# WORKING (IN) FORMATION: CONCEPTUALIZING INFORMATION LITERACY IN THE WORKPLACE

Annemaree Lloyd
Charles Sturt University

## ABSTRACT

Workplace information practices of fire fighters are conceptualised through an exploration of how fire fighters use information from a range of textual and non-textual sources so that this information becomes embodied within the discourse of practice. The role of the collective in shaping and influencing information practices is also explored.

## INTRODUCTION

Current thinking about information literacy has been influenced by over 30 years of research and practice by librarians in educational sectors. In this sector, information literacy practice is organized around librarians' understanding of textual and digital works as primary access points to sites of knowledge. This paradigm assumes that information literacy is largely a systematic, objective, and unproblematic process of skills acquisition that enables information discovery. In this context the skills of information literacy are assumed to be generic and therefore easily transferable from an educational context into other contexts such as workplaces (Lloyd, 2003).

This paradigm of information literacy has made a valuable contribution to our emerging understanding and conceptualisation of the phenomenon as a critical underpinning of learning in the educational sector. At the same time, current thinking marginalizes our conceptualisation of an information literate person and the information literacy process. It does this by listing attributes and behaviours, which reflect desirable outcomes of the educational discourse, but may not necessarily reflect required outcomes in other sectors.

If information literacy is to be considered an important aspect of effective workplace learning then it is critical to explore and understand information literacy practice within a range of workplaces. Outside the education sector the attributes of an information literate person, and the process of becoming information literate, may differ according to the nature of information access and the complexity of working with others. Within the workplace, the ability to become information literate is often unpredictable and can be affected and mediated by social relationships.

The research reported here has been undertaken with a cohort of fire fighters employed and trained by the NSW Fire Brigades. The fire station is located in regional NSW, and is manned by permanent fire fighters. The research explores the nature of information activity within this workplace. Two important themes have emerged. The first is the nature of information literacy practice and the need (for fire fighters) to construct information practices that are specific to their profession. These practices enable interaction with information from social, corporeal, and textual sites of knowledge that constitutes the fire fighters' information landscape. The second theme to emerge is the role that others within the community of practice play in mediating, affording, and interpreting access to information.

## CURRENT THINKING ABOUT INFORMATION LITERACY

An analysis of definitions published over the last thirty years indicates that research to date has focused on defining information literacy as a process of skill acquisition within educational and information and communications technology (ICT) domains, rather than conceptualising what it means to be information literate; Bruce (1996) is a notable exception.

Rader's (2002) recent review of information literacy publications supports the identification of information literacy as predominately located in the library and educational discourses. Virkus' (2003) comprehensive review of European research into the phenomenon also confirms that information literacy predominates

in the discourse of the educational sector but is largely absent in workplace research.

Webber and Johnston (2000) suggest that the majority of information literacy definitions share common elements, such as information seeking, informed choice of information sources, evaluation, and selection. The view of information literacy as a set of processes, skills, or behaviours that fit all, and which once learnt are easily transferable into other contexts, has similarities with the autonomous view of literacy. This view assumes that once a defined set of skills are learnt they will fit a person as he or she moves into the complex and diverse world of the workplace (Searle 2003). However, information literacy as a transferable skill must be questioned when viewed in the context of transfer studies. Misko's (1998)study on transfer of skills, concluded that "there is no guarantee that being able to perform a skill in one context always means being able to transfer the skill to another context" (p. 298). Anderson, Reder, and Simon (1996) conclude that transfer is determined by the similarities between contexts in which the skills or competencies are practiced and the "number of symbolic components which are shared" (p. 6).

Similar conclusions can be made when examining the current research into information literacy. At present, information literacy practice privileges the educational sector which focuses on textual and digital works as access points to sites of knowledge. Consequently, the broader (and more diverse) contexts, of the workplace, and the range of information practices within these contexts are not considered. This is especially true of non-textual information practices (e.g., the use of the body or others as information sources) which often inform practice within a workplace. Nor does the present account, acknowledge the workplace as "contested terrain" (Billett, 2002, p.7) which may make access to information, and the ability to become information literate, problematic.

The present information literacy paradigm produces a one-dimensional effect. It does this by standardising our thinking about what information literacy is outside the tertiary and secondary educational sectors, how information literacy process is manifested in workplaces, and how the process is affected and mediated by non-textual relationships that constitute the workplace as a social space.

## RESEARCH APPROACH

This paper is derived from current doctoral research, which is a qualitative exploration of what it means to be information literate in a workplace, and how information literacy manifests itself within a workplace. The overall research approach is that of holistic exploration in which information literacy is envisioned as an important scaffold that supports workplace learning. The research method employs a constructivist-influenced ground-theory method, which aims at building a substantiative theory from the ground up (Charmaz, 2003).

The study had two fieldwork phases consisting of interviews and observation. Phase 1 identified themes and issues of importance within the research agenda. Phase 2 aims at enriching the themes and perspectives that emerged from the Phase1 analysis. Throughout the fieldwork and analysis phases, participants were consulted about the developing interpretations. They were asked to comment on transcripts and the draft analysis chapters. This served as a useful form of member checking to ensure the trustworthiness of the analysis.

## INTERPRETING THE CONTEXT

The analysis of the data collection phases indicates that engagement with information is viewed by fire fighters as a collective activity, which enables the mutual construction of safety concepts and practices. This construction is critical for the platoon (team members) who must rely on each other in times of risk or danger.

In the early stages of a fire fighter's career this construction is shaped by others who mediate the information experience, afford opportunities to access information (e.g., through work related activities (Billett, 2001) and interpret information for new members (through storytelling and deconstructing events). The primary aim of these mediating activities is to ensure the safety of the platoon. The power relationship, which is formed around access to information, is materially constituted through the actions of experts who control access to information in the early stages of a new member's working life in order to maintain safety.

Within the fire station other members of the platoon recognize experts by their awareness

and deep understanding of how information is located and accessed and by their ability act as credible information sources to others. Becoming an expert occurs over time through the coupling of information from a varied range of information sources specific to the workspace and through information which is gained via the physical experiences of fire fighting. Within a fire station, sites of knowledge are located within the tacit knowledge of the collective and through the physical experiences of the body, and represented in textual form. Based on this analysis, information literacy can be conceptualised in the following way:

**Information literacy as intersubjective practice**

The present conceptions of information literacy do not take into account the role of interpersonal relationships in creating access to information which enables a novice to engage in the discourse of the profession. Nor do current conceptions recognize the significant role of others in mediating information or affording information opportunities.

Within the workplace, information literacy has an affective dimension. Developing a relationship with information and others as information sources becomes a complex dialogue because of interpersonal dynamics that may see access to information become a contested practice. In this respect, becoming information literate within a community of practice such as a fire fighting platoon is a collective accomplishment, in which members' access and use information to develop a mutual understanding about the profession and practices of fire fighting. The development of an intersubjective view is critical to fire fighters who must rely on each other in times of risk or danger.

**Recognition of the holistic nature of information literacy practice**

In workplaces, information access is not just a textual practice. Learning about the practice of fire fighting requires new recruits to recognize information, which is drawn from lived experience, and the actioned body as an important information source and site of knowledge. Information drawn from this source often conflicts with information from textual sites. As a source of information, the "body" has been ignored in the conceptualisation of

information literacy. This is not surprising as Beckett and Hager (2002) have also reported that the body has largely been removed from the educational discourse, in particular ICT and flexible delivery.

**Information literacy as transformative process**

Learning the appropriate information skills to access workplace information enable the emerging practitioner to become embodied (by information) within the discourse of the workplace. As a transformative process, information literacy enables the transition from novice to expert and is therefore closely tied to workplace learning.

In a workplace context, transformation occurs when predictable information accessed through textual sites is coupled with unpredictable, actioned information from the lived domain. Over time this coupling leads to more complex information use, and results in greater awareness and deeper understanding of the information environment, its access, and use.

**HOW DOES INFORMATION LITERACY OCCUR WITHIN A WORKPLACE?**

Central to understanding the nature of information literacy within the workplace are the concepts of *information work* and *influence work.* They contribute towards the development of the information literate fire fighter as an effective practitioner, by enabling the construction of group identity, and an understanding of workplace practices which are crucial to fire fighters, not only in times of risk and danger but also in the maintenance and development of fire fighter culture.

Information work is constituted through the development of a range of contextually-relevant information skills which relate to developing an awareness and ability to locate and access organized information available through textual sources, to locate and access information from social sources (other firefighters), and to access information from the body.

Strategies to access organized information are similar to those that underpin the teaching of skills within a library context. However, for fire fighting recruits this remains an abstract practice aimed at becoming aware of the range of information required, and learning the location

and means of access to information within the landscape. Access to information from social sources requires affective decisions to be made about credibility and reliability of others within the community of practice.

Information work is also employed to access non-textual sources of information (i.e., information from actioned experience and the lived experience of others). In this context, information literacy skills take on a different "shape", requiring rehearsal, observation, reflection, and critical thinking in order to couple predicable information from text with unpredictable information from action.

Influence work is constituted through the mediating activities of others within the platoon. Information-related activities afford informal information opportunities through awareness creating, deconstruction of events, guidance, demonstration, and instruction. Expert fire fighters are able to mediate information acquisition through the deconstruction of events, and the interpretation of procedures and practices. Through influence work, experienced fire fighters position new recruits by mediating between the recruit and information. This enables the development of a uniform view of profession and practice, which is critical for working (in)formation in time of risk or danger. As one co-participant explained, "you've got to have a shared view, you've got to look for the same things."

In the transformation from new recruit to embodied practitioner, two key processes were identified.

Embedding: This refers to the positioning and repositioning of the new recruit within the construct of fire fighting. This process occurs formally when the new recruit enters the Fire Brigade Training Centre. During this initial stage new recruits engage with information at an abstract level through access to rules, procedures, and standards of operations. They also engage with information at a physical level. This engagement is managed within the confines of safety legislation and therefore remains predicable and relatively safe. As one co-participant commented, "you can only put out so many bales of hay." At the end of their training recruits have become information literate at an institutional level, but are not considered *real* fire fighters by other members of the profession. Many of the fire fighters interviewed indicated

that they considered the real training to begin once they had left the training centre and entered the fire station, where the community of practitioners reposition the recruit through influence work.

**Coupling**: This process is central in the transition from embedded to embodied practitioner. Coupling is a process of information work in which information accessed from the textual sites, from bodily experience, and from authentic practice and social sites is drawn together, rendering the recruit "in place".

## DISCUSSION

Analysing information activity in this specific workplace necessitates developing an understanding of the formal and informal information landscapes that influence the process of becoming information literate. Workplaces are often described in the educational literature as places of informal learning, characterized by the absence of a formal teacher-student relationship. Billett (2001, p. 21) questions this distinction and suggests that workplaces have structures, rules, and procedures that organize the practices of the workplace and where teaching often takes the form of guidance.

Becoming a fire fighter necessitates engagement with information at a formal training level and informal practice-based level. Fire fighters take four years to become qualified and a large component of their formal training is conducted through distance education, once the initial 16 weeks face-to-face training has been completed. Once deployed to a fire station, training is continued and extended through mandatory drills provided by Senior Officers and through the guidance of other platoon members.

The present research indicates that our current conceptions of information literacy do not adequately characterize the meaning of the phenomenon outside the formal educational context. Nor do they account for the broad and complex process of working with information in contexts where access to information about the social and procedural practices of the context is critical and often contested. Further, as the current view of information literacy is mainly defined by educational practices, other sites which are recognized within the context as contributing to information acquisition and which provide opportunities for transformation

are often ignored (i.e., the actioned body, and social sites of knowledge).

Workplaces offer powerful places for transformation through learning, and information literacy plays an important role in this process. The key sources for learning at work have been identified as the activities of work, the workplace, other workers, and the practices of listening and observation (Billett, 1999a). The current research indicates that fire fighters' engagement with these key sources enables access to information from the physical, textual, and social domains of knowledge. By engaging with information work, fire fighters learn to work (in)formation as part of a team. The process is not systematic and involves the use of information strategies and the recognition of information sources, which are not presently recognized, as part of the information literacy paradigm.

For fire fighters the process of transformation is illustrated in the movement from *acting* as a fireman to *being* a fireman. Engaging with information from the range of contextually-relevant information access points enables the transformation. In the fire station this occurs concurrently with others (as information sources) who afford and mediate information opportunities within the political frameworks of workplace practice. In the process of becoming a fire fighter, novices develop a relationship with information. Their awareness of information sources occurs over time and enables the meaning of practice and profession to be constructed. As one respondent stated, "you have to have time for your mind body and experience to blend as one." The process is shaped by the ability to employ appropriate information work strategies which engage with the talk, texts, and actions of the collective; and to understand the nature of influence work which will enable the transition from novice to expert.

As a workplace, the fire station is characterized by members with varying degrees of educational attainment, and by a complex and diverse range of textual and non-textual information sources. Underpinning this characterization is the concept of safety as the primary objective of all fire fighters. This concept starts with each member of the platoon needing to ensure the team remains safe. Consequently the majority of information work and influence work is focused on attending to and ensuring that all members'

access information that relates to safety. This concept of safety was in evidence a number of times by fire fighters who articulated the "rule" or level of importance; "Number one, I'm the most important person. Number two, my crew are second most important 'cause they are here to help'. Number three, are the people standing by, and number four and last are the actual victims, 'cause they are already in trouble'."

For platoons who must work (in)formation and who rely on a uniform understanding to remain safe, becoming information literate is a collective activity. Engaging with information in the process of meaning-creation about the nature of workplace and practice is an intersubjective accomplishment that is initiated through information work and reinforced through influence work. Becoming information literate within the workplace is not an objective individual experience that can be measured (using current information literacy standards) or rationalized in terms of identified outcomes, because the focus remains on the subjective experience of the individual, rather than how the team collectively influences and directs the process for the recruit. Becoming information literate in the workplace relies on the application of information work and influence work, which enable access to the constructions of the community of practice. As one fire fighter explained, "you know you're not an island, you're not Robinson Crusoe."

Expert fire fighters demonstrate their information literate status by their deep awareness of the range of sites of knowledge production within the discourses of fire fighting. They move fluently through these sites drawing and connecting information by the integration and construction of frameworks for understanding the meaning of community, danger, and risk. In the process of developing fluency, fire fighters also piece together a framework in which the meaning of their practice as professionals is embedded. Through engagement with information access from sites of sensory, textual, and socially-distributed information, the individual becomes embodied and comes to know the workplace, its practices, and its tensions.

Based on this research the following definition of an information literate person is now offered:

An information literate person has a deep awareness, connection, and fluency with the

information environment. Information literate people are engaged, enabled, enriched, and embodied by social, procedural, and physical information that constitutes an information universe. Information literacy is a way of knowing that universe.

Embodiment is not an absolute, it is a gradual and incremental process of information awareness and synthesis, a sense of "self" constituted through the interaction of the individual with the social, corporeal, and textual information environments over time. Novices who enter the training centre emerge embedded in the textual domain. Through this domain they have access to information, which enables them to work at an abstract level. They understand rule-oriented procedure, and its application and consequences. In coupling training with physical actions of drills and rehearsal, emerging practitioners are able to draw information from the body that may be actioned automatically in order to keep them safe in their first few months within a fire station.

Rather than being exclusively text-based, workplace information literacy is also dependent on the social interactions of the workplace, which are important for the creation of intersubjective responses. The importance of developing collective meaning that relates to place and practice is critical to fire-fighting platoons who rely on each in times of risk or danger. Therefore the primary source of information for recruits becomes experienced practitioners who have a deep awareness, understanding, and shared focus, not only of procedural practice, but also of the social, historical, and political and physical contexts that affect information transmission and acquisition within the workplace.

This approach to thinking about the information literate as embodied and of information literacy as an enabling and engaging process, is dependent on,

- adopting a holistic approach to understanding information literacy within the organic context of the workplace;
- identifying the differences in the way explicit and tacit and social knowledge is distributed within an organization;
- identifying how information is accessed, communicated, and mediated;

- how access is influenced by the social, historical, and political processes that influence the workplace as a social space;
- how the process skills of information literacy become subconsciously and fluently integrated over time into automatic practice (embodied).

## CONCLUSION

The present research is a study of workplace information literacy in one context at a particular point in time. Much more work is required in the area in order to fully conceptualise workplace information literacy. Through exploring how information relationships and information practices are constructed through *information work* and afforded and mediated through *influence work*, it becomes possible to determine the meaning and shape of workplace information literacy. This places those who have an interest in understanding, developing and delivering information literacy education, in a better position to develop appropriate strategies that will acknowledge the complexity and specificity of information in the workplace. This in turn will contribute to the development of information literacy skills that meet the needs of the workplace and enable greater transfer of information literacy skills in the transition from education to work.

## REFERENCES

Anderson, J., Reder, L., & Simon, H. (1996). Situated learning and education. *Educational Researcher*, *5*, 5-11.

Beckett, D., & Hager, P. (2002). *Life, work and learning; Practice and postmodernity*. London: Routledge.

Billett, S. (1999a). Guided learning in the workplace. In D. Boud, and J. Garrick, (Eds.) *Understanding learning at work*. London:Routledge.

Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, *13*(5), 209-214.

Bruce, C. (1996). *Seven faces of information literacy*. Adelaide: Aslib Press.

Charmaz, K. (2003). Grounded theory: Objectivist and Constructivist Methods. In N. K. Denzin, & Y. Lincoln (Eds.). *Strategies of Qualitative Inquiry: Selections from the Handbook of Qualitative Research*. (2nd ed., pp. 249-291). Thousand Oaks: Sage Publications.

Lloyd, A. (2003). Information literacy; meta-competency of the knowledge economy. An exploratory paper. *Journal of Librarianship and Information Science*, *35*(2), 87-92.

Misko, J. (1998, February). Do Skills transfer? An empirical study. In J. McIntyre, & M. Barrett (Eds.), *VET research influencing policy and practice: Proceedings of the first national conference of the Australian Vocational Education and Training Research Association* (pp. 289-300). Sydney: Australian Vocational Education and Training Research Association.

Rader, H. (2002). Information Literacy 1973-2002: A selected review. *Library Trends*, *51*(2), 242-259.

Searle, J. (2003). Developing literacy. In J. Stevenson (Ed.), *Developing vocational expertise; Principle and issues in vocational education.* London: Allen & Unwin.

Webber, S., & Johnston, B. (2000). Conceptions of information literacy: New perspectives and implications. *Journal of Information Science*, *26*(6), 381-387.

Vikus, V. (2003). Information literacy in Europe: a literature review. *Information Research*, *8*(4), paper no.159. Retrieved October 10, 2003 from, http://wwwinformationr.net/ir/8-4/paper159.html

# LEARNING DOESN'T HAPPEN ONLY IN THE CLASSROOM: TECHNOLOGY-ASSISTED INFORMAL AND FORMAL LEARNING

Jo Luck
Central Queensland University

## ABSTRACT

The policies and debates on lifelong learning tend to focus on the economic and societal benefits of formal education and training programs (Dawkins 1988; Kemp 1998; Nelson 2003). Informal learning is rarely mentioned, yet it is increasingly seen as an important skill in the workplace (Leslie, Aring & Brand, 1998; Boud & Middleton, 2003). This paper explores the concepts of formal and informal learning and how technology can be used to assist both types of learning to contribute to effective and meaningful lifelong learning. It concludes with a discussion of the responsibilities of academics and higher-education institutions to assist their students to develop lifelong learning skills.

## INTRODUCTION

Historically, formal learning is linked with a structured, graded education system – provided and accredited by schools, universities, and technical colleges. Informal learning is linked with daily experience and the environment through interactions with people (friends, family, work colleagues, and neighbours), through the influences of the mass media, and through reading and thinking. In Australia, federal government policies focus on the economic and societal benefits of formal education and training programs (Dawkins 1988; Kemp 1998; Nelson 2003). The documents that specify these policies rarely mention informal learning though it is considered to be an important skill in the workplace (Leslie et al., 1998; Boud & Middleton, 2003).

The central theme of this paper is to describe how technology can be utilized to assist both formal and informal learning to contribute to effective and meaningful lifelong learning. In some cases the use of technology hinders the attainment of formal and informal learning; in other cases technology facilitates, and is

indispensable to, that attainment. Both these scenarios will be explored using examples from a current doctoral study of the use of interactive video-conferencing for teaching and learning at an Australian regional university.

This paper concludes with a discussion of the responsibilities of academics and higher-education institutions in providing opportunities to encourage both types of learning – which are equally significant in fostering lifelong learning – in their classes.

Before beginning the discussion I will describe what I mean by the concepts of "lifelong learning", "formal learning" and "informal learning" as I intend to use them in this paper.

## LIFELONG LEARNING

I have always felt that lifelong learning begins in the womb and ends on one's deathbed. All of us are learning all the time just through living and interacting with people, the media, and the environment. That is common sense to me. Recently I have begun to realise that there is much more to the concept of lifelong learning