Building Information Resilient Workers: The Critical Ground of Workplace Information Literacy. What Have We Learnt?

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Abstract. Work-related research has produced an understanding of information literacy that may sit uncomfortably with educational interpretations. Information literate workers draw from a wide range of information sources and engage with information related activities that enable them to know the information landscape of the workplace, to understand how information is situated within it, and, how to connect with the performances of work as it happens. This way of knowing about how work happens leads to challenges for the educational sector. In particular, practitioners need to know how best to support the development of work readiness in the transition from education to work. The critical ground of work-related information literacy will be described through lessons learnt. A people-on-practice approach will also be described; this approach represents the drawing together of previous conceptualizations of workplace information literacy by the author. Finally the challenges for IL educators will be considered.

Keywords: Workplace information literacy, workplace learning, information resilience.

1 Introduction

In the workplace the practice of information literacy (IL) is not often considered to be actual labour, because it is often interwoven within other work related tasks/practices. However, in the 21st Century when much of the labour in a multimodal society is undertaken with some reference to team-based working skills, information and communication technologies, and to a wider range of new literacies (data, media, financial, business, digital) then the notion of labour needs to be redefined. Without access to information relevant to their productivity, employees will find it difficult to solve workplace problems and employers lose their competitive edge in rapidly changing marketplaces. The modern multimodal workplace requires IL practice to facilitate access to information as it is created, manipulated, remediated, circulated, accessed and used. Research has demonstrated that IL practice situates workers by connecting them to the structural aspects and performative dimensions of work [1]. It should therefore be a critical practice of information work.

The reshaping of work across all sectors is a product of the continued dominance of technology into the workplace. This reshaping has resulted in the contextualization of IL into new literacies (e.g. digital, media, communication) and the accelerated demand for worker productivity and innovation to compete in globally competitive markets [2]. An outcome of this reshaping is that knowledge is now seen to have a central value in the workplace and it is not enough to be able to operationalize information skills: to locate, access and organize it. Workers must be able to transform information to create new knowledge or to use it as the leverage for new ideas and innovations [3-4]. The modern multimodal information-based workplace requires workers who have the capacity to cope with the overload and uncertainty caused by the exponential growth of information and use of information and communication technologies. To cope with the demands of information intensive work, and the need to transform and adapt as the rhythm and demands of the workplace alter, workers must develop *information resilience*. Through the practice of information literacy people develop the capacity to respond to uncertainty. The ability to develop ways of knowing about the information landscape, to operationalize information skills and activities to gain access to information sources results in the building of resilience which underpins the capacity to adapt and transform in times of significant change

Drawing together previous studies [1], [5-6] and lessons learnt from workplace research, a people-in-practice approach that conceptualizes how IL is shaped in the workplace, and how workers become enacted in the performances and practices of work is described. This approach highlights the complexity of the workplace landscape: the role of co-participation in the shaping, negotiation and renegotiation of workplace knowledge, and the wider range of information modalities that workers must draw from in the course of work.

Next, a broader perspective that frames work-related IL research will be considered, and in doing so, the concepts of *information work* and *information resilience* will be introduced. Finally, the implications research and education agendas are discussed.

This conceptualization of information work and IL practice leads to challenges for librarians in the preparatory contexts of school and university sector, in particular, how best to develop work readiness and the capacity for information resilience of students as they transition from education to work. It also presents challenges for librarians and educators about how to reconcile their own understanding and training in IL as it is practiced outside the education sphere. The need to refocus research agendas towards the workplace in order to inform the preparatory education sectors is also a constant theme that runs through this paper and echoes the concerns first raised by Paul Zurkowski back in 1974 [7].

2   Issues in the Critical Ground of Workplace Information Literacy Research

While there has been some interest in this area of IL research [7-13], in general, the uptake of research in this field has been limited. Where research does exist it is generally focused on competency identification [10], information skills and alignment

to IL standards, or focused on exploring IL in the professions (business people, scientists, auditors) where IL is likely to reflect librarians/educational understanding of the practice [9]. An added complication is that there is often an interdisciplinary approach where research is framed through other fields (e.g. workplace education/ adult learning, [1], [11] and this has the effect of distancing workplace IL from the practitioner field.

2.1 Reshaping of Work and the Building of Capacity through Information Literacy

The multimodal nature of the workplace information landscape means that it is no longer enough for workers to simply be able to locate and access information. Workers need to build their capacity to search for saliency across distributed networks and to engage with a wider range of articulation activities through which a complex mesh of information sources are drawn from and used in the planning and operationalization of work-based tasks and in knowing the structure and social conditions which prefigure the workplace as a social site. These activities include discovery, collecting, analyzing, integrating and organizing activities, in addition to the ability to effectively communicate and share information; to recognize salient information sources in order to adapt and transform in uncertain times, and to develop competent information skills in support of their learning. This reshaping has resulted in a greater demand for critical literacies from employers.

Research by Central New York University [14] has identified that universities and academics need to pay more attention to what employers are saying- namely, while students may leave formal education with an ability use computers, what they are lacking are the critical information literacies that enable them to think creatively, to find solutions to real world problems (some that surprisingly don't require fingertip knowledge that comes from a Google search or #help on twitter!). This finding has been supported by other studies of employers expectations of graduates [15], suggesting that a broader view of how the workplace operates and the role of IL in supporting that operation is required [16].

2.2 What Have We Learnt from Work Related IL Research? Lessons and Themes

Drawing from IL research [1], [5-6], [12] into workplace and everyday settings a number of lessons and themes are described that explain how IL emerges, what IL is, and, how it is enacted as a practice.

Lesson 1: **Workplace IL is a Situated Practice.** Workplaces are characterized by people who are engaged in the pursuit of a particular purpose - productivity. The construction of workplace knowledge and of knowing about the performance of work is reflected in the ongoing process of collaboration between people through the sharing of information and mediated through the social conditions and material artifacts of the setting. The translation of library based conceptions of IL in terms of the operationalization of skills runs into difficulty, because there is currently little

evidence to support the idea that workers currently consider the cultural, ethical, economic, legal or social issues surrounding information use.

Lesson 2: Information Needs are Hierarchical and Referenced against Normative and Social Dimensions. The recognition of an information need is identified as a foundational prerequisite for IL. In the workplace this has been questioned [12] as information needs are often predetermined for workers and are therefore approached reactively rather than as the product of independent reflection (e.g. novices will follow the directions and advice of experienced workers). Research with renal care nurses [6] identified a mismatch between nurse's occupational discourse and the discourse that reflect the medical community. Information need in medical discourse is situated around adherence to treatment regimes, whereas nurses' needs are often driven by patient needs, patient care and advocacy. Consequently in the dominant medicalized fields of health, the nurse's information needs in relation to patient care and outcomes may be silenced in preference to the information needs of doctors [6].

Lesson 3: The Performance of Work is a Collective Endeavour. In workplaces that are often driven by technical or embodied knowledge or where value is placed on experience or tradition, issues of plagiarism do not necessarily resonate, because knowledge is considered to be a collective possession [17] and is disseminated often without due reference to provenance. Important concepts that need to be explored in the context of workplace IL research and education include the role of IL in support of teamwork and group problem solving (aimed at collective knowledge building) – where knowledge about 'how to go' may be spread across a team rather than located within an individual [1].

Lesson 4: Workplace Information Landscapes are Composed of a Range of Modalities, Which are Critical for Workplace Learning. The importance of experiential, corporeal and social knowledges has been highlighted by a range of researchers [2], [18-20]. Each of these knowledges is reflected through information modalities from which workers draw to learn about how work happens. Developing a way of knowing about how these modalities are situated with the information landscape and the way in which to operationalize access to this information form part of the information work required in IL practice.

While the lessons learnt enable us to view IL as a practice that is situated, collective and specific to particular settings, a number of themes also emerge from the workplace research that emphasize how IL enacts people into the workplace. People are enacted through:

- *The negotiation of practice.* As a collective practice, IL emerges through negotiations with others about the knowledges and ways of knowing that are accepted and legitimized. This negotiation can often be contested, particularly in interdisciplinary contexts. Research in nursing [6, 21] highlights the importance of

nurses engaging with their own occupational and professional knowledge and the tensions this produces, which is then constructed through actual practice, with the gold standards of evidence-based practice. Nurses are required to reconcile their own knowledgebase with the discourses of the medical profession, and to develop their information practice in ways that allow them to legitimize knowledges constructed through embodied experience in situated practice related to caring, practice and solidarity[6].

- *The practice architectures of a setting*. Engaging with employment necessitates connecting with the discourses and ongoing discursive practices of a particular kind of work performance. The practice architecture of a site shapes the type of activities and information skills that are important in the construction and access to knowledge. In the emergency services sector, and in the medical sector, workers engage with particular types of practices that are shaped by the cultural-discursive, material economic, and historical features and conditions that shape the information landscape of the setting. Entering the workplace necessitates a 'buy-in' whereby we actively engage with the sayings and doings [22] and relatings [23] that shape the narratives of the setting about how work is done.

- *The affordances of activities.* The emphasis on skills limits attention to the affordances furnished by activities that enable skills to emerge. IL is a social practice that has spatial and temporal dimensions, i.e., it occurs in space and time. Activities such as sharing information over morning tea to encourage the alignment of new members into the team or workplace, or seeking information in order to solve specific problems, or to improve the performance of a particular type of work task, afford opportunities to connect with information and the specific ways of knowing that are legitimized within the workplace.

- *Ways of knowing.* Knowing is a collaborative activity and something that people do in co-participation with each other [17], knowing how to connect with the range of knowledge and modalities of information in an information landscape, the ability to understand how the information landscape is constructed, and the ability to operationalize a range of skills in order to access, use information to support the performance of work.

3   A People in Practice Approach

These lessons and themes from the workplace IL studies have been used to frame a practice-based conception and approach of *people-in-practice* [24]. The approach draws from practice theories [17], [22-23], [25-26] that emphasize situatedness and the role that ongoing interaction plays in shaping and reshaping levels of IL, as people 'buy-in' and learn to go on in a particular setting (e.g. as people transition from novice to experienced worker).

A people-in-practice approach represents a shift in attention towards the enactment of IL as a social practice, and away from the information skills approach that has dominated IL research and education. The approach highlights the role of co-participation of the community in shaping the production, reproduction and

circulation of knowledge, including knowledge about the appropriateness of information skills in relation to the context. This contrasts with the conventional approach to IL where there has traditionally been a focus on the information skills of individuals as something that can be learned and transferred independently of context. Without the catalyst of IL, workplace learning cannot occur. The two are entwined in joint enterprise.

3.1   Critical Features of a People-in-Practice Approach

For researchers the emphasis of this approach is to understand how:

- information is enabled, afforded, nuanced or contested in a setting;
- the modalities of information are considered credible and authoritative to the setting:
- participants operationalize appropriate information skills, to access information and knowledge of the setting;
- participants learn to 'go on' in the performance of working [24];
- engaging with the activities and skill of the practice is constituted through information work that contributes to building information resilience of workers; and,
- recognition that the practice of IL is composed of activities and skills that enable knowing about the landscape.

4   Information Work of Information Literacy Practice: A Workplace Perspective

The concept *information work* is introduced here as a way to conceptualize the often hidden information activities that are a central part of IL practice as it is operationalized as part of a worker's daily routine. As an information practice, IL connects people with declarative, procedural, local, social, corporeal and experiential forms of knowledge through epistemic, social and corporeal modalities of information. This connection occurs through information work.

The idea of information work has been explored by a number of authors [27-28] and defined as "broader than information seeking but narrower than information behavior [28, p. 3]. Information work is contextual and emerges in the routine activities that compose everyday life as "something essential, dynamic, ongoing and social that intermixes with, complements, supports and is supported by other kinds of work" [28, p.4]. Information work can be understood as a type of 'articulation work' [28] that is expressed through activities that allow the work to get done (e.g. planning, organizing, integrating etc.) and it represents actual labour related to information activities such as locating, gathering sorting, interpreting and producing information [28]. The fundamental point that can be made about information work is that without information work, other types of work cannot be undertaken or completed [28].

IL is a fundamental practice of information work. Lloyd [27] defined information work as the strategies that are employed not only by members but also the collective strategies of the community engaged in joint enterprises to ensure that members engage with information, sites of knowledge and employ appropriate information skills that reflect the ways of doing things as sanctioned by the community [27]. Lloyd argues that, as with IL practice, information work will be operationalized according to the knowledges that are valued by the domain.

5   How Do We Build Information Resilient Workers?

The concept of resilience is associated with adaptability and learning, and the ability to use this learning to transform, while at the same time continuing to function [29]. Central to the ability to overcome adversity and uncertainty is the capacity to understand how information is situated within a landscape and the ability to operationalize information skills to address challenges. Information resilience therefore can be described as an outcome of IL. Workers who develop information resilience have the capacity to connect and engage with information in order to solve problems, adapt to change or to novel situations, transform workplace practices and to reduce possible sources of conflict or stress that arise when there is uncertainty about the type of information that is required, or where to locate it in the information landscape.

As a transformative and adaptive information practice, IL, particular workplace IL presents a difficult challenge for librarians and IL educators, who are bounded by the contexts in which they deliver their main service. It also presents challenges for library educators and those who are involved in developing IL practice in students who are about to transition from formal education to work. Questions that need to be explored as part of the reflexive examination of our own practice include:

- What role should librarians in education and vocational sectors play in workplace IL?
- How do librarians build information resilient workers who can deal with rapidly changing information environments, with information overload and with high levels of information complexity while at the same time being resilient enough to cope with the continual demands of fast capitalism which have changed the nature of work and of working?

6   What Can Be Done?

Developing the people's capacity for information resilience should quickly become the mandate of librarians in both the education, vocational and public sectors. But is not enough to just state that this is a focus, what is required is a proactive response, which brings together the limited research findings from the workplace and commences the process of translating this work into the practical solutions which will accommodate workplace IL. Among this work is an acknowledgement that IL is

situated and contextual. Consequently workplace IL will emerge in a different way and this will require that practitioner's work to translate this research-based knowledge. Developing IL pedagogy that takes into account the transition from learning to working is a first step in the practical support of students, is one specific example.

Practitioners in higher education sectors should also be encouraged to connect with workplace knowledges of their disciplines. By this I am not suggesting the epistemic knowledge that forms part of subject specialization, but with workplace knowledge that is grounded in the practice and performance of work and ways of knowing that form part of that practice. Encouraging the education sector to offer pro-bono support for graduates in their first year of working and then using this opportunity to understand what is required of the new graduate in terms of IL training. This suggestion should be viewed as value adding for the higher education sector, and may work as a point of difference. This approach would also act to promote librarians as stakeholder's workplace IL practice.

7   Conclusion

The critical ground of the workplace creates a significant challenge for employers, for IL researchers and for educators. The central issue for librarians working in the education and training field is how to ensure that graduates and trainees develop information literacies and skills that ensure their readiness to undertake information work embedded within all forms of workplace performance.

Based on the research into workplace IL to-date, researchers and practitioners recognize that workplaces are complex and messy, and that programs of IL that adopt a linear or systemic approach and focus on text do not prepare people to transition into the workplace or to the manage the uncertainty that may occur within the first few months.

The critical ground of workplace transition must therefore become the focus of research and reflection. In particular, how do we build effective IL programs that will encourage information-resilient and resourceful workers who are able to transition into work, and who have the capacity and ability to cope with the exponential increase of information that has resulted from the growth of information communication technology and applications and the increasing demands for informal on the job learning.

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