Libri, 2008, vol. 58, pp. 155–171
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Libri
ISSN 0024-2667

Information Literacy and Knowledge Management: Preparations for an Arranged Marriage

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This article discusses a conceptual framework developed as part of ongoing PhD research looking at workplace information literacy (IL) and exploring its relationships to knowledge management (KM). An empirical study is researching conceptions of effective information use and learning practices of staff at a national, over the phone, health service operating 24/7, using a phenomenographic approach combined with a consideration of structural aspects of the workplace environment related to institutional initiatives for KM. The proposed framework involves three main elements: an epistemological approach to learning based on social constructivism and hermeneutics; the analysis of situated practice from a sociological and philosophical viewpoint based on critical realism; and a definition of literacy as a multimodal semiotic tool for learning. The concepts of literacy and *literacies* are discussed in contrast to information literacy, and it is suggested that seeing information literacy as an aspect of literacy, rather than as an independent concept, is a more fruitful approach to the study of the core processes involved in sense-making, learning and decision-making in situated practice and particularly in organizational environments.

> To deal with the complexities of the current information environment, a complex and broad form of literacy is required ... Understanding, meaning and context must be central to it ... What is important is that it be actively promoted as a central core of principles and practice of the information sciences. (Bawden 2001, 251)

This paper has its origins in an ongoing study of information literacy (IL) in the workplace, which is exploring its theoretical and practical relationships to knowledge management (KM). An empirical study is underway at NHS24 Scotland (a national, over the phone, health service operating 24/7) which is looking at conceptions of effective information use and learning practices of staff at NHS24 using a phenomenographic approach, combined with a consideration of aspects of the workplace environment related to institutional initiatives for KM. Call handlers, nurse advisors, health information advisors and team leaders have been interviewed about their conceptions of effective information use and learning in their workplace. This paper presents the theoretical framework being developed to underpin the study. It was important from the outset to develop a framework suited to research within a workplace setting, particularly since many existing definitions and frameworks for IL have emerged largely from educational contexts. The aim of the paper is to examine the main criticisms made of the concept of IL and to propose a new conceptual framework to further the study of IL in the workplace from an LIS perspective, involving three main elements: an epistemological approach to learning based on social constructivism and hermeneutics; the analysis of situated practice from a sociological and philo-

This paper is based on a presentation at the international conference 'i³: Information: Interactions and Impact', organised by the Robert Gordon University's Department of Information Management, and held in Aberdeen, Scotland, 25-28 June 2007.

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DOI: 10.1515/libr.2008.017

sophical viewpoint based on critical realism; and a definition of literacy as a multimodal semiotic tool for learning. The concepts of literacy and *literacies* are discussed in contrast to information literacy.

Information literacy, knowledge management and learning processes

Reviews of the literature have pointed out relationships between information literacy and two core aspects of KM: the effective use of information systems (Bocij 2006; Effy 2006) and the learning processes implied in knowledge creation and transfer (Davenport & Prusak 2000; Nonaka & Takeuchi 1995). The first aspect can be associated with the skills development aspect of IL, while the second is related to a much more complex dimension involving social interaction and the application of information to the problems and tasks of the organization in situated practices. However, few explicit connections between IL and KM are to be found in the literature (Abell & Oxbrow 2001; Cheuk 1998; Choo 2005; Drucker 2002; Mutch 1996, 1999a; O'Sullivan 2002) and little research has been done into workplace IL (Bruce & Candy 2000; Cheuk 2002; Kirk 2004; Lloyd 2006b; Webber, Boon, & Johnston 2005). It is therefore uncertain to what extent the mainstream theoretical assumptions and frameworks of IL, which have been developed mostly for educational purposes, are applicable to workplace situations. A few authors (De Saulles 2007; Thompson 2003) have proposed that IL is an important aspect of developing organizational capabilities in the information-intensive, knowledge-managed workplace and have argued for more research into this area. LLoyd (2006b) points out that "as the amount of information available to workers and the nature of information access becomes more complex, it becomes important to explore the emerging concept of workplace information literacy in facilitating meaningful learning about work and collective practice".

Information literacy is a problematic concept. It has been advocated and developed basically by the main librarianship organizations with support from governments in the U.S.A., Australia, U.K. and other countries, and applied by many educational institutions. It has basically constituted a professional response to the challenges of the information society (Kapitzke 2003b), contributing to raise awareness of its implications for education and the need to develop practical abilities and skills for the use of information and related technologies in the exploitation of the vast documental resources available nowadays. It has proved to be an important, and to a certain extent successful, link between librarianship and education (Andretta 2005; Levy & Roberts 2005). But it has also come under criticism for its lack of clear definitions (Bawden 2001; Elmborg 2006; Marcum 2002; Mutch 2000; Snavely & Cooper 1997); its mainstream adherence to an individualistic cognitive constructivism related to an information-processing paradigm (Bruce 1997; Lloyd 2003; Tuominen, Savolainen, & Talja 2005); and also for its modernist ideological position (Kapitzke 2003b; Pawley 2003). As we try to apply the concept to workplace practices, the need arises to reformulate our understanding of what has been mainly an educational concern with the development of information using skills (Bawden 2001; Martin & Rader 2003). Workplaces are structured organizational contexts of activity where learning and decision-making are vital processes involving communities of practice (Wenger 1999), coaching, apprenticeship (Lloyd 2007) and other strategies that rely heavily on interpersonal exchanges of information and are challenging to the mainstream conceptions of IL. In these environments, knowledge development and transfer take on a clearly social and interactive guise and "the crucial roles of human interpretation, communication, and skills in generating effective organizational action" are quite evident (Tsoukas 2005). Therefore, theories of learning and situated practice that account for these dimensions are needed. However, the different ways in which learning processes are understood in theory and approached in practice account for an important part of the difficulty in connecting positions throughout the literature of library and information science (LIS) and knowledge management. The possibility of these fields talking to each other seems to rest largely on clarifying epistemological positions in relation to learning. This is not only a philosophical problem, but one that affects the basic conceptualization of how learning operates and how information behaviour and literacy are related to it. This consideration also influences the research methods applied as it fundamentally determines what we are looking for and how we construct the research problem.

LIS research perspectives can illuminate the relationships between information use and learning in particular ways. Librarianship, of course, has been keenly interested in the problem of learning, with information literacy representing its main area of contribution. However, in much information behaviour research the problem of learning has largely been avoided, with Carol Kuhlthau (2004) being perhaps the most notable exception. "The troublesome information-knowledge transformation is assumed to occur in a black box, or problem space, which is occasionally noted but rarely explored definitively" (Marcum 2002). In both information literacy and information behaviour research the views on the relationships between information and knowledge have often remained closely related to an individualistic cognitive viewpoint, where reception of information is equated with knowledge acquisition in a rather unproblematic way. "A pattern of thought that can best be described as 'the information processing paradigm' captures many of the implicit assumptions underlying current descriptions of this Age of Information" (Marcum 2002). Concepts like 'finding the right information' are what learning is mostly pinned down to, and thus 'learning to learn' means keeping up with changing and evolving information resources:

> Ultimately information literate people are those who have learned how to learn. They know how to learn because they know how information is organised, how to find information, and how to use information in such a way that others can learn from them. (ALA 2000)

But it is evident that accessing information, while a pre-condition, is not equal to learning or to being able to mobilize knowledge appropriately. "Successful learning – not information – leads to knowledge, which encompasses cognition (awareness) and understanding (context and experience) ..." (Marcum 2002). Although the relationship between information and knowledge is an object of study in LIS, what has not been widely recognized is that knowledge acquisition as *a human act* implies learning processes with important social dimensions (e.g. knowledge validation and justification of relevance) and intrinsic complexity (e.g. interpretation and reflection) that cannot be accounted for by a reductionist epistemology that has mostly tried to level man and computer in the hope of understanding the latter, rather than the former. However, it is evident in the literature how the study of information behaviour has expanded more and more away from this view and toward the consideration of the social aspects of information practices (Hjorland & Albrechtsen 1995; Lloyd 2007; Savolainen 2006; Tuominen, Savolainen, & Talja 2005). Importantly, this has also been the case in mainstream educational (Williams 2005) and organizational (Tsoukas 1994) theory and practice. The study of information use in relation to learning processes seems to be one of the main ways for LIS to go forward, and furthering our understanding of literacy seems necessary to connect those two elusive elements which are part of all social practices: information and learning.

This of course bears on the discussion of what is knowledge management and how it is to be differentiated from information management. It is interesting to note that leading authors in knowledge management (Senge 1990; Tsoukas 1994; Nonaka & Takeuchi 1995; Argyris 1999; Brown & Duguid 2000; Davenport & Prusak 2000; Easterby-Smith & Lyles 2003; Choo 2007) have directly addressed the problem of learning in organizations, and in them we find a clearer understanding of its social aspects and a sharper distinction between information use and knowledge development in a wider sense, which involves not only complex construction of meaning inside the organization but also making knowledge claims to external audiences. This seems partially a consequence of the focus on interaction between people that is intrinsic to organizational studies. On the other hand, KM seems to lack a robust understanding of effective information use in the organization, as the majority of the literature related to using information in organizations focuses on a limited set of information using skills (Bocij 2006; Effy 2006) which seem to fall short of enabling the individuals and the organizations to achieve the loftier aims of knowledge creation and transference. "We see a situation where the economy is knowledge-based, high-profile and successful corporations are implementing knowledge strategies, the business community is in a heightened state of awareness about the value of information and knowledge, but at the micro level workers are floundering with too much information readily available, too little relevant and timely information when they need it, and with few tools or skills to deal with information effectively" (O'Sullivan 2002). Even

though some of the literature in management explicitly relates information use to more complex tasks such as decision making and planning, it is not easy to find a comprehensive and coherent approach linking skills of the individual, information awareness, interpretation, and application of information to tasks and organizational aims as part of a learning process.

It seems that whether we look at the relationship between information and learning from LIS or KM perspectives, we find the same problematic disconnection: an under-researched (and under-theorized) jump between information use and knowledge development. It is suggested that an important aspect of this link is the study of literacy as a semiotic tool (or tool-box) for awareness, interpretation and action upon information. 'Action' is a particularly important word in workplace life, as people in organizations are expected to deliver on a range of aims and objectives that often have quite concrete expressions and a sense of urgency about them (Mutch 1999a). Competitive advantage and market share are developed by generating efficiency and effectiveness in many areas. In every aspect of organizational processes information use is involved, but also sense-making and agreements are key elements that go with its use in complex ways (Cunliffe & Easterby-Smith 2004). Complex social systems require forms of knowing that are sensitive to context, time, change, events, beliefs and desires, power, feedback loops and circularity (Tsoukas 1994). An enactivist epistemology assumes that knowing is action, and it is concerned not only with what knowledge is, but how it is used in and by organizations. Knowledge in this view is the outcome of an active knower who has a certain biological structure, follows certain historically shaped cognitive practices, and is rooted within a consensual domain and socio-cultural practice (Tsoukas 2003).

Literacy and theories of learning

Our understanding of the nature and the role of literacy (or *literacies*) necessarily derives from our conceptions of learning processes. The information-processing paradigm of learning centred on the individual has associated with it an understanding of information literacy as information using skills. This view is based on the theory of individual cognitive constructivism, which has been influenced by Piaget's theory of cognitive development. Gergen (1999) defines constructivism as a view in which an individual mind constructs reality within a systematic relationship to the external world. Cognitive theories in LIS, for the most part, assume that the individual mind is the most important arena of knowledge creation. This epistemology has spawned theories about the 'information man' (Talja 1997) where the main concern is with abilities for accessing and obtaining information. It is assumed that critical thinking abilities will further help the person evaluate, select and integrate new information into his or her knowledge structure. However, as information behaviour studies have progressively identified the significance of situational and task-related factors (Bystrom 1999, 2002; Sonnenwald 1999; Wilson 1999), the cognitive view-point has moved on to a greater consideration of the social dimension.

Social constructivism, influenced by the ideas of Lev Vygotsky on cultural mediatisation and internalisation, argues that the mental construction of reality is influenced by societal conventions, history and interaction with significant others "... a human being is not an isolated inquirer trying to reach others or the outside world from his or her encapsulated mind/brain, but is already sharing the world with others" (Capurro 2000). The subject of study is the dialectical relationship between the individual and the socio-cultural *milieu* (Talja, Tuominen, & Savolainen 2005). Social constructivist approaches emphasise that information processes should be seen as embedded in social, organisational and professional contexts. "The view that learning is essentially *active, situated and social* captures a widely-shared broad constructivist consensus ..." (Levy & Roberts 2005). Lave and Wenger (1991) understand learning as a dimension of social practice. Rather than asking what kinds of cognitive processes and conceptual structures are involved in learning, they ask what kinds of social engagements provide the proper context for learning to take place. The concepts of community and identity are related to meaning construction in a particular practice (Brown & Duguid 2000; Brown, Collins, & Duguid 1989). The learner is not seen as focusing on gaining a discrete body of abstract knowledge, but rather on learning the skills to engage in the process of belonging in a community and participating of its practices. Learning is a way of being in the world, not just of coming to

know about it. This view entails that agent, activity and the world mutually constitute each other and that learning is an aspect of all activity, rather than just one kind of activity.

Further along this route of acknowledgement of the social dimension, constructionism (Talja, Tuominen, & Savolainen 2005) brings in a different understanding of the influence of the social, where "the primary emphasis is on discourse as the vehicle through which the self and the world are articulated" (Gergen 1999). Constructionism is associated with the 'linguistic turn' in humanities and the social sciences, and draws from the discourse analytic approach outlined by Foucault (O'Farrell 2005). It stresses the role of language not as a second-order representation of practice and conveyor of meanings that form mental models or knowledge structures inside the mind, but as a social tool and action that in itself produces and organises social reality. Constructionism speaks of discourses, articulations and vocabularies, and replaces the concept of cognition with that of conversations. A main assumption is that the boundaries of social knowledge are set by discourses that categorise the world and bring phenomena into view (Talja, Tuominen, & Savolainen 2005). It also highlights the importance of ideological elements in society and how language is used to constitute the assumed factuality and neutrality of knowledge. A point of departure between social constructivism and constructionism is that the former assumes that words convey established semantic meaning, and that mental models have a relatively stable form and existence, while the latter emphasises the context and perspective dependence and argumentative nature of language. From the discursive perspective, we construct reality conversationally 'as we speak' (how, where, and when) and meaning is socially negotiated in situation.

Another relevant theory of learning is hermeneutics, which focuses on the central problem of interpretation and is particularly related to the act of 'reading' and therefore also to literacy. Hermeneutics presents us with a way of exploring meaning and interpretation that incorporates several key aspects: a relational approach to the text (information, event); the circular and evolutionary character of dialogical understanding; and the importance of prior understandings, which have a historical dimension and stress the contextuality of meaning from a pragmatic recognition of the world and our place in it with others. "One of the key insights of hermeneutics is the holistic approach to the relationship between man and world. This approach is a social and pragmatic one. We are not isolated monads… Hermeneutics … refers to the founding dimension of our being-in-the-world-with-others" (Capurro 1992). Also, experience as considered in the context of the new hermeneutics of Gadamer, "is not a mere sense experience, but a historical entity, a fact that exists in a historical process" (Hoel 1992). History and pre-understanding are individual as much as social phenomena. "The inquirer's pre-understanding is embedded in a community's pre-understanding, which is itself part of the web of interrelations of things or concerns that in their openness and finitude arise within the shared world-openness itself." (Capurro 2000). The un-thematized and mostly unconscious (tacit) context from where our viewpoints emerge is called the horizon. The concept of horizon in hermeneutics implies a phenomenological understanding of experience but also the consideration of history and situation in the life-world. Thus, hermeneutics can be related to a critical realist epistemology. Hermeneutics is importantly a link to the concept of practice and the understanding of meaning construction in situation: "The creation of meaning of a text or a social practice, and the subsequent understanding of it, is achieved through the interpretation of the reader – it is imbedded in the practice itself" (Hansson 2005). An hermeneutic understanding of reading is consistent with developments in social constructivism which are being used in this discussion and with the development of a critical literacy.

These views of learning, spanning the individual and social construction of meaning, have important implications for understanding what literacy means and how the concept can be applied in education and workplaces. The inclusion of the social dimension in conceptualising learning and literacy seems absolutely necessary and has been gaining acceptance in LIS, even among those who have traditionally championed individualistic cognitive approaches (Ingwersen & Jarvelin 2005). However, its acceptance leaves us with the problem of understanding *how* its influence is exercised, and it is on this point that we also find important divergences that significantly alter research per-

spectives. This issue has to a certain extent been discussed within LIS as the problem of context and how it has been considered in research. Talja *et al.* discuss two influent trends in this regard: the consideration of context as a series of objectified external factors whose influence on behaviour is evaluated from a positivist epistemology, as variables which operate in relationships of causality to behaviour; and the consideration of context as a social-theoretical interpretation where "contextual entities are constituted in researchers' social activity in the same way as the research object" (Talja & Keso 1999, 754). However, these views are pitched against each other in a way that seems to force a choice between positivist (also called objectivist there) and interpretative approximations, with no middle ground. Sundin and Johannisson (2005) also relate structural approaches (which they seem to endorse in the end) with 'objectivity', determination of individual behaviour, positivist methodologies, and a 'pipeline' conception of information transfer. There is a mistake in these associations, as considering the structural aspects of society is more a matter of examining *levels* of phenomena, than of linking their study to particular epistemologies. This is acknowledged by them when in their discussion of instrumentality they go on to argue for communication between levels. Social or collective levels of analysis are not 'objective' in a positivist sense, as they are created by subjective action (discursively, some would say), but they constitute distinct entities with particular properties that have an influence on individual behaviour, especially as one considers temporal issues (Archer 1998), i.e. structures are already there when people behave. Besides social structures, there also exist many other material elements conditioning behaviour, such as availability of resources. Positivist epistemologies have of course been heavily (and rightly) criticized, but it is important to also be critical of extreme subjectivist positions which seem to leave no reality (or are interested in no reality) beyond the cultural-theoretical construction of research objects from interpretive approaches. The fallacy is to believe that, after the failure of the positivist epistemology in social science, there is no objective reality that can be apprehended. This consideration has been intensified by the rise of post-modernist relativism (Rasch 2000). But finding external 'truth' and the identification of causal factors, as positivism would have them, are not the only alternatives to interpretive methodologies. This position has been questioned by critical realist perspectives within LIS (Hjorland 2004; Hjorland & Albrechtsen 1995; Mutch 1999b; Wikgren 2005), and we can find this debate to be at the centre of sociology and the philosophy of science. Relevant trends in social theory (Rasch 2000) warrant a movement beyond (or beside) phenomenology and interpretation that involves structural elements of cultural *and* material nature that affect experience and behaviour. For example, Bourdieu's influential theory of practice emphasizes the relational interdependency of agents, world, meaning, activity, cognition, knowing and learning. His point of view, although criticized and contested for its fuzziness and apparent contradictions (Jenkins 1992), tried to bridge the dichotomy between structure and agency in explaining some aspects of behaviour. More of an structuralist, Bourdieu nevertheless tries to moderate the determinant effect of external rules with our abilities for interpretation, innovation and improvisation which do not render rules ineffective, but actually place them in social practice in terms of the resultant effect of structure and agency in situation (Bouveresse 1999). Lave and Wenger (1991) also seem to share a critical-realist view where the world is seen to carry its own structure, which the agents participate in constructing. Thus, it is argued that context, situation and practice need to be accounted for from a philosophical perspective that goes beyond the interpretive approaches mostly used in studies of information behaviour. Critical realism (Archer *et al.* 1998) allows a balance of the cultural, phenomenological and material dimensions of practice to be analyzed together.

Situated practice as the interplay of structure and agency

> Practices are shaped by social rules which regulate the use and distribution of texts, prescribing who may produce and have access to them. They straddle the distinction between individual and social worlds, and literacy practices are more usefully understood as existing in the relations between people, within groups and communities, rather than as a set of properties residing in individuals. (Barton & Hamilton 2000, 8)

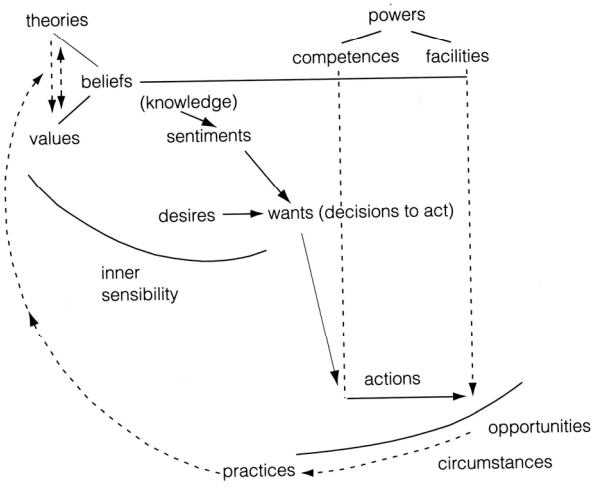
In contrast with learning as only implying internalization, learning as participative practice in

communities concerns the whole person acting in the world, and implies a relational view of persons, their perceptions, their actions, and the world. Individuals, communities and technologies are players in a broader context of culture and social organization. The dialectical interplay between individuals and the social dimension is mediated by cultural and material structures, and questions arise about how these are constructed, how individuals interact with them, and how we can account for this interaction in research. For example: What elements constitute a context? What aspects of a given context influence our behaviour? To what extent are practices structured externally to participants? How do individuals create or alter structural elements of society, culture or community? Acknowledging the fact that social structures (e.g. institutions, rules, norms, positions of authority, etc.) and material conditions (e.g. economic constraints, availability of resources, geographic location, etc.) exist implies recognizing the influence they exert and their capacity to provide explanations of social behaviour. "Regardless of the method, the work of theory is to explain the hidden powers – processes or mechanisms – that produce the effects or events that we study" (Wikgren 2005). The current interest in the social dimensions of learning needs to account for the material aspects of the historicity and activity-dependence of practice and experience. Culture, discourses and representations are not the only aspects of society. According to critical realism, the very possibility of social theory is based on the existence of real (i.e. material) social structures and systems that are emergent entities which operate independently of our conception of them (Wikgren 2005).

Most LIS research has adopted interpretive methodologies, associated with a focus on individual agency, since the paradigmatic turn on user studies was started (Dervin & Nilan 1986). For example, Hjorland (2004) points out that "most relevance research seems to assume that the relevance of given kinds of information can be established by studying the relevance criteria of the users", and he contrasts this position with the fact that relevance of information for a given discipline can also be stated from other accounts, e.g. disciplinary knowledge embodied by communities and institutions. Mainstream models of information behaviour and frameworks for information literacy (e.g. ACRL, SCONUL, ANZIL) have also been developed and researched on a belief of high individual agency, based on a view of learning that is rooted in strong individualism. The literate person is seen to become an autonomous learner who can also transfer abilities and skills across situations, with little consideration of structural constrains. This has undoubtedly been a factor in the characteristic lack of contextualization in these frameworks. Phenomenography, which is the other most important trend in IL research (Bruce 1997; Edwards & Bruce 2006; Edwards, Bruce, & McAllister 2005; Kirk 2004; Lupton 2004), has also taken a representational approach to information literacy as it focuses on conceptions of IL held by individuals (making them into a 'group' outcome by analytical categorization). While phenomenographic studies have widened our understanding of what information literacy entails from a non-expert point of view, little importance has been given to reality beyond individual perception, for example, how conceptions are affected by external influences or how conceptions held translate into interaction in situations (Wavell & Williams 2007). Although the claim is made that phenomenography is a relational approach (Bruce 1997), and social construction of meaning is clearly recognized, relations are understood as basically perceptual or experiential, not realistic in the sense of being directed outside the person. The social dimension has also been recognized in other recent research on information behaviour (Leckie, Pettigrew, & Sylvain 1996; Talja, Tuominen, & Savolainen 2005; Tuominen & Savolainen 1997; Widén-Wulff 2000; Landry 2006). However, there seems to be a predominant focus on interpretive methodologies, for example workplace ethnography, focus groups, user participation in design teams, etc. (Tuominen, Savolainen, & Talja 2005). In contrast to these positions, the realist perspective fundamentally involves the consideration of external aspects that exist and effectively influence our behaviour beyond our consciousness or perception of them. These are not just cultural, discursive or psychological elements, but also the material conditions in society (Porpora 1998).

Both education and work are highly structured domains of life (Maybin 1994). Organizations such as NHS24 have aims and objectives to accomplish; strategic and operational plans to guide their attainment; personnel policies that include

Diagram 1. The five bases of action and practices, values and theories (Bhaskar 1998, 415).



recruitment, training, coaching, and development plans; clinical and information governance structures; etc. Individual action is expected to be proactive (NHS Scotland 2005), but is at the same time constrained and guided by conditions established at institutional levels. For example, use of information resources is guided by professional conventions that legitimize valid knowledge (e.g. evidence from randomized trials) and by legal concerns over liability stemming from malpractice or even misguidance (nurse advisors in NHS24 are only allowed to give patients information from approved websites). Individual literacy requirements are defined, to a large extent, by job descriptions and candidate profiles. These external constraints are experienced and interpreted by individuals in social interaction, who also react to them and may alter or modify them. It is not easy to distinguish to what extent social practice at any given time and location is the doing of individual agency or is determined by structural conditions that are pre-existing, even if in a dynamic state. This is however, the problem as it is presented to us by sociology and epistemology and there seems to be no possibility of avoiding it in LIS research.

In critical realism arguments are made for the stratified character of emerging social properties (society is something different from the collective individuals), and also about the temporal relationships between structure and agency. These considerations deal with the problems of conflating the individual and social levels (the view that society is just a collective of individuals with no particular properties of its own), and of treating them as a chicken-and-egg problem. Basically, critical realism recognizes that social structures, while stemming from human activity, have emergent properties distinct from the individual level and also that social structure is pre-existent for individual agency at any given moment in time. The categorical difference between society and individuals established by critical realism doesn't turn into a dichotomy as their linkage is established by a mediating system that consists of "the *positions* (places, functions, rules, tasks, duties, rights, etc.) occupied (filled, assumed, enacted, etc.) by individuals, and of the *practices* (activities, etc.) in which, in virtue of their occupancy of these positions (and vice versa) they engage" (Archer *et al.* 1998). The consideration that social structures are not merely discursive does not preclude the constructionist view, but puts a materialistic understanding of structure before it: *positions* are seen as the underlying structural elements that condition the existence of discourses and their power to influence behaviour. Positions are not however fixed, as their creation and destruction is dynamic, but the important aspect is that they pre-date practices at a given point in time. "Relationships have independent causal properties and once established are analytically prior to the subsequent rule-following behaviour of actors" (Porpora 1998). Structures are not seen as determinant, but simply as pre-existing and necessarily influent on behaviour. "We can speak of the causal force that people's material circumstances (and not just beliefs or interpretations) exert on their behaviour without making any deterministic claims about the ways in which that behaviour is connected to those circumstances" (Porpora 1998). Conversely, structural elaboration (change or reaffirmation of structures which can be brought through several mechanisms, including cultural activity) follows agency in a cyclical way. This idea relates to Bourdieu's strategic response to rules through individuals' 'feel of the game'. "Actors frequently respond to their structured interests in creative ways that in principle cannot be predicted in advance ... However they act, individuals affect the structural relationships that bind them in intended and unintended ways. Thus … there is a dialectical causal path that leads from structure to interests to motives to action and finally back to structure" (Porpora 1998)

Bhaskar (1998, 415) further introduces an explanation of action, which can be related to the idea of literacy exercised in situation and can also connected to some models of information behaviour (Wilson 1999), by situating individual agency in the midst of external opportunities and circumstances and understanding it as enabled by competences and facilities:

"The bases for action may be classified into five broad types: cognitive, conative, affective, dynamic and circumstantial. The *dynamic* bases of action comprise the *powers* necessary to perform an action in appropriate (normal or specified) circumstances. These powers may be subdivided into two general kinds: the *competences*, including practical capacities, skills and abilities of various sorts; and the *facilities*, including political, economic, normative (moral, legal, etc.) resources and more generally possibilities" (Bhaskar 1998, emphasis in the original). He immediately goes on to explain that: "The circumstantial basis of action is a holdall, which includes structures not directly implicated in the action and the whole welter of material and social conditions and contingencies that comprise an agent's context". In this account we have important elements which we can relate to explanations and models of information behaviour in LIS and particularly to an understanding of literacy as competence that enables learning. Practices are seen to be the meeting point of individual agency (the cognitive, affective and wilful aspects of behaviour) with circumstances and opportunities offered by the environment. Actions are capabilities exerted between these limits.

Literacy, not information

> Learning is a social process that ". . . includes, indeed it subsumes, the learning of knowledgeable skills." (Lave & Wenger 1991)
>
> It would be fair to say that debates on the concept of literacy reflect the need for a much broader conception, one which recognizes that 'literacy' means different things in different contexts. (Mutch 1996, 61)

The developments of the information society have spawned a multitude of technologies; unfathomable amounts of textual, aural and visual documents; and a cascade of *literacies* that vie for recognition and supremacy: computer literacy, media literacy, visual literacy, information literacy, etc. (Bawden 2001; Cope & Kalantzis 2000; Kress 2003; Snavely & Cooper 1997; Street 2003). The proliferation of terms, which are offshoots of the concept of literacy, manifest the perceived need for concepts that explain different abilities for interpretation and expression, based on notions of reading and writing extended beyond basic skills, printed media and a single language. These *literacies* are all mostly the result of discipline-based reactions to the events of the information society. The notion of being "information literate", for example, can be viewed as the library profession's response to technological change and to the proliferation of information (Kapitzke 2003b). This has meant a strong focus on the use of particular types of documents (e.g. books and journal articles) and specific practices that are traditionally part of educational life, such as essay writing (Elmborg 2006), even though significant new trends in information literacy research have emerged mainly following Christine Bruce's pioneering study (Bruce 1997) and more recently Annemaree Lloyd's (2006a).

When trying to apply the concept of IL to workplace environments, one of the more important difficulties that we find is that the information needs, the information sources commonly used, and the practices which involve their use are more varied and complex than in typical educational situations (Mutch 1999a), mainly on account of the much wider variety in the aims of organizations and in the roles people play (versus the relatively uniform institutional aims and roles of students across formal education). Also, the use of information is related to social interaction in more complex ways (Widén-Wulff & Davenport 2007). In sum, this means that the limitations found in the mainstream conceptions of information literacy are magnified as we try to apply the concept to workplace situations. The problems encountered in conceptualizing information literacy, in the face of the various modes of engagement with information that professional workplace practices imply, bring us to a definitive crossroads where the possible options appear to be:

> a) We try to expand and enrich the concept of information literacy to incorporate a wider range of abilities and modes of engagement with information, notably those related to social interaction and bodily knowledge as, for example, Lloyd (2005, 232) seems to propose: "Informa-

tion literacy is gained through access to information from the social, physical and textual sites of the knowledge that characterises the practice and profession of fire fighting."

b) We uphold the concept of *multiliteracies* (Cope &Kalantzis 2000; Kress 2003) that analytically separates diverse modalities of use of information, using different channels and technologies. In this case information literacy would necessarily have a restricted meaning, focused mainly on information behaviour in relation to documentation, as other *literacies* would account for other modalities of engagement.

c) We uphold a single untagged concept of literacy that we analyze as engagement with a variety of semiotic processes and resources, all of which have to do with interpreting and using information. This option incorporates the idea of engagement with multiple information types, languages and channels while attempting to unify the field of study.

The first option entails continuing with what has been criticized as an ill-defined concept (Kapitzke 2003b; Mutch 2000; Pawley 2003) while at the same time trying to expand it to accommodate newer conceptions of literacy (Boon, Johnston, & Webber 2007; Bruce 1997; Edwards, Bruce, & McAllister 2005; Lloyd 2006a). One of the most important limitations of the concept is the vagueness introduced by the use of the term 'information', which was probably more meaningful thirty years ago when it hinted at the novel forms of electronic information and computerized access which were then becoming available. Nowadays the term information doesn't really point at a particular realm (unless of course we define it purposefully, but that runs contrary to the idea of expansion). 'Information' is a confusing and even unnecessary concept that can mean many things, and therefore loses centrality and usefulness. Information can be conceived of as: a property of matter, a thing, a process, an effect (being informed). It may reside in physical, mental and discursive forms (Bates 2006). Within LIS it has recently been portrayed as not conveying a specific character to the discipline: "Philosophers of language have modelled the phenomena fundamental to human communication in ways that do not require us to commit to a separate concept of 'information'. Indeed, we can conclude that such a concept is unnecessary for information science" (Furner 2004). Also, Hansson (Hansson 2005) writes that "Information seems to, more or less, have lost its meaning due to inflation in usage … [there has] been a movement away from treating information as the key concept of the discipline, towards regarding documents or documentation as the most fundamental concepts". If it hardly seems reasonable for LIS as a discipline to think of information as its object of study, why would it be reasonable to think of information literacy as a meaningful term for the common citizen? The idea of incorporating engagements with information characteristic of workplace environments to the concept of information literacy, for example with tacit knowledge coming from social interaction, seems to just be putting more eggs in the wrong basket. Other shortcomings of the concept are its roots in librarianship and the fact that it has become entrenched in educational settings, both of which are factors that have actually prevented its further growth as many valuable aspects of the proposals of IL (e.g. the idea of lifelong learning) can not be developed or researched solely within formal education. Although librarianship should not be faulted for the intrinsic limitations of what has been a quite admirable effort to influence education during the last thirty years, it is the case that "whatever lasting success library proponents of information literacy hope to achieve can only be truly attained if the library profession recognizes that the library cannot rightfully claim total ownership of information literacy" (Owusu-Ansah 2005). Help is needed from elsewhere, and it should come from within LIS first of all, but even there the concept is not accepted generally. A lot of research into information behaviour, which in principle could be linked to information literacy, seems to have cautiously avoided this connection. Therefore, expanding it to include dimensions of workplace literacy seems almost too much, in view of its limitations and the improbability of enrolling much needed disciplinary contributions, both from within and without LIS (e.g. from the fields of cultural studies, new literacy studies, semiotics, etc.), that will not easily fit in with the strong professional branding that IL has been given.

The second option of conceptualizing multiple *literacies* is undoubtedly more appealing, as it al-

lows us to address a wider variety of modalities of engagement with information and of theoretical angles coming from a range of disciplinary perspectives (Cope & Kalantzis 2000). But it has the downside that its enunciated multiplicity leads to the creation of analytical divisions by disciplinary perspectives and professional interests, which tend to be reified into distinct fields of enquiry, while the case is that in practice we often find the diverse *literacies* enacted simultaneously. Although every one of the proposals for literacies (visual, media, computer, information, etc.) has made important points in relation to the characteristics of engagements with different types of information, there are also unifying elements in our experiences with documentation, computers and media, especially as messages tend to become multimodal. The question arises as to whether we can, for example, treat the differences in reading a printed novel, the *New York Times* on the Web, or a sales report retrieved from a corporate intranet from a unified perspective? Rather than thinking of a plurality of literacies we should think in terms of *different situated practices* in each case, which imply different sets of assumptions, aims, methods of reading, etc., and develop a more nuanced sense of how they affect the enactment of literacy in situation. The concept of *multiliteracies* seems to dilute the centrality of the notion of literacy and instead leads attention to the multiplicity of media, channels and languages involved. This may present us with some of the problems that information literacy already has, namely that of the professional and disciplinary branding of aspects of literacy.

This paper therefore proposes that a more appropriate way to move forward, at least within LIS, is to uphold a unified concept of literacy to which we can certainly now attach a much more complex significance (Holme 2004) while enriching it with multiple disciplinary perspectives (not tags), as it has become open to diverse understandings in the last thirty years. The concept of literacy has proved its resilience and continued validity, and it seems possible to recognize its multi-modality within a unified but complex conception (Cope & Kalantzis 2000) that recovers the essential elements on which the validity and usefulness of the concept of literacy is seen to reside. First of all, that literacy is fundamentally the ability to read and write "associated with a different, more elaborate and effective use of language … to think about complicated issues and abstract problems. Literacy thus assumes a variety of spin-off activities and benefits from the core skills of reading and writing" (Holme 2004). These activities include the engagement with a variety of semiotic resources (documentation, media and information technologies) through various channels (visual, audition, aural, kinesthetic) which imply competence in several distinct languages (or codes) related to text, speech, image, body movement, etc. The specific forms and relative importance of these engagements will depend on the nature, aims, affordances and other characteristics of situated practices and the communities that constitute them. Also, "the concept of literacy goes beyond simply being able to read; it has always meant the ability to read with meaning, and to understand. It is the fundamental act of cognition" (Gilster 1997). This understanding of literacy draws on theoretical positions that include the notions of social construction of meaning, semiotic and hermeneutic interpretation, and criticality (Barnett 1997). Gee clearly articulates this change: "On the traditional view, literacy is seen as a largely psychological ability – something to do with our 'heads'. We, on the other hand, see literacy as a matter of social practices – something to do with social, institutional, and cultural relationships" (quoted in Lankshear *et al.* 1997).

To be able to conceptualize engagements with the requisite variety of information sources, channels and modalities implied in a complex literacy, it is necessary to draw from the field of semiotics in order to develop a more general model of literacy. Semiotics involves the use of multiple languages and codes in the process of semiosis, which is concerned with meaning-making and representation through signs of many forms including words, images, sounds, gestures and objects (Chandler 2002). The process of semiosis is fundamentally an *inquiry* (which implies uncertainty, ambiguity and relativity in the interpretation of signs) into meaning (Deledalle 2000) as it is negotiated in social and discursive construction (Hodge & Kress 1988).

The proposed model for this multimodal literacy involves a fundamental process of semiotic engagement which is contingent on abilities to access information (semiotic) resources; use of different types of languages and codes; and use of technological affordances in specific practices. Together,

these elements constitute literacy as a situated and progressive development of competences.

Process of semiotic/hermeneutic engagement

a) Process of semiotic engagement

Awareness (of means, resources, affordances, issues, etc. implying a level of pre-understanding);

Contact (with a variety of semiotic resources);

Interpretation (semiotic and hermeneutic, going from de-codification to understanding of: meaning, validity, relevance, positioning, knowledge claims, etc.);

Action (generating, committing, expressing, deciding, connecting, applying, manipulating, etc.)

b) Access to a variety of information (semiotic) resources through:

documentation (accessing and interpreting systematized textual, visual and aural information);

media (accessing and interpreting mass communication);

social interaction (communicating and learning with others; accessing social capital, sense-making).

c) Use of different types of languages:

Written (reading, writing);

Oral (speech, listening);

Visual (interpreting and using signs, symbols and images);

Aural (interpreting and using sounds);

Body (interpreting and using body movement, sensation and emotion).

d) Use of technological affordances:

Information and communication technologies (generic and specialized);

Other technologies (belonging to particular practices).

The elements of the proposed model are closely related to communication and learning, but those are seen as more general processes in relation to which literacy has a more specific meaning associated with instrumentality in the use of languages and the progressive development of competences for interpretation and expression. We are always learning and communicating, but we can be more or less competent in our instrumental and pragmatic applications of communication and learning, which can be functional, critical, ludic, etc. For example, looking at any image evokes an almost automatic process of semiosis that is inherently communicative, but this process can be developed toward higher or more complex degrees of awareness, critical interpretation and action (or reaction) in relation to what we see, leading for example to aesthetic appreciation and positioning. Literacy is about engaging with layers of meaning which we become able to generate (as much as discover) and to act upon progressively through our engagements with semiotic resources in situated social interaction.

Literacy is necessarily exercised as competences. These involve the progressive development of capability and the enactment of knowledge through experience and performance, as they do not consist of static knowledge about information, technology, language, etc. Understanding literacy as competences does not imply standards-based evaluations. On the contrary, the concept of competence should lead us to look carefully at the situational nature of performance. The acts or performances which are desirable at any time are dependent on the situation in which the literacy competences are exercised, and their evaluation should be done according to the expectations of performance in that situation. An important consideration is to see the definition of applicable literacy competences as affected by culture, social organization and by the characteristics of smaller communities of practice that are identifiable by their particular use of knowledge and skills (Lave & Wenger 1991).

Also, a critical literacy (which is not the same as critical thinking skills) involves knowledge about the ways and methods that society uses to construct itself through discourse conveyed in written and visual language and the skills necessary to enable, for example, awareness of discourses an the consequent ideological working of documents (Lankshear *et al.* 1997). Despite criticism that the concept of literacy belongs to a project of modernity (Holme 2004; Kapitzke 2003a; Graff 1994), it can now also be seen as part of the reaction emerging from movements such as post-modernism and critical discourse analysis against the concepts of functionality, master narratives (Lyotard 1984), the controlling power of texts, and the established

authorities behind them (McKenzie 2003). Emancipatory pedagogy (Freire 1998) has shown how individuals and smaller communities can be empowered through literacy by taking control of their own interests, rather than becoming literate to function in a global capitalist economy. Standpoint epistemologies (Trosow 2001) posit a shift from the pretended neutrality of individuals and institutions toward the recognition of women's, gay's, children's and ethnic minority rights, and generally those of the locality. Literacy takes particular meanings in local communities and should serve to convey particular interests in specific ways.

Finally, the use of technology, which from the literacy perspective involves interpreting and using technological affordances (especially information and communication technologies, ICT) for learning, communication and sense-making, is widespread and obviously implicated in many modes of engagement. Media have become important beyond a supporting role for content, and knowledge of their interpretation and use is therefore a key aspect of contemporary literacy. It is difficult, however, to characterize the role of technologies in literacy more specifically as their omnipresence and user-friendliness makes them also more transparent and imperceptible each day (Chandler 2002). Millions of people use *Google*, *YouTube* and a host of communication tools every day without full consciousness of the many technologies involved in getting an answer to a simple query or in connecting with friends or co-workers through the Web. Situated workplace practices will call also for the use of other technologies (other than ICT) which constitute affordances for learning and sense-making.

A definition of literacy based on the above discussion is therefore: "The progressive development of competences for becoming aware of, accessing, critically interpreting and effectively using a variety of languages, codes, semiotic resources and technological affordances as tools for learning, communication, and sense-making in situated social practices."

Conclusions

This paper has argued for a social constructivist and hermeneutic epistemology for learning, and for a critical realist perspective to be used in the study of the interactions between the individual and social dimensions in situated practice. Also, arguments have been put forward for the need to develop and use a single, untagged and multimodal concept of literacy, instead of information literacy. These elements constitute a conceptual framework for studying workplace literacy.

It is possible that many librarians, who constitute the professional group which has invested the most in the development of information literacy, feel that dropping the 'information' part takes away the particular disciplinary angle of literacy they have developed. However, this proposal is suggesting just how this angle may be nurtured and developed further, not abandoned. It seems important to highlight the fact that it is *always information* in its many forms that is dealt with through the different abilities, languages and channels that literacy involves. Even if we don't use the term "information literacy", through the focus on literacy we are nevertheless advancing the study of information use, not least in its documental forms but definitely going beyond them. We gain valuable new possibilities, for example being able to understand *listening* as an aspect of literacy when used as a tool for service provision (which implies learning and decision making) in call centres like NHS24, and not just as a generic ability.

One way of thinking about the effects of this proposal is to question whether any existing definition or conception of information literacy would radically change if the word "information" was taken out. For example, can *The Seven Faces of Information Literacy* (Bruce 1997) be conceived of as The Seven Faces of *Literacy*? Can we define *literacy* as "appropriate information behaviour" (Webber & Johnston 2005)? Can we think of *workplace literacy* rather than of workplace information literacy? If we answer 'yes' to these questions, we are agreeing that information literacy is just an aspect of literacy, or rather, that literacy means engaging with information in all of its modalities.

It is suggested that adopting an untagged concept of literacy can mobilize a wider range of research in LIS, bolstering the interactions between librarianship and information behaviour studies. The two have criss-crossed their paths, often with little explicit recognition of each other. The study of literacy as awareness, interpretive ability (semiotic and hermeneutic) and action in relation

to learning and decision making should be understood as part of information behaviour research, and would help make important connections with other disciplines, for example management.

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Editorial history:
Paper received 15 October 2007
Accepted 4 December 2007