of the latest resources the firm has acquired. They complain that the resources are not centrally hosted in one place. They tend to use the resources they are familiar with even though they are not the best choice for their research purposes.

Cost to the business: Employees wasted valuable time looking at information of inferior quality from inappropriate information sources. Useful resources are not being fully exploited. As a result, the quality of work is comprised.

Case #4: Unable to evaluate and filter information
Employees are flooded with so much information that they take any piece of information that is easily accessible without evaluating its quality and its source authority. For example, when employees are pressed for time, there are examples that they take whatever information they can retrieve from their internal system and use it for their work.

Cost to the business: Provide wrong or inappropriate solutions to the clients. This may even result in losing business opportunities.

Case #5: Information and Electronic Mailbox Overload
Employees complain their electronic mailbox is always full, and they have no time to go through all the messages. As a result, some of them randomly select messages to attend to. Sometimes, they even accidentally delete important messages.

The problem is exaggerated with the advancement of publishing technology. Employees can now disseminate information easily in a wide variety of formats (e.g. intranet publishing, electronic newsletter, alerting service). As a result, the quantity of content increases dramatically but the quality of content does not necessarily follow. This is especially the case when the information needs of the intended audience have not been carefully considered. As a result, many of the newsletters or reports, published by different divisions within the firm, are repetitive and thus of limited value.

Cost to the business: Employees wasted valuable time going through junk mails in flooded mailboxes. Some important issues are being ignored and lead to communication breakdown. Some employees feel helpless to handle the information overload situation.

Case #6: Unable to exploit technology to manage information
Employees who need to carry out repetitive tasks in organizing information may not be aware that there are simple technologies that can help them to automate the process. Many times, the technologists do not fully understand the business needs to give appropriate advice. Even if they are capable, they may not be consulted.

Cost to the business: Valuable time and resource is wasted to accomplish tasks that can be undertaken by information technology, and thus reducing employees' opportunities to work on more value-adding tasks.

Case #7: Unable to relate information creation and use to a broader context
Employees may not realize that a two-way communication process is continuously occurring between the content owner (i.e. author) and the information seeker (i.e. users). They are not aware that a same set of information can be used in different context, and be visualized in different ways for different groups of intended audience. Many employees narrow-mindedly focus only on what they (or their own division) need, without considering a broader picture of sharing information with others. They forget to ask the questions such as who will benefit from what I have created or who should I consider sharing the information with. Very few people actually take the time to share information with their colleagues, and when these same people want information, they expect others have shared theirs.

Cost to the business: Colleagues working for the same firm may not know what information already exists (or has already been created). They reinvent the wheel when they need to perform similar tasks. As employees lack a multi-dimension view of information, they tend to waste resources by building multiple databases with duplicative content.

Case #8: Unethical Use of information
Employees take information developed by others, and "cut-and paste" it into their own report, without informing or acknowledging the original author. Information marked as confidential is being utilized for external purpose.

Cost to the business: This kind of unethical behavior discourages information sharing. It reduces the moral of employees, discourages innovation and creativity.

Case #9: Unable to evaluate the costs and benefits of information management
It is not uncommon that employees spend time building a database, which provides them with only limited benefits. They do not consider that a database has to be maintained and managed once it is set up. Many corporate databases are set up on an ad hoc basis, some of them have never been updated and used and become inactive in a short time.

Cost to the business: Resources wasted on developing databases without long-term benefits.

2.1. Lessons Learnt

The above examples show that employees need to create, access, organize, use, evaluate, package and present information for various purposes at work. There is a continuous cycle in the creation and the use of information in the work settings. Employees create information and share **it** with other colleagues. Employees access information to add value to their own work. Yet, in the process of going through this cycle, we see a lot of inefficiencies, partly due to employees' lack of information literacy skills.

These examples also tell us that people at work are drowning in the sea of information, they are not sure how can they tackle these problems. Many of the members of the existing workforce

have not fully equipped themselves with the necessary information literacy skills, and they have limited formal opportunities to be trained in this area.

How can we raise the awareness of information literacy in the work settings? How can employees be equipped with the necessary information literacy skills? The Association of College and Research Libraries (ACRL) has developed an "Information Literacy Competency Standards for Higher Education" as a framework for assessing the information literate individual [5]. The five standards are:

1. The information literate student determines the nature and extend of the information needed;
2. The information literate student accesses needed information effectively and efficiently;
3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system;
4. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose;
5. The information literate student understands many of the economic, legal and social issues surrounding the use of information and accesses and uses information ethically and legally.

When we compare these five standards against the problems that the employees are facing at work, it is clear that the workforce has yet to equip itself with the information literacy skills that educators are promoting in schools and universities nowadays (See Table 1). Higher educators are on the right track to promote information literacy in schools to prepare for an information literate workforce. Business leaders and policy makers should consider using these guidelines to promote information literacy in the work settings.

Table 1: Information Literacy Competency That Seems to be Lacking in the Workplace Context

ACRL's Information Literacy Competency Standards for Higher Education	Examples of the Lack of Information Literacy Skills at Work
The information literate student determines the nature and extend of the information needed	Case #1: Unable to determine the nature and the extent of the information needed
The information literate student accesses needed information effectively and efficiently	Case #2: Unable to search and retrieve information effectively from information systems Case #3: Not aware of the full range of resources available
The information literate student evaluates information and its sources critically and incorporates selected information into his or	Case #4: Unable to evaluate and filter information

her knowledge base and value system	
The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose	Case #5: Information and Electronic Mailbox Overload Case #6: Unable to exploit technology to manage information
The information literate student understands many of the economic, legal and social issues surrounding the use of information and accesses and uses information ethically and legally	Case #7: Unable to relate information creation and use to a broader context Case #8: Unethical Use of information Case #9: Unable to evaluate the cost and benefit of information management

3. KNOWLEDGE MANAGEMENT AND INFORMATION LITERACY

Business leaders are increasingly aware of the problems discussed in the section above. To help us to understand information literacy in the workplace contexts, in this section, we borrow the literature and research findings from an emerging discipline—knowledge management—to inform our discussion. The concept of knowledge management will be introduced in this section, with particular emphasis on how critical information literacy is to allow companies to reap actual benefits from promoting company-wide knowledge creation, sharing and using.

> Knowledge management (KM) is a discipline that promotes an integrated approach to the creation, capture, organization, access and use of an enterprise's information assets. These assets include structured databases, textual information such as policy and procedure documents, and most importantly, the tacit knowledge and expertise resident in the heads of individual employees. [6]

The business community has articulated the following benefits of implementing knowledge management as:

- Supporting innovation, the generation of new ideas and the exploitation of the organization's thinking power;
- Capturing insight and experience to make them available and usable when, where and by whom required;
- Making it easy to find and reuse sources of know-how and expertise, whether they are recorded in a physical form or held in someone's mind;
- Fostering collaboration, knowledge sharing, continual learning and improvement;
- Improving the quality of decision making and other intelligent tasks;

- Understanding the value and contribution of intellectual assets and increasing their worth, effectiveness and exploitation.

In the past five years, many organizations have embarked on their knowledge management journey. Many of them have invested an enormous amount of money to build technical infrastructure to facilitate the flow of information with the firm. They have also set up knowledge management offices, appointed Chief Knowledge Officers and knowledge managers to be in charge of the collection and dissemination of information on a firm-wide basis. Business leaders assume that given advance technology and abundant content and resource support, all employees will benefit from the information available, and economic benefits will be realized.

The reality is that these knowledge-organizations face some fundamental challenges that are related to information literacy. In particular, executives who believe that their organizations can quickly benefit from their knowledge management initiatives soon discover that:

1. Employees are not willing to share information or collaborate with others;
2. Employees do not use the information available (either because they do not know how to or they do not like to use the information available);
3. Employees cannot find the information they need in the system (at the same time, knowledge managers find it extremely difficult to collect information);
4. Employees do not see the benefit of using information. They prefer to "start from scratch" rather than leveraging on existing information.

In short, despite the investment in the infrastructure, the bottleneck is a lack of information literate workforce who can access, organize, filter, use and present/create information effectively to achieve their goals at work. As a result, no matter how fast computers can store and process information, and to generate reports, the ultimate limitation lies in the employees' inability (and unwillingness) to turn information into valuable resources for value-adding business decision-making and problem solving.

4. BEST PRACTICES TO PROMOTE INFORMATION LITERACY IN THE WORKPLACE

In order to realize the benefits of implementing knowledge management, on one hand companies try to improve their information systems, user-interface design, search functions, user-experience and the quality of content. On the other hand, companies want to find ways to upgrade the employees' information literacy skills.

Some of the best practices that have been adopted to promote information literacy in the workplace include:

- Providing employees with time for education about new technologies, and to understand how technologies and some firm-wide applications (e.g. Lotus Notes, **Excel, Access,** etc.) can help

to manage information and achieve their business goals. Employees are encouraged to attend technology fairs and **sponsor** such event on site. Knowledge managers or professional librarians are designated to provide training to the employees on advance search skills, Internet searching skills, to increase employees' awareness of various in-house and external research tools. (See Case Study – United Technologies Corp);

- Including information literacy curriculum as one of the company-wide training program and/or continuous professional education program. (see Case Study – Chrysler Corp);

- Increasing employees' awareness that they are knowledge workers and that accessing and using information is part of their day-to-day work. Some companies have mapped information seeking and use to their existing business processes. Others have included information seeking, use and sharing as part of their project management methodology (See Case Study – Hewlett Packard);

- Recognizing that information literacy is a critical business skill that is as important as project management, communication skills or presentation skills. Information literacy is highlighted in advertisements for new hire, and is in the job description. Working with firm-wide leadership and human resources to include effective information handling skills as part of the performance measures or metrics, thus rewarding employees who are information literate, and encouraging more employees to acquire information literacy skills. (See Case Study – Texas Instrument, Europe);

- Giving tangible rewards to employees who create quality information, who are willing to share information, who can organize and handle information effectively. Give recognition to these people by announcing their names in newsletters and in division meetings. (See Case Study – Buckman);

These best practices are, however, not yet being widely adopted in business organizations. Most companies are still in the infancy stage of promoting information literacy.

5. BARRIERS TO PROMOTE INFORMATION LITERACY IN THE WORKPLACE CONTEXTS

Despite the fact that business leaders know that their employees are lacking the skills to effectively handle information, it is not easy to promote information literacy in the work settings. Some of the challenges are listed below:

1. Business leaders are generally not familiar with the terminology and the concept of information literacy. They find it difficult to articulate the learning objectives and define the training curriculum. This is particularly the case, as "information literacy" needs a context and subject-specific content to be meaningfully discussed. The concept has to be carefully introduced in the context of employees' day-to-day dynamic working situations. However,

there are few information literacy experts who are experienced in designing curriculum for the working professionals. Few guidelines have been written to assist in the development of information literacy curriculum specific to the work setting.

2. Information literacy requires not only a change in the behavior, but more importantly a change in mindset to appreciate the need to access and use information effectively at work. This cannot be achieved overnight. It requires a change in the corporate culture—in particular, an open culture that appreciates innovative problem-solving and diverse ways of working and thinking. The knowledge-organization does not punish failure, but views it as an opportunity for learning. Employees will only find information literacy skills useful only if they are empowered to make their own judgement and decisions (instead of expecting to strictly follow instructions given by their bosses). Many organizations may not be ready for this kind of culture.

3. Business leaders expect their employees to have acquired certain information literacy skills in higher education. They think it is basic literacy that graduates can access and search Internet and information databases, able to organize and filter information, as well as be capable of packaging and presenting information for intended audience. The skills are therefore, taken for granted, and thus not being promoted at work.

To overcome these barriers, the author suggests that higher educators and policy makers should work together to promote information literacy in the workplace. For example,

1. More applied research should be conducted in the workplace settings to qualitatively and quantitatively demonstrate the costs to the business if the employees lack information literacy skills. It is also useful to find out the return-on-investment (ROI) of promoting information literacy and the recruiting of information literate workforce. Companies such as Buckman Laboratories [7], Dow Chemicals [8], NCI Research [9], Pacific Bell [10, 11] have attempted to do this as early as in the mid-1990s.

2. Librarians and educators should try to reach out to the business community by writing for business magazines and conducting presentations in business conferences. The aim of these presentations should focus on increasing business leaders' awareness of what information literacy is, how it is important and how to promote it at work. They can also help to develop information literacy training as part of the continuous professional education for the workforce.

3. Business leaders and the higher educators should work closely together to ensure that students are equipped with the necessary information literacy skills to prepare them for work. For example, they can consider introducing the information literacy curriculum with the student's summer internship program. As a result, students can appreciate information literacy in a real-life business setting.

6. CONCLUSION

Both the concept of information literacy and knowledge management are being introduced in the early 1990s. Although they are not generally being discussed together, they both point to the importance of effective information handling to gain personal, social, political and/or economic benefits. It is interesting to see how these two concepts have grown in importance in the past 10 years. It is also interesting to see how they begin to inform each other.

Academia and business leaders from the knowledge management discipline believe that information is a valuable resource, whereby if it is being well managed can bring enormous benefits to an organization. In the course of developing knowledge management programs in the past decade, business leaders have realized that their employees lack the necessary information literacy skills to effectively exploit the technical infrastructure and the content that is made readily available. They realize the need to improve their employees' information literacy skills.

On the other hand, in the past decade, educators and librarians have conducted extensive research on information literacy in the education environment (and some have begun to study information literacy in the workplace context). In the education environment, they have been successful in defining information literacy, identifying information literacy competency standard, and developing learning objectives and information literacy curriculum for students of various levels. Many of these existing works and research results can be modified and applied to the development of information literacy definition, standards and curriculum in the work settings.

Looking into the future, the ability to effectively locate, evaluate, organize, use, package and present information effectively will become a normal part of life at work. Information literacy will eventually become basic literacy skills comparable to language and numerical skills. It is going to be a fundamental lifelong learning skill. It is encouraging to see how much the educators have achieved in promoting information literacy into the student curriculum, and preparing for the future generation of information literate workforce. It would be valuable if they can also take the lead, and share their expertise with business leaders to fill the "information literacy" gap existing in the workplace context today.

APPENDIX: CASE STUDIES

Buckman Laboratories

Buckman Laboratories has invested heavily in knowledge sharing and management systems and strongly believes that incentives can help make the difference between success and failure. To make its online knowledge-sharing networks and knowledge repositories successful, the company offers very visible incentives for those who demonstrate a commitment to knowledge sharing. For example, every year Buckman's managers are asked to identify the company's top 50 knowledge sharers on these systems. The top 50 are then rewarded with a trip to a resort location for a "celebration conference" with their fellow award-winners. The awards are a visible reminder to all employees that knowledge sharing is noticed and valued by management.

"Knowledge Management Projects in Practice" by Thomas H. Davenport and Laurence Prusak, *Working Knowledge,* Chapter 8, p. 158, 1997.

Chrysler Corp.

In the hopes of decreasing redundant work in its engineering divisions and increasing the sharing of best practices, Chrysler Corp. developed a series of repositories call Engineering Books of Knowledge (EBOKs). The car manufacturer realized that, though divisions might design and build different cars, many challenges and designs remained the same for all units. Yet there was no sharing between the divisions. Over the course of one year, Chrysler held discussions with multidisciplinary teams to find ways to address the problem. Then, using technology such as Lotus Notes and a knowledge management system called grapeVine, the organization launched the EBOK concept. Each EBOK includes information on effective knowledge sharing and offers user-friendly access to designs, customer information, supplier information, and tips on how knowledge contained in the EBOK can be applied.

The process of compiling the EBOK can be fruitful as well. The EBOK manager for one platform team was given crash test results for inclusion in the repository. However, instead of merely depositing them, he asked the submitter to "add some value" by providing context for the results and interpreting what those results might mean for bumper or chassis design. In such a process, EBOK managers help push content "up the value chain" from data to information to knowledge.

The EBOK concept has not only reduced information hoarding, it has also uncovered research that, while not necessarily useful for the department that sponsored it, has value for other departments. With that data now visible in the EBOK, those other departments can benefit. Among the other advantages of EBOK are decreased production time due to the reuse of engineering knowledge, and an increased sense of sharing and inclusion among employees.

"Knowledge Management Leverages Engineering at Chrysler" by J. Bair, *Gartner Group,* February 10, 1997.

Thomas H. Davenport and Laurence Prusak, *Working Knowledge,* 1997, Chapter 8, p. 158.

Hewlett-Packard

The Hewlett-Packard Company, with core businesses in computer systems and products, communications, and test and measurement equipment, is well known for new product generation. Key to this success is an internal consulting group, the Product Processes Organization (PPO), which leverages best practices among the company's decentralized, autonomous business groups.

PPO's membership is diverse, consisting of individuals from engineering, quality, manufacturing, environmental affairs, change management, product marketing, and information systems. It recently brought collaborative understanding to three disparate Hewlett-Packard groups. Although there was virtually no communication among them, they had been collectively charged with bringing new electronic test equipment to market.

PPO created maps revealing how information flowed among the sites, which resulted in putting crucial issues on the table. As individuals became aware of assumptions, perceived solutions, objectives, and purposes in the different business areas, they realized that one group alone could not solve the problem at hand. Although PPO's original intent was to gather applicable best practices, what happened among the business teams was the realization that the sharing process itself created solutions that would not have emerged had the teams operated in isolation.

With fewer employees than before, the three-location group, now constantly engaged in collaborative interaction, increased orders by 53% and profit margins by 7.8% in just two years.

Gary Gray and Judy Lewis, *Knowledge Imperative Symposium,* September 1995.

Texas Instruments

At Texas Instruments, Europe, part of each employee's performance evaluation includes an assessment of how well they (1) "promoted three practices" from their part of the organization and helped transfer them to other areas; and (2) "adapted three practices" from elsewhere in the firm to their own areas. In addition, to stimulate sharing, Texas Instruments changed the compensation structure at its wafer fabrication facilities to reflect not only the individual unit's performance, but also performance across all wafer fabrication facilities. This practice encourages strong performers to share know-how with weaker units to raise performance across the entire organization.

Cindy Johnson, Office of Best Practices, Texas Instruments, presentation at the *"Accelerating Performance Through Knowledge Management"* conference, May 27-29, Boston, MA, 1996.

United Technologies Corp.

United Technologies Corp. (UT) is a conglomeration of business units, including aircraft-engine manufacturer Pratt & Whitney and Otis Elevator. When the Hartford, Conn.-based organization launched its intranet, it spent a great deal of time helping employees learn how to use the new system. UT not only began promotional demonstrations of the intranet, with attractive settings and background music, but also began offering help desks, technical assistance, and training classes. As a result, adoption was relatively rapid and enthusiastic.

"The Intranet Sell" by Charles Waltner, *IW,* July 28, 1997.

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Available at:
<http://www.nclis.gov/libinter/infolitconf&meet/papers/cheuk-fullpaper.pdf>

Endnotes

[1] Informed by Dervin's Sense-Making methodology, the author has made no distinction between data, information and knowledge. "Information" is the sense made at a particular point in time-space by someone. Sometimes, it gets shared and codified; sometimes a number of people agree upon it; sometimes it enters into a formalized discourse and gets published; sometimes it gets tested in other times and spaces and takes on the status of facts. Sometimes, it is fleeting and unexpressed. Sometimes it is hidden and suppressed. Sometimes, it gets imprimatured and becomes unjust law; sometimes it takes on the status of dogma. Further information on Sense-Making can be found in:

> Dervin, B. 1998. Sense-Making theory and practice: An overview of user interests in knowledge seeking and use, *The Journal of Knowledge Management*. Vol. 2, No. 2.
>
> Dervin, B. 1999. On studying information seeking and use methodologically: The implications of connecting metatheory to method, *Information Processing and Management*.
>
> Dervin, B. & Frenette, M. Applying Sense-Making methodology: Communicating communicatively with campaign audiences. In: Rice, R. & Atkin, C. K., (Eds.), *Public Communication Campaigns* (3rd Ed.). Thousand Oaks.

[2] The SCANS report is available online at http://wdr.doleta.gov/SCANS/idsrw/scansrep.pdf

[3] Bruce, C.S. 1995. Information Literacy: A framework for higher education. The Australian library journal, Vol. 44, No. 3, pp.158-70.

[4] In the past ten years, we see the emerging of a new professional group -- knowledge managers -- who are tasked to manage the creation and the flow of information professionally in the workplace context. In this paper, we discuss information literacy as a general workplace skill, and thus we will not focus on the professional information literacy skills required to be knowledge managers.

[5] Information Literacy Competency Standards for Higher Education: standards, performance indicators and outcomes is approved by the Association of College and Research Libraries (ACRL) in January 18, 2000. More information is available at http://www/ala/org/acrl/ilstandardlo.html

[6] Gartner Group, The Knowledge Management Scenario: Trends and Directions for 1998-2003, R-07-7706, K. Harris, M. Fleming, R. Hunter, B. Rosser, A. Cushman - Strategic Analysis Report, 18 March 1999.

[7] Thomas H. Davenport and Laurence Prusak, *Working Knowledge*. 1997. Chapter 8, pp. 116 and 156.

[8] Gordon Petrash, *Knowledge Imperative Symposium,* September 1995.

[9] *Trying to Grasp the Intangible* by Thomas A. Stewart*, Fortune,* October 2, 1995.

[10] *How to Measure the Back Office*, sidebar to "Your Company's Most Valuable Asset: Intellectual Capital" by Thomas A. Stewart, *Fortune,* October 3, 1994.

[11] A New Methodology for Business Process Auditing by Tom Housel and Valery Kanevsky, *Planning Review*, May/June 1995, pp. 31-36.