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Conclusion: Workplace information literacy as the literacy of digital workplace

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The starting point of this volume has been a growing realization of the impact of digitalization and digital information on the transformation of the contemporary workplace. A workplace is today something different from how a place of work has been conceptualized before and the role of information and informational skills, competences and capabilities have similarly a radically different role in how people work and how work and workplaces are organized. All this makes workplace information literacy a crucial condition for the success of their digitalization.

While underlining the impact of digital information and informational competences might sound stating the obvious when the massive, first anticipated and shortly later witnessed, impact of digitalization of everything on information literacies established itself as a cliché already more than a decade ago (Francke, Sundin, and Limberg 2011), it has become all more apparent that information literacies are a fleeting target that evolves in par with digitalization and its contexts. Among literacies, workplace information literacy and workplace as a site of literacies has received so far comparatively less attention than other information literacies in education and library contexts—an issue this volume had an aim to balance by introducing and discussing perspectives and approaches of how information literacy can function as a key concept in not only understanding but making a difference at workplace both today and tomorrow.

In the preceding chapters we have made excursions to different aspects of workplace information literacy and its role in the contemporary and future workplace. A part of these explorations have pointed to theoretical and conceptual issues, methodological considerations on how to investigate WIL, processual and transitional perspectives to what it takes to be information literate in different contexts, and what are its outcomes and implications in a workplace.

From a conceptual and theoretical perspective, the extensive literature review conducted by Teixeira and Karim (Chapter 2) points to the diversity of perspectives to the information

literacy concept. The diversity can be seen both as an opportunity and a complication. It is a strength as long as it helps to address different aspects of being (information) literate in increasingly digitalizing (information) work while it can become a burden if workplace information literacy research and practise loses sight on the essence of the concept: skills, competences and mastery of the complex informational landscape of the contemporary workplaces. A prominent risk is also if the various workplace information literacies are too violently torn apart from each other by overemphasizing their differences. In this respect—as briefly touched upon in Chapter 2—the tendency to introduce new literacy concepts can be useful in how it can help to pinpoint new aspects and dimensions of being literate in the contemporary digital workplace from artificial intelligence (Ng et al. 2021) to data (Koltay 2015) and, for example, data infrastructure literacy (Gray, Gerlitz, and Bounegru 2018). At the same time, however, too much fragmentation easily obscures the fact that the different literacy concepts have much in common and relate to each other. Rather than demarcating different literacy concepts from each other in the contemporary workplace context, it would be much more important to focus on their complementarities and links between individual concepts in the broader landscape of workplace information literacy. Instead of putting too much weight to the individual elements of the informational landscape at the workplace by introducing a plethora of increasingly specific literacy concepts, mastering it as a whole could be fruitfully approached from a more holistic literacy perspective (cf. Limberg, Sundin, and Talja 2012) by framing workplace information literacy as the totality of the literacies of workplace information.

A close reading of the chapters unfold the benefits and opportunities offered by an integrative perspective as a red thread that goes through the volume. A conceptual argument for considering workplace information literacy as a constellation of literacies is the linkage of the individual concepts, diverse information-related skills, competences and mastery through and in their broad and complex socio-material underpinnings. The sociomateriality of literacies and the intermingling of their social, material and technological underpinnings has been one of the key emphases in earlier information literacy literature (Sundin 2015; Pilerot 2016; Budd and Lloyd 2014) whereas it has remained less obvious in technology-related informational literacies that often come with fairly specific emphases of individual technologies and conceptualisations of the technology landscape. Mård and Hallin elaborate this in Chapter 3 in the context of post-digital digital literacy by drawing on the socio-materialist perspectives of Orlikowski (2010) and others to expand on Lloyd's (2010) sociocultural perspective to information literacy.

The two methodology-oriented chapters in this volume highlight the need and opportunities offered by previously little used methods for addressing some of the earlier acknowledged problems in studying workplace information literacy practices caused by their contextuality and variety (Williamson 2007; Forster 2017). Even if many of the challenges of investigating and measuring information literacy both in workplace and other contexts stem from the general diversity and mutability of information literacy practices, it is apparent that digitalization of workplaces make discerning information practices and catching up with indicators of information literacies both increasingly difficult and just plainly different. This requires new approaches and methods to find and capture it in the contemporary workplace. Rather than resorting to post-hoc and self-reported qualitative or quantitative only designs with their respective strengths and weakness or labourious mixed-methods studies, new methods like the fuzzy-set Qualitative Comparative Analysis (fsQCA) discussed in Chapter 4

and approaches like the use of digital trace data (Chapter 5) and OECD PIAAC (Survey of Adult Skills) dataset (Chapter 8) provide new complementary opportunities to capture more of the totality of workplace information literacies and their underpinnings. There are obviously many other options available that have been tried out to different degrees. Modern technologies allow us to record and retrieve real time data which offers endless opportunities for digging deeper into human information behaviour. For example, event logs can show exactly what individuals, teams, machines and organizations have been doing and in which order over a period of time. Such data can be extremely useful in gaining in-depth understanding of not only what was done but how successful and literally 'literate' these doings have been. Further, rather than providing mere snapshots, the technologies allow continuous collecting of such data making them particularly useful for longitudinal research. At the same time, these possibilities are only examples of what opportunities there might be to embrace new means and approaches to further our understanding of information literacies. In the future—while acknowledging the need for ethical reflection and not doing whatever is possible without considering its consequences— there is undoubtedly room for further broadening of the palette of both methods and types of empirical material that can help to shed light to workplace information literacy practices.

Much similar to studies of information literacy in general, a closer look at workplace information literacy as it is unfolding in practice in Chapters six and seven points to its diversity and the multiplicity of its facets in the sociomaterial space and time. As the decades of information science research on human information behaviour and practices shows, there are few limits to what informational things, material and immaterial processes, matters and ideas can be informative (Case and Given 2016; also Khosrowjerdi, Sundqvist, and Byström 2020). Similarly, the studies show how people seek, find, encounter and appropriate information in manifold different ways (Case and Given 2016; Huvila 2022). This means that being information literate in different types of workplace contexts requires different types of literacies—as Lammi and Hallin exemplify in Chapter 6 by their investigation of information sharing in a secretive organization. Milosheva describes in parallel in Chapter 7 how career transitions require specific informational competences and literacies that traverse and bridge workplace-specific skills and mastery of the transition itself. Both chapters point to situations that often evade the attention of both researchers and practitioners in the study and management of daily work.

Finally, a deep dive in the last two chapters in the much debated aspect of information literacy—its impact—provides one more lens to the diversity and totality of the antecedents and impact of workplace information literacy. In Chapter 9 Orrensaló, Brännback and Nikou demonstrate how information source use and workplace information literacy are critical business issues. Similarly, as Chapter 8 shows, being and becoming informed in a digital workplace affects not only information sharing and flows but has an impact on workers' well-being and satisfaction at the workplace. This aligns with earlier research and expands perspectives from how literacies have been recently demonstrated to have an influence on information sharing (Pálsdóttir 2021) and how information sharing has been earlier demonstrated to relate to individuals' sense of coherence (Heinström et al. 2020), perception of organisational changes (Ahmad, Widén, and Huvila 2020) and social capital (Widén, Ahmad, and Huvila 2021) to open up for integrating workplace information literacy as a key factor both to study and to put in practice in improving the satisfaction and success of work, working and workplaces.

It is obviously difficult to pinpoint only a handful of conclusions that stand out from these remarks. Still, we think that there are indeed three critical takeaways that warrant specific attention. First, we argue that future research needs to take a more inclusive stance toward the concept of information literacy in the workplace context and beyond. The failure to make a real effort to explore the complementarities and bridge the differences between different (information) literacies is a real problem. In this book we have adopted an inclusive stance where the different conceptualizations of information literacy—as sociomaterial practice, a set of transitive competencies and collective information behavior—are brought together in different chapters. We do not consider these conceptualizations as mutually exclusive and are inclined to suggest that others should not make such a demarcation either, at least not *a priori*. Instead, we gravitate towards seeing the conceptualizations as highlighting different facets of information literacy, some of which are more pertinent in certain contexts of inquiry while perhaps less so in others. Similarly, the different takes on information literacy help to highlight complementary aspects of mastering information rather than right or wrong ones. Considering the existing, and even more so the potential complementarities, we suggest that future research should also be geared towards a comparable inclusive stance instead of demarcation of concepts and losing itself in theoretical intricacies. Bringing the diverse understandings of information literacy together to inform each other comes with both theoretical and practical benefits in understanding the enabling role of information literacy in today's technologically driven workplaces.

Second, there is an obvious need to continue exploring information literacy in the context of emerging technologies. At the moment, such key technologies include artificial intelligence, big data analytics, process mining and cloud computing. Whether fortunate or not, many of the emerging technologies and how they are deployed share a fundamental characteristic: in one way or another, they directly influence information sharing and management status quo in workplaces. For example, self-service business intelligence (Alpar and Schulz 2016), an emerging contemporary approach to big data analytics, requires that common employees are capable of employing advanced technical and analytical big data techniques to process information for their job related decision-making. Instead of relying on dedicated expertise, this is projected to happen with minimal support from informational technology and data analysis professionals. It changes the nature of work by altering not only how and how efficiently work is done but also its underpinning information work—what is relevant information in the new technology landscape and how the information should be interacted with—hence turning the introduction of emerging technologies to an information literacy issue. In this sense the dearth of research on the role of information literacy in the context of emerging technologies becomes a problem that needs to be solved not only by a one-time efforts to inquire into the implications and particularities of specific technologies but to develop a sensitivity to changing technology landscape to an organic aspect of all information literacy research.

Finally and thirdly, we posit that workplace information literacy has a potential to bring conceptual order to the understanding of the diversity and messiness of the skills and competencies required and emerging in the equally heterogeneous and complex digital workplaces. In this volume, workplace information literacy unfolds not only as one crucial literacy of the information age among many others. What we suggest is that it has potential to bring together the totality of the literacies of workplace information. Workplace information

literacy is technology-agnostic but specific as a competence of mastering information rather than particular technologies in the contemporary and future post-digital workplaces where the digital itself has already become a norm and a non-issue. Information literacy has emphasised different aspects in different time periods, depending on what are the key challenges in relation to mastering information. However, the key issue is that while technologies change, information persists—in one form or another, explicit and implicit—and literacies to master it retain their significance.

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