Trapped between a Rock and a Hard Place: What Counts as Information Literacy in the Workplace and How Is It Conceptualized?

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Abstract

Information literacy has been proclaimed as a foundational literacy of the twenty-first century by many researchers, library practitioners, and international agencies. However, there is still disagreement about how information literacy is conceptualized and what key elements constitute the practice. This disagreement has led to the practice/skills debate that has emerged from workplace research into information literacy. It has also led to claims that research into information literacy lacks theoretical framing from which models can be grounded. While the library and higher education sector concentrate on information skills that are claimed to be generic and transferable, there is little evidence from workplace research to suggest that this is indeed the case. In fact, the opposite appears to be true: that information literacy is enacted as a situated, collective, and embodied practice that engages people with information and knowledge about domains of action that are authorized by the discourses of the setting. Consequently the information skills and competencies that are developed reflect the discursive practices of the setting. Without information literacy, other work-related practices and performances couldn't be accomplished; however, the continued focus on skills limits our ability to understand information literacy as a socially enacted practice, one that is constructed through a range of social activities. The issue therefore is how to represent the social activities that underpin information literacy. This article conceptualizes information literacy from a workplace perspective and presents ongoing work toward a theoretical framework. It advances the view that information literacy appears to be trapped between "a rock and a hard place." The *rock* is the current conception of information

literacy, which is unsatisfactory, because it is confined by the discursive practices of the education sector and does not account for the complex social processes that inform learning to work. The *hard place* is the translation of information literacy practice with an understanding of how this practice happens, that is, from the education sector into workplace performance. Drawing from empirical studies, this article will explore the current key issues related to workplace information literacy.

Introduction

Information literacy is concerned with *knowing* an information landscape through modalities of information, which are specifically sanctioned by a social site. Needless to say, the process of becoming information literate is not as simple as mastering a set of skills in order to access, disseminate, or present information. Becoming information literate requires developing an understanding of what constitutes information in a specific setting; understanding the discourses that influence activities related to the creation, dissemination, and operationalization of information; and understanding how information is nuanced, enabled, or constrained through the social activities inherent within the setting. Therefore, information literacy manifests as the product of implicit and explicit social activities that are situated and collective.

Understanding how information literacy emerges in a particular setting requires that we not only attend to the development and operationalization of information skills, but that we focus our attention toward understanding how information literacy emerges as a situated practice that reflects the sayings (what is spoken about), doings (what is done), and the relatings (the teleoaffective dimensions) (Kemmis & Grootenboer, 2008). These concepts shape and underpin collective agreements about what counts as information and is agreed upon as knowledge, and the ways of knowing that are legitimized and sanctioned. Implicit in this approach is the need to represent the often hidden and everyday social activities that enable workers to become enacted in the performance and practices of work. These everyday activities afford opportunities for people to become stirred into the information landscape by connecting them to the implicit and explicit discourses that surround knowing about work.

In several articles (Lloyd, 2003, 2005, 2007) reporting research into workplace information literacy, I have suggested that the analysis of information literacy should focus more toward understanding the social arrangements and activities of a setting that enable the development of information literacy, but may also act to constrain it. However, seven years on, while some researchers and fewer practitioners have taken up the challenge that this research has produced, there still seems to be little real "movement" in the development of librarians' understanding of work-

place information literacy or in our ability to translate this knowledge into the language of workplace learning.

This point is highlighted in a recent study by Aharony (2010) that focused on reviewing the publication destination for information literacy research over the ten-year period from 1999–2010. It was reported by Aharony that while there is evidence of a continuous increase in the publication of information literacy research over this period, this work was still predominately being undertaken by librarians and confined to library and information science publications. According to the study, a smaller portion of research was occurring within the health and medicine field. However, the dissemination of this research was also focused in library and information science publications, primarily because those undertaking this research were librarians working in the medicine and allied health fields (Aharony, 2010).

While it is clear that interest in information literacy as a subject of research continues to grow, that growth is predominately within its parent domain of library and information science. This observation is not new; as Boon, Johnston, and Webber (2007, p. 205) noted, "to date it is librarians' conceptions and experiences that have dominated the literature and their frameworks and models for information literacy that have been most visible." The effect is that the language used by the LIS sector to define information literacy and to describe an information literate person does not resonate to those outside of it. To put it another way, once the term information literacy leaves its domain, it loses its power.

As a consequence of the narrow locus for information literacy research, the majority of research reports on the application of information literacy programs in academic or school libraries. This research represents the "how we did it" genre of reporting. While this type of reporting can be instructive, it is often descriptive and atheoretical. The result is a lack of theoretical development that may be used to explain *how* information literacy happens (Lloyd, 2010). This is critical work because without it there can be little rigorous debate between researchers in order to test implicit assumptions and beliefs.

Information literacy is trapped between a rock and a hard place. The rock is the current conceptions of information literacy that represent information literacy as a skill or competency that is confined to information access and use, and associated with tools such as text or technology. The hard place refers to attempts to translate this conception from the formal learning regimes of education and academic libraries to other sectors where learning is less structured or systematized, but is just as important (i.e., workplaces).

The aim of this article is twofold: firstly, to highlight lessons learned from workplace information literacy research in an attempt to argue that the critical ground for information literacy is the workplace and not the

education sector; secondly, to briefly introduce some elements that represent an emerging theoretical framework for understanding how information literacy happens in the workplace.

GROUNDING INFORMATION LITERACY PRACTICE: LESSONS FROM THE WORKPLACE

While education has been seen as the critical ground for information literacy research, I would argue that it is workplaces that should be used to inform the library and education sectors' provision of information literacy education. The aim of this refocusing is to produce future workers who have the capacity to recognize and understand the central place that information, its creation, production, reproduction, circulation, and dissemination play in sustainable workplace performance. To date, the corporate, manufacturing, and services sectors still remain a largely untapped source for information literacy research (Lloyd & Williamson, 2008). Where research has taken place there tends to be a library-centric focus, with an emphasis on describing the importance of information skills in relation to the research process (Smith & Martina, 2004), focusing on tertiary trained "knowledge workers" such as academics, librarians, or administrative workers (Bruce, 1999; Cheuk, 1998; Crawford & Irving, 2009; Kirkton, Braham, & Brady, 2008), or considering issues relating to the generic qualities of information skills or issues relating to transfer (Palmer & Tucker, 2004). Each of these approaches has been worthwhile and has added to our limited stock of empirical knowledge about workplace information literacy practice. However, there is little evidence of attempts to understand the complexities of information literacy, or to map these complexities against information literacy as it is understood and advocated from an education standpoint. In this respect, this article will briefly focus on some key issues that emanate from workplace research.

Lesson 1: Context Creates Difference

The education sector is a particular type of social setting underpinned by a discourse that shapes the information landscape of teaching and learning. For teachers, librarians, and students who are co-participating in the practices of teaching and learning, this engagement with information is systematically organized and enshrined in authorized bodies of knowledge (Gherardi, 2009a). The skills prescribed in searching for information, accessing and using it are formalized by particular rules, regulations, and curriculum that are underpinned by an instrumental rationality. This allows the acquisition of knowledge and ways of knowing to be measured against formalized sets of criteria. In this setting, primacy is awarded to knowledge that is canonical, objective, and explicit, and there is a focus on individual performance and the development of self-sufficiency through independent learning.

Workplaces offer another type of social setting, where the information landscape is often described as messy, complex, and distributed through a range of practices that entwine to contribute to the collective performance of work. Workplace knowledge is not only shaped via the use of canonical and content-based sources but is also shaped through noncanonical sources such as the experiences of embodied performance, which are created when workers engage with the physical and material space of their workplaces, and through the tacit and implied nuances that construct the workplace narrative. The creation of workplace knowledge and of knowing about the performance of work—its production, distribution, and circulation—is therefore reflective of the ongoing process of collaboration between people. It is also mediated by the material and social conditions of their practice settings, as they engage with learning that is sometimes formal and sanctioned through training, but more often is informal, embodied, and occurring at the moment of practice (Sawchuck, 2003).

As Gherardi (2009b, p. 118) suggests, "To know is to be capable of participating with the requisite competence in the complex web of relationships among people, material artifacts and activities. Acting as a competent practitioner is synonymous with knowing how to connect successfully with the field of practice. . . ."

However, in this setting information, and the knowledge that is constructed from it, is often relegated to secondary knowledge, because it is considered to be primarily concerned with the "material, the technical, and the routine" (Stevenson, 2002, p. 2). As Bevan (2003), drawing from a workplace perspective, notes, the current educational understanding of information literacy fails to take into account nuances and social practices that are fundamental in the application and practice of information literacy in context-dependent settings.

Whereas workplace information literacy has been a focus for researchers, there still appear to be attempts to translate librarians' conceptions in relation to the operationalization of a list of skills and standards identified in the education sector. There is little reflection on whether the information literacy skills that enable activities such as information seeking, informed choice, or selection of information sources actually reflect those activities or sources of information that are valued by workers and their employees. There also appears to be an acceptance that information literacy focuses on individual information use rather than information use as a collective activity. This approach to explaining and describing workplace information literacy appears to undermine important workplace concepts of teamwork and group problem solving aimed at building collective knowledge, where information skills are spread across a team rather than being centered on an individual. In the emergency services studies (Lloyd, 2009; Lloyd-Zantiotis, 2004) problem solving is a group activity, where members cross-reference the problem or issue at hand, against a

range of experiences drawn from situated practice and expertise within the group.

Lesson 2: Information Needs Are Not Always Identified or Evaluated by the Individual
The ability to identify an information need is considered to be a foundational requirement for information literacy. Research by Hepworth and Smith (2008) has questioned whether this need is reflected in workplace environments, primarily because information needs may be defined prior to an employee being given a task. In a study of nurses, Johannisson and Sundin (2007) noted that the concept of information need was missing from the nurses' suite of information activities, primarily because that need was defined by the doctors. This suggests that for this group the discourse of another profession (doctors) shapes the information seeking activities of nurses, a profession in its own right. Similar findings have also been identified by Bonner and Lloyd (2011). Among this group of renal care nurses, there was a mismatch between the nurses own occupational discourse about their practice, the sources of information that contribute to the art of nursing, and the discourses that reflect the medical community, which produced a more objective, rational, and instrumental view of knowing. In this study nurses' discourses were seen to reflect the situated, embodied, and socially nuanced performances related to caring, practice, and solidarity (Bonner & Lloyd, 2011). A tension exists, as nurses must reconcile their own informed understanding of patient care with the dominant and codified knowledge of the medical profession, which acts as the knowledge authority in relation to medical need, practice, and procedure.

The concept of evaluating information also takes on a different meaning in the workplace as noted by Hepworth and Smith (2008), who suggest that "the source of data tends to be internal and hence the authority is known and classical evaluative criteria relating to secondary sources do not apply" (p. 217). Similarly, Lloyd (2004, 2009) reports that among emergency service workers and nurses in renal care (Bonner & Lloyd, 2011), evaluation of information is referenced against the social, embodied dimension, with workers using other workers' embodied knowledge and experience as a source of evaluated information. An important information skill in this setting is an ability to map out the information landscape, and to develop the capacity to make judgments about the veracity of information against noncanonical sources of information. Practitioners recognize the importance of embodied and social information: as sources critical to workplace learning; to the development of effective workplace performance; and, most importantly, in the development of workplace identity and maintenance of workplace culture as Lloyd (2004, 2009) highlighted in the emergency services studies.

While educational discourse continues to focus on the individual's achievement in relation to information use, the workplace focuses on the collective creation and use of information. This leads to the question of whether evaluation skills, which aim at eliciting an understanding of the authoritativeness of a source, can be applied in settings where the source is not objective, but is social and often nuanced through power relationships, or experiential and embodied information requiring knowledge of the setting.

Lesson 3: Information and Knowledge Are a Collective Possession
The notion that workers are aware of information presentation or issues such as plagiarism does not resonate in workplaces that are often driven by technical and embodied knowledge. This type of knowledge is considered to be a collective possession and disseminated and circulated throughout the workplace, by storytelling, and extended through the distributed networks of professional practice.

Lloyd (2004, 2009) demonstrated in the emergency services research that the need to develop a shared understanding about practice and profession rested on the group working collectively to share information, which in turn allowed for common understandings about how practice and performance should proceed to develop. This then suggests that eventually the provenance of information (critical in an academic context) is often lost over time in the workplace, where it becomes incorporated into collective dialogue and wisdom.

Lesson 4: Transferability of Information Literacy
The education sector equates information literacy with the acquisition and mastery of information skills and these are often claimed to be transferable. However, in practice it is far more complex than this. The idea that information literacy can be reduced to the acquisition of a set of discrete skills, which can be taught independent of context and transferred generically across the same setting or into new settings, has increasingly become part of the conventional wisdom of the information literacy narrative. Similar arguments exist in the workplace learning literature where this view is often articulated as the end-on model; where skills are bolted on, rather than being learned as an integral part of the learning process. The view of information literacy as generic and transferable does not effectively take into account how the application and operationalization of information skills (i.e., the ability to effectively search for information and evaluate the results) is influenced by the value the setting attributes to situated forms of knowledge or to the methods that are sanctioned for accessing the domain as part of the overall information practice.

Numerous studies on skills transfer indicate that the ability to transfer skill from one setting to another does not necessarily occur primarily because of situational and affordance factors that influence the modali-

ties of information, which are valued in learning about the practices and performances of work. These factors act to sanction and thus enable the use of specific information skills, while at the same time contesting the efficacy of others. Fenwick (2006), who draws from the workplace learning research, suggests that spatio-temporal arrangements "actually function as pedagogies that induce particular knowledge in participants" (p. 694), which effect the application of skills across contexts, for example, the way equipment, tools, and work are scheduled—"actually compel workers to move, act and even think in particular ways" (Fenwick, 2006, p. 694). This suggests that the setting and its social, material, and embodied affordances furnish participants with opportunities to engage with situated knowledge and ways of knowing.

Studies on the transfer of information literacy within and across a range of settings are still emerging. However, evidence from Hartmann (2001), Ellis and Salisbury (2004), and Herring (2010) indicate that information literacy skills do not appear to successfully transfer, either within a school-based setting (e.g., from classroom to classroom), across education settings (from school to university), or into the workplace (Lloyd-Zantiotis, 2004). Palmer and Tucker (2004) have noted that while information literacy may be referred to as a generic skill, it is not a "global, context free attribute." Consequently, explorations of transfer require an understanding of the setting and the way the setting functions to operationalize its knowledge base through the development and application of specific suites of information skills. The research to date raises questions in relation to the learning of information skills and their operationalization as part of the learning process. Therefore, the issue of transfer appears critical, particularly as we continue to develop information literacy pedagogy.

RECONCEPTUALIZING INFORMATION LITERACY AS PRACTICE

So what is to be done? Lessons learned from workplace research suggest that to move away from the hard place formed by librarians' conceptions of information literacy as a transparent, observable, and individual skill necessitates that we begin to engage with theory building that can provide researchers with a framework that can act as a device for a more focused explication of what it means to be information literate and can be used to shape more complex settings-based explorations of information literacy. This notion is supported by Todd, who has suggested that information literacy lacks a strong theoretical foundation with many models being produced without systematic and rigorous research. As a consequence, information literacy has been removed from "intellectual critique and examination" (2010, p. 105).

It is important to move research attention beyond the information skills approach and toward understanding the social conditions and activities

that enable and sanction the development and mastery of information skills. Reconceptualizing information literacy as a complex sociocultural practice allows us to frame our research in ways that enable the "intellectual critique and examination" that Todd (2010) argues for. Constructing a theoretical framework from which to explain information literacy provides researchers with an explanatory device to illustrate the significant characteristics, conditions, and features to others outside our own field.

THEORIZING INFORMATION LITERACY AS PRACTICE

What has practice theory got to do with information literacy? Practice theories emphasize the analysis of ways of engaging with the world. These social theories are concerned with exploring human activity, subjectivity, intersubjectivity, embodiment, language, and power in relation to the "organization, reproduction and transformation of social life" (Schatzki, 2001, p. 1). Inherent in this approach is a central concern about information and knowledge, which as a socially constructed phenomenon reflect the situated realities, ongoing practices, and arrangements that transpire through human coexistence (Kemmis & Grootenboer, 2008; Schatzki, 2002). As Barad (1996, p. 179) suggests, "knowledge is always a view from somewhere"; therefore, entering a setting and maintaining an ongoing engagement is dependent on a range of situated activities that are specific, recognized, and authorized by the social site. Practice theories have the ability to produce accounts of how different types of information and knowledge are produced and sanctioned and therefore offer a more holistic approach to understanding the conditions and features of information literacy. Put another way, these theories enable us to understand *how information literacy happens.* Most practice theorists agree that accounts of practice recognize the cognitive, embodied, and affective dimensions that are present when a person experiences a social site. Therefore, the focus of practice theory is on the arrays of human activity (cognitive and embodied) that produce among members engaged in practices a shared account of "know-how" or practical understanding.

Information Literacy as Information Practice

To move away from a skills-based approach is to recognize that information literacy is a critical information practice that encompasses not only the mastery of information skills but also a mastery of the information landscape. To this end, I define an information practice as:

> An array of information related activities and skills, constituted, justified and organized through the arrangements of a social site, and mediated socially and materially with the aim of producing shared understanding and mutual agreement about ways of knowing and recognizing how performance is enacted, enabled and constrained in collective situated action.

As a central information practice, information literacy practice is defined as:

> Knowledge of information sources within an environment and an understanding of how these sources and the activities used to access them are constructed through discourse. Information literacy is constituted through the connections that exist between people, artifacts, texts and bodily experiences that enable individuals to develop both subjective and intersubjective positions. Information literacy is a way of knowing the many environments that constitute an individual being in the world. (Lloyd, 2010, p. 26)

Understanding this practice requires that we focus on the social conditions that enable information literacy to happen in ways that allow access to information and knowledge that are specific to the practice setting. In all settings, information literacy practice therefore reflects established ways of knowing about how information sources are located within an information landscape, and how these sources reflect the conditions through which information and knowledge are agreed upon and legitimized. Without information literacy practice, other performances and practices cannot be accomplished or managed. Consequently, information literacy should be seen as a dispersed practice that is inherent in all other practices. In the workplace, information is regarded as the collective possession of the setting, and information literacy should be understood as collaborative practice produced by a range of social activities that interweave together to produce a way of knowing that is particular and localized. Consequently, we must not only focus on the information skills through which the practice is operationalized, we must also recognize the social architectures through which the flow of information (including information about how to access and use it) is afforded or constrained, in turn enabling the construction of a narrative that resonates between members and is used to align newcomers.

While workplace information literacy practice research is still in its infancy, the lessons that have emerged suggest that it is critical that we acknowledge the role of the community as central to the enactment of information literacy. Secondly, we should acknowledge that information literacy is not a skill but a practice that is constituted through a range of social activities that need to be studied, understood, and ultimately represented as part of our theorizing of information literacy.

To comprehend information literacy in this way, as more than just a set of skills and attributes, I suggest that library and information science practitioners and researchers must turn their gaze toward understanding information literacy holistically as a practice that is situated, driven, and influenced by discourses that operate within a setting, providing the information landscape with its shape and character. Discourses are defined here as being "ideological in that they win over the speaking subject by

formulating a positive associative context for concepts so that they can legitimize themselves" (Savolainen in Wilson, 2009, §27). Adopting a new way of understanding information literacy will enable us to speak outside our own discourse, using language that reflects the discourses of information and knowledge in other settings.

To think about information literacy as practice is not an easy task, because it challenges us to understand how the collective, the collaborative, and the intersubjective conditions of co-participation and co-location influence information and ways of knowing an information landscape. The difficulty therefore lies in moving away from the current individualistic/user approaches to information literacy, which have dominated the literature, toward grounding our understanding of information literacy as a collective practice through which an individual is spoken into context.

Conceptualizing Workplace Information Literacy: Some Key Concepts

That information literacy is complex and socially driven has been demonstrated in a number of workplace studies (Bonner & Lloyd, 2011; Lloyd, 2004, 2009). Information literacy practice facilitates our way of knowing an information landscape and affords the opportunity to make meaning of the signs, symbols, artifacts, and people who are co-located and co-constructed within the landscape. Information literacy is central to workplace learning because it enables individuals to enter the workplace landscape and to develop knowledge and skills that directly connect them to internal and external performances specific to their workplace settings. This requires them to engage with the social architectures, which structure and guide their engagement with workplace information and knowledge.

Architecture

The concept of architecture for information literacy research is particularly useful, because it enables us to explore the dimensions and conditions that structure how people who are engaged in a workplace setting experience information. The concept of architecture was introduced by Wenger (1998) in relation to learning within communities of practice. This author suggests that learning is produced through conceptual architectures that exist on many levels and that "lay down the general elements of design" (p. 130). From an information literacy practice perspective these elements of design are aligned to the ontology and epistemology, which authorize the types of information and ways of knowing that are used to shape and maintain the character and culture of the setting.

Writing from the context of education Kemmis and Grootenboer (2008) develop the concept of practice architecture to describe the way social settings structure practices. These authors suggest that

> organizations, institutions and settings, and the people in them, create practice architecture which prefigure practices, enabling them and constraining particular kinds of sayings, doings and relatings, among people within them and in relation to others outside them. The way these practice architectures are constructed shapes practice in its cultural-discursive, social-political and material economic dimensions, giving substance and form to what is and can be actually said and done by, with and for whom. (p. 57)

Information literacy manifests as a many layered practice—through sayings, doings, and relatings that occur when people engage with each other. Being information literate is a way of knowing and as an outcome of participation, knowing is informed by the sayings, doings, and relating specific to the environment (Lloyd, 2010). Developing information literacy skills will therefore be dependent on the specific sayings, doings, and relating that authorize the type of information activities employed. To understand and describe information literacy as a many layered practice, it is important to peel away some of the layers in order to understand how information literacy is constituted in a workplace setting, and to consider the dialogic processes that influence, afford, and contest its development.

Information Landscapes
For researchers, being able to identify the ontological and epistemological structure of the setting is an important step. This matters because it is the setting that creates the conditions for the sanctioning of information and knowledge, which also bounds the practice. A critical feature of context and one that forms part of any holistic analysis of information literacy practice is the concept of the information landscape.

Workplace landscapes are structured through a web of related practices that give the landscape a shape and character. The analogy of landscape is employed here to try to convey some of the complexities that we face when we try to understand information literacy as a sociocultural practice. While the idea of landscape summons a spatial, visible expanse of natural or manmade terrain, in the present work, the landscapes that people encounter and interact with are also considered to be socially constructed and therefore accessible through co-location and co-participation. Firefighters, ambulance officers, and nurses come to understand their information landscape, agreeing on what type of information is useful in the performance of their specific practices (Lloyd, 2010).

An information landscape refers to the intersubjective space that is created when people come together in practice or sets of practices: where information is shared, enabled, and/or constrained. Through our engagement with this type of landscape we negotiate our realities—through our discourse we come to agreement and we commit to action and to perform in agreed ways (Lloyd, 2010).

In a school-based setting, the meta-practice of education will have nested within it a number of other practices, such as teaching, learning, and administrative practices. In turn, these practices will also consist of other practices and so on. Through co-location and co-participation, members engage with information and learn about social formation and arrangements, learn about its patterns and cycles, and about the paths, nodes, and edges that form the topography of the social site. Co-location and co-participation also allow them to learn about what information is sanctioned and legitimized. Consequently in educational landscapes, information literacy will differ from a workplace landscape because the structuring of the practice will be influenced by the sayings, doings, and relatings that reflect the workplace discourse. In workplaces, the narrative of work will reflect the discourses that drive performance. In medical workplaces, nurses must engage with epistemic and instrumental information landscapes, which situate the nurse in relation to other medical professions and with the instrumental regimes expressed through policy and procedure. However, this must be balanced out against their own professional landscape, which combines the instrumental with the art and craft of nursing, which is drawn from social and embodied knowledge associated with patient care (Bonner & Lloyd, 2011).

Affordances relate to the information opportunities that are furnished within context allowing a person to interact with symbols, artifacts, and people within an information environment (Billett, Barker, & Hernon-Tinning, 2004; Gibson, 1979). The term, according to its originator Gibson (1979), emphasizes the relationships between a specific environment and the opportunities it offers. Affordances are contextual, but they are not a prerequisite for action unless they are meaningfully recognized by the participants within the context (Gibson, 1979). When employing this term in relation to information literacy, affordances can be characterized as the sources of information (social, physical, or material) available to people that promote interaction and action in specific ways.

The information landscape of a particular setting will reflect affordances that are valued and how they are offered (through co-participatory practice) and used by participants. From the perspective of information literacy practice, affordances can be conceived as information experiences in the landscape, through formal, informal, or incidental information seeking and dissemination activities that encourage an individual to become reflective and reflexive about their practices.

In workplaces, affordances may be centrally focused on engaging and guiding the newcomer through the opportunities offered in the storylines of the community of practice (e.g., how the practice has been constructed over time), or providing opportunities for novices to engage with tacit and contingent information that is available to sources of knowledge, which cannot be articulated or expressed in textual form but are still central to

developing knowledge about practice and work performance. Tacit information can be defined as information that is not written information, while contingent knowledge is only made available to an individual in the moment of practice (Sawchuck, 2003), that is, tricks of the trade.

Interacting with sources of information that are afforded facilitates the making of meaning and allows the individual to develop an individual subjective position (the individual as learner) and over time, an intersubjective position in relation to others who are also associated with a particular context. In this respect, the ways that information is sought and disseminated are enmeshed and shaped within context, and facilitate information engagement and experience. This enables the individual to move toward participation in the performance of meaning making activities, including engaging with signs and symbols, which are valued by the community, and by making connections with others already enmeshed.

Social Enactment of Information Literacy
Workplace studies have revealed that workers must draw information from the verbal, the material, and physical sources that constitute the information landscape, in order to learn about the internal and external performance of work (Gherardi, 2009; Orlikowski, 2007). These modalities have been described previously (Lloyd, 2006, 2009) but are briefly presented here to illustrate the type of information that is made available to the individual and the knowledge outcomes that are experienced in a specific context. None of these sites are more valid than others, and what is valued is always indexed to the discourse where the composition and character of the setting is revealed. While these modalities are described in general terms, the knowledge that drawing from these modalities constructs is situated because it is produced through co-participation in the specific and ongoing projects of the setting.

Epistemic Modality acts as location for "know-why" information. This type of information is codified into written rules, regulations, and can be clearly articulated against a set of sanctioned criteria. This type of information is tightly bound to institutional forms of knowledge and is used to enact an identity that is recognizable to the institution.

Social Modality is constituted through the ongoing relationships of people who are co-located and co-participating in the practice. This type of information is sourced from situated experience of collective participation, practices, and reflection on action. The social modality represents the real and ongoing beliefs of participants; consequently information is fluid and socially nuanced. Social information is difficult to articulate through text, but is highly valued by the collective because it reshapes subjectivity toward the construction of collective identity

The negotiation of collective identity occurs through access to infor-

mation that is rich in its historical, political, and social contribution to the maintenance of a community. Participating in shared frameworks of practice and ways of interpreting the world is facilitated within a social site, which gradually draws in new workers from the boundaries of practices and toward the social site. This engagement enables newcomers to connect with the intersubjective space that is controlled by insiders and allows them to form solidarities. Information is disseminated through narratives about the collective history of the group, and the practices it produces and values (Lloyd, 2010).

Corporeal Modality reflects embodied or contingent information drawn and learned through the body as it practices. Corporeal information is difficult to express in written form and when it is, it is only partially explicit (Blackler, 1995). It is demonstrated through observation of practice or accessed through the tactile, sensory, or kinesthetic activity that is associated with actual performance. Bodies reflect the consciousness of engagement with information and act as collectors for sensory information (Lloyd, 2006). As a site of knowledge, the body in action produces a narrative that can be observed by others. It becomes the intersection between epistemic information, information drawn from actual performance, and information drawn from interaction with the community.

Hidden Activities of Information Literacy
Connecting to these modalities requires workers to interact with an interconnected web of activities that engage workers with internal and external sources of knowledge. In the actual setting of work, there is an emphasis on information that is circulated internally, often in informal circumstances, via informal conversation, through storytelling or contingently at the moment of practice. These activities are often hidden as they represent everyday social activities that enable people to engage with the institutional, social, and operational discourses of the setting. Through them people are connected with the information landscape. In the emergency service and nursing studies (Bonner & Lloyd, 2011; Lloyd 2009; Lloyd-Zantiotis, 2004) the circulation and dissemination of information is aimed not only at operational performance but also at ensuring shared agreements about the way performance is enacted. The flow of information is aimed at inducting new members into the social site, the negotiation and construction of realities, and identity and the continued alignment of existing members.

These hidden activities can be described as:

Information Work, which is understood as a situated activity, refers to the collective strategies sanctioned by the community to ensure that all members engage with information and sites of knowledge and employ appropriate information skills, which reflect the ways of doing things as sanctioned by the community. The way information work is operational-

ized will depend on the way information and knowledge are understood by the domain. This in turn will influence the type of information related activities that become legitimized.

Influence Work is aimed at ensuring co-participation and mutual understanding about identity, and the maintenance of culture. Characteristic activities of influence work include mediating, negotiating, interpretation, and reinterpretation. Influence work aims at creating alignment between participants who are co-located.

Information Sharing is focused on negotiation, mutual understanding and shared agreement about ways of acting.

These three activities are enabled by a fourth activity:

Entwining, which draws together the three modalities, and recognizes the affordances and opportunities to engage with the landscape and its signs, symbols, artifacts, and material objects. In previous writing, I have referred to this activity as *coupling*. The change in terminology better reflects the multimodal nature of knowing, than does coupling, which implies a pairing of modalities.

Discussion: The Practice of Information Literacy

Drawing from empirical workplace studies, information literacy emerges as a socially enacted practice that is formed through a complex array of social activities. As a practice, information literacy is shaped according to the social dimensions of the setting, which give substance and form to what is considered to be information, what is sanctioned as knowledge and the methods and techniques that legitimize activity around the production, reproduction, circulation, and dissemination of information. As all contexts are uniquely shaped we must therefore consider that information literacy happens in different ways contingent on the specific setting.

As a critical workplace practice, information literacy is constituted as a generative source of internal and external knowledge through the ongoing collaborative practices of people who are co-located and co-participating in the performance of work. In the workplace studies (Bonner & Lloyd, 2011; Lloyd, 2004, 2009) a number of features were revealed. These features broaden our understanding of how information literacy happens and highlight the complexity and depth of the practice that enables knowing not only about content but knowing about

- how information is enabled, afforded, nuanced, or contested within a setting;
- the modalities of information that are considered credible and authoritative to the setting;
- how to employ the appropriate information skills; which in turn,
- enable an understanding of how to "go on" in the performance of learning or working.

Other features that emerge from workplace research suggest that information literacy is

- influenced by the social, historical, and material dimensions that shape the discourse of the setting and influence the construction of the information landscape;
- a collective practice, that produces shared understandings about what constitutes information and knowledge of a specific setting, and ensuring that information related activities engaged members with sanctioned ways of knowing; and
- a multimodal practice, centered on access to a range of information modalities (social, physical, and material) that must be attended to in different ways as part of the learning about work and work performance.

Consequently, for workers, participation in the performance of work requires information derived from experiential, embodied, and social sources that can be reconciled against institutional ways of knowing. This will differ from more epistemic contexts such as schools and higher education where objective information and knowledge is sanctioned, and instrumental ways of knowing are legitimized.

Information literacy can therefore be described as a dynamic practice, which facilitates knowing. Knowing, according to Wenger (1998, p. 141), is "defined only in the context of specific practices, where it arises out of a combination of a regime of competence and an experience of meaning." This is constituted through the experience with broader historical, political, and social processes that are laid down over time, and influence practices related to structured and unstructured learning within and about context. From a practice perspective, knowing is not an abstract and reified construct, but a dynamically rendered position that is constructed within the context of practice.

Conclusion

Studies into workplace information literacy highlight the possibilities of understanding information literacy as an information practice, one that doesn't simply reflect the systematic operationalization of information skills, but instead reveals a more complex and multilayered practice that is critical to workplace learning and performance. Becoming a competent worker is synonymous with knowing how to successfully connect with the range of information related activities that will connect workers to modalities of information, which reflect the specific and situated knowledge that is constructed by people working in consort with one another.

The key notion that I have drawn from throughout this article is that our understanding of what information literacy is will be "shaped" by the context to which it is indexed, and according to the social, textual, and embodied activities that are valued and agreed upon by people who partic-

ipate in the practices of the context (for example, a community of practice or a learning organization). To appreciate how a person becomes information literate we need to understand how that experience is constituted by the whole person being in and interacting with the specific landscapes that structure a setting. Becoming information literate has more to do with complex outcomes such as developing a workplace identity, learning to work collaboratively, learning about work performance, or understanding how to participate in a collaborative setting, than it does about learning a set of generic skills.

The outcomes of information literacy practice produce a practical understanding about how information is located, a reflexive understanding of what activities facilitate or contest the construction and reproduction of knowledge, and a shared meaning about the nature of performance within the landscape. They also reflect the deep knowledge that is developed over time and through experience that information literacy is an ongoing process of transformation and development. In highlighting these outcomes of information literacy practice to employers and policy makers, we are advocating the qualities that information literacy produces, qualities that underpin successful workplace performance.

Our continued insistence of information literacy as a text-based information skill that promotes specific attributes will result in continued failure to promote and advocate the practice to those outside (and even inside) educational settings. The challenge now is to transcend existing understandings of information literacy and broaden our research practices to understand how information literacy is experienced in other contexts.

A result of fast capitalism in the twenty-first century is a workforce that is able to adapt and adopt their information practices to suit ever-changing environments. After all, information is a valuable commodity—the most traded resource of the knowledge economy. Consequently, it is more important than ever that we focus our research efforts toward understanding information literacy in this sector and that we use this knowledge to inform our own practices as educators. Doing so allows us to be able to better inform our own pedagogic practice to account for the sociocultural and sociotechnical practices of the workplace, and this provides a platform to more effectively advocate for information literacy at government policy levels.

The notion that information literacy is only a skill is challengeable: it is more than this; it is a practice that is constituted through a complex suite of activities that are sanctioned by the discourse in which the practice is situated. Turning our attention to what constitutes practice, what influences its emergence, and how that emergence is sanctioned should be critical issues for researchers who are interested in describing the complex practice of becoming an informed worker.

While we continue to focus on information literacy as a skill, our advocacy of the practice will continue to be trapped between a rock and a hard

place. The way out of this situation is to draw from other landscapes and employ an interdisciplinary lens to describe this way of knowing.

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